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## ARTICLES

# Supremacy of Suprasegmentals in Arabic Phonology: Evidence from Malapropisms

Mohammed Nour Abu Guba <sup>a, \*</sup>, Bassil Mashaqba <sup>b</sup>,  
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**Abstract.** Speech errors are an important source of information to understand language processing and production. Earlier research focused on different types of errors including semantic and phonological errors while malapropisms, which refer to slips of the tongue involving whole word substitutions that share phonological similarities but are not related semantically, have not received adequate attention in the Arabic language. Drawing on malapropisms in Jordanian Arabic, we bring evidence on the supremacy of suprasegmental phonological aspects in Arabic phonology. This is unexpected as stress in Arabic is non-phonemic and fully predictable, besides Arabic rhythm is much less stress-timed than that of Germanic languages. Data was collected from spontaneous speech over a period of three years. Results showed that malapropisms share the primary stress position, the number of syllables and the word rhythmic pattern with the target words. To a lesser degree, the target and the error share the same rime and initial segments. Findings suggest that suprasegmental features are very crucial in Arabic phonology, like in Indo-European languages. Evidence suggests that formal similarity that is based on the syllabic and metrical structure of words plays a significant role in language processing and the organization of the mental lexicon in Arabic, which suggests that this is a language universal. Furthermore, our findings do not agree with earlier claims that Arabic has a flat syllabic structure. Rather, evidence suggests that Arabic, like English, has a hierarchical syllable structure, which seems to represent another language universal. More research on other Arabic dialects is recommended to corroborate these findings.

**Keywords:** Arabic phonology, mental lexicon, malapropisms, suprasegmentals.

**Абу Губа Могамед Нур, Машакба Басіл, Гуніті Анас, Алшдіфат Халід. Первинність надсегментних одиниць в арабській фонології: дані на основі вивчення малопрізізмів.**

**Анотація.** Мовленнєві помилки є важливим джерелом інформації для розуміння процесів перероблення та породження мови. Попередні дослідження зосереджувалися на різних типах помилок, включаючи семантичні та фонологічні помилки, в той час як малапроізізми, що стосуються помилок, пов'язаних із цілковитою заміною слів, які мають фонологічну схожість, але не пов'язані семантично, не отримали належної уваги в арабській

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мові. На прикладі малапропізмів у йорданській арабській мові ми наводимо дані щодо домінування надсегментних фонологічних аспектів в арабській фонології. Цей результат є несподіваним, оскільки наголос в арабській мові не є фонематичним і цілковито передбачуваним, до того ж арабський ритм набагато менш напружений, ніж ритм германських мов. Матеріал дослідження склали сегменти спонтанного мовлення протягом трьох років. Результати засвідчили, що спільною рисою малапропізмів є первинна позиція наголосу, кількість складів і ритмічний рисунок поїдбний до цільового слова. Меншою мірою, цільове слово і помилкове мають однакові рими та початковий сегмент. Одержані дані свідчать про те, що надсегментні одиниці дуже важливі і в арабській фонології, і в індоєвропейських мовах. Формальна схожість, яка базується на складовій та метричній структурі слів, відіграє суттєву роль у мовній обробці та організації ментального лексикону в арабській мові, що дає змогу припустити, що це є мовною універсалією. Крім того, наші висновки не узгоджуються з попередніми твердженнями про те, що арабська мова має пласку складову структуру. Натомість, дані свідчать про те, що і арабська, і англійська, мають ієрархічну структуру складів, яка, видається, є ще одним кандидатом на мовну універсалію. Для підтвердження цих висновків рекомендуємо провести додаткові дослідження інших арабських діалектів.

*Ключові слова:* арабська фонологія, ментальна лексика, малапропізми, надсегментні одиниці.

## Introduction

Slips of the tongue can be defined as “involuntary deviation in performance from the speaker’s current phonological, grammatical, or lexical intention” (Boomer & Laver, 1968). This covers deviations at different linguistic levels: semantic, syntactic, or phonological/phonetic. At the phonological level, slips of the tongue can occur at different levels: a featural level, as in ‘turn the knop’ instead of ‘knob’, where one feature (voicing) was changed while the other features (place and manner of articulation) were intact; a phonemic level, as in ‘flock of bats’ instead of ‘block of flats’, involving one phoneme, or a cluster of phonemes, as in ‘flow snakes’ for ‘snow flakes’; a syllabic level, as in ‘sig the packarettes’ for ‘pack the cigarettes; a word level, as in ‘literature’ for ‘temperature’; and even at a phrasal level, as in ‘I would not buy kids for the macadamia nuts’ for ‘I would not buy macadamia nuts for the kids’ (Fromkin, 1973; 2002; Harley, 2006). The focus of this paper is the word level, which is a less common type of errors, but also less studied as earlier research focused on lower levels (Nooteboom, 1973; Fromkin, 2002).

Word level substitutions can be divided into different types: 1) semantically related words where the target (the intended word) and the error (uttered word) share semantic features, as in ‘pass me the sugar’ instead of ‘salt’; (2) phonologically related words where the words sound similar but are not related semantically as in ‘literature’ instead of ‘temperature’; and 3) blends where the error is a new word that blends two existing words, as in ‘don’t shell’ (a blend of shout and yell) so loud’ (Nooteboom, 1973; Fromkin, 2002; Harley, 2006). The second type of word substitution errors is generally known as malapropisms. Nonce words are not covered by this term, but we include them in this study. We will show that these errors reveal

important aspects about the phonological structure of the mental lexicon and representation of words in Arabic.

Analyzing slips of the tongue is invaluable as they help better understand how language is processed in the mind, which in turn contributes to evaluating language production theories and ultimately build a model of speech production (e.g., Fromkin, 2002; Dell & Reich, 1980, see *Background* Section for more on the importance of studying them). Motivation for this paper comes particularly from the fact that most studies on slips targeted Indo-European languages, especially Germanic languages, and only a few focused on other language families (Jaeger, 2005; Wells-Jensen, 2007; Wan & Allasonnière-Tang, 2021; Alderete, 2022). This means that the findings of such research could fit well with Indo-European languages, which could result in what is known as Galton's problem where there is a bias in favor of Indo-European languages (Aitchison, 1994; Wan & Allasonnière-Tang, 2021). Previous research findings need to be verified by examining other languages to better understand the universal features of the mental lexicon and discern those that arise from the structure of the language in question (Aitchison, 1994; Alderete, 2022).

In addition, we have noticed that stress plays a major role in malapropisms made by Arab speakers. This is unexpected given that stress in Arabic is fully predictable and non-phonemic (Watson, 2011; Abu Guba, 2018; Mashaqba & Huneety, 2018; Al-Huneety et al., 2023). Its predictability and non-phonemicity were the reasons behind its neglect, together with the syllable, by early Arab scholars. Even now, Arab scholars not working on the Western tradition do not pay attention to these phonological aspects; in fact, some deny the existence of stress in Arabic at all (personal experience). Moreover, the rhythm of Standard Arabic and Eastern dialects (e.g., Jordanian Arabic) is more syllable-timed than stress-timed (Ghazali et al., 2007; Abu Guba, Fareh, et al, 2023; Abu Guba, Mashaqba, & Huneety, 2023), which suggests that stress in Arabic is not as important as stress in stress-timed languages such as Germanic languages. In this study, we provide evidence for the major role of stress and prosodic structure in Arabic phonology.

In the remainder of this paper, we review related literature in *Background* Section. Then we lay out the methods used to collect the data in *Methods* Section. In *Results and Discussion* Section, we analyze and discuss the collected malapropisms. We conclude with some implications in *Conclusion*.

## **Background**

The study of speech errors in Indo-European languages has received considerable attention for their role in understanding the mechanisms of speech production (e.g., Fromkin, 1973; 2002; Garrett, 2002; Shattuck-Hufnagel, 2002). Slips usually occur when a malfunction happens at a certain stage in language production and therefore analyzing these slips will throw light on the mechanisms involved in processing language (Fromkin, 1973).

Two speech models dominated the study of the slips of the tongue: The Spreading Activation Theory (see Dell, 1986) and Modular Theory (e.g., Levelt,

1989; 1999). The latter is more detailed and more accepted in the literature (Jaeger, 2005; Kormos, 2006), and thus our study will be couched within it. According to Levelt's (1989; 1999) Modular Theory, in the first phase of speech production (the conceptual planning), a speaker plans what and how to convey a message. This results in a preverbal plan that contains all the information needed to convert meaning into language. This will be the input to the second phase (grammatical encoding) where lexical units and syntactic encoding are selected. Here the speakers retrieve lexical entries that contain lemmas (abstract lexical units) with their syntactic information and lexemes (word forms). In this phase, a speaker activates a lemma with the best match of the intended message. The lemma activates syntactic slots/phrases. This output constitutes the surface structure to the morpho-phonological encoding phase where the word's morphological and metrical structure and segments are retrieved. (We assume that lexical substitution errors occur in this phase). The output of this phase is the phonological score (=internal speech). Following that in the phonetic encoding phase, a speaker selects the articulatory gestures yielding an articulatory score that is converted into speech in the articulation phase. A monitor that inspects the output at different phases is postulated, and errors occur if the monitor fails to detect them; self-correction means that the monitor detected the error at the last stage (see Levelt, 1999 for details).

More specifically, at the lexical selection stage, evidence shows that lexicalization involves two stages (Fay & Cutler, 1977; Garrett, 1980; Harley, 2006). In the first stage, a lemma that dictates its syntactic structure is selected and semantically related errors occur here. In the second stage, the abstract lemma is mapped into a phonological word form (phonological encoding) and malapropisms (which are less common than semantically related errors (Jaeger, 2005)) happen at this stage (Dell et al., 2014).

The numerous studies on speech errors, mainly in Indo-European languages, brought evidence on several linguistic issues and established the psychological reality of phonological aspects such as phonetic features, segments, syllables, and stress (e.g., Boomer & Laver, 1973; Fromkin, 1973; 2002; Garrett, 1980; Cutler, 1982; Frisch, 2006; Harley, 2006). Below we present the most agreed-upon findings from studies on speech errors.

Sentence processing spans more than a word as errors can appear early in an utterance (Shattuck-Hufnagel, 2002). Speech errors suggest that linguistic units (features, segments, words, and phrases) are planned and conceptualized well before being uttered; this is confirmed by the fact that the intonation contour of utterances does not change even when transpositions occur (Fromkin et al., 2013).

Errors target phonemes, which are usually similar phonetically, more than any other phonological unit including features (e.g., Wells-Jensen, 2007; Alderete, 2022). Consonants are more vulnerable to errors than vowels, with no consonants substituting vowels or vice versa. Errors do not violate the phonotactics of the language in question (Fromkin, 1973; 2002; Cutler, 1982, among others). Note here that Alderete (2022) reports that a few do violate Cantonese phonotactics, most

probably due to L2 effect. Syllabic position is also important in that onsets replace onsets and codas substitute for codas (this was not true for Arabic though (see findings from Arabic studies below)) besides word-initial phonemes have more importance than other phonemes.

Likewise, evidence has been established for the reality of phonological and morphophonemic rules where allophony rules are not violated. For example, in [ˈblʌdəntˈstjuːdiz] for ‘bloody students’ (Fromkin, 2002), the phonetic realization of the plural marker /s/ changes to /z/ to fit into the new phonetic environment. Likewise, the indefinite article ‘an’ changes to ‘a’ when transpositions occur, as in ‘a kice ream cone’ for ‘an ice cream cone’. Such errors show that morphophonemic rules are separate from phonological rules (Fromkin, 1973; 2002).

Findings also suggest that the mental lexicon stores stems, affixes, whole words, idioms, and compounds separately (Fromkin, 2002; Levelt, 1999). Stems never transpose with affixes and vice versa (Fromkin, 2002) and errors substitute words but leave behind their inflectional morphemes, which means that affixes and stems are processed at different levels (Garrett, 1980; Cutler, 1982). It has also been established that function words and content words are represented and processed at separate levels/stages as errors exchanging these two types of words never occurred, meaning that they are not activated at the same time or level (an error is supposed to happen when both are simultaneously active (Garrett, 1980; Fromkin, 2002; Harley, 2006).

Syntactic categories are almost always unviolated. Nouns substitute nouns, verbs replace other verbs and so on. This suggests that words are tagged with their grammatical category in the mind and the syntactic properties of the phrase dictate the selection of the grammatical category of the word; that is, errors need to fit into the syntactic slots in the pre-specified lexical category (e.g., Garrett, 1980; Hotopf, 1980; Levelt, 1989; Fromkin, 2002; Jaeger, 2005). Whole-word substitutions suggest that the mental lexicon is organized according to semantic fields as well as phonological similarity, i.e., lemmas and phonological forms are represented separately in the mind (Levelt, 1989; Bock & Huitema, 1999; Fromkin, 2002; Jaeger, 2005; Harley, 2006; Wan & Allasonnière-Tang, 2021).

Concerning phonologically related errors (the focus of this paper), Fay and Cutler (1977), Laubstein (1987), and Jaeger (2005) found that almost all phonological errors honored the syllable structure of the words, with the number of syllables having more importance than the internal structure of syllables (which was found to be similar in over 80% of the cases though). They also found that even semantically related substitutions honor syllable structure in over two-thirds of the cases, which suggests that syllable structure plays a major role in the mental representation of words.

Regarding stress, earlier research on Indo-European languages found conclusive evidence for the importance of stress in language processing and production. Stressed syllables tend to be more involved than weak syllables in errors; syllables involved in the slips are metrically similar, with stressed syllables substituting stressed ones and

weak syllables substituting weak ones (Boomer & Laver, 1968; Nooteboom, 1973; Fromkin, 2002; Garrett, 2002). For example, Fay and Cutler (1977) reported that malapropisms had the same stress pattern in 98% of the cases. They argued that this constitutes evidence for the representation of stress in the lexical entry of English words, a similar conclusion reached by Jaeger (2005). In this paper we will find out whether this applies to Arabic where stress is fully predictable and non-phonemic.

Very few studies tackled slips in Arabic. Abd-El-Jawad and Abu-Salim (1987) analyzed 911 slips of the tongue in Jordanian Arabic involving segment and whole-word substitutions. Most of their corpus involved segmental substitutions within and across words; some related to word transpositions and only 11 involved whole-word substitutions that were not semantically related (the focus of this paper). Note that errors involving vowels were very infrequent. In word substitutions, the words almost always belonged to the same grammatical category, with nouns representing 79% and verbs 7% of the errors. They also found that bound morphemes were not affected in errors involving word transpositions, as in *biiʕ ʔil-qamḥ fii ḥaql-u* ‘sell the wheat in his field’ > *biiʕ ʕil-ḥaql fii qamḥ-u* ‘sell the field in his wheat’. This is similar to the world literature and agrees with Fromkin’s (2002) conclusion that words are tagged with their syntactic labels in the mind. Also, the inflectional morphemes left behind changed to suit the new lexical items, as in *ʔalwaan ʔil-ʕalam* ‘the colours of the flag’ > *ʔaʕlaam ʔil-lawṇ* ‘the flags of the colour’, which shows that grammatical morphemes and morphophonemic rules are independent. The researchers also found strong evidence for the underlying representation of morphemes in Semitic languages where consonants and vowels are represented on different tiers. For example, in the error *kalaam-ha sʕaḥiiḥ* ‘her speech is right’ > *sʕaḥaḥ-ha kaliim*, the vocalic pattern did not change. They also found evidence for phonological features, which agrees with findings on Germanic languages. They found that 74% of segmental errors differ in only one phonetic feature. Finally, they reported that most whole-word substitutions were semantically related; they were either antonyms, co-hyponyms, or hyponyms. Their study covered many phonological aspects in Arabic and yielded interesting results; however, it did not address malapropisms adequately.

Safi-Stagni (1990; 1994) analyzed slips of the tongue in Hijazi Arabic in Saud Arabia and reached similar conclusions. Her studies were based on approximately a hundred slips in each study focusing on segmental errors, with only six slips relating to whole-word phonologically related substitutions. This means that a more comprehensive study with a larger corpus is needed. In another study, Berg and Abd-El-Jawad (1996) compared Arabic and Germanic (English and German) slips of the tongue and concluded that syllable structure tends to have a flat representation, unlike German or English that has a hierarchical structure. Unlike errors in Germanic, errors in Arabic occurred equally in initial and final positions with no constraints on the interaction between phonemes in these positions. They argued that this means that Arabic onset and coda consonants have equal status, but Germanic ones do not. Additionally, they found more errors involving the rime in English and German than in Arabic, which they interpreted as evidence to the claim that Arabic has a flat structure. However, the fact that Arabic stress assignment is sensitive to the rime

weight made them assume that a hierarchical structure is constructed at a later stage in the derivation. In our study, we will report evidence against this proposal and show that the rime is very crucial in Arabic phonology.

To summarize, although slips of the tongue have been well studied in Indo-European languages, very few studies tackled speech errors in Arabic. Moreover, the few studies on Arabic focused on segmental errors and did not address the role of suprasegmentals in whole-word substitutions. This study attempts to fill this gap and find whether the phonological findings concerning suprasegmental aspects from previous studies in the world literature hold true for Arabic even though stress in Arabic is non-phonemic and fully predictable.

## Methods

A total of 2000 slips representing all types of errors, with a focus on whole-word substitutions, was collected. Data was collected by the researchers over the past three years from many naturally occurring resources: live TV and radio programs, and everyday speech by Arab speakers, mainly in Jordan. Some colleagues also sent the researchers videos containing slips of the tongue. Errors were detected based on speakers' correcting themselves by saying the target word. All errors that did not relate to whole-word substitutions were excluded. Word substitutions that were triggered by the context or collocations, e.g., *kaff ṣadas* 'a handful of lentils' for *fatt ṣadas* 'lentil porridge' were also excluded. These two words are strong collocates of the word *ṣadas* in Arabic, so we cannot be certain that the error was triggered by the phonological form of the word, although it is probable. Note also that exchanges involving segmental substitutions from surrounding words were excluded even if they resulted in a whole word, as in *dawa gaḥḥa* > *gawa daḥḥa* 'cough medicine'. This is because such errors are segmental substitutions triggered by other segments in the words. Also excluded were substitutions that represent metathesis within the word, e.g., *dzakaara* > *dzaraaka* 'teasing'. Here the two consonants 'k' and 'r' swap their positions and it is possible that the error occurred at the articulation level due to a malfunction of the motor commands to the muscles, not at the phonological encoding level. Only errors that represented true malapropisms were used in this study; their total was 200. These were transcribed by the first author in IPA symbols and grouped according to their parts of speech and number of syllables. Blind to the original transcriptions, the second researcher verified a sample of 50 examples for reliability. Transcriptions were compared, and agreement of 100% was reached. It is worth mentioning that the distinction between semantically related and phonologically related errors is not always a clear-cut one.

## Results and Discussion

First, we present the malapropisms in terms of grammatical characteristics and then we analyze them according to their phonological properties.

## Grammatical Characteristics

Each error and its corresponding target word belonged to the same grammatical category, and all of them belonged to content words. No errors involved the substitution of a content word for a function word or vice versa. This is similar to errors in other languages (e.g., Fromkin, 2002; Harley, 2006; Wells-Jensen, 2007). This shows that in Arabic, like in other languages, the syntactic structure is generated in the mind before phonological encoding.

68% of the errors related to nouns, 20% to verbs, and 12% to adjectives. The percentage of verbs here is unlike that in Indo-European languages where errors in verbs account for less than 10% (Fromkin, 1973; 2002; Hotopf, 1980; Harley, 2006). Our findings in this concern seem to be similar to Wan and Allasonnière-Tang's (2021) findings where a third of errors belonged to verbs. This can be attributed to the importance of verbs in Arabic. It is well known that Arabic is a verb-subject-object and a subject-verb-object language with the former being more common than the latter; besides, all words in Arabic are derived from verbal roots (Holes, 2004). Note that no violations of grammatical inflections such as number, gender or definiteness were attested in the corpus. This finding means that grammatical information is encoded earlier at the syntactic level and gender seems to be encoded in the lemma (Kormos, 2006).

## Phonological Properties

Malapropisms involved monosyllabic and especially polysyllabic words, with 98% of the malapropisms targeting polysyllabic words. This may be attributed to processing load where polysyllabic words require more processing and therefore are more vulnerable to errors. Moreover, the percentages of polysyllabic words might be related to the frequency of these words in Arabic, which still needs to be established. Interestingly, 98% of the errors respected the number of syllables in that both the error and the target had the same number of syllables. Table 1 shows the distribution of malapropisms according to the number of syllables.

Table 1  
*Distribution of malapropisms according to number of syllables*

	Percentage	Examples
Monosyllabic	2%	band 'rim' > xadd 'cheek', hoon 'here' > ŷoon 'aid', xeer 'bounty' > keer 'care'
Disyllabic	48%	naadat 'she called' > maatat 'she died', swaaga 'driving' > xyaat'a 'tailoring', ŷanffaq 'tunnels' > ŷaaxaaq 'nonsense word', kaasteen 'two cups' > ħus <sup>s</sup> teen 'two shares'
Trisyllabic	36%	ŷalhis <sup>s</sup> aan 'the horse' > ŷaθθ <sup>s</sup> imaar 'the fruits',



Quadrisyllabic and above	14%	xubaraaʔ ‘experts’ > fuqaraaʔ ‘poor people’, juqaddim ‘he presents’ > juʕaððib ‘he tortures’ ʔalmaħallaat ‘the stores’ > ʔalmatʕaaraat ‘the airports’, ʔarraziina ‘the sober’ > ʔarraðiila ‘the vice’, ʔannaaziħa ‘the displaced’ > ʔalmaaziʕa ‘the tearing’, ʔattaʕaawun ‘cooperation’ > ʔattaʔaamur ‘conspiring’
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The only four words where the number of syllables was not retained are given in (1). (Where relevant, stress is indicated by the vertical stroke ', and syllable boundary by a dot.)

(1) Words violating the number of syllables

ʔas. 'saa.ri.ja 'communicable' > ʔas.si.jaa. 'sij.ja 'political'  
ʔi. 'sal.mak 'keeping you healthy' > ʔi. 'sam.mi.mak 'poisoning you'  
'tuu.nis 'Tunisia' > bag. 'doo.nis 'parsley'  
ʔal.ʔis.laa. 'mij.ja 'the Islamic' > ʔal.ʔis.raa.ʔii. 'lij.ja 'the Israeli'

In the four words, a new syllable was added, rather than deleted. Besides, the primary stress (except for one) and the rime (the vowel and the coda) were intact, which increases the similarity between the error and the target word. Note that the last example could have been triggered by the broader context due to the famous Israeli-Arab conflict, although the error was not present in the immediate context.

Regarding stress, in 99% of the errors, the place and weight of the stressed syllable were intact. Some examples are given in (2) below. Only two malapropisms had stress on a different syllable, namely 'ħaa.wi 'proper noun' > ħaj. 'waan 'animal', and ʔas. 'saa.ri.ja 'communicable' > ʔas.si.jaa. 'sij.ja 'political', where the addition of the new syllable shifted the stress rightward. This is in harmony with the fact that right-orientedness of stress in Arabic phonology is well-established (Abu Guba, 2018; 2021).

(2) Faithful mapping of stress

taʕ'liim 'teaching' > tan'ʕiim 'softening'  
'tusʕrux 'cry' > 'tugsʕuf 'bombard'  
ju'qaddim 'present' > ju'ʕaððib 'punish'  
musʕ'tawsʕaf 'clinic' > mus'tawdaʕ 'store'  
ʔalma'ðalla 'infliction' > ʔalba'zella 'peas'  
ʔatta'ʕaawun 'cooperation' > ʔatta'ʔaamur 'conspiring'

The rhythmic pattern of the errors was similar to the target in 96% of the cases. The rhythmic pattern of the word refers to the alternation of weak and strong syllables within a word (Aitchison, 1994). Some examples are given in (3).

(3) Rhythmic pattern mapping

- a) hoon 'here' > ʕoon 'aid'
- b) nii'saan 'April' > rii'ħaan 'basil'

- c) 'naadat 'she called' > 'maatat 'she died'
- d) ma'xaawfak 'your fears' > ma'waagfak 'your attitudes'
- e) max'bazna 'our bakery' > max'farna 'our police station'
- f) ʔilʕir'saan 'the grooms' > ʔisʕsʕii'sʕaan 'the chicks'
- g) ʔalqaa'nuun 'the law' > ʔalmaʕ'luum 'the known thing'

In all these examples, the target and the error have the same rhythmic pattern. In the first example, it is a heavy (bimoraic) syllable in both the error and the target. In example (3b), both words have two heavy syllables and in (3c), a heavy syllable is followed by a light syllable (the last consonant does not contribute weight in Arabic (Abu Guba, 2018). In (3d), the pattern is a light syllable +extra-heavy syllable +light syllable in both words. Likewise, in (3e), two heavy syllables are followed by a light syllable and finally in (3f-g), a heavy syllable is followed by two heavy syllables. Note that the second syllable in the target word in (3f) has a short vowel and a coda (ʕir = a bimoraic syllable), and in the error the second syllable has a long vowel (sʕii), which is metrically equivalent to a short vowel and a coda. The opposite occurs in the last example where /qaa/ is metrically equal to /maʕ/.

Four of the errors that violated rhythmic pattern underwent syllable addition, as in *ʔas'saarija* > *ʔassijaa'sijja*, *ʔi'salmak* > *ʔi'sammimak*, *'tuunis* > *bag'doonis*, and *ʔalʔislaa'mijja* > *ʔalʔisraaʔii'lijja* (a translation is already given above). Four had the same number of syllables, namely *ʕajis'tardzi* 'will have the courage' > *ʕajis'tadridʒ* 'will pull someone's leg', *bit'sʕalli* 'she is praying' > *bit'sʕawwir* 'she is taking a photo', *ʔal'kaariθa* 'the disaster' > *ʔal'kamira* 'the camera' and *'ħaawi* 'proper noun' > *ħaj'waan* 'animal'. No syllable deletion was attested. Note that it can be argued that the metrical pattern in *ħajistardzi/ħajistadridʒ* and *bitsʕalli/bitsʕawwir* is the same as final consonants in Arabic are extrametrical, i.e., they are weightless.

The high percentages of the faithful mapping of stressed syllables, number of syllables, and rhythmic pattern lend support to the supremacy of these phonological aspects in language processing (Aitchison, 1994). Although the stress and syllable have been neglected in traditional Arabic phonology and the former is fully predictable and non-phonemic, they were almost always mapped faithfully. This suggests that these suprasegmental features play a major role in language processing and mental representation in Arabic.

Turning to the segmental level, word-initial and final segments were preserved most of the time, while middle segments were not. Errors and targets had the same word-initial consonant in 65% of the cases, the same rime in 75% of the cases and both the first consonant and rime in 39% of the cases. Both tend to be the same more in longer words, which means a greater similarity is required to fool the speech monitor. Some examples are *ʔalmaħallaat* 'the stores' > *ʔalmafʕaaraat* 'the airports' and *maxaawfak* > *mawaagfak*.

Additionally, when the target and the error did not share the same initial and/or final segments, the segments tended to be phonetically similar in many cases. This

agrees with Aitchison's (1994) findings for English malapropisms. For example, in *ʔalhisʕaan* 'the horse' > *ʔaθθimaar* 'the fruits', both /n/ and /r/ are alveolar sonorants, and in *ʔarraʔiis* 'the president' > *ʔarraxiisʕ* 'the cheap one', /sʕ/ is the emphatic counterpart of /s/; all other features are the same. Likewise, in *naadat* > *maatat*, the initial segments are nasals.

Note that when the words differed on the rime, the other factors (number of syllables, other consonants and vowels in the word) tended to be the same, e.g., *ʕibak* 'fence' > *ʕibil* 'cub', and *ʔazzawaal* 'noon time' > *ʔazzawaadz* 'marriage'. This increases the phonological affinity between the target and the error; hence the malapropism occurs.

These findings at the segmental level support the bathtub effect, which refers to the tendency among people to remember the beginnings of words more than the ends which are remembered more than the middles (Aitchison, 1994, p. 134). However, in our corpus, the rime was found to be slightly more important than the beginning, a finding that is not in line with results obtained from other languages (e.g., Fromkin, 1973; 2002; Fay & Cuttler, 1977; Aitchison, 1994). More importantly, the finding that the rime was very crucial does not agree with Berg and Abd-El-Jawad's (1996) claim that Arabic has a flat structure. In addition to the fact that stress assignment is governed by the rime weight, this finding seems to refute the earlier claim that Arabic has a flat structure.

The results pertaining to the segmental and suprasegmental aspects suggest that the segmental structure of the word is less important than the suprasegmental one. Some evidence for this comes from findings in first and second language phonology that show that suprasegmentals are more important than segmental aspects in language processing and production (Munro & Derwing, 1995; Celce-Murcia et al., 2010).

These results are similar to stress-timed languages where the number of syllables, rhythmic pattern and primary stress were the most retained features in malapropisms followed by word-initial and final consonants (Fay & Cutler, 1977; Aitchison, 1994; Fromkin, 2002; Jaeger, 2005). Additionally, these results resemble those in tone languages such as Mandarin where the word-initial consonants, the same rime and/or the same tone in the first syllable played the major role in determining similarity (Wan & Allasonnière-Tang, 2021). Taken together, the results from the three types of language rhythms suggest that the organization of words in the mind according to the formal similarity that is based on the syllabic and metrical structure is a language universal. These parameters seem to play a great role in the arrangement of the mental lexicon (cf. Fay & Cutler, 1977). It could be the case that words are sublisted according to the number of syllables, rhythmic pattern, stress, initial segments and rimes, and retrieval works in parallel to access these sublists, besides other sublists, e.g., a list according to word class, as evidenced from findings in the world literature (see *Background* Section). In addition, it seems that words are

stored according to their orthographic forms among literate people as reported in earlier research (Jaeger, 2005).

Another piece of evidence for the great role of these suprasegmental features comes from the ‘tip of the tongue’ phenomenon where speakers can recall the number of syllables in a word, its stress pattern and its first phoneme (Fromkin, 2002; Jaeger, 2006). That is, the lexical entry of a word could include these phonological aspects and is not worked out during phonological processing (Jaeger, 2005). Our results also receive evidence from Abd El-Jawad and Abu Salim’s (1987) word substitutions in Arabic that were triggered by the context such as *ʔaftʔiini siigaara* ‘give me a cigarette’ > *gusʔsʔilli siigaara* ‘cut me a cigarette’. Although the error was triggered by context as the speaker was talking about hair cutting, the two words were phonologically similar.

It remains to be answered why and how these errors occur. The above substitutions are supposed to occur when the wrong phonological form is activated and retrieved from the phonological lexicon. This may be attributed to the phonological similarity that is so high that it escapes the monitor. After selecting the appropriate lemma, the speaker starts searching for the word form corresponding to the target lemma. Word forms that are similar phonologically are also activated. Mis-selection happens when these erroneous forms receive higher levels of activation. The fact that the errors share the same metrical structure (in terms of number of syllables, rhythmic pattern, and stress position), and to a lesser degree their initial consonants and rimes, suggest that words in the mind are stored and retrieved according to these phonological properties at the phonological level.

## Conclusion

Findings show that the syntactic category of substituted words are never violated. This suggests that words in the mind are organized according to their part of speech. In addition, results suggest the phonological properties of words, namely primary stress, rhythmic pattern and number of syllables, and to a lesser degree, word-initial consonants and rime, play a major role in their mental representation and processing in Arabic. This is similar to earlier findings on other languages (cf. *Background* Section). That is, the phonological organization of words in the mind accords a great role to these phonological aspects regardless of stress phonemicity and predictability in the language, and the look-up of words is partly phonological. It seems this type of organization is a language universal, which receives further evidence from the tip of the tongue phenomenon.

## Disclosure Statement

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## Appendix

*A partial list of errors (ordered according to number of syllables and alphabetically)*

Target word	Error	Target word	Error
1. band	xadd	51. 'dzaaʔiħa	'dzaamiħa
2. hoon	ħoon	52. fa'laafil	dza'laadzil
3. xeer	keer	53. ha'dijja	ħi'dijja
4. ʔalf	ʔalb	54. maga'diir	maka'tiib

5. 'baaʔat	'baaʕat	55. malju'neen	daktu'reen
6. 'baħdʕar	'badʕhak	56. mah'buule	maħ'buube
7. 'dʒamiʕ	'maniʕ	57. ma'xaawfak	ma'waagfak
8. 'ħaawi	ħajwaan	58. max'farna	max'bazna
9. ħi'waar	ħi'maar	59. mus'tawdaʕ	musʕ'tawsʕaf
10. 'ħurra	'ħilwa	60. ʃa'raaʔiʕ	ʃa'waariʕ
11. kaas'teen	ħusʕ'teen	61. skaa'looni	skoo'laari
12. 'maadzid	'maaxið	62. wa'githa	wa'ragha
13. mab'ruur	man'sʕuur	63. 'ħadʕanit	'fataħit
14. mab'ħuuħ	maf'tuuħ	64. mu'naafasa	mu'naasaba
15. 'maðʕhar	'zamhar	65. xuba'raaʔ	fuqa'raaʔ
16. maħ'ðuuf	max'tʕuuf	66. xu'raafi	xa'raaʔi
17. ma'liik	ʃa'riik	67. jalbi'suun	jalʕa'buun
18. mi'θaal	xa'jaal	68. 'jirħamu	'jirdzumu
19. mih'taadʒ	mif'taag	69. ju'qaddim	ju'ʕaððib
20. 'miʃi	'nisi	70. 'ʕaafija	'jaaʔisa
21. 'naadat	'maatat	71. ʔalhi'sʕaan	ʔaθθi'maar
22. nii'saan	rii'ħaan	72. ʔalqaa'nuun	ʔalmaʕ'luum
23. xa'biir	fa'giir	73. ʔarra'ʔiis	ʔarra'xiisʕ
24. ra'ʔuuf	xa'ruuf	74. ʔalwa'laaʔ	ʔalba'laaʔ
25. 'ʃibak	'ʃibil	75. ʔazza'waal	ʔazza'waadz
26. 'swaaga	'xjaatʕa	76. ʕa'waanis	ʕa'waaridʕ
27. 'tamir	'gamar	77. ʕa'waazil	fa'laafil
28. ta'ʕliim	tan'ʕiim	78. ʔa'ʕlaamu	ʔaʕ'ʃaabu
29. 'tiħni	'timʃi	79. ʔikti'ʔaab	ʔibti'laaʔ
30. 'tusʕrux	'tugsʕuf	80. ʔilʕi'rssan	ʔisʕʕii'sʕaan
31. 'tuunis	bag'doonis	81. ʔistiq'tʕaab	ʔistix'daam
32. wal'haan	ʕatʕ'ʃaan	82. ʔistir'xaaʔ	ʔistif'taaʔ
33. 'wahim	'zaʕal	83. ʔi'salmak	ʔi'sammimak
34. 'xaadim	'ħaamil	84. ʔu'baama	ʔu'saama
35. 'xutʕwa	'xutʕba	85. ʔa'xaana	ga'faana
36. ʔaf'laadz	ʔam'laaħ	86. ħajis'tardʒi	ħajis'tadridʒ
37. ʔal'xubθ	ʔal'xubz	87. jat'tahimu	jan'fadʒiru
38. 'ʔanðar	'baʕtar	88. ʔal'kaariθa	ʔal'kamira
39. ʔan'faaq	ʔaa'xaaq	89. ʔalma'ðalla	ʔalba'zella
40. ʔa'siir	tʕa'wiil	90. ʔalmaħal'laat	ʔalmatʕaa'raat
41. 'ʕasal	'ʕadas	91. ʔan'naaziħa	ʔal'maaziʕa
42. 'ʕawra	'ħamra	92. ʔalqara'wijja	ʔalqala'wijja
43. ʕa'zaaʔ	ʕa'ʃaaʔ	93. ʔarra'ziina	ʔarra'ðiila
44. 'ʔaʕðar	'zaʕtar	94. ʔalxa'baaʔiθ	ʔalxa'baaʔiz
45. ʔidʕ'juuf	ʔin'dʕuuf	95. ʔalʔintiqaa'lijja	ʔalʔintiqaa'mijja
46. 'ʕilka	'ʕutʕla	96. ʔalʔislaa'mijja	ʔalʔisraaʔii'lijja
47. 'ʕizwa	'ʕadzwa	97. ʔas'saarija	ʔassijaa'sijja
48. bit'sʕalli	bit'sʕawwir	98. ʔatta'waasʕul	ʔatta'faasʕul
49. ðaa'tijja	saa'mijja	99. ʔatta'ʕaawun	ʔatta'ʔaamur
50. da'xalni	da'faʕni	100. ʔil'baraka	ʔil'bagara

# Blended Learning Impact on Studying English as a Foreign Language

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**Abstract.** The paper focuses on the research of the efficiency of three primary forms of teaching and besides, blended learning influence on learning and teaching English as a foreign language at Yuriy Fedkovych Chernivtsi National University, Ukraine, at Faculties of Economics (particularly, Economic Cybernetics), Law, Pedagogy and Psychology, Philology, for two academic years 2020/2021, 2021/2022. The study sample consisted of 120 students from 4 mentioned faculties who took the compulsory academic discipline English for Specific Purposes in the 1st, 2nd and 3rd semesters in compliance with their curriculum. The objectives of the study are to analyze and compare the effectiveness of the practical application of the three primary forms of education (full-time, distant and blended) and to study the impact of blended learning on teaching and learning English as a foreign language in practical classes of the compulsory English course. For the research, a questionnaire survey divided into two parts was used. Each of the survey parts included four items. The second part of the survey was conducted based on the typical 5-level Likert scale. To analyze the elicited data, SPSS (Statistical Package for the Social Sciences) program was used for the qualitative research. The outcomes in both parts are presented in percentages. The study conclusions showed that a blended study is the challenge of the present-day education system and is highly approved by university students. They are sure that using blended learning in teaching EFL at Chernivtsi National University is beneficial, advantageous and productive for improving skills in English as a foreign language course. Four-fifths of the respondents stated that their language proficiency skills significantly enhanced compared to conventional teaching methods.

**Keywords:** *blended learning, online form, face-to-face, distant learning, offline, EFL course, Likert scale.*

**Головацька Наталія. Вплив змішаної форми навчання на вивчення англійської мови як іноземної.**

**Анотація.** Стаття зосереджена на дослідженні ефективності трьох основних форм навчання і, зокрема, впливу змішаної форми навчання на вивчення та викладання англійської мови як іноземної в Чернівецькому національному університеті імені Юрія Федьковича, в Україні, на факультетах економіки (особливо, спеціальність «Економічна кібернетика»), права, педагогіки та психології, філології за два навчальні роки 2020/2021, 2021/2022. Вибірку дослідження склали сто двадцять студентів чотирьох зазначених факультетів, які в першому, другому та третьому семестрах вивчали обов'язкову дисципліну «Англійська мова за професійним спрямуванням» згідно їхньої навчальної програми. Метою дослідження було проаналізувати і порівняти продуктивність практичного застосування трьох основних форм

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навчання (очної, дистанційної та змішаної) та вивчити вплив використання змішаної форми навчання на викладання та вивчення англійської мови як іноземної на практичних заняттях обов'язкового курсу англійської мови «Англійська мова за професійним спрямуванням». Для дослідження було використано анкетне опитування, яке було розділене на дві частини. Кожна з частин опитування включала чотири питання / проблеми. Друга частина опитування проводилася на основі типової 5-рівневої шкали Лайкерта. Для аналізу отриманих даних з ціллю представлення якісних результатів дослідження була використана програма SPSS (Статистичний пакет для соціальних наук). Результати в обох частинах подані у відсотковому відношенні. Висновки даного дослідження показали, що змішана форма навчання є викликом сучасної системи освіти і високо схвалюється студентами Чернівецького національного університету. Вони впевнені, що форма змішаного навчання при викладанні англійської мови у Чернівецькому національному університеті дійсно вигідна, корисна та продуктивна для підняття їхнього рівня англійської мови як іноземної. Чотири п'ятих респондентів підтвердили, що їхні навички володіння мовою значно покращилися порівняно з використанням традиційних методів навчання при проходженні академічної дисципліни «Англійська мова за професійним спрямуванням».

**Ключові слова:** змішане навчання, онлайн форма, особиста форма, дистанційне навчання, офлайн, курс англійської як іноземної мови, шкала Лайкерта.

## Introduction

In today's educational world so urgent in use 'blended learning emerged as one of the most popular pedagogical concepts in higher education and in English as a foreign language (hereinafter – EFL) contexts at the beginning of 2000' (Halverson et al, 2014). Nowadays, blended learning has become an inherent challenge and a trend in foreign language teaching, because "the overall focus of the research is concerned with the search for better practice, i.e., the attempt to identify the optimum mix of course delivery in order to provide a more effective language learning experience". (Sharma, 2010)

Undoubtedly, blended learning has been gradually getting huge perspectives for higher education students, for it implies "the improvement of face-to-face interface between teachers and learners, using internet or computer based techniques" (Morris, 2010).

During the years of covid pandemic, all forms of teaching and learning (lectures, practical classes, seminars, courses) are successfully conducted due to the use of blended learning, and namely in academic circles it is in great demand. "A substantial amount of seat time, that is, time disbursed in the classroom, is replaced with online activities that include learners in meeting course objectives (Bock et al., 2018).

## Literature Review

Blended learning combines two main forms of learning and teaching English as a foreign language: full-time (students are in-person in the classroom) and distant or online (students are present remotely) (Akkoyunlu & Vilmaz-Soylu, 2008; Drysdale et al, 2013; Gleason, 2013; Hubackova et al., 2011; Kern, 2006). F2F learning refers

to the traditional environment where the instruction is conducted face-to-face between teachers and students in a contact teaching situation (Kaur, 2013; Neumeier, 2005). On the other hand, online learning allows learners to interact with learning materials, with or without the physical presence of peers and the instructor (Blake, 2011; Fryer et al, 2014). The success of blended learning is in how well the teacher can combine or blend all that is the most effective in these two basic forms, so that face-to-face and online activities reinforce each other, creating a particular, powerful cohesive English course. Though, a great deal of scientific literature exploring blended learning phenomenon states and is regularly referred to in provision of the argument that “there is no apparent advantage in the learning outcomes of students taught online compared to students taught in a face-to-face setting”. (Boelens et al., 2018)

Via blended learning effective learning strategies through the introduction of different pedagogical methods and approaches are generally used. Modern pedagogical theories contain two main types that are combined in blended learning, synchronous and asynchronous learning. In the mode of synchronous learning, all students simultaneously gain some experience in real time and cooperate together. Asynchronous learning is usually available at different times to different students. “They can choose the pace and the way of accepting experience, but they cannot react mutually in a real time” (Hubackova et al., 2011), i.e. the students cannot give a quick feedback or respond to certain situations or tasks and cooperate with each other as they do in real class time. Though, Allen et al. (2007) argue that namely “the asynchronous nature of the blended module of the courses possesses constructive impact of increasing the time learners spend on course material.”

In Neumeier’s opinion the most important aim in designing a blended language learning course is to find the most effective and efficient combination of the two modes of learning for the individual learning subjects, contexts and objectives (Neumeier, 2005).

Covering the same point, Rovai and Jordan analysed three education courses (traditional, blended, and fully online) in comparison and found out that students in the blended learning course have the highest level of sense of community, similar to those students from the face-to-face section, and higher than those from entirely online section. They state “since students in the blended course exhibited similar sense of community and variability as students in the traditional course, offering the convenience of fully online courses without the complete loss of face-to-face contact may be adequate to nurture a strong sense of community in students who would feel isolated in a fully online course” (Rovai & Jordan, 2004).

Sharma underlines the impact of blended learning and teaching EFL on pedagogy improvement saying that “blended learning seeks to combine the best of the taught element of a course with the benefits of technology, so that, the argument goes, better learning outcomes can be achieved’ (Sharma, 2007).

Notwithstanding the multiplicity of suggested models, strategies, ways, guidelines and frameworks researchers believe that “determining the right blend isn’t easy or to be taken lightly” (Hofmann, 2001). There are similarly cautionary words

from Sharma and Barrett (2007) that “a blended learning course run without a principled approach may be seen as an “eclectic” blending together of course components, and can end up as rather a mish-mash ... learners may suffer “the worst of both worlds””.

## **Problem Statement**

Blended learning is a relatively new but effective approach to learning and teaching EFL that has developed rapidly in recent years. State of things proves that in Ukraine, especially far from the capital city, EFL students demonstrate low achievements in acquiring English due to lots of reasons, among which the use of conventional teaching methods is still actual. EFL university teachers are not satisfied with the school-leavers' level of English who face some difficulties in learning English language at university level. Having applied blended learning at our compulsory EFL course *English for Specific Purposes* and reviewed the corresponding recent researches, this article is an attempt to investigate the impact of blended learning on learning English as a foreign language and to compare three main forms of learning EFL from points of view of undergraduate students who study at different faculties, precisely the departments of Economic Cybernetics, Law, Philology and Psychology in Yuriy Fedkovych Chernivtsi National University (hereafter – ChNU). Therefore, the goal of this study is to scrutinize the influence of blended learning use on teaching and learning English as a foreign language at practical classes at the university level in 2020/2021 and 2021/2022 academic years, to analyze and compare the productivity of practical application of three main forms (full-time / offline, distant / online and blended) in training and teaching EFL.

The following research questions are considered:

RQ1: Which of the three main teaching forms is most favourable for studying EFL?

RQ2: Is blended learning more advantageous for studying English as a foreign language?

RQ3: To what extent does the use of blended learning in the study of English as a foreign language help improve the level of language proficiency of students of ChNU?

To evaluate the effectiveness of the three main types of EFL learning, we undertook the following tasks: analyzing all aspects of blended learning and how it enhances the acquisition of EFL knowledge among undergraduate students.

## **Method**

To elicit necessary data for the study, the following types of survey as questionnaires and interviews of students of 2020/2021 and 2021/2022 academic years were used. The questionnaire was divided into two parts. Both the first part “Comparison of Three Main Forms of learning EFL” and the second part “Blended

Learning Influence” contained a list of 4 questions. The second part of the questionnaire was made in accordance with the typical 5-level Likert scale: 1 Absolutely / Strongly agree; 2 Agree; 3 Neutral; 4 Disagree; 5 Totally / Strongly disagree. It related to students' perceptions of the above mentioned foreign language course for professional purposes, the benefits of using blended learning and its impact on teaching and learning English as a foreign language. Statistical method and SPSS program were used to tabulate the research results. The primary data of responses were analysed in a percentage. To calculate the percent of response, the number of responses to each option was divided by the total number of respondents who answered the question. Comparative, descriptive and quantitative analyses were used to make factual and true conclusions.

## Participants

The respondents numbering 120 involved in this survey were 1st and 2nd-year students (henceforth – Sts) specializing at Economic Cybernetics, Law, Psychology and Philology (henceforward – Econ. Cyber; Psychol.; Philol.) who take EFL course *English for Specific Purposes* at Chernivtsi National University as a compulsory in their curriculum. To collect primary data, the researcher used purposive sampling technique and took into account the students’ study rating in their academic groups and on their academic course. To ensure privacy, respondents were interviewed in-person and given separate questionnaires to each.

## Results and Discussion

The students of 1st and 2nd-year study at the Chernivtsi National University who have the EFL course English for Specific Purposes as a compulsory discipline in their curriculum answered the list of 4 questions in the first part of the questionnaire “Comparison of Three Main Forms of learning EFL”. It covered the following items:

1. Which form of education do you prefer for your university study in general?
2. Which form of education do you prefer in learning EFL?
3. Which form facilitate your adaptation to learning EFL?
4. Which form stimulates your better learning and remembering the EFL course topics?

All data of the research are given in percentage. Table 1 shows the results of the students’ answers to the first question. We see that the students of Economic Cybernetics, Philology and Psychology specialities give preference to distant learning, whilst Law students who have higher rating in their secondary school diplomas and much better level of English, choose F2F study. Obviously, more of them want to acquire knowledge in general studying distantly, though the difference between online and offline total numbers isn’t so striking. All students accept the form of blended learning, but partially.

Table 1  
*Form of Education Preferred by Students for Their University Study in General*

Form of study	Law Sts	Econ. Cyber Sts	Philol. Sts	Psychol. Sts	Total (%)
Online	60	26	31	30	36
Offline	27	49	49	50	44
Blended	13	25	20	20	20

Taking a close look at the data of table 2, we may state that when we speak about learning EFL course, the students' attitude toward the choice between three forms of learning is drastically altered. Students of all four specialities prefer blended learning for their EFL course and only fifth part of them would like to study English as a second language distantly. And it's natural to desire learning foreign language in the form of blended or F2F, together they total 79%. Though, in our opinion, 21% of students – supporters of distant learning is quite big and offbeat percentage. Again, speaking about students with higher rating, those are Law Students, we see that few of them prefer offline learning in their EFL study.

Table 2  
*Form of Education Preferred by Students for Their Learning EFL Course*

Form of study	Law Sts	Econ. Cyber Sts	Philol. Sts	Psychol. Sts	Total (%)
Online	45	14	27	26	28
Offline	5	14	32	32	21
Blended	50	72	41	42	51

Discussing the form facilitating students' adaptation to learning EFL course (table 3), we may point out that 73% see F2F and blended forms as the most equally efficient for their successful study in the EFL course. However, almost the third part of them (27%) consider offline learning as the best to get adapted to EFL course. Quite bizarre is the Economic Cybernetics students' opinion. Few of them choose F2F as an acceptable form of their adaptation to learning English course. It can be explained as they are more used to spending their study time at computers.

Table 3  
*Form of Education That Facilitate Students' Adaptation to Their Learning EFL Course*

Form of study	Law Students	Econ. Cyber Sts	Philol. Sts	Psychol. Sts	Total (%)
Online	65	5	46	26	35
Offline	15	43	27	16	27
Blended	20	52	27	58	38

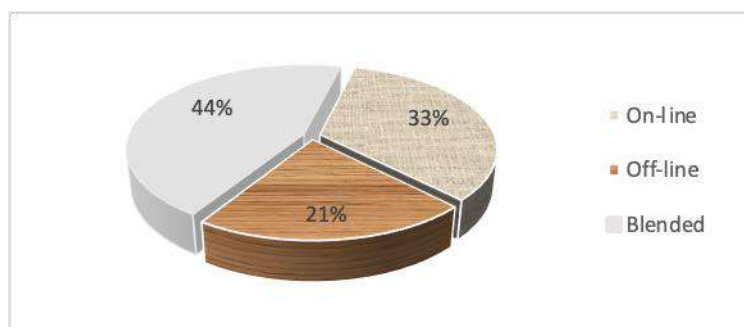
The data presented in Table 4 say that to enhance knowledge in EFL course students prefer blended (44%) and F2F (36%) to distant learning on the whole. Though, the figures in each column for each specialty are extremely various. For the Psychology students blended form is the best to learn and remember English course topics, also for the Law Students and Philology students F2F form is the best to improve their skills in English.

Table 4  
*Form of Education That Stimulates Students’ Better Learning and Remembering the EFL Course Topics*

Form of study	Law Sts	Econ. Cyber Sts	Philol. Sts	Psychol. Sts	Total (%)
Online	65	15	54	11	36
Offline	15	40	14	11	20
Blended	20	45	32	78	44

The obtained data of the answers to these four questions of the first part of the questionnaire are integrated and shown in Figure 1. As we see, 77% of interviewed students want to study English course in the form of F2F and blended learning. The fifth part of questioned students can learn English distantly not meaning any difficulties in completing the EFL course. However, having analysed the rating of all students, we may conclude that the fifth part of those preferring to study offline, are students with poorer rating points and low motivated to study English at high proficient level.

Figure 1  
*Students’ Preference of Forms of Study for Their EFL Course*



As almost half of the students have chosen the form of blended learning, we considered it appropriate to investigate the form more in details. So, the study was furthermore intended to investigate the influence of using blended learning in teaching and studying EFL for students of humanitarian specialties who took EFL course *English for Specific Purposes* at Chernivtsi National University for the academic years 2020/2021 and

2021/2022. The second part of the questionnaire “Blended Learning Influence on learning EFL” was made in compliance with the typical 5-level Likert scale. It comprised a list of the following problems.

I. In your opinion, in the form of blended learning number of students in your group affects the quality of learning EFL ...

II. In your opinion, using blended form of study your level of English ...

III. In your opinion, to what extent the form of blended learning is beneficial.

IV. In your opinion, to what extent your vocabulary has changed with the use of blended learning.

For each of these stated problems there were made up specified options for students’ choice. Respectively,

I. 1) Strongly affects; 2) Affects; 3) Affects 50/50; 4) Doesn’t affect; 5) Absolutely doesn’t affect

II. 1) Intensely grows; 2) Grows; 3) Grows 50/50; 4) Doesn’t grow; 5) Absolutely doesn’t grow

III. 1) Absolutely beneficial; 2) Beneficial; 3) Beneficial 50/50; 4) Unbeneficial; 5) Absolutely unbeneficial

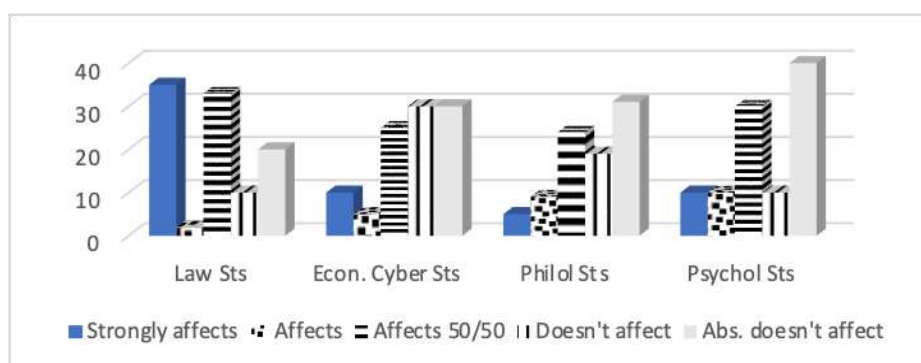
IV. 1) Intensely enlarged; 2) Enlarged; 3) Enlarged 50/50; 4) Reduced; 5) Absolutely reduced.

The results calculated on the basis of the data of the students’ answers are presented in the following charts 2-5. All figures in the charts are in percentage.

Analysing data in Figure 2 we may state, that in the form of blended learning the third part of all students are neutral in their perception that the size of the group affects the quality of teaching and their learning EFL course and a bit more than the third part believe that the number of learners absolutely doesn’t influence their study. The totals of the data in Chart 2 make up: 1) Strongly affects – 15%; 2) Affects – 6%; 3) Neutral – 29%; 4) Doesn’t affect – 17%; 5) Absolutely doesn’t affect – 33%. Four-fifths of all interviewed students regard blended learning as a favourable form to take EFL course to improve their English language skills.

**Figure 2**

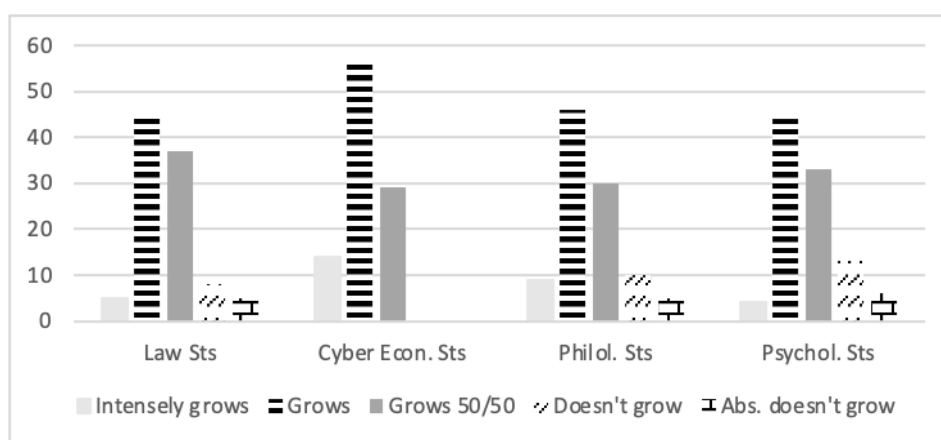
*Influence of Group Size on the Quality of Learning EFL*



As for the students' responses to the second problem, Figure 3 shows that 88% of the students consider that their level of the English language grows in general, i.e. the blended form advances their level of knowledge in EFL course. 12% of them don't perceive such form of learning English as a good one for them because they think their level doesn't grow. Here, we may add to this point, that the results of module and credit tests almost coincide with these data: 84% of the interviewed students took the tests successfully with good points in the range of A-C grades; 16% got satisfactory in the range of E-D grades.

**Figure 3**

*Influence of Blended Form on Students' Level of English*

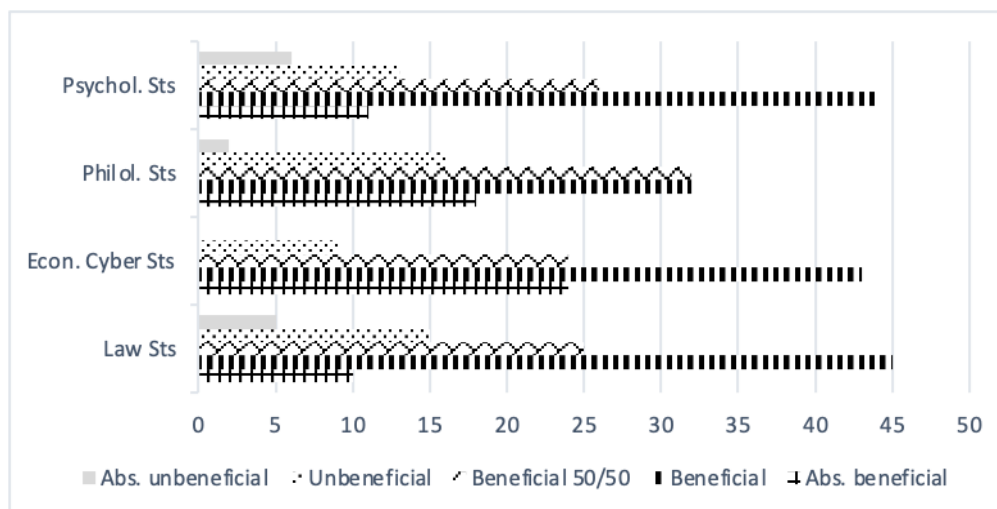


Furthermore, the students at the ChNU who have undergone an EFL course via blended learning, were encouraged to respond whether they find the use of blended form in teaching and learning English at university level advantageous and beneficial or not. Figure 4 depicts the extent to which the students consider how convenient the form of blended learning is for their study at EFL course. The results prove that participants making 57% of all questioned students perceive blended form as useful and advantageous for their study of English; 27% of them have a neutral attitude to this form of education and 16% see blended form as inconvenient and unbeneficial for their EFL study. So, we may conclude, that a bit more than three-fourths of all students think blended learning compared to the use of other conventional methods to be a positive form in improving their English and just less than one-fourth see it as such causing a sort of discomfort and making no use for their study of English.

Analysing how students' vocabulary altered with the use of blended form in learning EFL in comparison with the use of conventional teaching methods, we see in Figure 5, that their vocabulary has undergone positive and beneficial changes. Almost one-fifth of participants felt the intensified enrichment of their vocabulary. More than two-thirds of interviewed students feel that their vocabulary capacity has become larger.

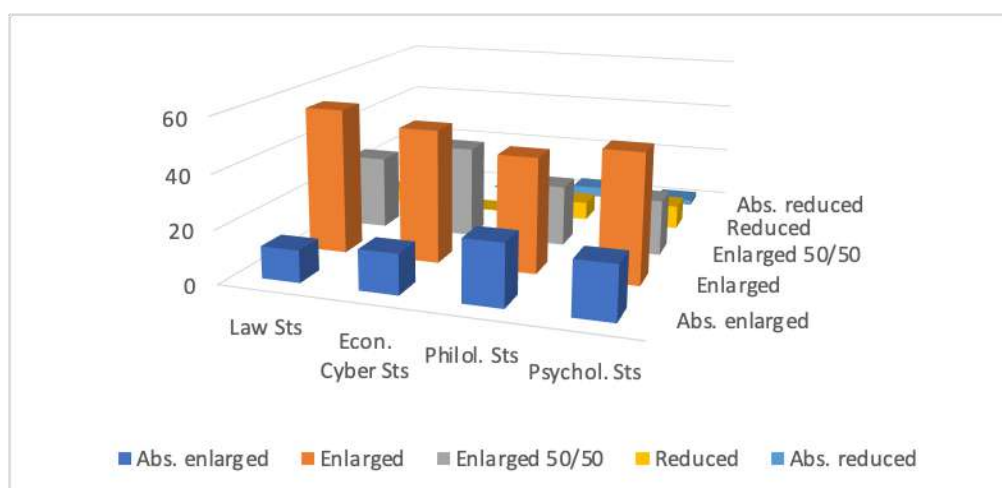


**Figure 4**  
*How Convenient Blended Form Is for EFL Course Students*

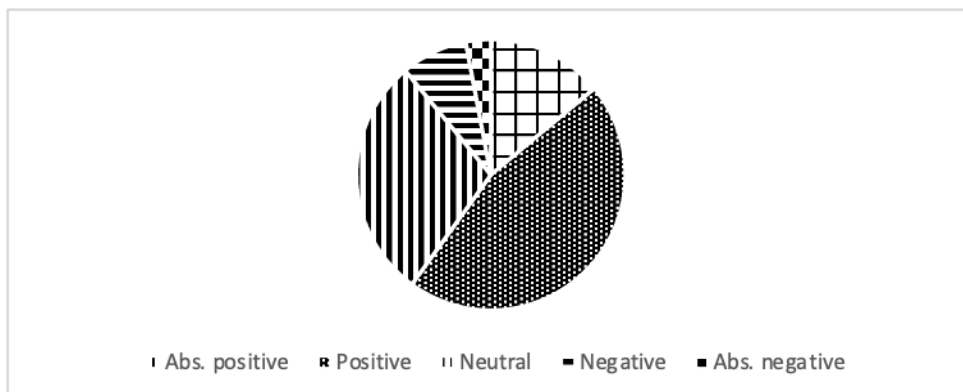


Merely 5% think it shortened and 1% consider that their vocabulary suffered no changes at all. Therefore, we may state that blended learning form is quite favourable for not only studying but for advancing and improving language skills in taking EFL course.

**Figure 5**  
*Influence of Blended Form on the Students' Vocabulary in EFL Course*



We have analysed and summed up the obtained results from the data of Figures 2–5 to see to what extent blended form is efficient in learning EFL. Figure 6 is a kind of visual comprehension of this issue. It shows us that almost two-thirds of interviewers approve blended learning as a positive, beneficial, productive and efficient form compared to other two conventional teaching forms: F2F and distant. Less than one-third of participants are neutral in their attitude to the forms of learning EFL and few of them have a negative opinion about blended form as such to teach and learn English undertaking EFL course *English for Specific Purposes*.

**Figure 6***Students' Attitude to Blended Learning in the EFL Course***Conclusions**

Considering the data and obtained results, we come to the following conclusion: out of three main teaching forms, the blended one is the most promising, beneficial and productive for improving language skills in EFL course at the university level. University students are busy (taking up lots of developmental courses for their professional awareness and competitiveness) and need flexible study process. So in this view, they eagerly approve and favour blended learning in advancing their EFL skills and knowledge. More than two-thirds of the interviewed students stated that their language proficiency skills improved significantly compared to practising conventional teaching methods. Somewhat more than three-fourths of all students think blended learning is an encouraging and advantageous form of improving their English, and less than one-fourth accept it as discomfort and useless for their study of English. 88% of the students consider that the blended form advances their level of knowledge in EFL course. 12% of them don't identify such a form of learning English as a good one for them because they think their level doesn't grow. In our opinion, the students who compose one-fifth of all respondents got entirely used to F2F learning and live in-person communication. As a rule, they are not highly motivated to develop their language proficiency skills and have a low rating position. In the context of an up-to-date eventful world, we may advise blended learning forms for EFL teachers as flexible, advantageous, beneficial and productive for their students' advancing and acquiring knowledge of English language skills.

The author thinks the forthcoming research will be piloted to study and compare the pros and cons of blended learning forms in teaching English as a foreign language in different universities and academic institutions in Ukraine.

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# Age-Related Differences in Fixation Gaze Length While Reading the News with Negative Text Elements

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**Abstract.** The worldwide COVID-19 pandemic has led to the development of stress disorders and increased societal anxiety. The mass media is one of the most decisive factors leading to the development of anxiety and stress in society during a pandemic. However, the mechanisms of mass media's stressogenic effects remain unclear. This study aimed to evaluate age-specific characteristics of gaze behavior related to the perception of anxiety-provoking information. One hundred eighty-nine volunteers took part in the study (164 participants aged between 17 and 22 years old (students, control group), 25 people aged between 59 and 71 (experimental group)). We surveyed participants to determine their level of stress, depression, and anxiety and analyzed eye-tracking data during text perception by using the web eye-tracking technology EyePass. Results showed significant age-related differences in gaze behavior while reading texts with negative elements. Aged adults had shorter median fixation duration. There was no difference between groups in the number of fixations. We can assume that except age factor, other variables might have contributed to our result, namely the occupation of participants, professors at the Scientific and Educational Institute of Journalism, with developed professional skills (reading pattern, method of information perception) but from another side higher vulnerability to adverse COVID-19 outcomes compared to younger adults.

**Keywords:** mass media, COVID-19 pandemic, gaze behavior, fixation, eye tracking.

**Іваскевич Дарина, Попов Антон, Різун Володимир, Гаврилець Юрій, Петренко-Лисак Алла, Ячнік Юлія, Тукаєв Сергій. Вікові відмінності в тривалості фіксації погляду під час читання новин із негативними текстовими елементами.**

Всесвітня пандемія COVID-19 призвела до розвитку стресових розладів і зростання суспільної тривожності. Мас-медіа є одним із найвирішальніших факторів, що призводять до розвитку тривоги та стресу в суспільстві під час пандемії. Проте механізми стресогенного впливу ЗМІ залишаються до кінця не з'ясованими. Метою цього дослідження було оцінити вікові особливості поведінки погляду, пов'язані зі сприйняттям інформації, що викликає тривогу. У дослідженні взяли участь 189 добровольців (164 учасники віком від 17 до 22 років (студенти, контрольна група), 25 осіб віком від 59 до 71 року (експериментальна група)). Ми опитали учасників, щоб визначити їхній рівень стресу, депресії та тривоги, та проаналізували дані ай-трекінгу під час сприйняття тексту за допомогою веб-відстеження очей – технології веб-трекінгу EyePass. Результати показали значні вікові відмінності в динаміці зорової уваги під час читання текстів із негативними елементами. Старша доросла група мала меншу середню

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тривалість фіксації. Різниця між групами за кількістю фіксацій не було. Можна припустити, що окрім віку учасників, на наш результат могли вплинути й інші чинники, а саме професія учасників, викладачів Навчально-наукового інституту журналістики з розвиненими професійними навичками (патерн читання та спосіб сприйняття інформації), але, з іншого боку, більша вразливість до несприятливих наслідків COVID-19 порівняно з молодшими людьми.

*Ключові слова:* масмедіа, пандемія COVID-19, поведінка погляду, фіксація, ай-трекінг.

## Introduction

### COVID-19 Pandemic Anxiety

The COVID-19 pandemic resulted in an increased prevalence of anxiety. According to Petzold et al. (2020), people experience anxiety and psychological distress despite being diagnosed with COVID-19 or knowing anyone with this diagnosis at the beginning of the quarantine in Germany. Other studies reveal that generalized anxiety disorder and depression are common effects of the COVID-19 pandemic (Hyland et al., 2020). In addition, females are more prone to experiencing higher anxiety levels (Petzold et al., 2020). There are several potential causes of this effect.

The first cause is lifestyle changes associated with the COVID-19 pandemic (Bendau et al., 2021). The lack of surgical masks, potential issues with working from home, and fear of contact with the disease were the leading causes of anxiety during the first three months of the pandemic (Choi et al., 2020). This effect was moderated by the intolerance of uncertainty (Bakioğlu et al., 2021). The increased level of uncertainty in society leads to intense and general distress, the development of mental disorders, and mood deterioration (Pogorilska et al., 2021; Rettie & Daniels, 2021). In the face of uncertainty, most people desire to avoid it and make decisions hastily (Pogorilska et al., 2021). Intolerance of uncertainty contributes to the development of stress and burnout (Kim & Lee, 2018), and the latter negatively contributes to the emotional perception of information (Havrylets et al., 2019).

The second potential cause of heightened anxiety levels is increased mass media consumption. Liu & Liu revealed that all kinds of media resulted in vicarious traumatization, with commercial media having the full mediation effect in mainland China (Liu & Liu, 2020). While new information is beneficial for uncertainty management (Brashers et al., 2000), media consumption did not improve anxiety symptoms at the beginning of the COVID-19 pandemic (Downs & Adrian, 2004). Evidence shows that media consumption increases uncertainty, which correlates with non-compliance with governmental regulations (Mevorach et al., 2021). On the other hand, trust in the agency that produced the media message was associated with a higher level of compliance in Israel in May 2020 (Mevorach et al., 2021). Overall, mass media are associated with increased anxiety related to COVID-19. However, the mechanisms of these processes are not completely clear.

The aim of this study was to evaluate age-specific characteristics of gaze behavior related to the perception of anxiety-provoking information. The significance of this investigation lies in its interdisciplinary nature and the need for further research

involving news messages. At this point, no study has examined psycho-emotional states during news perception based on eye-tracking behavior.

## **Previous Evidence About the Age-Related Differences in Eye Movements While Reading**

There is evidence of age-related differences in information processing while reading. These age-related differences can be caused by the aging process in eyesight (Rayner et al., 2014), attention processes (Gamboz et al., 2010), and cognitive control mechanisms (Borges et al., 2020). It should be noted that text comprehension does not decline in the same way due to the changes in time allocation during the reading (Stine-Morrow et al., 2004). Older adults also differ from younger adults in the semantic processing of the text by allocating fewer resources for detecting coherent anomalous noun phrases and more time for incoherent ones (Daneman et al., 2006). In addition to these changes that might affect text comprehension, there are age-related differences in gaze behavior during reading.

Aging mechanisms alter saccades, fixations, their length, and the occurrence of rereading. Aging is characterized by increased saccades' latency and the weakening ability to suppress reflective saccades (Daneman et al., 2006). According to McGowan et al. (2015), older adults have more fixations and longer duration. In addition, changes in gaze behavior result in a lower chance of fixating on prescription warning labels in older adults (Sundar et al., 2012). While the mechanism for the decrease in fixation time is unclear, these changes, together with changes in attention and cognitive control mechanisms, may change the perception of anxiety-provoking stimuli.

Considering the up-to-date information and changes in society during the COVID-19 pandemic, this study sought answers to the following research question:

RQ1: Are there significant differences in age-related gaze behavior between younger and older groups while reading the news texts about the COVID-19 pandemic?

## **Method**

The study was conducted in April 2021. Participants started answering the questionnaire before the experiment in March 2021. The questionnaire provided informed consent for participants to participate in the experiment. The research team received approval from the Research Ethics Committee of the Scientific and Educational Institute of Journalism to conduct the experiment involving humans (permission dated January 20, 2021).

### **Participants**

Participants of the study were of two age groups. The first group of 164 people included younger adults aged between 17 and 22 years old (mean age 17.53). This group was recruited among students at the Scientific and Educational Institute of Journalism at the Taras Shevchenko National University of Kyiv. The second group of older adults

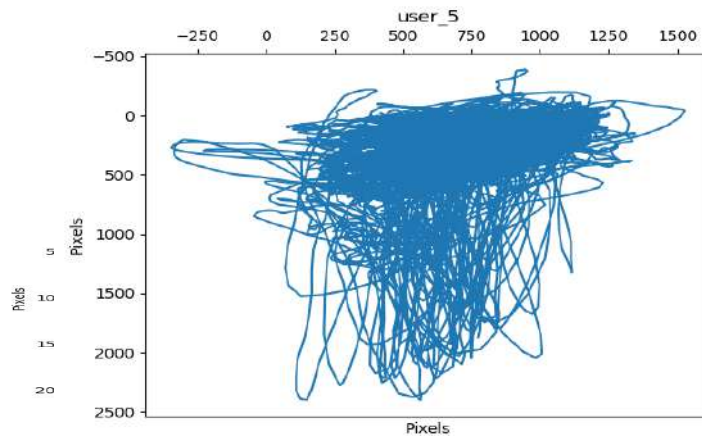
included 25 people between 59 and 71 years old, with a mean age of 64.5, who were professors at the Scientific and Educational Institute of Journalism at the Taras Shevchenko National University of Kyiv.

A total of 101 people agreed to participate in the second stage of the study. All of them were randomly allocated to three groups. The first group perceived the positive text elements of COVID-19. The second group was exposed to text with neutral text elements about COVID-19. The third group was presented with negative elements within the same text, covering the COVID-19 topic. Only the third group included both younger and older adults. So only results for the third group will be presented in this article.

The examples of the raw trajectories for participants reading different types of texts are presented in Figures 1–3.

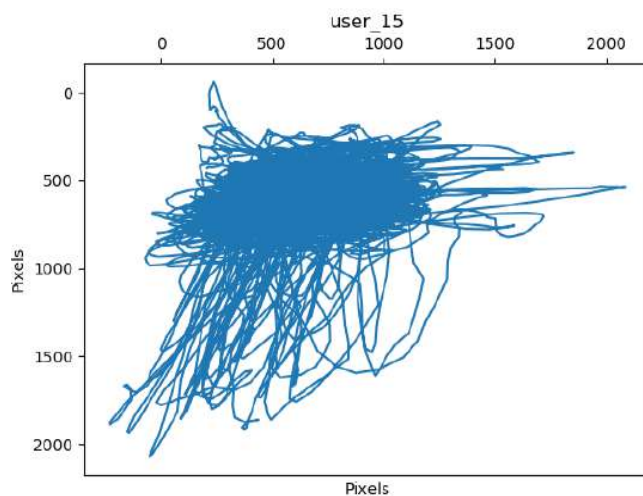
**Figure 1**

*Example of Raw Eye Tracking Trajectories for Users Reading Negative Texts*



**Figure 2**

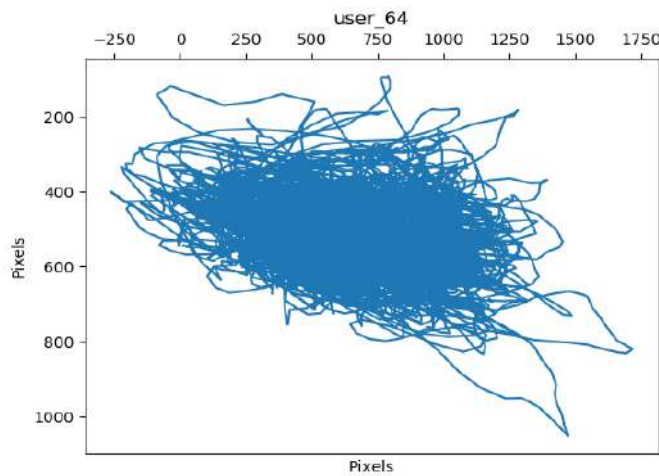
*Example of Raw Eye Tracking Trajectories for Users Reading Neutral Texts*





### Figure 3

*Example of Raw Eye Tracking Trajectories for Users Reading Positive texts*



Both horizontal and vertical axes in Figures 1–3 are in pixels. Each user's pixel size differs depending on the computer screen characteristics. Negative values of the coordinates mean that the gaze was directed outside the computer screen area.

### Instruments

All participants of the study provided informed consent before being involved in the study. After that, all participants were invited to participate in the first stage of the study, which consisted of filling out the questionnaires. The participants were asked about their sex, age, experience with COVID-19, and/or vaccination. Participants were also asked whether they had a laptop or personal computer with a web camera to evaluate their eligibility for the second research stage, which required these devices to collect eye-tracking data. Along with these questions, they were asked to fill out Psychological Stress Measure (PSM-25), Patient Health Questionnaire (PHQ-9), and Generalised Anxiety Disorder Assessment (GAD-7) questionnaires in order to determine their levels of stress, depression, and anxiety.

The second research stage was an eye-tracking study of text perception. Again, participants with a personal computer or a laptop with a web camera were invited to participate in the study.

### Stimuli

To select messages on COVID-19, we used the online monitoring service LOOQME (<https://looqme.io/uk>). The search subject was COVID-19. First, we found 41674 media reports about COVID-19 in Ukrainian media during February – April 2021.



From this selection of media reports, we selected 11 with a negative tone, 11 with a neutral tone, and 11 with a positive tone based on the level of the reports' media visibility.

## Fixation of a Gaze

In this work, dispersion-threshold identification algorithm (Salvucci & Goldberg, 2000) utilizes the fact that fixation points are grouped closely together for a certain amount of time. Therefore, if the dispersion of the eye gaze trajectory points is lower than a predefined threshold for a certain time, this region is considered as fixation. The device used for recording the eye tracking trajectories provides the “calibration error” for each recording, which is the noise level of the measured trajectory coordinates, the algorithm was adapted for finding fixation in the presence of measurement errors. Let  $X=[x_i, x_{i+1}, \dots, x_{i+N-1}]$ ,  $Y=[y_i, y_{i+1}, \dots, y_{i+N-1}]$  are the horizontal and vertical parts of trajectory, where  $x_i$  is the  $i$ -th sample of the horizontal coordinate,  $y_i$  is the  $i$ -th sample of vertical coordinate (in pixels), for  $i=0 \dots N-1$ ,  $N$  is the duration of the observation window in samples.

Horizontal dispersion  $D_x$  and vertical dispersion  $D_y$  in the observation window are defined as

$$\begin{aligned} D_x &= \max(X) - \min(X) \\ D_y &= \max(Y) - \min(Y) \end{aligned} \tag{1}$$

If  $T_x$  and  $T_y$  are the calibration errors in pixels for horizontal and vertical axes, respectively, then the fixation is identified for the current observation window if

$$D_x \leq T_x + D_T \text{ and } D_y \leq T_y + D_T, \tag{2}$$

where  $D_T$  is the threshold.

In the current work, fixations were detected in non-overlapping sliding windows of 200 ms duration. If the trajectory deviates less than a calibration error plus a threshold within the observation window, it is considered a fixation. The threshold  $D_T$  was empirically selected at 100 pixels, as an estimate of a distance between lines on the screen where text was presented. Afterwards, the total number of fixations was calculated as well as its ratio with respect to the total duration of the recording for every study group.

## Eye Tracking Method

Eye-tracking trajectory data were collected using Eyepass (Beehiveor, Ukraine) – a library for gathering webcam eye-tracking data [<https://beehiveor.gitlab.io/gazefilter/recording.html>].

## Results and Discussion

### Data Preparation

First, data samples where more than 80% of the recording duration (“acceptable” data) was available were selected and used for further analysis. The number of recordings used as samples for each group is presented in Table 1.

Table 1  
*Data Samples for Each Group Used for the Analysis*

Group	Total #	Acceptable #
Negative, older	20	16
Negative, younger	20	17
Positive	26	23
Neutral	35	33
Negative	40	33

After removing recordings with the noise level exceeding the established threshold, 16 older adults and 17 younger adults remained eligible for the analysis. Older and younger groups were compared by the number of total fixations and median duration of the fixation (median data are presented in Table 2, and boxplots for fixations duration and numbers are shown in Figures 2 and 3, respectively). Since the number and duration of fixations were not distributed normally, we used non-parametric statistical tests to determine the difference between the two groups. We used Mann-Whitney U-test in search of statistical significance between the two groups. The results revealed that older adults had a shorter median fixation duration (p-value < .001). However, there was no difference between groups regarding the fixation number (p-value = .1).

Table 2  
*Median Fixation Duration and Fixation Number*

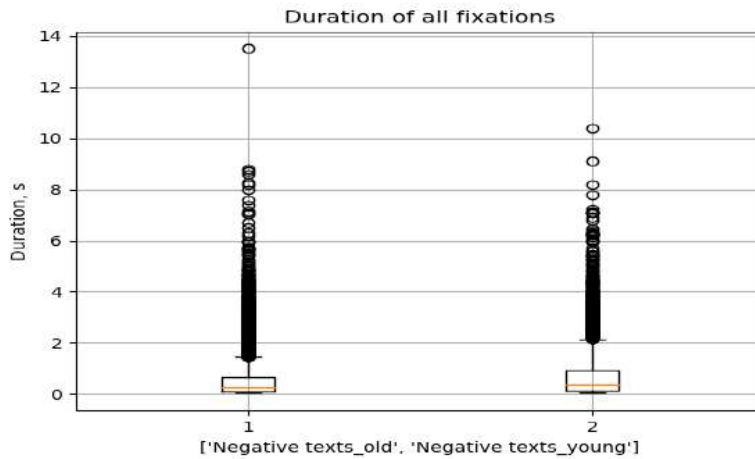
Group	Fixation duration, lower quartile	Fixation duration, median	Fixation duration, upper quartile	Fixation number, lower quartile	Fixation number, median	Fixation number, upper quartile
Younger adults	.13	.37	.93	70.55	74.23	80.31
Older adults	.1	.23	.63	51.02	64.14	77.82

Boxplots for duration of gaze fixations in older and younger adults are presented in Figure 4.

**Figure 4**

*Duration of Gaze Fixations for Professors / Duration of Fixations for Students*

( $p = 2.3588531632421013e-74$ )



Duration of all fixations, Negative texts\_older: [0.1 0.23333333 0.63333333]

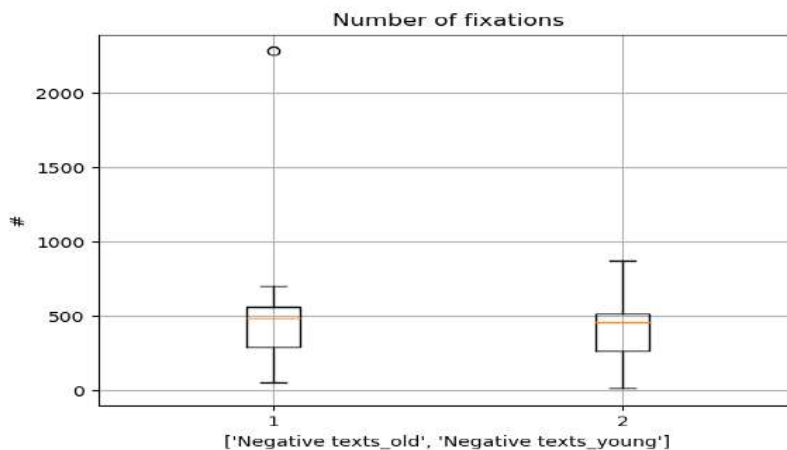
Duration of all fixations, Negative texts\_Junior: [0.13333333 0.36666667 0.93333333]

Boxplots for the number of gaze fixations in older and younger adults, see Fig. 5.

**Figure 5**

*Number of Gaze Fixations in Professors / Number of Gaze Fixations in Students*

( $p = .3593191418097559$ )



A number of all fixations, Negative texts\_senior: [296. 486. 560.5]

A number of all fixations, Negative texts\_younger: [264. 463. 516.]

The results of this research directly contrast with earlier findings about age differences in gaze fixation duration. For instance, McGowan et al. (2014) showed that older adults have a longer fixation time. However, those authors did not use media content in their research design. Moreover, there are very few, if any, such studies that

use news content. Regarding possible explanations, further research should address this problem using various research designs.

Nevertheless, our findings appear crucial in adapting the eye-tracking method to examine news effects. As Geise admitted, the process of visual perception – is a multidimensional phenomenon to which justice can be done only through a multifaceted theoretical foundation (Geise, 2014).

Many eye-tracking studies in media effects research were performed within Lang's Limited Capacity Model of Motivated Mediated Message Processing, LC4MP (Lang, 2006). In developing this model, Avery and Park (2018) noted that visual attention is measured by dwell time on visual stimuli to identify how they affect message effectiveness. By tracking how people visually move through messages with different motivations, the effects of visual stimuli are isolated in a more sophisticated and valid way than self-reports allow.

## **Limitations of the Study**

Gaze behavior may differ from person to person. According to the media-dependence theory (Ball-Rokeach & DeFleur, 1976), one of the crucial variables that psycho-physiological media effects research should consider is the importance of certain media for an individual. From such attitude derives media trust, an even more important indicator. Therefore, one critical limitation of this paper is paying little attention to media importance and trust. Besides, researchers need to involve many more participants to show systematic trends in media effects using the eye-tracking methodology. However, in our situation, it was primarily challenging to conduct an experiment during the COVID-19 lockdown without harm to the participants' and researchers' health. Thus, we chose the web eye-tracking method when all the participants read the experimental content using their computers.

## **Conclusions**

While these results are statistically significant, other factors besides age might have contributed to these findings. First, the occupation of the study participants should be taken into consideration. As professors at the Scientific and Educational Institute of Journalism, older adults participating in the study may have different reading patterns due to their professional skills. Second, older adults are more vulnerable to adverse COVID-19 outcomes than younger adults (Nidadavolu & Walston, 2021). This may leverage some changes in text processing due to the text's high importance for satisfying basic safety needs. Finally, older adults' higher vulnerability than younger adults may result in differences in attention processes while reading text with negative text elements.

Therefore, there are significant age-related differences in gaze behavior while reading the news with negative text elements. While the origin of these variations between older and younger adults remains unknown, further research should provide more evidence about this effect's origin.

## Acknowledgements

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## Disclosure Statement

No potential conflict of interest was reported by the authors.

## Data Availability Statement

The data that support the findings of this study are openly available in Mendeley Data <https://doi.org/10.17632/rpytj9dkmx.3>

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# On the Temporal Values of Situation-Participant NP Referents Mapped from Bulgarian Perfects with Aorist and Imperfect Participles

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**Abstract.** This paper deals with Bulgarian *съм+л* ('be'+past active participle) perfect verb forms with aorist and imperfect participles, the distinction between these two participles being a phenomenon found only in Bulgarian among the Slavic languages and generally absent in other languages too. According to the majority of Bulgarianists today, imperfect participles are not used in perfect verb forms. However, this thesis is considered here a fully defective one for several reasons, among which: no argumentation has ever been provided to explain the thesis in essence – for example, in its possible connection to the aspectual values encoded in aorist and imperfect participles, or to the general characteristics of *съм+л* forms. These forms can effectuate many TAM meanings – not only of “a standard perfect” but also modal ones such as inferentiality, renarration, dubitativity. Following the author’s definition of aspect as an all-pervading and perpetual process of mapping temporal features between verbal and nominal referents, specific uses of imperfect and aorist participles in sentences with perfect verb forms are analyzed, and the impact the relevant participle (imperfect or aorist) exerts on the temporal values of situation-participant NP-referents is analyzed and identified. The major generalization is that the never-ending process of mapping temporal features from verbs to nominals (NPs) that occurs in verbal-aspect languages (Slavic, Greek, Georgian), and vice versa, from nominals (NPs) to verbs that occur in compositional-aspect languages (Dutch, English, Finnish) is a crucial psychophysiological mechanism ingrained in peoples’ heads and conditioning the development of grammatical structures of languages. Intriguingly, this process is linguistically fully identifiable at the speaker-hearer interaction level but remains entirely beyond the awareness of the ordinary native speaker.

**Keywords:** *Bulgarian perfect, aorist and imperfect participles, temporal values of situation-participant NPs, speakers’ unawareness of NP temporal values.*

**Кабакчиев Красимир. Про темпорални значення ситуативних референтів іменної групи (NP), що відображують болгарські перфективи з аористом та дієприкметником недоконаного виду.**

**Анотація.** У цій статті розглядаються болгарські дієслівні форми доконаного виду на *съм+л* («бути» + активний дієприкметник минулого часу) з аористом і дієприкметниками недоконаного виду, причому відмінність між цими двома дієприкметниками є явищем, яке трапляється лише в болгарській мові серед слов'янських мов і загалом відсутнє в інших мовах. На думку більшості сучасних болгаристів, дієприкметники недоконаного виду не вживаються з дієсловами доконаного виду. Однак ця теза вважається тут цілком хибною з кількох причин, серед яких: жодного разу не було наведено аргументації для пояснення цієї

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тези по суті, наприклад, у її можливому зв'язку з аспектуальними значеннями, закодованими в аористах і дієприкметниках недоконаного виду, або із загальними характеристиками форм на *сьм+л*. Ці форми можуть реалізовувати багато значень у межах «час–аспект–спосіб» не лише «стандартного перфекта», а й модальних, як-от інференційність, ренарация, дубітативність. На основі авторського визначення аспектуальності як всеохоплюючого і безперервного процесу відображення темпоральних ознак між дієслівними та іменними референтами проаналізовано конкретні випадки вживання дієприкметників недоконаного виду та аориста в реченнях з дієсловами доконаного виду, а також проаналізовано та виявлено вплив відповідного дієприкметника (недоконаного виду або аориста) на темпоральні значення ситуативних іменних референтів, що беруть участь у реченні. Головне узагальнення полягає в тому, що нескінченний процес відображення темпоральних ознак від дієслова до іменника (іменної групи), який відбувається у дієслівних мовах (слов'янських, грецькій, грузинській), і навпаки, від іменника (іменної групи) до дієслова, який відбувається у мовах композитного типу (нідерландській, англійській, фінській), є важливим психофізіологічним механізмом у мовців, зумовлюючи розвиток граматичних структур мов. Цікаво, що цей процес загалом піддається лінгвістичній ідентифікації на рівні взаємодії між мовцем і слухачем, але залишається цілковито поза увагою пересічного носія мови.

*Ключові слова:* болгарський перфект, аорист і дієприкметники недоконаного виду, темпоральні значення ситуативних іменних груп, неусвідомленість мовців щодо темпоральних значень іменних груп.

## Introduction

This paper deals with Bulgarian perfect verb forms (perfects) with aorist and imperfect participles, which necessitates preliminary explanations of both aspect and the perfect. The two types of participles (aorist and imperfect) used in perfects have aspectual values, grammatically realized, that reciprocate the aspectual values of the aorist and the imperfect. The perfect is a grammatical entity present in Bulgarian and many other languages (Bybee et al. 1994; Comrie 1985; Dahl 1985)<sup>2</sup> – but, notably, not in the other Slavic tongues. As for aspect, it is a universal phenomenon present in every language under various disguises and representing a perpetual interplay between verbal and nominal entities in the sentence, according to a model (Kabakčiev 2000; 2019) in which the referents of situation-participant NPs in a sentence are temporal entities, something often greeted with surprise and/or even suspicion. For this reason the presentation of aspect below is larger than the one for the perfect.

### Aspect

After Verkuyl's (1972) discovery of compositional aspect, it became clear that verbal aspect as in the Slavic languages, Greek, Georgian and other languages is *not* what Jakobson (1957, p. 45) claimed it to be: a category that “characterizes the narrated event itself without involving its participants”. On the contrary, aspect, including verbal aspect, is inseparably linked to the participants in situations,<sup>3</sup> and is

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<sup>2</sup> Bulgarian features present perfects, past perfects, future perfects and future-in-the-past perfects, but the paper deals with present perfects only, called perfects.

<sup>3</sup> Situation participants are also known as verb arguments.

realized as a permanent interplay between temporal values of verbs and nominals in the sentence. By “situations”, Vendlerian ones (Vendler, 1957) are understood, while “aspect” is the perfective-imperfective contrast.<sup>4</sup> Today, the thesis that the perfective-imperfective contrast is the prototypical form of aspect across languages prevails in aspectology. Huge numbers of publications appeared in the last decades investigating aspectual data in hundreds of languages. Most of them expressly or tacitly follow the understanding that languages that do not have verbal aspect – of the Slavic type – feature compositional aspect. Unfortunately, the two extremely important phenomena of compositional aspect and the article-aspect interplay as its nucleus are heavily misconceptualized in aspectology (Kabakčiev, 2019). Furthermore, they are completely ignored in all of today’s comprehensive English grammars (Bulatović, 2020), on the one hand, and, on the other, in English language teaching worldwide, at all levels (Bulatović, 2022). These facts correlate with the reliance on a premise in many studies of English aspect and/or its acquisition (as a native, second or foreign language) that compositional aspect is realized at the VP-level (Kaku & Kazanina, 2007; Kaku-Macdonald et al., 2020; Martin et al., 2020; Kardos, 2022), the sentence-level remaining disregarded.

Why aspect is systematically and wrongly treated as a VP-phenomenon is a question difficult to answer. Kaku & Kazanina (2007) correctly argue that “L2 learners have access to a universal mechanism for calculating telicity that involves boundedness of nominal arguments”. But several key elements remain unspecified in this publication and the other three above: (i) whether this mechanism involves subject-NPs; (ii) whether subject-NPs represented by proper names of people and personal pronouns take part in aspect explication; (iii) whether *all* NPs in a sentence, of any syntactic type, are what the authors call “nominal arguments”; (iv) exactly what kind of nominal arguments participate in compositional aspect explication; (v) what exactly is (what the authors call) unboundedness. Regarding (i), a huge achievement, beyond any doubt, of Verkuyl’s theory is that it defines aspect as a sentence-level phenomenon. Regarding (ii), the publications mentioned provide scores of examples with proper names and personal pronouns, not specifying whether these take part in aspect explication – and if they do, how. Regarding (iii), it is common knowledge that not all NPs in a sentence are necessarily “nominal arguments” (explained below). Regarding (iv), the present paper follows the thesis (Kabakčiev, 2000) that NP-referents that participate in aspect explication are temporal entities. Vounchev (2007, p. 86–87) was the first linguist to subscribe to the idea of the temporality of NP referents – on Greek and Bulgarian data,<sup>5</sup> followed by Dimitrova (2021). Regarding (v), it is invariably maintained (see Kaku & Kazanina, 2007) that plural count nouns and mass nouns are unbounded due to the lack of precise boundaries – which means that nominals/NPs encode features that are physical, atemporal. The atemporal features then turn into temporal ones, a miraculous metamorphosis formulated by Padučeva (2004, p. 50) thus: “the

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<sup>4</sup> Ukrainian: “доконаного-недоконаного виду”.

<sup>5</sup> To the author’s knowledge.

boundedness of a situation in time arises on account of the boundedness of the incremental object in space”. See criticism of the idea of the miraculous metamorphosis in Kabakčiev (2019, p. 23–25). To sum up, a discrepancy arises: the treatment of English aspect as a VP-level phenomenon in the publications mentioned and in numerous similar ones counters the major tenet – that aspect is a sentence-level phenomenon – in three models of compositional aspect, including that of the finder of compositional aspect himself (Verkuyl, 1972; 1993; 2022; Kabakčiev, 2000; 2019; Bulatović, 2020; 2022).

Apart from the perfective-imperfective distinction, effectuated in Slavic and similar languages in mixed lexico-grammatical terms, there is a second major grammatical disguise under which aspect resides in languages. It is the aorist-imperfect contrast, conceptualized on the basis of two phenomena observed in the two historically most important languages: Ancient Greek and Latin. The two phenomena, similar but not identical, are the aorist-imperfect distinction in Ancient/Modern Greek and the perfect-imperfect distinction in Latin. Both are aspectual but they also carry a tense value, past. The Latin phenomenon does not coincide with the Greek one. While the imperfect is an exponent of imperfectivity in both Latin and Greek, and in Latin the perfect carries a perfective meaning, in Greek the aorist is not an exponent of perfectivity. The reason is the difference between perfectivity and the aorist. While perfectivity consists in temporal boundedness plus a reached telos, the aorist is incapable of effectuating a reached telos in Greek, also in Bulgarian. The Greek aorist effectuates temporal boundedness; indeed, it formally combines with perfective verbs only but it also allows the coercion of a perfective verb into an episode through the compositional mechanism (Dimitrova, 2021; Dimitrova & Kabakčiev, 2021). On the episode as a Vendlerian situation, see Kabakčiev (2000, p. 279-307). The difference between aorist and perfectivity can be explained on Greek and English data, but especially easily in Bulgarian, where the two contrasts, perfectivity-imperfectivity and aorist-imperfect, generate four separate forms, see the aspectual pair *изпя-пя* ‘sing’:

Table 1

*Forms of Perfectivity-Imperfectivity and Aorist-Imperfect*

perfective aorist	<i>изпях</i> ‘I sang (to the end)’
imperfective aorist	<i>пях</i> ‘I sang (for X time)’
perfective imperfect	<i>изпеех</i> ‘I sang (each time once, habitually)’
imperfective imperfect	<i>пеех</i> ‘I was singing/I sang (habitually)’

As is clear from the table, aorist and imperfect participles (*пял-пеел*) are derived from imperfective aorists and imperfective imperfects, respectively. See examples in (5)-(6) below. It is important for an investigation of these participles to consider the fact that the aorist-imperfect distinction is widespread, found throughout Europe and

nearby regions: Romance languages/dialects, Albanian, Bulgarian, Greek, Armenian, Georgian. All these languages also have perfects. On the other hand, while besides Bulgarian no other Slavic language has perfects, Greek and Georgian have no separate aorist and imperfect participles but are verbal-aspect languages like Bulgarian, and unlike the rest. Thus, against the prevalence of aorists, imperfects and perfects in cross-language terms, the presence in Bulgarian perfects of aorist and imperfect participles is striking and may turn out to be a unique phenomenon, worth investigating. This paper is an attempt in that direction.

### **The Perfect: A Puzzle or a Structural Device?**

The perfect has often been regarded as a puzzle (Klein, 1992; Pancheva & von Stechow, 2004; Higginbotham, 2009, p. 160) and the definitions of its “meanings” in grammars and other traditional descriptions have been subjected to criticism. According to Moens (1987, p. 94), the accounts of the perfect are vague, “make unprincipled distinctions between different uses of the perfect” and do not explain why the perfect should fulfill such an arbitrary collection of functions. In one of the most detailed analyses of the English perfect, McCoard (1978) outlines several trends for explaining it, and recognizes neither of these as revealing. According to certain recent proposals, the perfect across languages is not necessary for communication as an exponent of some semantic value: native speakers of “perfect-less languages” understand each other perfectly without perfects. The *raison d’être* of the perfect is not the encoding of “current relevance” or similar unclear notions, the perfect serves structural functions related to cancellability and non-witnessing (Kabakčiev, 2020; 2022).

### **The Bulgarian Perfect**

Almost all Bulgarian grammars and other linguistic publications maintain that perfects cannot be formed from imperfect participles. There are only a few “dissident voices” – two old-time grammarians (Kostov, 1939; Popov, 1941) and four modern linguists (Lindstedt, 1985; Rå Hauge, 1999; Todorova, 2010; Kabakčiev, 2022), according to whom perfects *are* formed from imperfect participles. The opponents’ major argument is that when *сЪМ+-л* forms contain imperfect participles, these are not perfects but inferentials. The validity of the argument is checked below.

## **Methods**

The *main target* of the study, Bulgarian perfects with aorist and imperfect participles, is analyzed through the theory of compositional aspect in three major models, Verkuyl’s (1972; 1993; 2022), Bulatović’s (2020; 2022), Kabakčiev’s (2000; 2019); this section explains Verkuyl’s pioneering one. The *analytical method* is predominantly deductive, employing universal notions underlying language structure and identifying their realization in different languages (Dimitrova, 2021, p. 52). Technically, the *key approach* involves counterposing non-grammatical against

grammatical sentences, as per the Chomskyan framework – where non-grammaticality is decisive for revealing language structures and interdependencies.

Compositional aspect was discovered by Verkuyl (1972) but came to be understood – rather slowly – in the following decades as an extremely important phenomenon in both cross-language and universal terms. Unfortunately, it still remains generally misconceived and misunderstood (Kabakčiev, 2019). This paper follows the conceptualization of aspect as “*an all-pervading and perpetual process of mapping temporal features between elements of the sentence, especially between referents of verbs and of nominals that are participants in situations*” (Kabakčiev 2019, p. 212). It will be applied to situation-participant NP-referents of Bulgarian present perfects with aorist and imperfect participles, whereby the temporal values of the participles are identified through the boundedness/non-boundedness contrast and then mapped from the participles onto the situation-participant NP-referents.

In connection with the idea of the temporal values of situation-participant NP-referents, certain popular notions prevail in traditional grammars and similar linguistic publications that provide misleading conceptualizations of certain grammatical phenomena – although at first sight the notions appear well-constructed. One of the misleading conceptualizations is that when users of language in their capacity as speakers-hearers interpret what nominals/NPs stand for, they think of certain nominal entities as material/physical, and of other entities as abstract. Here are some obvious examples: *car, dog, street* are apprehended as material/physical things, while *love/hate, jump, smile, thunder* are non-material/non-physical entities, abstract things. At first sight the distinction makes sense. But when certain language mechanisms are to receive scientific explanation, it fails to offer justification and this hinders the understanding of the phenomena.

Consider the following two English sentences (discussed in Kabakčiev, 2020) portraying a real-world happening. A passenger in a moving car tells the driver what s/he saw seconds ago:

- (1) a. *There was a dog in the car in front.*  
b. *The dog was barking.*

The use of a past tense form in (1a) is at first sight illogical, as – in our understanding of this world – the dog is still alive. It has not died or evaporated into thin air. As already established (Kabakčiev, 2020, p. 128-130), many or all European languages use past tense in the translation equivalents of (1a) – which means that “the illogical form” is not some specific trait of English. But why the use of *was* in (1a) and not *is*? This is because *a dog* reflects not the physical status of the NP-referent but the sensory experience of the speaker. *A dog* in (1a) is not “a material thing”. It is a temporal entity that existed in the speaker’s vision/mind for some seconds. Analogously, consider (2a)-(2b) – describing eventualities occurring this morning:

- (2) a. *The neighbor’s dog jumped in front of our car and crossed the street*  
b. *There was a raised crosswalk on which the dog jumped*  
c. *Last year there was a restaurant at this corner*

According to the fundamental rules of grammar – and not only English grammar, of course, the use of a verb like *was* in sentences like (2b) implicates the present *non-existence* of the situation participant referred to by the relevant NP (here *a raised crosswalk*). Compare (2c), a sentence clearly implicating the present non-existence of a restaurant at this corner. But the non-existence in (2b) of a raised crosswalk a couple of hours later today is unthinkable. Why the use of *was* in (2b)? It is because the sentence depicts not an object made of asphalt but the speaker’s visual experience, in which the crosswalk is not (so much) a material object as a temporal one. It may sound surprising, but the crosswalk here is *a kinetic entity* – moving not in space like *the dog* in (1a) and (2a, b) but *in time* (although the dog also moves in time).

Note now that the past indefinite in the sentences above serves to deploy the participants in the past – according to a thesis that tense does not locate in time situations only. It serves to deploy in time another two entities that constitute an important part of the general mechanism of language: the speaker and the participants in the Vendlerian situation (Kabakčiev, 2020, p. 128-129). Some of the sentences above and in (3) below nicely demonstrate the compositional aspect explication in English and similar non-verbal-aspect languages. Let us shorten sentence (2a) into (2a') and compare it to (3a, b, c):

- (2) a'. *The dog crossed the street* [perfective]  
 (3) a. *The dog crossed streets<sub>SLEAK</sub> (in search of food)* [imperfective]  
 b. *Dogs<sub>SLEAK</sub> crossed the street (at this place, so we had to drive carefully)* [imperfective]  
 c. *The dog loved<sub>LEAK</sub> the street* [imperfective]

The sentences (3a) and (3b) are extended with adverbial or other complementation – so that they make sense and are felt to be natural. Sentence (2a') is perfective, falling into Verkuyl’s so-called perfective schema in which the three sentence components fulfill the requirement to have “plus-values” to be able to effectuate perfectivity. The plus-values are: (i) +SQA (specified quantity of A) in situation-participant NP-referents (*the dog* and *the street*); (ii) a telic verb (*crossed*). Imperfectivity is realized when at least one component has a “leak” (a minus-value). The leaks are: (i) -SQA (unspecified quantity of A) in a situation-participant NP-referent – *streets* in (3a), *dogs* in (3b); (ii) a non-telic/atelic verb. Hence, sentences such as (3a,b,c) are imperfective, because (3a) has a leak in the object, (3b) in the subject and (3c) in the verb (*loved*, an atelic verb). But the most essential thing is that all the NPs in (2) and (3) are temporal entities, kinetic images in the minds of speaker-hearer – bounded or non-bounded in time. For a larger summary of Verkuyl’s theory, see Kabakčiev (2019, p. 203-206); on Verkuyl’s schemata, leaks and the plus-principle, see Verkuyl (1993; 2022).

What are situation participants? Not every NP in a sentence is necessarily a situation participant. A situation-participant NP is one which takes part in aspectual interpretation. *The dog, the street, dogs/streets* above trigger perfectivity/imperfectivity through “quantificational information”: a bare NP is non-quantified; an NP with an article/determiner/quantifier, etc. is quantified. When the quantified NP *the street* in the perfective sentence (2a') is replaced by the non-quantified NP *streets*,

the resulting sentence (3a) is imperfective and *the street* is a situation participant. But the quantified NP *the café* in (4a) below does not trigger perfectivity. Hence, it is not a situation participant. If it is replaced by a non-quantified NP – *cafés* in (4b), the substitution does not trigger imperfectivity, (4b) remains perfective. Hence, in (4) *the dog* and *the street* are situation participants but *the café* and *cafés* are not.

- (4) a. *The dog crossed the street with the café.*  
 b. *The dog crossed the street with cafés.*

For more clarification on the notion of situation participant, important for conceptualizing compositional aspect correctly, see Kabakčiev (2019, p. 201-210).

## Results

Consider sentence (5a) below. It is from a publication by a musicologist describing the kind of performances different musicians used to give in the distant past when audio recording did not exist.<sup>6</sup> The author maintains that nowadays musicologists can *only imagine* how composers and musicians performed then. In (5a) below the NP *различните музиканти* ‘the different musicians’ explicates a generic/generic-like meaning. It refers to all musicians in the relevant period, not to a specific group of musicians. The two verb forms in (5a) are imperfect perfects (perfects with imperfect participles) and the situations portrayed are Vendlerian states, temporally non-bounded: *са свирели*<sub>IMPPFCT</sub> ‘have played [habitually]’, *са пели*<sub>IMPPFCT</sub> ‘have sung [habitually]’. However, Bulgarian *съм+-л* forms offer a choice between an imperfect and an aorist participle. To analyze the difference between an aorist perfect (a perfect with an aorist participle) and an imperfect perfect, sentence (5b) is constructed after the example of (5a). The following obtains. When *различните музиканти* has generic/generic-like meaning, (5a) with the imperfect perfects is correct, the NP *различните музиканти* is a temporally non-bounded entity (non-boundedness mapped onto it from the imperfect participle), and (5b) with the aorist perfects is non-grammatical:

- (5) a. *Ние не знаем как различните музиканти са свирели*<sub>IMPPFCT</sub> *тогава, нито как са пели*<sub>IMPPFCT</sub>.  
 ‘We know neither how different musicians played their instruments then, nor how they sang’  
 b. \**Ние не знаем как различните музиканти са свирели*<sub>AORPFCT</sub> *тогава, нито как са пели*<sub>AORPFCT</sub>.  
 ‘We know neither how (the) different musicians played their instruments then, nor how they sang’  
 c. *Ние не знаем как различните музиканти са свирели*<sub>AORPFCT</sub> *вчера, нито как са пели*<sub>AORPFCT</sub>.  
 ‘We know neither how the different musicians played their instruments yesterday, nor how they sang’

<sup>6</sup> The sentence is authentic, slightly shortened.

In (5c) the NP *различните музиканти* is a temporally bounded entity – boundedness mapped onto it from the aorist participle.

The conjecture that Bulgarian perfects are not formed from imperfect participles and that imperfect perfects produce only inferentials is thus rejected by the analysis of (5). It is common knowledge that there is homonymy between perfects and inferentials, both are *съм+-л* forms (Aleksova, 2017, p. 144). Furthermore, *all* third-person *съм+-л* forms can be inferential (Todorova, 2010, p. 72-79). Note that sentence (5c) – with aorist perfects as in (5b) and with the same NP *различните музиканти* but with a different adverb, *вчера* – is correct. It refers to situations yesterday, so *различните музиканти* carries specific reference, not generic/generic-like. The situations are temporally bounded, comprising one or several occasions (a bounded number) of instrument-playing and singing; these occasions occur thanks to the participants in them, temporally bounded, boundedness generated by the aorist perfect. Nothing can support the idea that the use of a *съм+-л* phrase with an aorist participle leads to a “true perfect” reading, while the use of an imperfect participle leads to an inferential one. Both (5a) and (5c) can be read as sentences explicating inference; both can be read as explicating a standard perfect too.

Note also that the NP *различните музиканти* – with a definite article (*-те*), is *the only option* in the sentences in (5). If the article is dropped, the sentence becomes non-grammatical: \**Ние не знаем как различни музиканти са свирели тогава...*<sup>7</sup> Conversely, in the English correspondence of (5b) a zero article *must* be used for the sentence to be generic/generic-like: *different musicians* (not *the different musicians*). If a quantified/definite NP is used, the sentence explicates specificity/non-genericity, cf. the English correspondence to (5c). This is because, unlike in English, the Bulgarian definite article in plural nominals is associated with *either* genericity or specificity.

Let us now analyze the Bulgarian sentences (6), where an imperfect perfect (*е мислел*) is used in (6a), whereas (6b) and (6c) contain an aorist perfect (*е мислил*):

- (6) a. *Тесла е мислел<sub>IMPERF</sub>, че преносът на електричество по въздуха е възможен.*  
(lit.) ‘Tesla has thought that the transfer of electricity by air is possible’.
- b. \**Тесла е мислил<sub>AORPERF</sub>, че преносът на електричество по въздуха е възможен..*  
(lit.) ‘Tesla has thought that the transfer of electricity by air is possible’.
- c. *Целия ден днес Тесла е мислил<sub>AORPERF</sub> за преноса на електричество по въздуха.*  
(lit.) ‘All day today Tesla has thought about the transfer of electricity by air’.

In (6a), a grammatical sentence, *Tesla* has an extension in time that activity – it is a Vendlerian state, and states are non-bounded. Hence, it can be predicated of the scientist Tesla – and not of the human being Tesla thinking about approximates the life of the scientist – say, excluding childhood. This is a consequence of the meaning of the imperfect perfect *е мислел* combined with the meaning of the relative clause. The situation “think that the transfer of electricity by air is possible” is definitely not an something this morning. Thus *Tesla* in (6a) is a temporally non-bounded entity cherishing the idea that the transfer of electricity by air is possible. Conversely, in the

<sup>7</sup> The reasons for this are complex, hence the issue is not discussed.



non-grammatical (6b) *Tesla* cannot approximate the lifetime of the scientist. It stands for a short, bounded time segment of the entity *Tesla* – due to the temporal boundedness mapped onto *Tesla* by the aorist participle. There is incompatibility between the state *мисля, че преносът на електричество по въздуха е възможен* and the temporal boundedness of the aorist participle, effectuating an episode. In (6c) *Tesla* again stands for a bounded time segment, embracing today: the aorist perfect encodes boundedness: a time stretch with definite endpoints, in contrast to the imperfect perfect *е мислел* in (6a) whose start- and end-point are unknown. To sum up, *Tesla* is not what traditional grammar would have us believe – that *Tesla* is invariably a material/physical entity. *Tesla* here is **an entity in time**, processed so in the minds of speaker-hearer, a temporally non-bounded kinetic image in (6a), a temporally bounded one in (6c).

## Discussion

The analysis of sentences (5)-(6) confirms that: (i) mapping takes place between referents of verbs and of situation-participants NPs in Bulgarian sentences with aorist and imperfect perfects; (ii) situation-participant NP-referents are temporal entities in the minds of speaker-hearer. The boundedness value of the aorist perfect and the non-boundedness value of the imperfect perfect are transferred onto the relevant NP referents, making them kinetic objects. This particular V-NP transfer is just a peripheral instantiation of the never-ending process of mapping temporal features between nominals/NPs and verbs, an important psychophysiological mechanism ingrained in peoples' heads and conditioning the development of grammatical structures of languages, involving major language domains such as aspect, tense, nominal determination – see the inverse relationship across languages between markers of boundedness in verbs and nouns (Kabakčiev, 2000, p. 153-157).

The intriguing thing is that the process of V>NP mapping (or NP>V mapping in other cases) is permanent, yet it remains beyond the awareness of the ordinary native speaker (who has no special linguistic knowledge). Native speakers are unable to apprehend that the NPs *различните музиканти* in sentence (5a) is an entity consisting of musicians that are non-bounded in time, that *Tesla* in (6a) is also an entity non-bounded in time, and that these NPs encode, therefore, kinetic entities, temporal objects, not physical/material things. Conversely, *различните музиканти* in (5c) and *Tesla* in (6c) are again kinetic temporal entities, but now they are bounded – and their temporal parameters are again inaccessible for the ordinary native speaker. As for the temporal values of the participles themselves, when asked about the differences between (5a)-(5c)-(6a)-(6c), respondents are startled at first but soon intuit that imperfect perfects encode temporal non-boundedness, whereas aorist perfects encode temporal boundedness.

## Conclusions

Native speakers are generally capable of recognizing the temporal values of verb referents, including participles, but the mechanism of NP>V and V>NP mapping remains hidden for them. This covert mechanism can be said to have been ingeniously contrived by Mother Nature – and ultimately, in scientific terms (psychophysiological), by the collective human brain governing the development of natural language. The presence of this mechanism confirms the idea prevalent in psycholinguistics that constructing generalized concepts of human and other physical objects over a wide time-span instead of their short-time occurrences is a technique to free human memory of unimportant information. Furthermore, this technique underlies large-scale cross-languages regularities, such as the inverse relationship between markers of boundedness in verbs and nouns.

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# Ethical Stress in Interpreting and Translation: A Literature Review

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**Abstract.** Ethical stress is occupational stress resulting from disparities between one's ethical values and expected behaviours that can lead to dreadful consequences for individuals and even burnout. This review focuses on studies of ethical stress in translation and interpreting; individual and situational factors that may lead to ethical stress; its moral, emotional, psychological, and professional implications. The literature review is based on the search of articles in peer-reviewed journals published in the 21st century. This study has found that ethical stress in translation and interpreting occurs when the job requirements do not match the capabilities, resources, needs or values of the translator/interpreter due to linguistic demand factors and non-linguistic ones, including environmental, interpersonal, and intrapersonal demands. Taken together, the obtained results suggest that (a combination of) various individual and situational factors (working conditions primarily) may trigger moral distress, emotional exhaustion, vicarious trauma, burnout, and, eventually, ethical stress. However, the correlation between individual and situational factors and the level of their impact on translators/interpreters have not been sufficiently studied. Moreover, very little research has been carried out into psychological consequences for the translators/interpreters caused by socio-ethical dilemmas they face. Recent studies confirmed the positive relation between (the level of) ethical stress and job satisfaction and performance. Still, little is known about the correlation between (relative) autonomy to make decisions and judgments and the level of ethical stress and impact on performance. Thus, further research into the ethical stress of translators/interpreters under natural working conditions rather than in laboratory and agency settings and its implication on their performance and general well-being is essential.

**Keywords:** *ethical stress, moral injury, vicarious trauma, burnout, professional dissonance, socio-ethical dilemmas.*

**Каліщук Діана. Етичний стрес під час усного та письмового перекладу: огляд літератури.**

**Анотація.** Етичний стрес – це професійний стрес, спричинений розбіжностями між етичними цінностями та очікуваною поведінкою, що можуть призвести до жахливих наслідків для особистості, навіть до професійного вигорання. Запропоноване дослідження відображає критичний огляд наукових праць з проблем етичного стресу під час усного та письмового перекладу; індивідуальних та ситуаційних факторів, що можуть призвести до етичного стресу; його моральних, емоційних, психологічних та професійних наслідків та ґрунтується на публікаціях у фахових журналах 2000–2022 років. У науковій роботі встановлено, що етичний стрес у перекладацькій діяльності виникає за умови, що вимоги до виконання роботи не відповідають можливостям, ресурсам, потребам чи цінностям усного / письмового перекладача через вимоги лінгвістичного та нелінгвістичного характеру, що

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включають внутрішньоособистісні, міжособистісні фактори та фактор середовища, у якому здійснюється професійна діяльність. Результати теоретичного аналізу літератури свідчать про те, що різноманітні індивідуальні та ситуаційні (переважно умови праці) фактори (їх поєднання) можуть викликати моральний дистрес, емоційне виснаження, вторинну травму, професійне виснаження та, врешті, етичний стрес. Однак, кореляція між індивідуальними та ситуаційними факторами та рівнем їх впливу на письмового / усного перекладача не була достатньо вивчена. Крім того, існує надзвичайно мало досліджень щодо психологічних наслідків для перекладачів, спричинених соціально-етичними дилемами, з якими вони стикаються. Сучасні наукові розвідки підтверджують позитивний зв'язок між (рівнем) етичного стресу та задоволенням від роботи і продуктивністю. Проте досі мало відомо про співвідношення між (відносною) автономією щодо прийняття рішень та суджень і рівнем етичного стресу та впливом на продуктивність. Отже, необхідні подальші дослідження етичного стресу усного / письмового перекладача в реальних умовах здійснення професійної діяльності, а в не в лабораторіях чи агентствах, і його впливу на продуктивність роботи та загальне самопочуття.

***Ключові слова:** етичний стрес, моральна травма, вторинна травма, професійне вигорання, професійний дисонанс, соціально-етичні дилеми.*

## Introduction

Ethical stress has often been conceptualized as occupational stress resulting from disparities between one's ethical values and expected behaviours that can lead to nefarious consequences for individuals and even burnout (DeTienne et al., 2012; Hubsher-Davidson, 2022).

There is a general agreement that translating and interpreting are inherently stressful occupations and there exist a number of empirical studies to prove this conception (Heller et al., 1986; Moser-Mercer et al., 1998; Kurz 2002; 2003; Apter 2007; Chiang 2009; 2010; Kállay, 2011; Bontempo & Malcolm, 2012; Kao & Craigi 2013; Schwenke et al., 2014; Ndongo-Keller, 2015; Valero-Garcés, 2015; Eszenyi, 2016; Korpál, 2016).

The theory of occupational stress known as the demand-control model was developed by Karasek (1979) in collaboration with Theorell (Karasek & Theorell, 1990). This method is utilized in studies of occupational stress and reduction of stress-related illness, injury and burnout. Research of such kind focuses on interrelation of linguistic demand factors and non-linguistic demand factors (namely, environmental, interpersonal, and intrapersonal demands) with decision latitude (Karasek's concept of control). They aim at exploring whether and to what extent correlation of demands and decision latitude contributes to stress in interpreting profession (Dean & Pollard, 2001). Occupational stress is not considered to be unavoidable (Dam & Zethsen, 2016; Hubsher-Davidson, 2022).

A number of studies proved that job stress results from the interaction of the individual and the conditions of work (Kurz, 2003). Within the framework of such studies environmental (physical) stress, psychological stress, and physiological stress (Kurz, 2002; 2003) under which interpreters and translators work have been analysed. The responses confirmed translation and interpreting as a high-stress occupation. Still

correlations between measures of (subjective and objective) stress and performance were found to be weak.

Emerging issues and debates that have begun to attract attention of researchers in the sphere of ethical stress in translation and interpreting relate to moral injury/moral distress, socio-ethical dilemmas and vicarious trauma and burnout.

### **Ethical Stress and Moral Distress / Moral Injury**

Data from several sources has identified that translators and interpreters are especially vulnerable to ethical stress most distressing consequences, that is moral injury and burnout (Allen & Bernofsky, 2013; Fenton & Kelly, 2017; Hubscher-Davidson, 2020). Working under conditions where they have to compromise their ethical or moral convictions translators and interpreters may experience moral injury which results from different sustained expectations (procedural, formulaic, managerial) that may constraint or inhibit value-based responsive practice (Fenton & Kelly, 2017).

Moral injury, if experienced constantly, may result in moral distress that can be caused by disjuncture/dissonance and ontological guilt, which by many scholars are considered to be two key components of ethical stress (DeTiene et al., 2012; Fenton, 2015).

There is still a significant debate on defining moral distress in relation to occupational stress and other related issues. Most of the work has been done in the sphere of medical care or social work. Some scholar see it as more of a specific subset of ethics or moral stress, others treat the term as interchangeable with ethics or moral stress (Jameton, 1984; 1993; Fry et al., 2002; Kalvemmark et al., 2004; Nathaniel, 2006; DeTiene et al., 2012), therefore, it is an important issue for further research.

### **Ethical Stress and Socio-Ethical Dilemmas**

The aforementioned disjuncture/dissonance and ontological guilt as key components of ethical stress have been conceptualized as professional dissonance in recent studies (Nelson & Merighi, 2002; Jones, 2004; Taylor, 2007; Abdallah, 2010; Ulrich et al., 2010; Berger, 2014; Kenworthy et al., 2014; Fenton, 2015; Pym, 2015; Fenton & Kelly, 2017; Grootegoed & Smith, 2018; McLennan et al., 2018). It is considered to have its roots in cognitive dissonance theory. Taylor explains this phenomenon as a feeling of discomfort arising from the conflict between professional values and job tasks (Taylor, 2007).

Professional dissonance is studied in relation to ethical dilemmas interpreters and translators face and decisions they have to take (Jones, 2004; Abdallah, 2010), moral injury, burnout (Fenton & Kelly, 2017), risk taking (Pym, 2015), emotional dissonance as a conceptual subset of cognitive dissonance (Kenworthy et al., 2014; Nelson & Merighi, 2002; Berger, 2014; Grootegoed & Smith, 2018).

Recent studies of emotional dissonance in relation to professional dissonance state that discrepancy between expressed and felt emotions can have a significant impact on

both moral and ethical behaviours and general well-being of a person (Nelson & Merighi, 2002; Berger, 2014; Grootegord & Smith, 2018).

## **Ethical Stress and Vicarious Trauma and Burnout**

In recent studies of ethical stress in translating and interpreting ethically stressful situations interpreters and translators often end up in are linked to vicarious trauma (sometimes called compassion fatigue) and burnout (Dean & Pollard, 2001; Figley, 2002; Boscarino et al., 2004; Canfield, 2005; O'Donnell et al., 2008; Hetherington, 2010; 2011; Pugh et al., 2011; Bontempo & Malcolm, 2012; Ledoux, 2015; Määttä, 2015; Mangoulia et al., 2015; Bancroft, 2017; Christodoulou et al., 2017; Gray, 2007; Jordan, 2010; Hubscher-Davidson, 2022). It relates to a potential conflict between the requirements of professional ethics, general ethical responsibility towards other participants, and the interpreter's/translator's own sense of professionalism (Hubscher-Davidson, 2022).

A process model of the conditions that can lead to vicarious trauma and burnout elaborated in recent studies shows that burnout which develops over a period of time results in withdrawal, intention to quit, and failure to forgive self and others. However, vicarious trauma is considered to appear more rapidly and may lead to emotional exhaustion, reduced self/other respect, low job satisfaction, alterations in self-image, performance issues (Boscarino et al., 2004; Canfield, 2005; Gray, 2007; Jordan, 2010; Bancroft, 2017; Hubscher-Davidson, 2022).

There is general agreement that under certain circumstances interpreters and translators can be rather vulnerable to vicarious trauma and burnout. However, to date there is little information on the various ways in which they may be affected by ethical stress situations.

## **Objective**

This study, therefore, focuses on the review of the articles containing data about ethical stress in professional activity, in particular, in translation and interpreting, in relation to factors influencing it as well as its psychological, emotional and professional implications and strategies to cope with it.

## **Method**

### **Selection of the Corpus of Literature**

The review uses a descriptive approach to examine theories of ethical stress analysis in translation and interpreting. The literature review was based on the search of articles in peer-reviewed journals published in the 21st century.



Articles should represent the study of ethical stress in translation and interpreting as particularly stressful profession. The selected articles have to focus on a classical view of ethical stress or contribute recent findings on the factors that lead to ethical stress in translation and interpreting as well as emotional, psychological and professional issues resulting from ethical stress.

This study follows a literature search with in-depth analysis of the key words and phrases that are required during the search process to increase the accuracy of the articles. In this study, six key words and phrases were selected, namely, ethical stress, moral injury, vicarious trauma, burnout, professional dissonance, socio-ethical dilemmas.

The initial corpus consisted of 86 articles. In this review, selection process included inclusion criteria. Inclusion is important to ensure all selected articles contribute relevant findings on 1) factors causing ethical stress in translating / interpreting; 2) emotional, psychological, professional implications of ethical stress in translating/interpreting (see Table 1). Therefore, only articles with relevant empirical data were considered in this study. After the selection process 14 articles were chosen.

Table 1  
*The Inclusion Criteria*

	<b>Inclusion Criteria</b>
Year of publication	2000-2022
Publication type	Peer-review journal articles
Types of findings	Empirical
Focus of findings	Data related to factors causing ethical stress and emotional. Psychological, professional implications of ethical stress in translation and interpreting

## **Results and Discussion**

### **Factors Causing Ethical Stress in Translation and Interpreting**

The results of the search based on the inclusion criteria are summarised in Appendix.

Ethical stress in translation and interpreting may occur when the requirements of the job do not match the capabilities, resources, needs or values of the interpreter / translator. Working conditions play a primary role in causing ethical (in some studies conceptualised as occupational) stress, however, individual factors must not be ignored (Kurz, 2002; 2003).

In recent studies the requirements of a job, which may include aspects of the environment, the actual task being performed, and other factors that act upon the individual are referred to as “demand” (Dean & Pollard, 2001). Conceptualizing demands in translation and interpreting is one of the main issues discussed in stress-related literature. In relation to demand-control theory, developed by Karasek (1979), Karasek and Theorell (1990), a great number of different demands have been singled out.

The first category of demands include linguistic ones – those directly or indirectly related to language. Within the framework of linguistic demand category analysis, many linguistic factors are studied in terms of having impact on translation and interpreting performance and causing stress. They include language fluency of the parties, fluency of delivery in particular (Dean & Pollard, 2001; Kurz, 2002; 2003; Barghout et al., 2015; Korpala, 2017), peculiarities of articulation, different speakers and different accents, the interpreter’s/translator’s own knowledge and fluency, professional experience, different topics (often rather complicated ones), sensitive topics, grammatical correctness, vocabulary, correct pronunciation and intonation, etc. (Kurz 2002; 2003; Garcés, 2015; Korpala, 2017; Gumul, 2021). In many empirical studies the factor which is perceived as the stressor for interpreters most frequently is the delivery rate of the source text (Barghout et al., 2015; Korpala, 2017; Gumul, 2021). Similarly, ethical decision-making can be stressful and mentally draining for translators when they have to translate texts of the ideological context which is offensive to them (Addallah, 2010), when translating for politicians in times of war (Apter, 2007) or when they have to convey information which is immoral, brutal, stripped of all human dignity and outside the boundaty of any law. Todorova (2016) points out that at times, the stories interpreters and translators have to communicate in another language are somewhat “embellished” or even invented. However, to date, empirical studies on such pragmatic aspects of professional translation are still scarce.

On the other hand, recent research into ethical stress in translation and interpreting proves that non-linguistic factors greatly influence the work of interpreters and arguably translations as the result of interpreting/translating activity (Dean & Pollard 2001; Hetherington, 2010; Hubscher-Davidson, 2020). These non-linguistic demands are grouped into three demand categories: *the environmental demands* that include factors related to the settings in which interpreters / translators have to work; *the interpersonal demands*, i.e. factors related to the interaction of the individuals as well as parties involved in the process of communication; and *the intrapersonal demand category* which embraces physical and psychological factors pertaining to the interpreter alone (Dean & Pollard, 2001). Therefore, a number of empirical studies have been implemented to analyse environmental, psychological and physiological occupational stress of interpreters / translators caused by the aforementioned demand categories (Cooper et al, 1982; Zeier, 1997; Moser-Mercer et al., 1998; Riccardi et al., 1998; Jiménez & Pinazo, 2001; Mertens-Hofmann, 2001; Kurz 2002; 2003).

There is a large body of literature that is concerned with the environmental demands, in particular working conditions, which are considered to play a major role in causing ethical stress in interpreters/translators. Quite a wide range of environmental factors have been singled out and analysed, among which general nature of assignment, specific setting of assignment, sight lines, background noise, room temperature, chemicals and odors, seating arrangements, lighting quality, visual distractions, poor ventilation, ergonomic problems, etc. (Dean & Pollard, 2001; Kurz, 2002; 2003; Moser-Mercer, 2005; O'Donnell et al., 2008; Hubscher-Davidson, 2022). Notwithstanding convincing findings of the empirical studies carried out which showed positive correlation between poor environmental factors and ethical stress interpreters/translators experience, the major limitation is that the ecological validity of such studies is compromised by laboratory settings to some extent.

In recent studies the social, cultural and organizational environment in which interpreters /translators are embedded (environmental and interpersonal demand categories) is conceptualized as ethical climate (O'Donnell et al., 2008; Abdallah, 2010; Ulrich et al., 2010; Hetherington, 2011; Hubscher-Davidson, 2022). Positive ethical climate within an institution may impact positively on the individual involved in interpreting/translating and vice versa. According to O'Donnell et al. (2008) three specific factors are considered to determine the nature of ethical issues in organizational settings and the way they are perceived and addressed: the individual's position and role in the organisation, the resources or support which are available to address ethical issues and the sources of (dis)satisfaction within the work environment (O'Donnell et al., 2008; Hubscher-Davidson, 2022). Lack of trust between parties involved, lack of support for the translators and lack of necessary information may discourage translators and lead to occupational stress (Abdallah, 2010).

The aforementioned factors linked with individual factors (intrapersonal demand category) can be said to predict ethical stress. Various individual factors have been singled out in the number of empirical studies carried out, among which dynamic nature and intensity of event, vicarious reactions, safety concerns, physiological responses and distractions, doubts or questions about performance, availability of supervision and support, anonymity and isolation, no legal cloak of confidentiality, liability concerns (Dean and Pollard 2001). Dam and Zethsen (2016) argue that there is a huge gap between the translators' image of themselves as experts and the way they feel clients and society at large recognize and value their expertise (low status of a translator) which creates high level of frustration. Recent studies have proved positive correlation between professional experience and the level of stress interpreters/translators get (Kurz, 2002; 2003; Chiang, 2010; Kao, 2013) as well as strong relation between such individual factors as self-motivation, self-efficacy, or strong working relationships and job satisfaction / frustration and potential intention to leave the workplace.

Still, the correlation between individual and situational factors causing ethical stress in translation and interpreting and the extent of their impact need further research.

## **Emotional, Psychological, and Professional Issues Resulting from Ethical Stress in Translation and Interpreting**

That is a large body of literature that is concerned with stress-related emotional and psychological issues interpreters and translators face (Figley, 2002; Hetherington, 2011; Swain, 2011; Bontempo & Malcolm 2012; Allen & Bernofsky 2013; Karimi et al., 2014; Kenworthy et al., 2014; Shay, 2014; Mangoulia et al., 2015; Ndongo-Keller, 2015; Roberts, 2015; Mehus & Becher, 2016; Bancroft, 2017; Gray, 2017; Tryuk, 2017; Valero-Garcés, 2017; O'Donnell et al., 2018).

Interpreters and translators experience emotional dissonance characterized by discrepancy between expressed and felt emotions which can significantly affect their ethical and moral behaviours as well as general well-being (Nelson & Merinhi, 2002; Berger, 2014; Grootegoed & Smith, 2018). There is general agreement that emotional dissonance is associated with psychological stress. According to Kenworthy et al. (2014), emotional dissonance refers to the psychological incongruence and conflict experienced by individuals who display emotions that differ from the emotions they are experiencing internally.

Emotional stability is considered to be a predictor of work performance for translators and interpreters (Bontempo & Napier, 2011). Recent studies have proved that interpreters / translators are less ethically stressed and emotionally exhausted when they are trusted to make use of their own professional and moral judgements in line with their moral compass (Hubscher-Davidson, 2022).

Most scholars agree that under particular conditions the demanding nature of the work interpreters and translators do requires to carry out intense emotional labour from them. This cognitive and emotional work strains their mental resources and, if moral conflict is added, may trigger a situation of distress, result in fatigue and, eventually, burnout (Hetherington, 2011; Bontempo & Malcolm, 2012; Mehus & Becher, 2016; Valero-Garcés, 2017).

In the psychological literature and stress-related literature ethical stress has been associated with emotional exhaustion and compassion fatigue (O'Donnell et al., 2008; Mangoulia et al., 2015; Christodoulou-Fella et al., 2017), also known as secondary trauma syndrome or vicarious trauma. It is commonly agreed that on an intrapersonal level translators and interpreters may be dealing with assignments that conflict with personal goals, values and beliefs. Intense and traumatic interpreting / translating experiences or cumulative effects of such events may cause a translator / interpreter to experience vicarious trauma (Bontempo & Malcolm, 2012). It is also associated with poor peer support, doubting of one's professional competence, and alterations in self-image (Boscariono et al., 2004; Canfield, 2005; Gray, 2017). Therefore, it may result in reduced respect and concern for others, decrease the plasticity of the brain and render individuals more susceptible to anxiety, depression, as well as burnout (Christodoulou-Fella et al., 2017; Hubscher-Davidson, 2022). Empirical studies proved that individuals

vary in their responses to stress, and what may be a traumatic interaction for one interpreter may not affect another, which calls for further research into this field.

Another serious and difficult to manage consequence of occupational stress is burnout. In recent studies it is conceptualized as emotional exhaustion and cynicism, which erodes an individual's ability to effectively engage in work (Maslach & Jackson, 1981), a prolonged response to chronic emotional and interpersonal stressors on the job, and is defined by the three dimensions of exhaustion, cynicism, and inefficacy (Maslach et al., 2001; Kallay, 2001) as well as neuroticism. Recent studies highlight a positive association between high levels of job stress and reports of fatigue, physical disorders and burnout (Schwenke, 2015).

Despite an increasing body of literature describing the stress translators and interpreter experience and emotional and psychological issues related to it, little is known about the various ways in which they can be affected by situations of ethical stress and strategies to cope with it. Moreover, research carried into psychological consequences for the interpreters and translators when they face ethical dilemmas is still rather limited (Baker, 2010; Cadwell & O'Brien, 2006; Dragovic-Drouet, 2007; Drugan, 2017; Kahane, 2007; Takeda, 2016; Wang & Xu, 2016).

The interrelation and interconnection of emotional and psychological effects of ethical stress and moral and social-ethical issues are in focus of attention of many recent studies, which confirm the positive relation between (the level of) occupational stress caused by/related to the aforementioned factors and job satisfaction and level of performance at work (Jones, 2004; Taylor, 2007; Ulrich et al., 2010; Pym, 2015; Fenton & Kelly, 2017; McLennan et al., 2018; Hubscher-Davidson, 2022). However, the impact of ethical stress specifically on translator or interpreter performance has not been fully investigated yet.

Under certain circumstances dissonance can eventually lead to greater professional and personal growth (Hubscher-Davidson, 2022). Still, in most cases when one's values and actions come into conflict, ethical stress resulting from this can lead to dissatisfaction or even to leaving one's employment. In recent studies professional dissonance has been conceptualized as a feeling of discomfort arising from the conflict between professional values and job tasks (Taylor, 2007). Under particular conditions interpreters and translators, who are treated as individuals with relationships, loyalties and political/social ideologies of their own (Jones 2004), may have to deal with layers upon layers of competing values (Loewenberg et al., 2000; Taylor, 2007) while fulfilling their job tasks. Therefore, they may experience professional dissonance that comprises anxiety, felt dissonance and unconscious dissonance, which overlap.

Professional dissonance is treated as an existential problem as it is considered to relate to feelings which directly affect individuals' perception of themselves as people, their feelings about the kind of people and professionals they are, and their feelings about how they should live their lives and fulfill their jobs (Taylor, 2007). Value collisions while translating/interpreting can lead to great psychological pain. Jones (2004) highlights the fact that translator can struggle to take into account the interest and

wishes of all the different parties involved, and that translation decisions do not always prevent a “sense of inner conflict” (Jones, 2004, p. 721). Working in sub-optimal conditions (mainly created by translation companies or agencies) where translators have to compromise their ethical or moral convictions trying to satisfy the unaligned demands of ... the reader and translation company (Abdallah, 2010, p. 24) provoke moral injury which results from “sustained managerial, formulaic and procedural expectations that constrain or inhibit value-based, responsive practice” (Fenton & Kelly, 2017, p. 463). As Abdallah (2010) argues in her study on translators’ agency in production networks, global institutions and companies do not value experience, expertise, or accomplishment, their hierarchical rigid structures create unbearable working conditions for professional translators and instigate feeling of powerlessness.

In addition, in recent research there is a general agreement that interpreters and translators possess “constrained autonomy”, especially when it comes to working under tough conditions, in conflict zones or areas of natural disasters. Among the key implications Jones (2004) singled out the following ones: all acts of translating and interpreting have ethical and socio-political consequences, partiality may often be a more appropriate attitude than neutrality, power structures within which the translators act are often more important than target language or translation strategy. Translators and interpreters perform their identities as textual and cultural ambassadors – when it comes to what they translate and how they do it, what they choose not to translate and why (Allen, 2012; Jones, 2004; Pym, 1997; Rafael, 2010). Those loyalties clashes and socio-ethical dilemmas can multiply for all social actors, including translators and interpreters, under certain circumstances, like conflicts or wars (Allen, 2012; Baker, 2010; Drarovic-Drouet, 2007; Jones, 2004; Kahane, 2007; Rafael, 2010; Todorova, 2016; Wang & Xu 2016). Therefore, translators and interpreters working under such conditions should have maximum awareness of ethical implications and be guided by the principle of least harm to other players when making hard decisions.

According to Fenton (2015), when translators and interpreters can act in line with their conscience or values, they will experience less ethical stress but more ontological anxiety, a normal consequence of being able to make the best possible decision for the client, rather than the most easily defended one. Recent research proved that interpreters and translators are less ethically stressed and emotionally exhausted when they are trusted to make use of their own professional and moral judgements in line with their moral values, loyalties and ideologies (Jones, 2004; Ulrich et al., 2010; McLennan et al., 2018; Hubscher-Davidson, 2022). However, the impact of the aforementioned factors on the level of performance is to be further investigated.

## **Limitations and Methodological Issues**

The increasing interests to ethical stress in relation to various individual factors and working conditions in different fields determine the development of many new theories and utilizing different assessment tools. The articles related to the analysis of ethical

stress in the spheres other than interpreting / translating were mainly excluded from this research. Their findings were taken into account mostly for the general outline of the terms related. The major drawback of recent studies and experiments is their relation to laboratory/agency settings.

## Conclusion

The aim of the present literature review was to examine theories of ethical stress analysis in translation and interpreting as well as factors that lead to ethical stress in translation and interpreting and emotional, psychological and professional issues resulting from ethical stress.

This study has found that ethical stress in translation and interpreting occurs when the requirements of the job do not match the capabilities, resources, needs or values of the interpreter / translator due to linguistic demand category and non-linguistic one, which includes environmental, interpersonal and intrapersonal demands. However, the correlation between individual and situational factors causing ethical stress in translation and interpreting and the extent of their influence on translators / interpreters has not been sufficiently analysed and, therefore, it is an important issue for further research.

Ethical stress research has shown that under certain circumstances demanding nature of the work translators and interpreters do may trigger moral distress, emotional exhaustion, vicarious trauma, and, eventually, burnout. Still, little is known about the various ways in which they can be affected by situations of ethical stress and strategies to cope with it. Despite huge body of stress-related literature, very little research has been carried into psychological consequences for the interpreters and translators when they face socio-ethical dilemmas. The conflict between professional values and job tasks may result in professional dissonance translators / interpreters face. Recent studies confirmed the positive relation between (the level of) ethical stress and job satisfaction as well as performance. Still, the correlation between the (relative) autonomy to make one's judgements and decisions and the level of ethical stress as well as impact on performance needs deeper investigation. Therefore, further research into ethical stress of interpreters and translators under real working conditions and its implications on their performance and general well-being is essential.

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## Appendix

Table 1

*Studies of Ethical Stress in Translation and Interpreting: Causes and Implications*

No	Study	Title	Aim	Methodology	Findings
1	Barghout et al. (2015)	The Influence of Speed on Omissions in Simultaneous Interpretation: An Experimental Study	This study aimed to elucidate one of the strategies that that expert interpreters resort to when confronted with different speed rates	Ten professional interpreters from the United Nations	At higher speeds interpreters omit more redundant information, and it would appear that omission is a strategy the interpreters resort to for coping with speed
2	Dam & Zethsen (2016)	“I Think It Is a Wonderful Job”. On the Solidity of the Translation Profession	This study aimed to explore the sources of translators’ job satisfaction and the factors that motivate translators to stay in profession despite sub-standard working conditions and low status of translators’ profession.	Content analysis of the narratives of 15 seasoned translators.	Translators have a shared understanding of the downsides of being a translator, they are also in agreement on the attractions of the job.
3	DeTienne, et al. (2012)	The Impact of Moral Distress Compared to Other Stressors on Employee Fatigue, Job Satisfaction, and Turnover: An Empirical Investigation	This study aimed to investigate the relationship between moral stress and three important factors of organizational health – employee fatigue, job satisfaction, and turnover intentions – while controlling for other potential job stressors, as well as several demographic variables	Survey data from 305 customer-contact employees	Even after including the control variables in the statistical models, moral stress remains a statistically significant predictor of increased employee fatigue, decreased job satisfaction, and increased turnover intentions
4	Drugan (2017)	Ethics and Social Responsibility in Practice: Interpreters and	This survey aimed to widen the focus of attention from interpreting and translation to the	Online survey of UK universities (40 BA Honours Social Works	Insufficient attention has been paid to professional clients who rely on interpreters and

		Translators Engaging with and beyond the Profession	broader society in which interpreters and translators work	students, 59 Masters Social Work students)	translators, social workers and social work students prior to their first work experience placement, and that ethical aspects of professional communication can be compromised as a result.
5	Garcés (2015)	The Impact of Emotional and Psychological Factors on Public Service Interpreters: Preliminary Studies	This study aimed to investigate and examine the influence of emotional and psychological factors on conference interpreters, public service interpreters and PSI students; interpreting in mental health; burnout syndrome in PSI.	Data for the research has been drawn from interviews and questionnaires.	Public service interpreters are exposed to challenging settings and sensitive topics, other common factors (physical, psychological, environmental), occupational demands that may affect their work and can affect physically and psychologically their personal and professional lives. The most frequently mentioned stressors are the delivery rate of the speaker, lexical search under time pressure, interpreting failure in the preceding part of the text; stress is reported more frequently in the retour than the native; economy of expression strategies is adopted.
6	Gumul (2021)	Reporting Stress in Simultaneous Interpreting. The Analysis of Trainee Interpreters' Retrospective Reports and Outputs	This study aimed to determine the sources of stress for trainee interpreters and the coping strategies and/or stress-prevention strategies they adopt.	A corpus of 5,005 retrospective comments of trainee interpreters	Occupational stress within the sign language interpreting profession has been underrepresented in literature, yet a significant incidence of occupational stress among interpreters has been observed. Further research is
7	Hetherington (2011)	A Magical Profession? Causes and Management of Occupational Stress in the Signed Language Interpreting Profession	This study aimed to bring into discussion causes and management of occupational stress within the sign language interpreting profession	Qualitative methodology in the form of semi-structured interviews. 6 participants – sign language interpreters	Occupational stress within the sign language interpreting profession has been underrepresented in literature, yet a significant incidence of occupational stress among interpreters has been observed. Further research is

8	Jiménez & Pinazo (2001)	“I Failed Because I Got Very Nervous”. Anxiety and Performance in Interpreter Trainees: An Empirical Study	This study was aimed to investigate the relation between the fear of public speaking and anxiety; fear of public speaking and performance in interpreting; anxiety and performance in interpreting	197 subjects – final year Translation and Interpretation students at the University Jaume	required. Low confidence in public speaking is related to high scores in state anxiety; though there is no positive relation between fear of public speaking and performance in interpreting, as well as between level of anxiety and performance in interpreting.
9	Jones (2004)	Ethics, Aesthetics and Decision: Literary Translating in the Wars of the Yugoslav Succession	This study aimed to investigate how issues of loyalty, ethics and ideology condition the action of a literary translator.	Case-study observations	The implications of the “constrained autonomy” of a literary translator: all translating acts have ethical and socio-political repercussions; partiality informed by awareness of the demands of the wider social web may often be a more appropriate stance than neutrality; that the power structures within which the literary translator acts are more important than target language or translating strategy per se in determining source-culture representation, and that time /workload /chance factors may also play a role.
10	Korpál (2016)	Interpreting as a Stressful Activity: Physiological Measures of Stress in Simultaneous Interpreting	This study aimed to examine whether the speed of speaker’s delivery influences the level of stress experienced by interpreting trainees during a	Ten interpreting trainees, students of the interpreting programme at the faculty on Modern Languages and Literatures of	This study serves as an empirical verification of the argument that high rate of delivery may indeed be a problem trigger in simultaneous interpreting.

			simultaneous interpreting task	Adam Mickiewicz University	
11	Kurz (2003)	Physiological Stress during Simultaneous Interpreting: A Comparison of Experts and Novices	This study aimed at examining the stressfulness of simultaneous interpreting (SI) in experts and novices to determine whether professional experience has impact on physiological stress response	Case studies	Experienced conference interpreters can be expected to cope with the high demands; training and experience help them adopt the right strategies, whereas in novices measurably higher physiological stress was recorded.
12	Määttä (2015)	Interpreting the Discourse of Reporting: The Case of Screening Interviews with Asylum Seekers and Police Interviews in Finland	This study aimed to provide new insights into the analysis of complex networks of power relations that determine whether human rights can actually be exercised through public service or community interpreting	Ethnographic data emanating from participant observation as an interpreter for migrants, asylum seekers, and international offenders	Many problems related to public service interpreting that are thought to stem from cultural differences or the interpreters' general lack of competence can be interpreted as resulting from language ideologies, reified in the practices in which they appear.
13	Mehus & Becher (2016)	Secondary Traumatic Stress, Burnout, and Compassion Satisfaction in a Sample of Spoken-Language Interpreters	This study was aimed to better understand levels of secondary traumatic stress, burnout and compassion satisfaction within the spoken-language interpreter community; to determine the relationship between each of these scales and trauma history, gender and refugee status.	119 respondents in the online survey	Responses show high levels of secondary traumatic stress but also high levels of compassion satisfaction relative to population norms; none of the estimated relations were significant at the present alpha level.
14	Schwenke & Gnilka (2014)	Sign Language Interpreters and Burnout: The Effects of	The purpose of this study was to explore an integrated model	238 interpreters (self-identification as an	The study provided evidence for the effects of perfectionism, stress

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Perfectionism, Perceived Stress, and Coping Resources	of both adaptive and maladaptive perfectionism, stress, coping resources, and burnout among sign language interpreters	interpreter was preferred)	and coping resources on burnout. Adaptive perfectionism was not associated with burnout maladaptive was. Perceived stress plays a mediating role in the relationship between maladaptive perfectionism and burnout.
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# Strategies Employed for Information Transfer and Relation Building in Intercultural Communication – A Cross-Cultural Study

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**Abstract.** The aim of the study is to examine strategies used in intercultural encounters by Polish and Turkish students of Foreign Languages ( $n_1=50$ ,  $n_2=50$ , respectively) who have experienced intercultural communication. Intercultural encounters are viewed as ‘language-in-action’ situations because they provide a rich source of information about linguistic devices used during intercultural exchanges, sources of misunderstanding and miscommunication, and strategies implemented to transfer information or maintain conversational involvement of the interlocutors. This study offers some insights into the frequency and variety of the strategies used in intercultural encounters. It was conducted as a small-scale project, with the Critical Incident Technique and questionnaires administered to collect data. The research participants (C1/C2 levels of proficiency) were supposed to produce written narratives describing the most memorable intercultural encounters and report on intercultural communication strategies. Their narratives were later analysed to identify strategies applied to manage intercultural communication and achieve communicative goals (e.g. maintaining contact and/or conveying necessary information). Research findings show that Proactively seeking clarification and Building intercultural connection or relationship were the most frequent strategies used by these two groups. However, research results also suggest that the choice of strategies depends on such factors as the participants’ level of language proficiency, their cultural background or the quality and quantity of intercultural contacts. Cross-cultural analysis indicates that Turkish students are more socially- and culturally oriented, whereas Polish students display a tendency to focus more on cognitive and linguistic aspects of intercultural encounters. Findings from the study can be of help for educators and trainers involved in researching intercultural communication, strategic involvement and training.

**Keywords:** *intercultural communication, information transfer, seeking clarification, strategies in intercultural encounters.*

**Кілянська-Пжибило Гражина. Стратегії передавання інформації та побудови відносин у міжкультурній комунікації: крос-культурне дослідження.**

**Анотація.** Метою дослідження є вивчення стратегій, що використовують у міжкультурних ситуаціях польські та турецькі студенти-філологи ( $n_1=50$ ,  $n_2=50$ , відповідно), які мали досвід міжкультурної комунікації. Міжкультурні контакти розглядають як ситуацію «мови в дії», оскільки воно є багатим джерелом інформації про мовні засоби, якими послуговуються під час міжкультурних обмінів, про джерела непорозумінь і невдач у

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спілкуванні, а також про стратегії, які застосовуються для передавання інформації або підтримання залученості комунікантів до розмови. Це дослідження дає певне уявлення про частоту та різноманітність стратегій, використовуваних під час міжкультурних контактів. Воно було проведене як невеликий проект із застосуванням техніки критичних інцидентів та анкетування для збирання даних. Учасники дослідження (рівень володіння мовою C1/C2) повинні були підготувати письмові розповіді про найбільш пам'ятні міжкультурні зустрічі та повідомити про стратегії міжкультурної комунікації, які вони використовували. Їхні розповіді було проаналізовано для визначення стратегій, що застосовували для керування міжкультурною комунікацією та досягнення комунікативних цілей (напр., підтримання контакту та/або передавання потрібної інформації). Результати дослідження засвідчили, що найпоширенішими стратегіями, які використовували ці дві групи, були «Проактивний пошук роз'яснень» та «Побудова міжкультурного зв'язку чи стосунків». Однак результати дослідження також свідчать про те, що вибір стратегій залежить від таких чинників, як рівень володіння мовою учасниками, їхнє культурне походження, а також якість і кількість міжкультурних контактів. Крос-культурний аналіз вказує на те, що турецькі студенти більш соціально і культурно орієнтовані, а польські студенти демонструють тенденцію збільшого зосереджуватися на когнітивних і лінгвістичних аспектах міжкультурних контактів. Результати дослідження можуть бути корисними для викладачів і тренерів, які займаються проблемами вивчення міжкультурної комунікації, стратегічного залучення і навчання.

***Ключові слова:** міжкультурна комунікація, передавання інформації, пошук роз'яснень, стратегії в міжкультурних контактах.*

## Introduction

An increasing number of exchange programmes and mobility opportunities call for inquiry into strategies participants of intercultural encounters employ to successfully transfer information and manage cross-cultural communication. The unique character of an intercultural encounter, with its unpredictable nature, risk, shocks and ruptures as well as creativity has attracted the researchers' attention for some time now (cf. Christiansen et al., 2017; Henderson et al., 2016; Kiliańska-Przybyło, 2017; Wilson, 2017). Intercultural contacts or, in other words, interactional exchanges and the process of interpretations are dependent on sociocultural knowledge (Kramsh & Uryu, 2014, p. 214). Research on communicative practices in intercultural encounters shows that expressing politeness is determined by cultural rules (Matsumoto, 1988; Selye, 1994). Also, conversational strategies for conveying distance, deference, or camaraderie vary from culture to culture (Lakoff, 1990; Kramsch & Uryu, 2014, p. 214; Seelye, 1994). Jain and Krieger (2011) list the three most common sources of difficulty for managing intercultural communication, which include language, emotion, and cultural norms. Not realizing the factors and their impact upon communicative practices may lead to miscommunication or a sense of discomfort (Kramsch & Uryu, 2014). Some other researchers (e.g. Croucher et al., 2015; Duronto et al., 2005; Gudykunst, 1998, Hammer et al., 1998, Presbitero & Attar, 2018) stress the fact that anxiety and uncertainty have a significant impact on cross-cultural communication. Thus, developing anxiety and uncertainty-reduction strategies is a key to effectively manage intercultural communication.

Intercultural encounters are viewed as ‘language-in-action’ situations that can be examined to identify linguistic and conversational devices used in intercultural dialogues, sources of misunderstanding and miscommunication (e.g. linguistic and pragmatic failure) and, finally, strategies implemented to maintain conversational involvement of the interlocutors and information transfer. This paper examines some typologies of adaptive and intervention strategies applied in intercultural encounters (e.g. Drake, 1995; Hooi & Yong, 2015; Kenesei & Stier, 2017). The paper also presents the empirical study that focuses on the strategic involvement of Polish and Turkish students of English who have experienced intercultural communication.

### **The Concept of Intercultural Competence**

There is no single model of intercultural competence that fits every intercultural experience (Guilherme 2014, p. 357). Consequently, the idea of intercultural competence continues to develop in various directions; however some common things emerge from research. Some definitions stress the interactional aspect of intercultural competence. For example, Guilherme (2000, p. 297; 2014, p. 158) defines the intercultural competence as ‘the ability to interact effectively with people from cultures that we recognize as different from our own’. Similarly, Spitzberg and Changnon (2009, p. 7) describe the intercultural competence as ‘the appropriate and effective management of interaction between people who, to some degree or another, represent different or divergent affective, cognitive, and behavioural orientations to the world.’

Risager (2009) offers a slightly broadened definition of the concept. For her, ‘intercultural competence is very much the competence of navigating in the world, both at the micro-level of social interaction in culturally complex settings, and at macro-levels through networks like diasporas and media communications’ (Risager 2009, p. 16; Guilherme 2014, p. 358). Byram (1997) focuses on knowledge and skills that an intercultural speaker needs to develop in the process of intercultural competence building. Byram’s model of intercultural competence consists of five main elements, or in other words ‘savoirs’, attitudes (curiosity, openness - *savoir être*), knowledge (*savoir*), skills of interpreting and relating (*savoir comprendre*), skills of discovery and interaction (*savoir apprendre/faire*) and Critical cultural awareness (*savoir engager*) (Byram, 1997). Byram builds on the notions of communicative competence. First of all, he describes linguistic elements that are characteristic of an intercultural speaker (Wilkinson, 2014, pp. 309-311). Later, he discusses some components (*savoirs*) that are linked to the cultural dimension of the intercultural speaker’s competence. Finally, he presents skills that are essential in successful communication across languages and cultures. According to Wilkinson (2014, p. 309), Byram’s model has had a substantial impact on the process of second/foreign language training, especially in the European context.

As noted in literature, intercultural experience is not synonymous with intercultural competence (Guilherme 2014, p. 357). However, Byram (1997, p. 27)

goes a step forward suggesting that active ‘cultural experience’ can be analyzed thoroughly, and used to facilitate cultural awareness and intercultural competence (Wilkinson, 2014, p. 302).

## **Strategies to Manage Intercultural Communication – Theoretical Background**

Literature review (Croucher et al., 2015; Duronto et al., 2005; Gudykunst, 1998; Hammer et al., 1998; Presbitero & Attar, 2018) on intercultural communication management shows that Anxiety–Uncertainty Management theory by Gudykunst (1998) has strongly influenced research on interpersonal and intergroup communication effectiveness. Some authors (e.g. Hammer et al, 1998; Presbitero & Attar, 2018) claim that individual-level attributes (i.e., anxiety and uncertainty) can relate to knowledge sharing.

Duronto et al (2005) point out that uncertainty is a cognitive phenomenon, and they identify two types of uncertainty: predictive (the uncertainty about predicting others’ attitudes, feelings, beliefs, values, and behaviours) and explanatory (the individual ability to explain the behaviour, attitudes, feelings, thoughts and beliefs of strangers). They assume that high levels of uncertainty lead to increased anxiety (ibid.).

Anxiety, another crucial factor determining successful cross-cultural communication, is defined as the affective (emotional) equivalent of uncertainty (Gudykunst & Nishida, 2001). Similarly, Toomey et al. (2013) state that individuals need to manage anxiety related with ‘emotional insecurity or vulnerability because of a perceived threat or fear in a culturally estranged environment.’

The findings of the research conducted in the Japanese context by Duronto et al. (2005) indicate that meeting with a stranger generates anxiety or avoidance, depending on whether the stranger belongs to the same or a different culture. The authors believe that uncertainty is higher when meeting strangers from a different culture.

The issue of effective strategies for managing intercultural communication has captured researchers’ attention for some time now. Some studies examined strategies used in intercultural communication in general contexts. Henderson et al. (2015) write about three most frequent strategies, namely relation building (this can be achieved by deliberate social contact with others, normalising their cultural behaviour, and being friendly); proactively seeking clarification during interaction (this includes, for example, feedback mechanisms, asking and giving explanations); and acquiring cultural knowledge. Similarly, Hooi and Yong (2015) present strategies for intercultural communication that aim at establishing contact and seeking clarification. The former can be achieved by showing friendly behaviour, exercising patience, whereas the latter is achieved by frequently checking for understanding, and dealing with language difficulties. Yet, Hooi and Yong (2015) do not mention strategies related to sociocultural knowledge development or extension. Research carried out by Philip et al. (2015, p. 2635) depicts the importance of sociocultural

strategies as well as strategies which aim at regulating emotions. The authors highlight the following strategies: recognising and alleviating barriers to promote effective communication and undesirable emotions such as fear, uncertainty or lack of confidence.

Sociocultural strategies are also mentioned by Toomey et al. (2013) and Savignon and Sysoev (2002). Interestingly, the latter provide a whole list of sociocultural strategies for establishing and maintaining intercultural contact, which include the following: initiating and maintaining intercultural contact for the purpose of learning about the values, norms, spiritual heritage, and so forth of a L2 culture; acting as a representative of your own culture; anticipating sociocultural lacunae that can result in misunderstanding, creation of false stereotypes and intercultural conflict; taking initiative and responsibility for avoiding intercultural misunderstanding, explaining features of one's own culture; asking interlocutors to explain features of their culture; using diplomacy for the purpose of maintaining a dialogue of cultures in the spirit of peace and mutual understanding; redirecting a discussion to a more neutral topic; dissimulation of personal views to avoid potential conflict (Savignon & Sysoev, 2002). Apart from sociocultural strategy, Toomey et al. (2013) also write about language-oriented strategies of code-switching and bridging (the intentional use of connection and integrative strategies to reach out to diverse group). Language-oriented strategies are also pointed out by Berardo (2011) who lists ten intercultural communication strategies to overcome language barriers. The list includes the following: speaking slowly and clearly, asking for clarification, frequently checking for understanding, avoiding idioms and jargon, realizing the basics of communication, being specific, choosing effective medium of communication, providing information via multiple channels, and being patient.

Some other studies presented in this section concentrate on specific contexts of business or service intercultural encounters (e.g. Fujio, 2004, Kenesei & Stier, 2017). The strategies identified in business intercultural communication (Fujio, 2004) focus mostly on face-maintaining moves and conversational devices used to deal with communication traps or breakdowns. The strategies mentioned in this study include, among others, silence, ambiguous answers and politeness strategies.

In connection with service intercultural encounters (Kenesei & Stier, 2017), the authors of the research suggest three broad categories of strategies that need to address the following challenges faced during service intercultural communication: overcoming linguistic barriers, overcoming cultural barriers and manifesting relation-building attitudes of openness, friendliness and helpfulness. Congruent with this research is the study on hospitality industry (strategies used by Thai hotel interns; Jhaiyanuntana & Nomnian, 2020). Its findings indicate five intercultural communication strategies of critical cultural awareness, attitudes, knowledge, skills to interpret and relate, and skills to discover and interact that Thai hotel interns should apply. Similarly, the research by Huang (2011) lists some key strategies that operate in intercultural communication in tourism education: adapting to cultural differences, adopting appropriate skills, creating similarities, maintaining appropriate

relationships, and promoting conflict resolution strategies. Interestingly, these strategies can be also used in the language education context. Table 1 presents an overview of research focusing on the types of strategies implemented during intercultural encounters.

Table 1  
*Strategies Used in Intercultural Communication – Literature Overview*

The study	Strategies used in intercultural communication
Henderson et al. (2016)	<ul style="list-style-type: none"> <li>- resorting to cultural validation through alliance building (deliberate social contact with others, normalising their cultural behaviour, and being friendly);</li> <li>- proactively seeking clarification during interaction (Using feedback mechanisms; asking and giving explanations);</li> <li>- acquiring cultural awareness knowledge.</li> </ul>
Philip et al (2015)	<ul style="list-style-type: none"> <li>- socialization and acculturation (seeking clarification in unfamiliar situations, observation and immersion in cultural interactions);</li> <li>- recognising and alleviating barriers to promote effective communication such as undesirable emotions such as fear, uncertainty and lack of confidence in an intercultural communication context act as a significant barrier in building relations.</li> </ul>
Toomey et al. (2013)	<ul style="list-style-type: none"> <li>- code-switching;</li> <li>- bridging - the intentional use of connection and integrative strategies to reach out to diverse group;</li> <li>- cultural frame shifting.</li> </ul>
Savignon & Sysoev (2002)	<p>Sociocultural Strategies Strategies for Establishing and Maintaining Intercultural Contact;</p> <ul style="list-style-type: none"> <li>- initiating and maintaining intercultural contact for the purpose of learning about the values, norms, spiritual heritage, and so forth of a L2 culture; acting as a representative of your own culture;</li> <li>- anticipating sociocultural lacunae that can result in misunderstanding, creation of false stereotypes and intercultural conflict;</li> <li>- taking initiative and responsibility for avoiding intercultural misunderstanding, explaining features of one's own culture; asking interlocutors to explain features of their culture;</li> <li>- using diplomacy for the purpose of maintaining a dialogue of cultures in the spirit of peace and mutual</li> </ul>

	understanding; redirecting a discussion to a more neutral topic; dissimulation of personal views to avoid potential conflict.
Fujo (2004) Strategies in business intercultural communication	<ul style="list-style-type: none"><li>- silence;</li><li>- ambiguous answers;</li><li>- politeness strategies.</li></ul>
Berardo (2008)	10 intercultural communication strategies to overcome language barriers: 1) speak slowly and clearly, 2) ask for clarification, 3) frequently check for understanding, 4) avoid idioms, 5) be careful of jargons, 6) define the basics of communication, 7) be specific, 8) choose your medium of communication effectively, 9) provide information via multiple channels, and 10) be patient.
Hooi and Yong (2015)	<ul style="list-style-type: none"><li>- showing friendly behaviour,</li><li>- exercising patience,</li><li>- frequently checking for understanding,</li><li>- dealing with language difficulties</li></ul>
Kenesei and Stier (2016)	Strategies used in service encounters <ul style="list-style-type: none"><li>- overcoming linguistic barriers</li><li>- overcoming cultural barriers</li><li>- openness, friendliness, helpfulness</li></ul>

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To sum up, strategies activated to initiate and maintain intercultural contact fall into three broad categories: (1) strategies used to overcome linguistic barriers, (2) strategies to deal with cultural differences, and (3) strategies used to regulate emotions. They may be dependent on some factors such as contextual constraints, individual's language proficiency, personal predispositions and intercultural experiences to mention just a few.

## Method

The aim of the study is to investigate strategies used in intercultural encounters by Polish and Turkish students of Foreign Language Departments. This study utilizes the Critical Incident Technique (the CIT) to collect data as the research participants are supposed to produce a narrative and report on strategies used in intercultural communication. The CIT technique has found its place in cross-cultural research because of its potential to reveal mechanisms operating in cross-cultural communication and shed some light on the thinking processes of those who have experienced cross-cultural contacts (Arthur, 2001; Kiliańska-Przybyło, 2017; McAllister et al., 2006; Méndez Garcia, 2017; Pedersen, 1995; Thiel, 1999). For Wilkinson (2014, p. 304), asking students to observe and report on intercultural

experiences can lead to a greater engagement with a particular aspect of culture. Moreover, it develops understanding, sensitivity to daily life situations and mediation skills.

Research participants were requested to write a narrative describing the most memorable encounter foreigners they have experienced. Their narratives included the descriptive and reflective components of the encounter. The narratives focused on themes and emotions experienced by research participants during intercultural encounters that they reported. Later on, the data was examined to depict the most frequent strategies implemented to manage intercultural communication. The taxonomy of strategies proposed by Henderson et al. (2016) was used in the process of data analysis and strategy identification. Furthermore, questionnaires were administered to obtain some students' biodata. Data collection was preceded by a series of lectures aiming to familiarize the students about cross-cultural communication.

As far as research participants' profiles are concerned, 50 students of English Philology Department (one of the universities, Poland), aged 23-24 and 50 students of Faculty of Languages (one of the universities, Turkey), aged 22- 23, were involved in the study. Talking about the subjects' background, both groups of students pursued their MA- programmes, specializing in teacher training. Throughout their BA and MA studies they covered some courses in ELT, SLA theory, psychology, linguistics and applied linguistics. Research participants in both groups claimed to have had some, irregular contacts with foreigners, including both direct and indirect (technology mediated) contacts in their home countries or abroad.

## **Results**

### **Linguistic Analysis of the Narratives**

As regards the linguistic-structural analysis, the narratives were examined in terms of their length, structure and linguistic devices used. Looking at the structure of the narratives, the following tendencies can be observed. The wording used in the narratives ranges from 340 (the minimum number of characters) to 788 (the maximum number), with 489, being the average number.

Interestingly, sometimes the research participants used 'buffering' strategies to open their narratives, especially in the case of narrating some critical incidents that described unsuccessful, problematic or difficult to handle situation. Toomey et al (2013) classify 'buffering' strategy as an identity protection strategy, a sort of a 'psychological shield' that is activated in face identity-threatening or hostile circumstances. Noteworthy is the fact that the buffering strategies were displayed by the representatives of both groups. Some examples of such strategies present in the narratives' openings are included below.



*CI (T.34): I don't have much experience with contacts with native speakers of English. I have never been to an English speaking country. However, once I met a native speaker – I was positively surprised (...).*

*CI (P.55): In the beginning the fear of speaking overwhelmed me completely. I felt very awkward speaking in English and was unduly meticulous in the use of words. On the one hand, my colleagues were impressed with the vocabulary I used (...).*

It seems that the process of disclosing and admitting to having difficulties in managing cross-cultural communication was quite a challenge for some of the research participants. Consequently, recognizing difficulties was immediately followed by descriptions of something positive or something that the respondents had control over, for example, preventing miscommunication, handling difficulties or achieving communicative success despite initial problems.

### **Content Analysis and Strategies Identified**

As far as the content analysis is concerned, the narratives generated by these two groups of the research participants were examined to identify themes, emotions and strategies that the subjects reported. Having analyzed our data, we have managed to list the following strategies used by the research participants in intercultural exchanges (see Table 2).

Table 2

*Strategies Reported to be Used in Intercultural Encounters*

Polish respondents	Turkish respondents
(1) Proactively seeking clarification (e.g. by asking direct or indirect questions for clarification and help; indicating lack of understanding, using non-verbal signals; using conversational adjustments); (2) Building intercultural connection or relationship (e.g., making deliberate social contacts, sustaining conversation despite initial difficulties, modifying one's own behaviour, explaining one's own cultural or linguistic behaviour i.e. normalizing it, being friendly, using humor; (3) Dealing with language difficulties (e.g. code switching, using cognates, language creativity).	(1) Building intercultural connection or relationship (e.g. making deliberate social contacts, sustaining conversation despite initial difficulties, modifying one's own behaviour, explaining one's own cultural or linguistic behaviour i.e. normalizing it, being friendly, using humor; (2) Proactively seeking clarification (e.g. by asking direct or indirect questions for clarification and help; indicating lack of understanding, using non-verbal signals); (3) Dealing with language difficulties (e.g. code switching, using synonyms, paraphrase);

As far as the content analysis of the narratives is concerned, *proactively seeking clarification* (e.g. by asking direct or indirect questions for clarification and help; indicating lack of understanding, using non-verbal signals) was the strategy most frequently used by the Polish respondents. This strategy was also quite popular among the Turkish respondents. The samples of the students' narratives are included below (to preserve their character, the narratives were left unedited and unmodified).

*CI (P2.91): During these three days I was very nervous. I have never spoken to a native speaker who does not know Polish. I knew that I would be very ashamed if I did not manage to understand or get any information for him. Eventually, I dialed the number. (...) Suddenly I heard someone on the other side. I introduced myself and explained my problem. Everything was great until he started to explain what I should do. I was so nervous that I had a problem with understanding what he was saying. I had to repeat his words several times to make sure I knew what I should say.*

*CI (T21): When we were drinking tea, I was thinking how to offer tea to her, because I knew each word separately, but couldn't combine them to make a sentence. I was looking at the cups, and then at my friend desperately. That day was a real shame for me. I realized that I didn't know anything related to real life.*

*CI (T1): to learn in this example is to stay positive, using optimistic mimics and keeping calm when we encounter intercultural competences. (...) Now I can understand that he was as confused as me when he heard about my cultural differences.*

For the Turkish respondents, *building intercultural connection or relationship* was the most frequent strategy applied during intercultural communication. The subjects admitted to making deliberate social contacts, sustaining conversation despite initial difficulties, modifying one's own behaviour, explaining one's own cultural or linguistic behaviour i.e. normalizing it, being friendly, using humor. In general, they valued the opportunity to *socialize and make friends with foreigners and share their traditions or national culture with representatives of other cultures*. Some samples of the students' narratives are presented below.

*CI (P2.59): The politeness of the Scottish people helped me break barriers both linguistic and social. I believe that people should be open to different societies, points of view, attitudes, benefit from them as they can help us broaden horizons and become more open-minded. When it comes to my teaching experience, I always try to inject in my students the positive attitudes, teach about aspects of tolerance and reasonable attitudes towards stereotypes.*

*CI (P2.11): At the beginning I got irritated sometimes, as she performed different manners of behavior I wasn't adapted to. She was speaking very loudly, she was directly expressing her opinions (some of them weren't very nice). But with the passage of the time we become really good friends and I acquainted with her demeanor.*

*CI (T9): People who have different cultures, religions and ethnics can socialize, make friends.*

*CI (T10): The other thing I realized about the effective communication was ‘being companionable’ during the conversation.*

Both groups of the respondents used strategies that aimed at *dealing with language difficulties and linguistic problems* encountered during intercultural communication. The students reported to have used code switching, non-verbal descriptions, simplification, paraphrase, etc. Some of them generated novel and genuine phrases when they lacked certain vocabulary items, e.g. ‘a fire machine’ instead of ‘a lighter’ (this example comes from the Polish subject). Interestingly, sometimes the respondents reported avoidance strategies, e.g. remaining silent or refraining from interaction.

*CI (P2.83): Hence, being in England I had to recall and reflect upon some situations and remember using the polite phrases like Thank you, Please, Sorry, How are you? Sometimes even more than just once, in order not to be regarded as someone rude or a stranger. And even though, I perceive myself as a quite polite person, the overwhelming amount of their politeness sometimes made me a little bit confused.*

*CI (P2.90): As soon as I realized that I don't understand people living in Belfast, I felt inhibited. I was afraid to say a word. And to the end of my ‘Holidays’ I did not say a word, I was avoiding contact with people living around, native speakers of that language. To make things worse, my friend, with whom I was visiting my sister, was doing great – he had some minor difficulties with communication, but the speed of speech, accent or strange dialect were not a problem. I must add that we were at the same group in our studies, we were at the same level. When I came back to Poland and the term started, I was unable to force myself to use the language during classes. I refused to work, my grades deteriorated, I almost lost the battle. It took me a year to be back on my feet. After finishing the college, I paid my sister another visit and despite many doubts, it was better than for the first time. I cannot say that I understood each word, but I overcame my fear and started to communicate with people, especially in every day situations. It was not so bad.*

*CI (T21): As a student, I saw my deficiencies clearly. Language should help to make life easy and communicate with others. As a core, I learned that the important one is not to know lots of words, prepositions, etc., it is to know how to use them in real life.*

The Polish and Turkish students said that *gathering information prior to the communication or acquiring cultural knowledge* helps a lot while preparing for intercultural communication. The very experience of intercultural communication can lead to students’ language and knowledge exploration and discovery.

Research participants also issued comments that cross-cultural encounters raised their language awareness and sensitivity concerning the contextualized use of the foreign language, especially in the area of non-verbal communication and various forms of politeness. Some of the respondents claimed to have extended their vocabulary and broadened their lexical knowledge.

## **Cross-Cultural Analysis of the Narratives**

Cross-cultural analysis of the narratives highlighted some differences between these two groups of the respondents. The Turkish students were more socially-oriented and implemented more strategies focusing on building connection and maintaining a relationship. They also reported to have extended their cultural knowledge and have gained some personal benefits. The Polish students displayed a tendency to focus on cognitive and linguistic aspects of intercultural encounters. They commented upon their increased language awareness, sociolinguistic awareness and personal satisfaction achieved from successful intercultural exchanges. Both groups of the research participants mentioned a wide range of emotions they experienced during intercultural encounters.

Some additional benefits or non-linguistic issues were derived by the research participants from their intercultural encounters. The Polish respondents mentioned increased self-observation and self-regulatory skills concerning, for example, ways of handling difficult or stress-evoking situations. They also commented upon developing self-knowledge and self-confidence as well as linguistics confidence. Some of their narratives described satisfaction resulting from the participants' positive experiences in managing their intercultural contacts.

The Turkish respondents stressed the opportunity to share their national cultural heritage to others and develop cross-cultural awareness. They also mentioned increased communication awareness and sensitivity of contextual cues that may affect communication.

## **Conclusions**

To sum up, the investigation of strategic involvement in intercultural communication seems essential as it is supposed to shed some light on the frequency and effectiveness of the strategies used in intercultural encounters and possibly motivate further research. Our work has led us to list the most frequently strategies used in intercultural encounters, namely proactively seeking clarification, building intercultural connection or relationship and dealing with language difficulties. We have managed to identify major differences between the two groups of respondents. The results of this study also indicate that the choice of strategies depends on a number of factors such as the level of language proficiency of the study participants, their cultural background as well as the quality and quantity of intercultural contacts.

Although quite positive about the research results, we do realize that a number of potential limitations need to be considered. To begin with, they include the selection of the research tool which tends to elicit explicit knowledge that respondents are ready or willing to disclose. Further inquiry into strategic involvement conducted with a different tool may give additional insights into the problem. In this study, some strategies (e.g. avoidance and silence) could not be traced in the narratives.

Literature review indicates that strategy use is dependent on different contexts (professional, academic, social, etc.), interlocutors and their background (e.g. native vs non- native speakers); type of relationship and the level of familiarity (professional contacts, meeting a stranger, etc.). Further research with the selection of different tools (e.g. retrospective techniques or think aloud protocols) could possibly focus on those areas.

It would also be essential to find the correlation between the strategy use and the type of intercultural encounters. This study has gone some way towards enhancing our understanding of the frequency and effectiveness of the strategies used in intercultural encounters and it has established a ground for further research.

Moreover, it would be good to examine the correlation between various personal traits and individuals' potential to manage cross-cultural communication. As Presbitero & Attar (2018) state, CQ (cultural intelligence) can interact with other individual-level characteristics and dispositions, such as anxiety and uncertainty, to yield desirable outcomes, such as intercultural communication effectiveness and eventually knowledge sharing. Research extension could also focus on classroom training (with culture simulation) to enhance and develop students' CQ.

Finally, findings from the current study also have the potential to inform educators and trainers to design adequate strategy training and prepare future participants for their intercultural encounters. In particular, situations described in critical incidents can be used to: raise students' awareness about their emotions and reactions to novel situations; provoke students' reflection and ideas sharing; start discussion about cultures and culture specific elements and their impact on cross-cultural communication; increase students' (self-)knowledge in the areas of emotional resilience, flexibility, openness, etc. Taking all things into consideration, it would be advisable to continue research in this area of interest to work out patterns of possible reactions or examine various scenarios of intercultural encounters that take personal predispositions and contextual constraints into account.

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# Psycholinguistic and Cognitive-Semiotic Dimensions of Constructing Fear in Horror Films: A Multimodal Perspective

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**Abstract.** This article addresses an integrative psycholinguistic and cognitive-semiotic perspective on constructing fear in English horror films. At the heart of constructing fear in horror film is the filmmakers' presumption that viewers can potentially share their joint intention with the filmmakers, can share joint attention, and, as a result, share joint emotion. Drawing on the theory of intersubjectivity, fear in horror films emerges as the result of joint attention between filmmakers and viewers. Fear is viewed as a multimodal construct resulting from the synergistic integration of verbal, nonverbal, and cinematic semiotic resources via audial and visual modes. Each semiotic resource contributes to meaning-making by employing elements specific to horror films. The verbal system contains interjections, descriptive words, emotion-laden words, pleas for help, and violation of the sentence structure. The nonverbal elements include a contorted face, screaming, chaotic gestures, shaking, or stupor. The cinematic resource possesses the meaning-making potential to highlight various aspects of filmic fear through close-ups and middle close-ups, camera angles, dim light, and non-linear disturbing music. The meanings constructed by semiotic elements interact through cross-mapping, contributing to the formation of multimodal blends, which emerge in conceptual integration. Multimodal blends of fear in horror films include two-/three-component, non-parity, and consecutive patterns. From the viewers' perspective, fear in horror films is perceived as a whole entity with a different level of intensity: from anxiety to horror. The experiment results show that the main indicators of fear for both males and females are pleas for help, voice and facial expressions, and music and close-up. However, when watching horror films, males feel interested more, while females experience negative emotions of fear, disgust, and tension.

**Keywords:** *fear, horror film, meaning-making, multimodal blend, semiotic resource.*

**Крисанова Тетяна. Психолінгвістичний і когнітивно-семіотичний виміри конструювання страху у фільмах жахів: мультимодальний аспект.**

**Анотація.** У статті розглянуто інтегративний психолінгвістичний та когнітивно-семіотичний підхід до конструювання страху в англomовних фільмах жахів. В основі конструювання страху у фільмі жахів лежить припущення режисерів, що глядачі потенційно здатні до спільної інтенції та спільної уваги з творцями фільму, та, як наслідок, спроможні пережити спільні емоції. Спираючись на теорію інтерсуб'єктивності, страх у фільмах жахів виникає як результат спільної уваги творців фільму і глядачів. Він постає як мультимодальний конструкт, результат синергійної інтеграції вербальних, невербальних і кінематографічних

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семіотичних ресурсів через аудіальний і візуальний модули. Кожен семіотичний ресурс робить свій внесок у конструювання смислу, залучаючи специфічні для фільмів жахів елементи. Вербальний ресурс містить вигуки, описові та емоційно навантажені лексичні одиниці, благання про допомогу, порушення структури речення. Невербальні елементи включають спотворене обличчя, крик, хаотичні жести, тремтіння або ступор. Кінематографічний ресурс має смислотворчий потенціал, висвітлюючи різні аспекти страху за допомогою крупного та середнього планів, ракурсів камери, тьмяного світла та нелінійної тривожної музики. Смисли, сконструйовані семіотичними елементами, взаємодіють один з одним через перехресне мапування, сприяючи формуванню мультимодальних блендів, які виникають у процесі концептуальної інтеграції. Мультимодальні бленди страху у фільмах жахів включають дво-/трикомпонентні, непаритетні та послідовні моделі. З погляду глядача, страх у фільмах жахів реконструюється як мультимодальна єдність з різним рівнем інтенсивності: від тривоги до жаху. Результати експерименту демонструють, що головними показниками страху як для чоловіків, так і для жінок є благання про допомогу, голос і міміка, а також музика і крупний план. Однак під час перегляду фільмів жахів чоловіки відчують більший інтерес, в той час як жінки переживають негативні емоції страху, огиди та напруги.

**Ключові слова:** мультимодальний бленд, семіотичний ресурс, страх, смислотворення, фільм жахів.

## Introduction

Emotive meaning-making is an urgent topic for many fields of science as emotions play a great role in all spheres of a human life. They are viewed as “your brain’s creation of what your bodily sensations mean, in relation to what is going on around you in the world” (Barrett, 2017, p. 30) and both the basis for cognitive processes (Foolen, 2012, p. 348) as well as for discursive practice (Bamberg, 1997, p. 310) directly or indirectly linked to language (Foolen, 2012, p. 350). These findings signal the tight connection of emotions with human cognition, social environment, body, and language, which allows us to interpret them as social constructs.

Special attention to emotions and their correlation with human verbal and nonverbal behavior has been given in psycholinguistics. Berkum (2018) presents a theory of language processing which accommodates verbal and non-verbal elements in constructing emotions in social activity. Zasiékina and Zasiékin (2020) study the link between anxiety, anger, and sadness and dependent variable of moral emotions represented in traumatic narratives. Rahmani et al. (2019) analyse the correlation between emotional experiences and their linguistic interpretation among tourists. However, there are very few papers demonstrating the interconnection of verbal and nonverbal elements in emotive meaning-making in film.

The aim of the article is to reveal the psycholinguistic and cognitive-semiotic aspects of multimodal construction of fear in horror films by filmmakers and viewers. Its psycholinguistic dimension is represented by the intersubjective approach to the interaction of filmmakers and viewers grounded on their shared knowledge about the world. This enables us to view them as participants who are involved in the mutual experience of on-screen events and jointly take part in (re)constructing meanings. Zlatev claims that “sharing of experiences is not only, and not primarily, on a

cognitive level, but also (and more basically) on the level of affect, perceptual processes and conative (action-oriented) engagements” (Zlatev et al., 2008, p. 1–3).

The intersubjective nature of the filmmakers-viewers relationship consists in the desire of the former to make a film for the latter, to share their experience with them, to gain understanding, and to cause the same emotion. This focuses on the filmmakers’ intention to construct emotive meaning in film and viewers’ intention to reconstruct it. As Osgood (1963) argues, psycholinguistics deals with the processes of encoding and decoding, since they correlate the state of speakers’ messages with the state of listeners.

In cognitive-semiotic perspective, emotions are socially constructed and culturally dependent. People have the innate ability to conceptualize emotions, and in this respect cognition serves as a mediator between language and emotion. However, emotions are not responses to internal and external stimuli but rather dynamic processes as they are constructed by human brain (Barret, 2017). The cognitive-semiotic dimension of this research stresses the integration of verbal, nonverbal, and cinematic semiotic resources in the dynamic process of constructing fear in horror films. The use of multisemiotic elements in emotive meaning-making underlines the multimodal perspective of this research.

Fear is a fundamental emotion, which is an integral part of human existence (Izard, 1991, p. 357). It occupies a central role in cinematography reflecting the “eternal desire of a human to escape from an imaginary or real danger to their health and well-being and to survive” (Izard, 1991, p. 359). Filmic fear “encompasses a number of emotional states that are sufficiently close to each other as well as to prototypical fear in everyday life” (Hanich, 2012, p. 19).

Horror films are the environment for constructing fear: they not only represent situations that can potentially cause fear in everyday life, but are also able to reflect subconscious fears related in film to monsters, hereafter, religious beliefs, etc. Via the representation of disturbing and dark subject matter, they seek to elicit responses of fear, terror, disgust, shock, suspense, and, of course, horror from their viewers (Kuhn & Westwell, 2012). Some researchers believe that horror films evoke pleasurable fear, while others claim the state of catharsis that occurs during their viewing (Hanich, 2012, p. 9–11). The specificity of horror films lies in their ability to highlight those manifestations of fear that are characteristic of situations of mortal danger, which can terrify a person or put them in a state of panic fear. It enables us to trace what semiotic elements are important for the human mind in the process of fear construction.

A significant number of works in psychology, psycholinguistics, and neuroscience focus on researching fear in horror films emphasizing various aspects of viewers’ reaction. The feelings caused by viewing horror in films comprise empathy (Hall & Bracken, 2011), distress and fright (Hoffner & Levine, 2005), enjoyment and thrill (Sparks et al., 2005), while the latter are more frequent among males (Clasen et al., 2020). One more sensitive reaction to fear in horror films is disgust, which is

viewed as a protective response to an imaginary or direct threat (Kendall, 2011; Krusemark & Li, 2011). However, the typical response to horror film is fear and anxiety as they motivate people to escape in order to survive (Mineka & Öhman, 2002).

The attention of researchers was also attracted by the viewers' behavioral reaction to horror films manifested in heart rate deceleration and the feeling of freezing (Hagenaars et al., 2014) or film-specific anxieties, such as fear of swimming or walking in twilight, which influence the viewers' everyday life (Cantor, 2004). Some studies claim the impact of watching horror films on mental health, namely the development of so-called cinematic neuroses (Ballon & Leszcz, 2007). The impact of cinematic devices, such as non-diegetic music and sounds, finds its realization in affective modulation of the startle reflex, which reflects a person's emotional reaction to threat (Bradley et al., 2018, Roy et al., 2009).

However, these works are largely focused on the study of the viewers' reaction, without paying attention to the filmmakers' intention in the process of constructing filmic fear. The multimodal means of constructing fear in horror films, which make the impact on the perceptual sphere of viewers, are also insufficiently studied.

There are few works on multimodal accounts of emotive meaning-making in film. Feng and O'Halloran (2013) examine how emotive meaning is represented in visual images using nonverbal semiotic resources, Krysanova and Shevchenko (2021) study conceptual blending in multimodal construction of negative emotions in film, while Hanich (2012) provides a phenomenological approach to constructing cinematic emotions in horror films.

Filmic emotions are not real, but "they are intended to create the illusion of real emotions" (Koning, 2000, p. 34), organizing the viewers' perception. On-screen fear is constructed by the collective filmmakers, imitated and embodied by actors through sensory-perceptual manifestations and behavioral patterns and, finally, reconstructed by the audience. Viewers and filmmakers are able to share joint attention and joint emotions through the moving camera as "the moving camera is not only a mechanical instrument, an object of visual and kinetic perception; it is also a subject that sees and moves and expresses perception" (Branigan, 2013).

In this article, firstly, I analyse the construction of fear from the filmmakers' perspective and single out verbal, nonverbal, and cinematic semiotic resources employed to construct fear in horror films. Next, I determine their meaning-making potential and distinguish multimodal patterns of their combination. Then, I experimentally examine how the audience reconstruct fear in the film.

## Method

Film reflects the perception of the world by a human: thinking from an image to the reality and vice versa. This demonstrates the ability of film to construct the

objective world employing specific semiotic means as well as affect viewers by immersing them into the world of diegesis.

From the perspective of the integrated approach applied in this study, emotive meaning-making is viewed as a dynamic and enactive phenomenon, which is based on the intersubjective interaction of filmmakers and viewers. The meaning is constructed 'on-line' and is emergent as any change of the semiotic element affects the process of meaning-making and leads to the construction of a new meaning.

The corpus of this research comprises 250 episodes of constructing fear in 17 American horror films from 2000 to 2021 (see Appendix). These episodes contain the elements of verbal, nonverbal, and cinematic semiotic systems transmitted through audial and visual modes. In order to single out the episode for analysis in the film, I involved a corresponding screenplay that can be considered as a basic model of the film. The lexeme *fear* and its synonyms used in the screenplay as indicators of the character's negative emotion made it possible to consider the emotion in the corresponding film episode. The following words and their derivatives, selected from English lexicographic sources (Cambridge Dictionary Online, Collins English Dictionary, Merriam-Webster Dictionary), were employed to denote fear in the screenplay: *agitation, affright, alarm, angst, anxiety, apprehension, apprehensiveness, awe, consternation, creeps, dismay, disquiet, disquietude, disturbance, dread, fear, fearfulness, frenzy, fright, funk, foreboding, heebie-jeebies, horror, hysteria, jitters, misgiving, mistrust, panic, perturbation, premonition, presage, presentiment, phobia, qualm, scare, shock, shivers, terror, trepidation, trepidity, unease, uneasiness.*

The selection of the material goes through several steps. Firstly, appropriate episodes in which fear is intended are selected using the lexical means of nomination in the screenplay. Then, if the corresponding film scene contains the construction of fear, it is analysed in terms of verbal, non-verbal, and cinematic means. Next, examples are supplemented by the description of nonverbal and cinematic resources and, if required, are accompanied by screenshots of corresponding video fragments released on the Internet. This makes it possible to ensure the objectivity of the analysis and identify fear in film.

Consider example 1 from the horror film *Case 39*. Hoping to get rid of the demon, Emily gets into the car and meets the demon in the guise of a girl. She feels fear, which is indicated by the noun *scare* in the screenplay. The example contains the description of Emily's nonverbal behavior given in the screenplay and realized on the screen. The Emily's frightened actions on the screen coincide with the screenplay's description and are complemented by her contorted face, bulging eyes, and a paralysed posture in film. The cinematic elements employed in this episode include the close-up of Emily's face, the dim light, and non-diegetic music.

*(1) Emily throws the suitcase in the trunk. Slams it shut. Comes around to the driver's side door. Jumps in. Closes the door. And gets the **scare** of her life. Lucy is sitting in the passenger seat! Emily recoils with a scream, throwing her body against the window behind her. (Wright, 2006)*

In order to illustrate the multimodal issues of constructing fear, it is employed the case study of two horror films: *The Grudge* and *Case 39*. The 2004 American-Japanese horror film *The Grudge* describes encounters with a curse that is born when someone dies in extreme rage or sorrow. The curse is reborn repeatedly provoking a constant chain of deaths and horror. The 2009 American supernatural horror film *Case 39* tells the story about a young and trusting social worker Emily who saves a 10-year-old girl from her abusive parents. She later learns that the child is a demon that feeds on human fears.

The approach applied in this study presupposes the procedure of the analysis, which comprises three stages. The first stage focuses on the determination of the elements of different semiotic systems, which construct fear in horror films through audial and visual modes. In the theory of multimodality, audial and visual modes are viewed as channels of perception related to the way a human perceives material objects through hearing, observing, or feeling them (Bateman & Schmidt, 2012). The modes in film contain elements of verbal, nonverbal, and cinematic semiotic resources. They are viewed as socially conditioned communicative resources that construct social, individual, affective, meanings due to the needs of a particular community (Leeuwen, 2006). Each semiotic resource in film is characterized by the set of specific means inherent only to it. The verbal semiotic resource contains lexical and syntactic means of constructing fear. The nonverbal semiotic resource is characterized by a wide range of facial expressions, voice changes, and gesture and body movements. The cinematic semiotic resource has a significant variety of elements including camera shot size, camera angles, light, and sound techniques.

Although all elements possess the meaning-making potential, they construct fear only in the multisemiotic integration. Therefore, the second stage aims to determine patterns of combination of multisemiotic elements on the basis of cognitive-semiotic criteria. Different semiotic resources interact in film creating multimodal blends, which make semantic sequences that can only be analyzed in their dynamics. In order to explain how meaningful elements are combined, I employ the theory of conceptual integration (Fauconnier & Turner, 2003). Cognitive operations connect language and mind, enabling the construction of new meanings on the basis of already existing ones.

Film combines two views on fear as a joint object: the filmmakers' and the viewers'. This emphasizes the intersubjective nature of constructing fear in horror films. Filmmakers include all agents involved in creating film: scriptwriter, producer, director, cameraman, actor, etc., since they intend and construct the emotive meaning on the screen. Collective film recipients comprise target film audience with their socio-cultural, gender, ethnic characteristics, which are taken into consideration in film making.

At the heart of constructing fear in film is the filmmakers' presumption that viewers can potentially share their joint intention with the filmmakers, are able to share joint attention, and, as a result, share joint emotion. The camera, although a

mechanical object, provides the integration of filmmakers' and recipients' views and guides joint attention. The filmmakers are not the only creators of film meanings; the viewers also take an active part interpreting and reconstructing emotions based on their shared experience.

The third stage of the study focuses on the reconstruction of fear by film viewers. To achieve this goal, I conducted the experiment involving 50 participants, 25 of whom were males and 25 females. The participants watched 30 horror film episodes from 8 horror films and provided answers to survey questions regarding the role of semiotic components in constructing fear. In the scene of joint attention, according to Turner, communicants realize that they jointly pay attention to a certain object, they interact with each other, jointly participating in this activity, even if they do not communicate about it (Turner, 2017, p. 1).

Therefore, the specificity of filmmakers-viewers interaction comes to the fore in the process of meaning-making. I claim that filmmakers and viewers, despite their remoteness in time and distance, are able to co-participate in (re)constructing fear, which may be explained in terms of intersubjectivity. This participation is based on the identification of viewers with film characters (Smith, 2003, p. 127–129) and reflects their ability to feel the same emotions and experience them. Emotional associations are connected not only with the play of actors, but also with words, gestures, music, colour, sound, light, as they are 'tied' to certain emotions, thoughts, beliefs as well as to physiological reactions.

Thus, the following research questions arise in this study: what are the typical verbal, nonverbal, and cinematic semiotic resources employed by filmmakers to construct fear in horror films; what is their meaning-making potential; how do they integrate creating multimodal blends; and how do viewers reconstruct fear in horror films.

## **Results and Discussion**

### **Semiotic Resources of Constructing Fear in Horror Films**

The multimodal construction of fear in film is based on its biological, social, and cultural aspects. Characteristic of fear in film is the variety of its forms – from the feeling of anxiety to terror including both sthenic (active and attacking) and asthenic (passive and defensive) types. The former consists in the ability to mobilize human forces for immediate activity directed to reduce the risk of becoming a victim. The latter is manifested in the protective neurobiological reaction of a human to real or imaginary danger and is associated with immobility, muscles tension or physiological manifestations.

Emotion exists in film as an integral audiovisual entity, embodied through the synergistic combination of multisemiotic elements. Embodiment, according to Damasio (1994), is based on images that exist in the human mind. The form of these images is not important: they can be formed with the help of colours, movements,

voice, or words and are based on sensory perception of the world, which links them with physicality.

Fear in film emerges through the representational relations between the bodily sign and the action, object, or word to which it refers. In Coëgnarts's parlance, "meaning is a form of derived embodied thought" (Coëgnarts, 2017, p.1), which may be realized by various semiotic resources. Accordingly, the actor's voice, body movements, film dialogue, or images contribute to the on-screen construction of fear. Semiotic marking of fear occurs on two planes: on the plane of film - through the audiovisual semantic unity, and on the plane of the verbal text of the screenplay through the description of the relevant elements.

The nonverbal semiotic resource is represented by the characters' mimics, gestures, and voice. In horror films, it is characterized by a wide range of devices. The most typical indicators of fear are facial expressions. The semiotization of fear occurs through the gaze when eyes are wide open and goggled, as indicated in the screenplay: *eyes go big with fear, eyes bulging with panic*. They may be firmly shut: *his eyes closed in fear, covers his eyes in fear* or filled with tears: *eyes water in pain and fear*. The gaze is "frozen" under the awareness of mortal danger: *stares in horror, panicked look*. The face of a person experiencing fear is distorted, motionless, white, red, or darkened: *face is a mask of shock and fear, pasty white with fear*. The lips may be trembling or tightly compressed, the mouth jerks: *jaw drops as total fear storms her face, mouth twitching in fear*.

Voice is a vivid indicator of fear implementing physiological processes peculiar for this emotion. Voice may quaver, decrease, or become hoarse, realizing the asthenic form of fear: *tremor of fear in his voice, voice is defiant but cracking with fear*. Screaming and shrieking are, in contrast, characteristic to the sthenic form: *shriek with fear, scream in fear*.

Gestures and body movements also implement sthenic and asthenic forms of fear. A person jerks, makes sharp, uncontrolled, and sometimes aggressive movements, or tries to escape: *puts his hand to his mouth in fear, gripping the armrests in fear, frightened, wildly hits him from behind*. Asthenic manifestations consist in a state of immobility, trembling, gasping, or uncontrolled physiological reactions: *shivers from cold and fear, his fear obvious now, his breathing quick and shallow*.

Example (2) illustrates the use of non-verbal components to construct the boy's fear in the horror film *Case 39*. He is terrified because of the possibility of meeting a demon who is in the body of an innocent girl. Asthenic manifestations of his fear are constructed by uncontrolled body movements: he is breathing rapidly, almost suffocating, unable to control the shaking of his body.

(2)EMILY *What's the matter? What's scaring you?*

*He looks at Emily, terrified, starts hyperventilating.*

EMILY *Oh God...*

*Emily tries to calm the panicked boy as he gasps for air, a horrible wheezing sound in his throat.* (Wright, 2006)

However, not only nonverbal elements, but also the components of verbal and cinematic semiotic resources are able to embody fear in film. Language comprehension implies a mental simulation (Zwaan, 2004, p. 35), which, enacted by words, is sensitive to the characteristics of the objects mentioned (Scorolli & Borghi, 2008, p. 7). Scorolli and Borghi (Scorolli & Borghi, 2008) argue that sensorimotor processes underlie concepts. This involves reproducing the same neural activation pattern that occurs when individuals perceive non-linguistic reality referenced by the linguistic sign. In addition, word-induced simulation is influenced by such factors as the shape and orientation in space of the mentioned objects and the part of the body that acts in response to the stimulus.

The verbal semiotic resource is represented in characters' speech and it comprises lexical and syntactic means specific for constructing fear in horror films. Lexical means include interjections, descriptive words, and emotion-laden words.

Interjections express fear emphasizing the emotion and indicating the strong emotional state of the speaker. Structurally, they are either simple: *Oh, Uhh, Ach, Ooh, Omigod, Goodness, Jesus* or complex: *My God, Jesus Christ, Oh my God, Oh gee*. Their use is stimulus-bound as they implement a stereotyped appeal to higher powers, which is associated with the experience of danger as in example (3). Emily is aware of the mortal danger for the girl and expresses her terror with the interjection.

(3) *Emily's face darkens.*

*EMILY (under her breath) Oh God...*

*ROBIN What's the matter?*

*Emily stares at the unsuspecting family. Lucy's next victims. She fends off a wave of emotion as the full horror of her predicament hits her (Wright, 2006).*

Descriptive words *scared, afraid, shocked, terrified, etc.*, are also used by characters in horror films, although not widely. This can be explained by the fact that in the situation of danger individuals 'select' words spontaneously, paying less attention to the description of their state.

A peculiar feature of the linguistic representation of fear is the employment of emotion-laden words and phrases with explicit or implicit negative meaning: *bastard, son of a bitch, monster, stupid, crazy, idiotic, selfish* as well as swears and vulgarisms. Hirsch (1985) claims that swearing in the situation of danger is a symbolic action aimed at invoking the individual's will to resist the feeling of fear.

Syntactic means implicitly realize fear, in this way performing the expressive function. Violation of the sentence structure, characteristic for horror films, implies the emotional state of high intensity associated with fright. Syntactic means are represented by incomplete elliptical, nominative, and parceled sentences as well as by changing the word order – inverted and parallel constructions, semantically irrelevant repetitions, and pauses of hesitation. Characteristic of fear in horror films are pleas for help, threats, imperatives, and promises to change the state of affairs in order to get rid of the danger that provokes fear.



Consider example (4), which illustrates the use of incomplete sentences and pleas for help in constructing fear. Susan is scared by the girl ghost, who tries to catch her. In panic, she manages to escape and meets a security guard.

(4) *Susan stands in the doorway, animatedly talking to a young security guard sitting at a desk lined with video monitors. She's speaking rapidly, and shaking:*  
*SUSAN In the stairs... there was... something... a strange person...all the lights were going out...*

*The Guard doesn't understand her – in her panic, Susan's mispronouncing her words, and she knows it. Susan takes a breath, frustrated and frightened.*

*SUSAN Please. Help me.* (Susco, 2004)

Cinematic semiotic resource also possesses the potential of meaning-making and is able to contribute into emotive meaning-making. As Coëgnarts claims (2017, p.2), cinema is meaningful insofar it provides evidence of the embodied thought. Cinematic devices, according to Heimann et al. (2014, p. 2087), can affect sensory-motor areas of the human brain, which gives rise to the neural activation of perceptual states (Coëgnarts, 2017, p. 3). The cinematic semiotic resource has a significant variety of elements as fear in horror film is a key factor of meaning-making providing an impact on the audience. It includes camera shot size, camera angles, lighting, and sound techniques.

A close-up and a middle close-up implement the image of a person experiencing the emotion and, therefore, are mandatory in constructing fear in horror films. While a close-up is affective, emphasizing the facial expression, a middle close-up highlights body movements. The sequence of the close-up and the middle close-up makes it possible to trace the character's actions in the state of fear and intensify its construction.

The camera angle frames the character in fear, stresses the dynamics of the character's actions, determines various degrees of perception for the viewers, and builds suspense and tension. In horror films, various angle types are used: side, high, and low angles, over-the-shoulder shot, the Dutch angle, and the POV shot, etc. They highlight different aspects of fear, for instance, the over-the-shoulder shot enables viewers to observe the cause of fear and the Dutch angle indicates the state of uncertainty and anxiety. The wide use of high angles in *The Grudge* indicates the character's helplessness and weakness when meeting supernatural forces, while numerous POV shots in *Case 39* show fear from the character's perspective, immersing the audience into the narrative through the experience of fear.

The sound effects construct fear through non-diegetic music and noises. While diegesis refers to the imaginary world of the film, non-diegesis relates to the objective world of the viewers. In horror films, music is employed to build up tension and suspense when something is about to happen to a character. This possesses a significant meaning-making potential, corroborates the idea that horror film aims at eliciting viewers' emotions controlling what the viewers feel. Music evoking fear may be described as irregular in tempo, high or low in tone with a sharp increase,

non-linear, and disturbing with a preference for stringed instruments. For instance, in film *The Grudge*, Christopher Young creates tension using the slow technique and low tone while the irregular rhythm and dissonance emphasize the anxiety of on-screen events.

The light effects create the atmosphere of ominousness and anxiety in horror films. Characteristic for fear is the unusual arrangement of lighting: dim light, darkness, flashes, chiaroscuro, and flickering, which cast unnatural shadows. The use of darkness and chiaroscuro in *The Grudge* makes objects and features seem distorted and some parts of the facial structure are hidden or altered.

Example 5 (Fig. 1) demonstrates the use of cinematic components to construct fear in film – a close-up, a high angle, dim light, and ominous sharp non-diegetic music. Karen Davis was sent to take over the care of dementia-ridden Emma. At her house, Karen witnesses Emma's fright caused by a spirit descending from the ceiling.

### **Figure 1**

*Example 5. The Grudge (22:15)*



Thus, verbal, nonverbal, and cinematic resources possess significant, albeit different, meaning-making potentials. However, fear cannot be constructed by the elements of one semiotic system. They have the ability to form different meaningful configurations, which are characterized by the synergistic integration of multisemiotic elements. This demonstrates the emergent character of emotive meaning-making since it emerges as a result of multisemiotic integration.

### **Multimodal Blends of Constructing Fear in Horror Films**

The meaning-making potentials of various semiotic resources follow underlying regularities of the human mind as humans are able to blend their experiences. According to Turner (2016, p. 2), “A basic technique for constructing meaning across an extended mental network is to use as an input to that network some very compressed, congenial concept in order to provide familiar, compressed structure to the blend.” The meaning of filmic fear may be viewed as a multimodal blend, which emerges as a result of conceptual blending. Blends represent a qualitatively new formation, a synthesis of structures belonging to different mental spaces.

In terms of conceptual blending (Fauconnier & Turner, 2003), verbal, nonverbal, and cinematic semiotic resources may be viewed as separate mental or input spaces

since the meaning of fear is processed differently in them (Krysanova & Shevchenko, 2022). These meanings are mixed with each other through cross-mapping, which contributes to the formation of a multimodal blend. This emergent mixed space has a novel meaning, although based on the meanings of input spaces. Due to the dynamics of film, the creation of mixed blended spaces is a continual process provoking the formation of situation-dependent emergent blends of emotive meaning. As Bateman and Schmidt (2012, p. 90) argue, the determining of the regularities of combining semiotic resources is a key issue of multimodal analysis, which explains how the meaning is constructed in film.

The empirical analysis demonstrates that fear in horror films is constructed by the elements of two (nonverbal and cinematic) or three semiotic resources, as fear is always implemented by bodily signs and the image is supplied by the cinematic elements. The use of verbal elements specifies the emotion of fear and clarifies the image. This enables us to claim about two-component and three-component patterns. The most common configurations of fear in horror films include: facial and gesture components + close-up/middle close-up, facial component + close-up and sound effects, and verbal component + voice and facial components + close-up, camera angle, and sound effects. The prevalent use of nonverbal elements demonstrates the inextricable connection of fear with physiological processes and the shared embodied experience of filmmakers and viewers.

However, the expressive effect is realized by the integral combination of various elements, which complement and intensify fear as in example (6), when Emily sees the demon in the girl's body and is scared to death by her threat. Emily runs away and shuts herself in the room. She hears the footsteps of the approaching demon and trembles in fear (Figures 2–3). Her body movements are uncontrollable; she clings to the wall, paralysed with fear. In a panic, she screams and begs to leave her alone. A close-up and a middle close-up make it possible to follow her chaotic gestures and contorted facial expressions, while the ominous non-diegetic music intensifies the emotion.

(6) *Relentless. Tormenting Emily. Until she can't take it anymore. And she screams as loud as she can, half cursing, half begging, the veins standing out in her neck –*  
*EMILY Leave me alone!!!* (Wright, 2006)

## Figure 2

Example 6. Case 39. (1.32.09)



**Figure 3**

*Case 39. (1.32.15)*



The blends of fear in horror films may be marked by the semiotic salience, when the elements belonging to one semiotic system prevail within the multimodal combination, which makes the non-parity pattern. The salient effect makes it possible for filmmakers to highlight different aspects of constructing fear. The elements of the verbal semiotic system prevail in case the characters try to justify the cause of fear or convince the opponent not to serve as a source of danger. Nonverbal elements emphasize the neurophysiological manifestations that embody the emotion on the screen while the prevalence of cinematic elements aims to influence the emotional sphere of the audience. In the example below, Matthew is scared to death by an encounter with a ghost. His mouth and eyes are wide open. The cinematic means, which prevail in this episode, enhance the emotion of fear. The close-up, the high angle, dim lighting, harsh diegetic sounds, and non-diegetic music complement and intensify the character's fear.

**Figure 4**

*Example 7. The Grudge. (33:56)*



In order to create shock and fear in audience, filmmakers resort to creating suspense, which increases the tension of scenes. To reach this effect, different semiotic elements may be sequentially organized, creating the consecutive pattern. The sequence of semiotic devices prolongs the time before the actual outcome of the fearful situation and keeps the audience in suspense. According to recent research in

psychophysiology (Bound, 2016), fear is at the heart of building suspense in horror films, acting as tonic or phasic emotion to scare the viewer.

The following example illustrates the use of the consecutive pattern. Walking through the hallway, Susan is frightened by a strange scraping sound (Fig. 5). She shivers and nervously looks round. Then, she looks up, noticing the top floor flickering. Cinematic devices employed to construct fear include the close-up, the high angle, flickering light, and a non-diegetic sound. Figures 5, 6 illustrate Susan's terror when she sees a ghost with a skinny pale hand. Susan's breath catches in her throat, her mouth and eyes are wide-open, she is motionless. The close-up and the low angle combined with ominous diegetic sounds of breaking glass and scraping intensify the emotion. Next, she screams and runs down to open the door. The whole episode is accompanied by diegetic sounds and sharp non-linear non-diegetic music.

**Figure 5**

*Example 8. The Grudge (44:18)*



**Figure 6**

*The Grudge (44:39)*



On the whole, fear in horror films is constructed by emergent multimodal blends which follow two-/three-component, non-parity, and consecutive patterns of their combination. The ability of semiotic components to form a multiplicity of combinations indicates their meaning-making potential in film and enables us to view fear as an emergent construct.

As horror films always seek to elicit the viewers' emotional response, it is necessary to follow the peculiarities of the audience's reconstruction of the emotion of fear.

## Reconstructing Fear in Horror Film: A Viewers' Perspective

Emotive meaning-making in film is the interactive process of filmmakers-viewers communication. Horror films are always directed and oriented to the addressee as they aim to cause fear or disgust in their audience. Multisemiotic elements in horror films, verbal or nonverbal, are used to provoke psychological reactions in the audience. Smith (2003, p. 8) claims, that viewers perceive film events as real as they subconsciously identify themselves with film characters. If events are perceived as real they are able to evoke emotions (Barret, 2017). The effect of reality is created by the camera through the audiovisual representations of the world. "By restaging the process of our earliest identifications with images (the Lacanian mirror stage), film asks us temporarily to reconstitute our identities by taking up the pleasurable, cohesive, all-seeing position offered to us by the film" (Smith, 2003, p. 177).

Therefore, the next stage of this study aims to determine the reconstruction of fear in horror films by the audience. To achieve this goal, I conducted an experiment, which included six questions shown in the table below, alongside with the responses received (see Table 1).

Table 1  
*Survey Questions and Responses*

Q1 What emotion is constructed by film characters in the suggested film excerpts?	
Males	Females
fear 45%	fear 36%
horror 32%	horror 47%
fright 20%	fright 15%
anxiety 3%	anxiety 2%
Q2 How do you perceive fear constructed on the screen: as a whole entity, through verbal elements, non-verbal elements, or cinematic elements?	
Males	Females
a whole entity 81%	a whole entity 78%
verbal elements 1%	verbal elements 3%
non-verbal elements 10%	non-verbal elements 8%
cinematic elements 8%	cinematic elements 11%
Q3 What verbal elements indicate fear for you in horror films?	
Males	Females
interjections 34%	interjections 19%
pleas for help 36%	pleas for help 34%
imperatives 7%	imperatives 18%
descriptive words 15%	descriptive words 8%
violation of sentence structure 8%	violation of sentence structure 21%

Q4 What nonverbal elements indicate fear for you in horror films?

Males	Females
facial expressions 48%	facial expressions 36%
voice (scream) 39%	voice (scream) 48%
chaotic/aggressive gestures 13%	chaotic/aggressive gestures 16%

Q5 What cinematic elements indicate fear for you in horror films?

Males	Females
sound (music) 50%	sound (music) 45%
dim/flickering light 14%	dim/flickering light 19%
close-up 34%	close-up 32%
angle 2%	angle 4%

Q6 What emotion do you feel while watching the horror film?

Males	Females
fear 39%	fear 50%
interest 45%	interest 20%
disgust 16%	disgust 18%
	tension 12%

The analysis of responses demonstrates that fear in horror films is reconstructed by viewers with a different level of intensity: as anxiety, fear, fright, or horror, which proves the clustering character of this emotion. Male and female respondents perceive on-screen fear as a whole entity in almost the same ratio: 81% of males and 78% of females. However, 11% of female respondents reconstruct fear based on cinematic elements, while non-verbal components are decisive in reconstructing fear for 10% of male respondents.

As for the role of multisemiotic elements in reconstructing fear, they differ in a certain way between males and females. Among verbal means, the main indicators of fear are pleas for help for males and females (36% and 34%, respectively). Besides, lexical means are more decisive for male respondents, including interjections (34%) and descriptive words (15%) while violation of the sentence structure (21%) is a more prominent indicator for females in the reconstruction of fear.

For both male and female respondents, the voice and facial expressions are decisive for the reconstruction of fear, with the predominance of the facial expressions (48%) among males and the voice (48%) among females. Survey results for cinematic means are fairly similar for males and females. Music and close-up play a crucial role in reconstructing fear in horror films.

Although all respondents reconstruct the emotion of fear according to the intention of the filmmakers, they experience different emotions when watching horror films. Males feel more interested in the on-screen events, experiencing fear and disgust less intensely. At the same time, females experience negative emotions more: fear, disgust, and tension dominate, while interest is not so common.

The results of the survey demonstrate that viewers are able to reconstruct the emotion of fear intended by filmmakers. The joint emotion is based on the filmmakers' and viewers' joint attention which makes their co-participation in emotive meaning-making possible.

## Conclusions

This article has brought together psycholinguistic and cognitive-semiotic approaches to constructing fear in horror films. Unlike other researches, this study examines the construction of fear from both the filmmakers' and the viewers' perspectives taking into account the multimodal nature of horror films.

Firstly, the meaning of fear in horror films is created by the synergistic combination of audial and visual modes as well as verbal, nonverbal, and cinematic semiotic elements. While the verbal and non-verbal aspects of filmic fear are embedded in its social and cultural manifestations, cinematic technical devices indirectly appeal to fear as a threat to a human life or well-being highlighting the peculiar aspects of this emotion. Typical verbal elements include interjections, descriptive or emotion-laden words, pleas for help, imperatives, and the violation of the sentence structure. Nonverbal elements are characterized by contorted facial expressions, screaming, trembling, chaotic gestures, or stupor. Cinematic elements contain a close-up and a middle close-up, various camera angle types, non-linear and disturbing music with a preference for stringed instruments, and dim light. All components of semiotic resources possess the meaning-making potential highlighting various aspects of fear in horror films.

Secondly, fear emerges as a multimodal construct, the result of conceptual integration, which stipulates the allocation of multimodal blends characteristic of fear in horror films: two-/three-component, non-parity, and consecutive patterns. Blends represent a synthesis of elements belonging to different semiotic resources and can be viewed as a semantic entity. The typical blends of constructing fear in horror films include facial and gesture components + close-up/middle close-up, facial component + close-up and sound effects, and verbal component + voice and facial components + close-up, camera angle, and sound effects. It follows that non-verbal and cinematic elements are a constant part in the construction of fear, while the use of verbal ones can vary depending on the communicative situation. This demonstrates a tendency towards the multi-component construction of fear, which, in turn, indicates that fear cannot be constructed by the elements of a single semiotic system.

Thirdly, filmmakers and viewers are viewed as co-participants in constructing fear. Filmmakers' intention is directed to influence the film recipients and it entails viewers' affective and perceptual participation in on-screen events. Emotive meaning-making is viewed as the process of intersubjective interaction between filmmakers and viewers constituted by multimodal semiotic resources and resulting in ascribing emotive meaning to linguistic and non-linguistic signs. It is rooted in



bodily experiences and embodied not only through nonverbal elements, but also verbal and cinematic ones. The main indicators of fear for both male and female viewers are pleas for help, the voice and facial expressions, and music and close-up. The results of the experiment demonstrate that viewers are able to share the joint intention with the filmmakers and reconstruct fear, which is perceived as a whole entity with a different level of intensity: from anxiety to horror.

The use of the integrative psycholinguistic and cognitive-semiotic framework makes it possible to explain multimodal construction of fear in horror films from the filmmakers' and viewers' perspectives. This stipulates the further study of emotive meaning-making in various types of multimodal discourses: political and social commercials, educational videos, 'reels' in social network, etc., with regard to the heterogeneous means used to create this content.

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## Appendix

Film title	Number of episodes
Case 39	41
Drag Me to Hell	11
Hellbound: Hellraiser II	20
Hellraiser: Deader	10
It	16
Jennifer's Body	12
Land of the Dead	5
Legion	18
Mirrors	21
Orphan	19
Suspect Zero	4
The Amityville Asylum	5
The Grudge	21
The Hills Have Eyes	19
The Roommate	7
Timber Falls	10
Twilight: New Moon	11
Total	250

# Axiological Dimension of Citizenship and Patriotism in a Worldview of Kazakhs: A Psycholinguistic Study

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**Abstract.** Restoration of cultural heritage, revival of national traditions and basic elements of culture, reassessment of core and cultural values is of utmost importance in any human culture. In the context of present global developments enriching the dimensions of citizenship and reduced patriotism, this study aims at defining the values of citizenship and patriotism as perceived by the representatives of the Kazakh language and culture. The study manipulated ranking of the citizenship and patriotism values among the Kazakhs representing different gender categories, age groups and regions of Kazakhstan. The Mann-Whitney U-test and the Kruskal-Wallis test were employed to measure the variance among various groups of respondents. A word association test was conducted on the stimulus words Отан / homeland, отансүйгіштік / patriotism, тарих / history, тәуелсіздік / independence, еркіндік / freedom. Based on the received data, the association fields of the values of citizenship and patriotism were modelled and the semantic gestalts were defined. The ranking of values of citizenship and patriotism showed that the highly ranked value among all respondents, across both gender categories, all age groups (except 70+ years), and regions in Kazakhstan (except East Kazakhstan) was ‘independence’ (ranging from 4.76 to 4.84). The least ranked value among the representatives of the Kazakh language and culture except age groups of 50-70 years and 70+ years and South Kazakhstan region was ‘patriotism’. The word association test demonstrated that the values of citizenship and patriotism in the Kazakh language consciousness imply love for the birthplace and country, where a family and close people live, appreciation of courage of national heroes fighting for freedom and peace, value, happiness, and pride, offering bright future and opportunities..

**Keywords:** *word association test, conceptualization of values, language consciousness, Kazakh language and culture bearers, citizenship and patriotism.*

**Кузембаева Гюльжана. Аксиологічний вимір громадянськості та патріотизму у світогляді казахів: Психолінгвістичне дослідження**

**Анотація.** Відновлення культурної спадщини, відродження національних традицій і основних елементів культури, переоцінка базових і культурних цінностей є надзвичайно важливими для будь-якої людської культури. У контексті сучасних глобальних досягнень, що збагачують виміри громадянськості та зниженого почуття патріотизму, це дослідження спрямоване на визначення того, як сприймаються цінності громадянськості та патріотизму носіями казахської мови та культури. В основі дослідження було ранжування цінностей громадянства та патріотизму серед казахів, які представляють різні гендерні категорії, вікові

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групи та регіони Казахстану. Для вимірювання дисперсії між різними групами респондентів використовували U-тест Манна-Вітні та тест Краскела-Волліса. Асоціативний експеримент проводився за словами-стимулами Отан/батьківщина, отансүйгіштік/патріотизм, тарих/сторія, тәуелсіздік/незалежність, еркіндік/свобода. На основі отриманих даних змодельовано асоціативні поля цінностей громадянськості та патріотизму та визначено семантичні гешталти. Рейтинг цінностей громадянства та патріотизму показав, що найбільш значущою цінністю серед усіх респондентів, в обох гендерних категоріях, усіх вікових групах (крім 70+ років) і регіонах Казахстану (окрім Східного Казахстану) була «незалежність» (в діапазоні від 4,76 до 4,84). Найменш значущою цінністю серед носіїв казахської мови і культури, крім вікових груп 50-70 років і 70+ років і Південно-Казахстанської області, був «патріотизм». Асоціативний експеримент засвідчив, що цінності громадянськості та патріотизму в казахській мовній свідомості передбачають любов до батьківщини та країни, де живуть сім'я та близькі люди, оцінку мужності національних героїв, що борються за свободу та мир, цінності, щастя, гордість, пропонуючи світле майбутнє та можливості.

***Ключові слова:** асоціативний експеримент, концептуалізація цінностей, мовна свідомість, носії казахської мови та культури, громадянськість та патріотизм.*

## Introduction

Values are a part of human culture together with norms, ideals, and common beliefs of the goals to which a person should strive. The Republic of Kazakhstan, having experienced the russification policy in the past, is taking attempts in restoration of cultural heritage, revival of national traditions and basic elements of culture, and reassessment of core and cultural values. These attempts are in line with the Recommendation on safeguarding of traditional culture and folklore, an international normative instrument adopted by the UNESCO General Conference in 1989, and with various events conducted worldwide to assess the present situation of intangible cultural heritage, to analyze the role it can play in resolving local and national problems relating to major contemporary concerns, and to draw up a new strategy for the coming years (Mayor, 2001).

Patriotism is “a social construct that develops gradually according to people’s cultural activity” (Berger & Luckman, 1966). Studies share the definition of patriotism such as the “specific beliefs on a country’s superiority through shared common national symbols and affection towards the country creating a rooted nation and playing a significant role on powering up the civilian bonds and national loyalty” (Spinner-Halev & Theiss-Morse, 2003). It is considered natural, that people are affectionate and compassionate towards the place they live in, and towards their parents and groups they take part in. Though, in the states’ development process, people were made to believe they are being part of a bigger community. Citizenship implies raising active and participative citizens that have responsibility to their country. However, global developments are enriching the dimensions of citizenship, fostering global citizenship as the responsibility for the whole humankind and universal consciousness (Kan, 2009).

Recently, radical and national ideas happen to be one of the most featured topics around the world. “The discourses such as radical nationalism, blind patriotism, islamophobia and xenophobia have influenced subjects of various social systems” (Altıkulaç, 2016). In this respect, this study aims at exploring the conceptualization of citizenship and patriotism by the modern Kazakhs in their cultural value system from the psycholinguistic perspective. The study is especially relevant in the current realia of the Republic of Kazakhstan, marked by the rapidly accelerating process of globalization with interconnection and interaction of various ethnicities. Cultural behavior, values and norms are being exchanged, and in this context, it is important to shed light on the axiological dimension of citizenship and patriotism in the culture of the Kazakh ethnicity and its conceptualization in the nation’s language consciousness.

## Literature Review

Cultural wealth makes the basis of the moral principles as the culture sets a certain way of vision and recognition of the world, and creates certain forms of activity for a person in it through language, system of norms, ideals, values and symbols (Karipbayev et al., 2014). The value system includes various groups of values that form the inner core of culture. Each society has its own specific value structure, its own basic values, which are approved and supported by the majority of people in this society. Basic values are the meaningful core of the self-consciousness of the general population, and are determined by the linguistic and cultural dominant that unites the representatives of a culture and separates them from the foreign cultural environment (Dmitryuk et al., 2015). As abstract ideals, values subsume a wide range of behaviors as exemplars of the concepts (Hanel et al, 2018), and different people may endorse the same values but associate different behaviors with them (Maio & Olson, 2000).

Axiological dimension of patriotism and citizenship showing an individual’s relation with the nation have always attracted attention of researchers. Patriotism includes “a special affection towards one’s country, defining oneself through the country, being interested in country’s welfare, and sacrificing for the sake of country’s welfare” (Nathanson, 1997). Patriotism depends on the qualities of citizens, patriotic and citizenship values and ideals in which are related to their cognitive values (Altıkulaç, 2016). The Kazakhstani society and its cultural organization is being influenced by the current processes of market dominance, liberalization, democratization, globalization. Systemic transformations, happening in Kazakhstan since gaining independence affect not only socio-economic and stratification structure, but also moral and spiritual aspects of life. Burova et al. (2022) describe Kazakhstan as “a very tolerant country to various foreign cultural traditions within its deep historical socio-cultural basis”. This contains both positive and negative prerequisites, the latter of which imply “the risks of acculturation due to the

expansion and imposition of non-traditional values, their uncritical borrowing and rooting in the mentality”.

The dynamics of modern societies’ worldviews demonstrates no single and consistent paradigmatic substantiation of the correlation of values, their hierarchy, the general significance. “The phenomenology of mentality is impossible without a theoretical reconstruction of the axiological matrix of spirituality, which is implicit from direct and indirect social dimensions” (Vakayev, 2017). The tasks of value system preservation and reproduction, relevant to the cultural traditions of the Kazakh people and capable of innovation, are actualized before the state institutions and state ideology (Burova et al., 2022).

Psycholinguistic word association tests have gained a particular significance for the studies with cognitive focus (Kuzembayeva et al, 2022). Language consciousness, explicated through association experiments, adds to the understanding of mental images, that have linguistic equivalents demonstrating cultural and mental peculiarities and moral standards of a specific community (Kuzembayeva et al, 2019). The researchers for at least two centuries have been aimed at grouping and interpreting association fields (AF) as externalizers of consciousness. AF is formed by the researcher from the reactions of native speakers to a stimulus word. As stated by Tarasov (2004), AF externalizes the knowledge associated with the stimulus word in a particular national culture.

The reactions are the words that are directly connected in an associative verbal network, covering with a certain completeness the entire lexicon of a modern average native speaker of language, whereas other words of this network are already indirectly associated with the stimulus word. Associations are ranked by frequency and alphabetically within the same rank (Tarasov, 2004), and are structured according to the field principle forming a hierarchy in terms of brightness (Sternin, 2022, pp. 112-113). Frequent responses and single ones are clearly distinguishable, and the frequency of the AF’s components is stable in time and contains reactions that have usual connections with the stimulus word (Tarasov, 2004).

Most AFs, according to Karaulov (2000), reveal a special internal semantic organization, a “semantic gestalt”, characterized as a unit of knowledge about the world, correlating its structure with the structure of reality reflected in it. The semantic gestalt usually consists of several zones ( $7\pm 2$ ), which combine the features of an object or concept that are typical for a given linguistic consciousness, corresponding to the name of the field – stimulus.

The Kazakhstani psycholinguistic studies are grounded on the theory and methodology of the Moscow Psycholinguistic School (E. F. Tarasov, N. V. Ufimtseva, Yu. A. Sorokin, etc.), the Tver Psycholinguistic School (A. A. Zalevskaya), and the Voronezh Psycholinguistic School (I. A. Sternin), which scientific research has sprouted in Kazakh linguistics (Dmitryuk, 2020). The overview of psycholinguistic studies of ethnocultural values in Kazakhstan (Kuzembayeva & Dmitryuk, 2022) showed, that previous research explored the linguistic consciousness of ethnic

groups, living on the territory of the country (Dzhambaeva, 2013; Arynbaeva, Dmitryuk, 2021) and the Kazakh students from the South Kazakhstan (Dmitryuk & Abramova, 2021). However, until today, Kazakh researchers have not given due attention to studying the significance and the ethnic contents of the values of modern Kazakh culture from the perspectives of the Kazakh language and culture bearers, representing different age groups and regions of Kazakhstan.

## Methods

The study comprised of two experiments conducted among the Kazakh language and culture bearers to best suit the purpose of the research stating two research questions:

RQ1: What is the hierarchy of the citizenship and patriotism values in the Kazakh ethnicity representatives across different genders, age groups, and regions of Kazakhstan?

RQ2: What are the specifics and the ethnic content of the citizenship and patriotism values as conceptualized by the modern Kazakhs?

Experiment 1 was aimed at ranking the values of citizenship and patriotism across different genders, age groups, and regions of the Kazakh ethnicity representatives. Experiment 2 employed a word association test with the stimuli consisting of citizenship and patriotism values.

Ranking of citizenship and patriotism values was conducted to determine their significance and difference in perception among five hundred and seventeen Kazakh language and culture bearers (163 males, 354 females), representing various age groups (under 30 years – 135 (25.5%), 30-50 years – 207 (40%), 50-70 years – 157 (30.4%), 70+ years – 21 (4.1%) and regions in Kazakhstan (Central Kazakhstan – 52 (10.1%), North Kazakhstan – 147 (28.4%), East Kazakhstan – 54 (10.4%), South Kazakhstan – 118 (22.8%), West Kazakhstan – 146 (28.2%). A list of words representing the values under study was sent to respondents in Google Form via WhatsApp. A five-point Likert scale (5 – Very Important, 4 – Important, 3 – Moderately Important, 2 – Slightly Important, 1 – Not Important) was offered to assess the importance of citizenship and patriotism values. The Mann-Whitney U-test was employed to measure the variance among gender categories in the perceived importance of values by the Kazakh language and culture bearers. The Kruskal-Wallis test was used to measure differences among the age categories of respondents and the regions of Kazakhstan they live in.

In line with the study aim of defining the conceptualization of citizenship and patriotism by the modern Kazakhs and describing the specifics and the ethnic content of these cultural values, this research employed a psycholinguistic word association test among the representatives of the Kazakh ethnicity. The experiment sample included five hundred and sixty-three respondents (161 males, 402 females), representing various age groups (under 30 years, 30-50 years, 50-70 years, above 70



years) and regions of the Republic of Kazakhstan (Central, North, South, East and West Kazakhstan). The respondents were offered stimulus words for which they had to provide associations (words, that came to their mind first). The number of associations was not limited. Links to the stimuli consisting of values of citizenship and patriotism such as *Отан / homeland*, *отансүйгіштік / patriotism*, *тарих / history*, *тәуелсіздік / independence*, *еркіндік / freedom* in Google form were sent to the respondents via WhatsApp. The respondents, who gave their consent to participate in the study, were informed of the word association test principles and had to provide as many associations to the stimuli as came to their minds immediately without thinking much. The received associations were analyzed, modelling of the semantic gestalt of citizenship and patriotism values was conducted in line with Karaulov (2000) with further categorization of association fields. The frequency of association fields' components was presented with four figures (Ufimtseva, 2014). The first figure points out the count of all responses to the stimulus, the second – the number of different answers, the third – the number of single responses, i.e., the number of responses with a frequency of 1, the fourth – the number of blank (void) responses.

## Results and Discussion

The values of citizenship and patriotism, selected for the study, included the Kazakh words “Отан” (homeland), “отансүйгіштік” (patriotism), “тарих” (history), “тәуелсіздік” (independence), and “еркіндік” (freedom). Borrowings from Russian (e.g., “патриотизм” (patriotism), previously used by the Kazakhs, were not considered, as, due to Kazakhstan’s acquisition of independence, national terminology began rapidly to develop (Amirkhamzin, 2023). When exploring complex notions related to the country and citizenship, the historic and the current geopolitical context is concerned (Kardanova-Biryukova, 2018). Thus, patriotism is impossible without knowledge of history, linking the present with the past, therefore, an objective study of history and its popularization are important factors in the formation of a new society (Mynbay, 2014). The selected citizenship and patriotism values were not included in the two Kazakh associative dictionaries (KRAD, 1978; 1998; KAD, 2014) – the Kazakh-Russian Associative Dictionary and the Kazakh Associative Dictionary, except the value *Отан / homeland*, that appeared in the latter dictionary (KAD, 2014, p. 231).

The Experiment 1 aiming at ranking values of citizenship and patriotism by representatives of the Kazakh language and culture resulted in the ratio of values’ significance across the respondents’ gender, age, and regions of living. Table 1 presents the results of ranking.

Table 1

*Descriptive Statistics of Ranking Values of Citizenship and Patriotism across Respondents' Gender, Age, and Regions in Kazakhstan*

Values	Homeland	Patriotism	History	Independence	Freedom
All	4.79	4.68	4.70	4.8	4.75
Gender					
Male	4.83	4.69	4.73	4.84	4.79
Female	4.77	4.67	4.69	4.78	4.72
Age					
Under 30 years	4.74	4.54	4.68	4.83	4.77
30-50 years	4.78	4.71	4.73	4.78	4.73
50-70 years	4.82	4.73	4.68	4.8	4.75
70+ years	5.0	4.81	4.76	4.81	4.76
Regions					
Central Kazakhstan	4.67	4.50	4.67	4.75	4.62
North Kazakhstan	4.81	4.70	4.72	4.83	4.74
East Kazakhstan	4.85	4.76	4.70	4.76	4.8
South Kazakhstan	4.82	4.8	4.72	4.84	4.84
West Kazakhstan	4.76	4.58	4.67	4.77	4.71

As stated in the Table 1, the results of ranking citizenship and patriotism values indicate that their perception by the Kazakh ethnicity representatives is close to each other across different genders, age groups and regions, showing a quite similar importance to the respondents. The highly ranked value among all respondents, across both gender categories, all age groups (except 70+ years), and regions in Kazakhstan (except East Kazakhstan) is 'independence' (ranging from 4.76 to 4.84). The value 'patriotism' was ranked the least among the representatives of the Kazakh language and culture except age groups of 50-70 years and 70+ years and South Kazakhstan region.

Difference in the perception of values of citizenship and patriotism by the Kazakh language and culture bearers belonging to different gender categories is evaluated through the Mann-Whitney U-test for variance and is displayed in Table 2.

Table 2

*Mann-Whitney U-test Results for Differences among Gender Categories*

Values	Gender	N	Sum of Ranks	U	Z	S ig.
Homeland	Male	163	43779.0	27289.0	-1.53	.13
	Female	354	90124.0			
Patriotism	Male	163	43566.09	27502.0	-1.13	.26
	Female	354	0337.0			

History	Male	163	43506.5	27561.5	-1.08	.28
	Female	354	90396.5			
Independence	Male	163	44242.0	26826.0	-2.02	.04*
	Female	354	89661.0			
Freedom	Male	163	43449.0	27619.0	-1.12	.26
	Female	354	90454.0			

\* Significant at the .05 level

The statistically significant difference ( $p < .05$ ) among gender categories was found in terms of the value ‘independence’, the importance of which was significantly higher in males compared to females.

The Kruskal-Wallis test, employed for comparing more than three groups of samples, resulted in no significant differences among the age categories of the representatives of the Kazakh language and culture and the regions of Kazakhstan, in which they live, towards their perception of values of citizenship and patriotism.

The Experiment 2 conducted with the values of citizenship and patriotism represented by the Kazakh words *Отан* / *homeland*, *отансүйгііумік* / *patriotism*, *тарих* / *history*, *тәуелсіздік* / *independence*, *еркіндік* / *freedom* among the Kazakh language and culture bearers within the word association test resulted in rich data for modelling association fields of the values and defining semantic gestalts. Original data of this study including the components of association fields and semantic zones are available at Mendeley data (<http://dx.doi.org/10.17632/4ysfxtw9yb.1>).

Quantitative characteristics of associations fields of the citizenship and patriotism values in the Kazakh language include four figures – the total amount of associations, different reactions, individual reactions stated only once, and the number of void responses is included.

Modelling of the association field includes defining a centre of the field, near, far and outer peripheries. The components of association fields are presented in decreasing order based on their frequency. The centre of an association field comprises reactions stated more than twenty times, whereas the near periphery and the far periphery comprise 10-20 reactions and less than 2-9 reactions respectively. The outer periphery includes individual associations stated only once.

Table 3

*The Components of Centre and Near Periphery in the Association Fields of Values of Citizenship and Patriotism*

The association field <i>Отан</i> / <i>homeland</i> (814, 134, 71, 5)	
Centre	туған жер/birthplace 142, Қазақстан/Kazakhstan 91, ел (-ім, -іміз)/country 82, отбасы (-нан басталады)/family (begins with) 78
Near periphery	(жер бетіндегі ең, оттан да, күні де, түні де) ыстық (жер, мекен)/(most, on earth, than fire, than day and night) hot (place) 36, мемлекет/state 23, (екінші, өз) үй (-ім)/(second, own) house 23, жер/land 21

The association field <i>отансүйгішілік / patriotism</i> (702, 143, 69, 10)	
Centre	патриот/patriot 127, патриотизм (патриоттық сезім)/patriotism (patriotic feeling) 106, махаббат/love 56
Near periphery	(елін, туған жерін) сүйю/love (country, homeland) 25, (адал) қызмет ету/(faithful) service 23, адалдық/loyalty 22, жақсы көру/to love 18, сүйіспеншілік/love 16, қорғау/protection 15, (тіл, дәстүрге) құрмет/respect for (language, tradition) 15, (әке мен анаға парапар, жылы, ыстық) сезім/(warm, hot, as to father and mother) feeling 11, Қазақстан/Kazakhstan 10
The association field <i>тарих / history</i> (842, 332, 216, 6)	
Core	ата-баба/ancestors 30, өткеніміз/past 26, өткен күн/past day 25, тарих/history 24, болашақ/future 21
Near periphery	оқиға/event 17, өткен шақ/past tense 17, уақыт/time 17, өткен өмір/past life 16, соғыс/war 14, батырлар/heroes 12, Қазақстан/Kazakhstan 11, өткен оқиға (жағдай)/past situation 11, ұлт/nation 11, шежіре/genealogy 11, хандар/kings 10, сабақ (алу)/lesson 10, қазақ хандығы/Kazakh kingdom 10
The association field <i>тәуелсіздік / independence</i> (823, 174, 104, 5)	
Centre	еркіндік/freedom 147, бостандық/freedom 106, егемендік/independence 57, бейбітшілік/peace 42, Қазақстан/Kazakhstan 33, тәуелсіз ел (мемлекет)/independent country (state) 26
Near periphery	(байтақ, мәңгі, өз, туған) ел/(great, forever, own, born) country 19, азаттық/freedom 14, бақыт/happiness 14, Отан/Motherland 13, ту/flag 13, 16 желтоқсан/December 11, байлық/wealth 10, Желтоқсан оқиғасы/December event 10
The association field <i>еркіндік / freedom</i> (651, 181, 118, 9)	
Centre	бостандық/liberty 169, тәуелсіздік/independence 133
Near periphery	еркін болу/to be free 19, бақыт/happiness 13, ой еркіндігі/freedom of thought 11, сөз бостандығы/freedom of speech 10

Due to the limited size of the article, only the center and the near periphery components of the association fields are stated, for it is the frequent and the most repetitive reactions that explicate the relatively stable components of linguistic consciousness (Beskorovaynaya, 2004). The contents of far and outer peripheries and other data are uploaded to Mendeley open data repository.

The analysis of frequent components of the association field of citizenship and patriotism values indicates love and warm feelings for the birthplace, country and family.

Across the association fields of citizenship and patriotism values, people striving for freedom and independence are noticed: ‘батырлар/heroes’, ‘қазақ зиялылары/Kazakh intelligentsia’, Алаш/Alash’, ‘қазақтың даңқын әлемге өрлеткендер/those who spread the glory of Kazakh to the world’, ‘лидер/leader’, ‘президент/president’, ‘спортшылар/athletes’, ‘ұландар/youths’, ‘украиндықтар/Ukrainians’. Among them are national heroes – Baurzhan Momyshuly, Dinmukhamed Konayev, Kairat Ryskulbekov, Kazakh khans – Janibek Khan, Kerey Khan, Abylai Khan, Kasym khan, Kenessary, writers – Abay, Shokan Ualikhanov, historical figures – Tomiris, Genghis Khan, presidents – Nazarbayev, Tokayev, and even a musical band – Irina Kairatovna, producing humorous content about politics, social issues and historical events.

Abay is a famous Kazakh writer, poet and philosopher, considered “a true patriot, who in the “Words of Edification” told the people, albeit bitter, but the truth” (Mustafayev, 2011), and is famous for his contribution to Kazakh culture and folklore, that expresses great nationalism .

Baurzhan Momyshuly (common to the association fields *Отан / homeland* and *отансүйгішілік / patriotism*), is a Kazakh-Soviet military officer, appearing in Bek’s “Volokolamsk Highway”, the Hero of the Soviet Union and the People’s Hero of Kazakhstan, who continued the traditions of statehood and patriotism of Kazakh spiritual and political figures. Growing up on the works of Stalinism victims, he was convinced that the idea of Alash would not disappear from the minds of the nation.

Alash was a liberation movement in the Socialist Russia and a political party of Alash Autonomy. It included representatives of the Kazakh intelligentsia, who advocated for equal treatment between Kazakhs and Russians and the cessation of Russian settlement on the Kazakh lands.

Kairat Ryskulbekov, a participant of the events of December 1986 in the history of Kazakhstan, when people dissatisfied with the fact that the first secretary of the Communist Party of Kazakhstan, Dinmukhamed Konayev, was removed from his post, went to a demonstration, demanding the appointment of an indigenous Kazakh, became a symbol of national struggle for freedom and independence.

The association fields of the values *тәуелсіздік / independence* and *еркіндік / freedom* include synonymous associations such as ‘бостандық/freedom’ and ‘азаттық/freedom’. However, the internal content of these associations slightly differs from the notion “еркіндік” (freedom), meaning “being by your own means, volunteering” (Dictionary of the Kazakh Literary Language, 2011). As defined by dictionaries of the Kazakh language, the word “бостандық” (freedom) means 1) freedom, self-control, voluptuousness, and 2) freedom of social actors (individuals, etc.) to act for their own purposes and in the interests of people and country in the field of domestic and foreign policy of the country; scope of legal opportunities, independence (Dictionary of the Kazakh Literary Language, 2011), whereas the word “азаттық” (freedom), in the Kazakh sense, means a political freedom and independence, i.e., social freedom, freedom from dependence (Political Explanatory

Dictionary, 2007). Besides, the clarifying associations to the stimulus *еркіндік / freedom* such as ‘ой еркіндігі/freedom of thought’ and ‘сөз бостандығы/freedom of speech’ are provided.

Some association fields include negative conceptualizations of values of citizenship and patriotism. For instance, the value *Отан / homeland* in the Kazakh language consciousness is associated with ‘ауру/sorrow’ 1 (0.1%), *отансүйгіштік / patriotism* – ‘ақымақтық/stupidity’, ‘керек емес/unnecessary’, ‘қатігез/cruel’, ‘нацист/Nazi’, ‘сенімсіздік/distrust’ 5 (0.1%), *тарих / history* – ‘әділетсіздік/injustice’, ‘бұрмаланған жазба/falsified record’, ‘бұрмалаушылық/misrepresentation’, ‘үмітсіздік/despair’ 4 (0.5%), *тәуелсіздік / independence* – ‘алдаушылық/deception’, ‘коррупция/corruption’, ‘көз жасы/tears’, ‘түсініксіз/unclear’, ‘фантастика/fiction’, ‘ызғар/cold’ 6 (0.7%), *еркіндік / freedom* – ‘жалғыздық/loneliness’ 1 (0.2%). We will leave to the reader the possibility and the right to self-reflection on these associations. We can just assume that negative reactions to the values of citizenship and patriotism reflect the historical periods and events, when Kazakhs experienced cruelty, injustice, and deception leading to their despair and tears. Related to Nazism, we can cite Mustafayev (2011), indicating that “according to approximate estimates, 500 thousand people died in interethnic conflicts in post-Soviet countries in just 20 years from 1990 to 2010.” However, in line with Beskorovaynaya (2004), single negative evaluative associations cannot serve as proof of a stable belief that the values are conceptualized as evil and not good.

The most voluminous semantic zones in the association field *Отан / homeland* are “Birthplace, home” (35.1%) including the brightest components such as *туған жер/birthplace* 142, *(екінші, өз) үй (-ім)/(second, own) house* 23, *жер/land* 21, *туып-өскен жер (мекен, өлке, ел) place of birth* 17, “Country, city” (28.1%) with the components *Қазақстан/Kazakhstan* 91, *ел (-ім, -іміз)/country* 82, *мемлекет/state* 23, “Family member, person” (15.2%) with the components *отбасы (-нан басталады)/ (begins with) family* 78, *ана/mother* 7, *ата-ана/parents* 7, and “Beloved” (8.7%) with the components *(жер беміндегі ең, оттан да, күні де, түні де) ыстық (жер, мекен)/(most, on earth, than fire, than day and night) hot (place)* 36, *махаббат/love* 10.

The most voluminous semantic zones in the association field *отансүйгіштік / patriotism* are “Patriotic spirit” (35.3%) including the brightest components such as *патриот/patriot* 127, *патриотизм (патриоттық сезім)/patriotism (patriotic feeling)* 106, *елжандылық/patriotism* 4, *ұлтжандылық/nationalism* 4, “Beloved” (23.5%) with the components *махаббат/love* 56, *(елін, туған жерін) сүю/love (country, homeland)* 25, *адалдық/loyalty* 22, *жақсы көру/to love* 18, *сүйіспеншілік/love* 16, and “Service” (7%) with the components *(адал) қызмет ету/(faithful) service* 23, *көмек/help* 4, *(ерең) еңбек ету/to work hard* 3.

The most voluminous semantic zones in the association field *тарих / history* are “Past” (20.8%) including the brightest components such as *өткеніміз/past* 26, *өткен*

*күн/past day* 25, *история/history* 24, *өткен шақ/past tense* 17, *өткен өмір/past life* 16, “Family member, person” (14.6%) with the components *ата-баба/ancestors* 30, *батырлар/heroes* 12, *хандар/kings* 10, *Жәнібек хан/Janibek Khan* 7, *Керей хан/Kerey Khan* 6, and “Time” (10.1%) with the components *ғасыр/century* 9, *кезең/period* 5, *бүгін/today* 4.

The most voluminous semantic zones in the association field *тәуелсіздік / independence* are “Freedom” (33.4%) including the brightest components such as *еркіндік/freedom* 147, *бостандық/freedom* 106, *азаттық/freedom* 14, “Independence” (14.3%) with the components *егемендік/independence* 57, *тәуелсіз ел (мемлекет)/independent country (state)* 26, “Value” (10.7%) with the components *бақыт/happiness* 14, *құндылық/value* 4, “Peace” (8.7%) with the components *бейбітшілік/peace* 42, *тыныштық/calmness* 9, *(ашық, көк) аспан/(clear, blue) sky* 6.

The most voluminous semantic zones in the association field *еркіндік / freedom* are “Бостандық/Liberty” (30.3%) including the brightest components such as *бостандық/freedom* 169, *сөз бостандығы/freedom of speech* 10, *азат (-тық)/liberty* 9, and “Тәуелсіздік/Independence” (22.1%) with the components *тәуелсіздік/independence* 133, *ешкімге тәуелді болмай (бағынбау)/not to depend on anyone* 7, *егемендік/independence* 4.

The ratio of the semantic zones of citizenship and patriotism values in the Kazakh language consciousness is presented in Table 4.

Table 4  
*Semantic Zones of Citizenship and Patriotism Values (Ratio in %)*

	Homeland	Patriotism	History	Independence	Freedom
Total	15	18	20	18	19
Birthplace, home	35.1	2.3	1.7	2.2	.5
Country, city	28.1	2.3	2.3	7.5	3.1
Family member, person	16.2	3.9	14.6	2.7	2.3
Value	2.6	3.1	9.3	11.3	10.9
Citizenship	1.2	2	6.7	4.9	1.4
Independence	.6	2.6	.8	14.7	22.1
Patriotism	2.2	35.3	.4	.3	-
Peace	1.2	.6	-	8.7	3.2
Language	.9	.3	.6	.4	-
Education, upbringing	-	2.1	8.1	.5	.5
Freedom	.3	-	-	33.4	10.5
Wealth	-	-	1	1.5	.3

Beloved	8.7	23.5	-	-	-
Protection, care	1.1	3.3	-	-	-
Responsibility, duty	.7	1.7	-	-	-
Self-sacrifice	.6	1.6	-	-	-
Time	-	-	10.1	-	.5
Future	-	-	3.8	1.2	-
Insurrection	-	-	1.6	7.7	-
Law, rights	-	-	-	1.2	1.1
Longed	-	-	-	.6	.6
Animals, birds	-	-	-	.5	2.5
Customs, traditions	.4	-	-	-	-
Service	-	7	-	-	-
Virtue	-	5.1	-	-	-
Respect	-	3	-	-	-
Courage	-	2.3	-	-	-
Past	-	-	20.8	-	-
Event	-	-	6.8	-	-
Heritage	-	-	5.4	-	-
Information	-	-	3.5	-	-
Trouble	-	-	1.3	-	-
Customs, traditions	-	-	1.2	-	-
Secret	-	-	.5	-	-
Unity	-	-	-	1.1	-
Liberty	-	-	-	-	30.3
Action	-	-	-	-	4
Life	-	-	-	-	20
Nature	-	-	-	-	2.5
Fly, wings	-	-	-	-	.9

Common to all association fields of citizenship and patriotism values are the semantic zones “Birthplace, home”, “Country, city”, “Family member, person”, “Value”, “Citizenship”, and “Independence” (present in five AFs). Common to most of AFs of citizenship and patriotism values are the semantic zones “Patriotism”, “Peace”, “Language”, “Education, upbringing”, which are present in four AFs of values out of five.

Among the citizenship and patriotism values selected for the study, only the value *Отан / homeland* was presented in the Kazakh Associative Dictionary (2014, p. 231). The values *отансүйгімдік / patriotism*, *тарих / history*, *тәуелсіздік / independence*, *еркіндік / freedom* were not included either in the Kazakh-Russian



Associative Dictionary (KRAD, 1978; 1998) or in the Kazakh Associative Dictionary (KAD, 2014). The comparative analysis of the present and previous research findings showed that the most frequent associations in both association fields of the value *Отан / homeland* are similar, slightly differing in their order.

The comparative analysis of the most frequent associations with the value *Отан / homeland* in the KAD (2014) and the present study is presented in Table 5.

Table 5

*The Most Frequent Reactions to the value Отан / Homeland in the KAD (2014) and the Present Research*

Associations	KAD (2014)		Present Findings	
	No	Total	No	Total
туған жер (birthplace)	1	149	1	142
Қазақстан (Kazakhstan)	2	122	2	91
ел (country)	3	68	3	82
ана (mother)	4	67	17	7
ЫСТЫҚ (hot)	5	41	5	36
отбасы (family)	6	40	4	78
Отан отбасынан басталады (Homeland begins with the family)	7	35	4	78
МЕМЛЕКЕТ (state)	18	14	6	23
үй (house)	13	18	7	23
жер (land)	15	16	8	21

The Kazakh Associative Dictionary was compiled based on the results of mass free association experiments conducted among the representatives of South Kazakhstan region – the native speakers of the Kazakh language aged 17-25 years in 2012-2014 (KAD, 2014, p. 8). The similarity of the results of the previous research and the present findings despite the respondents' different age groups and regions, indicates the unchanging ethnic content of the value *Отан / Homeland* in the modern Kazakh linguistic consciousness and the relevance of the association field's components.

The conducted word association test on the citizenship and patriotism values showed that the representatives of the Kazakh nation highly value their birthplace and country considering it as 'кіндік қаның тамған жер/place of navel blood', 'атамекен/fatherland', 'жер ана/mother earth', 'ата-бабалар мекені/ancestral home', 'ұя/nest', 'алтын бесік/golden cradle'. In line with the previous research, we agree with Dmitryuk & Abramova (2021), that "tradition and permanence of certain ethnocultural basic elements that make up the essence of the specific features of the national character and ethnos mentality, among which is the attitude to the homeland, possibly may be predictably immutable".

Values of citizenship and patriotism are associated with the Kazakh national heroes who were the leaders of rebellion and insurrection for freedom and peace. Their struggles are highly appreciated and valued, bringing the country and nation to ‘бейбітшілік/peace’, ‘бірлік/unity’, ‘татулық/peace’, ‘тыныштық/calmness’, ‘ашық, көк аспан/clear, blue sky’, ‘жақсы көңіл-күй/good mood’, ‘соғыссыз кезең/war-free period’, ‘уайымсыздық/carefreeness’, ‘уайым-қайғы болмау/no worries’, ‘қауіпсіздік/security’, ‘ынтымақ/solidarity’, шаттық/joy.

Homeland, patriotism, history, independence, and freedom, being the ancestors' dream, longed for many years, are conceptualized as a ‘құндылық/value’, ‘бақыт/happiness’, ‘мақтаныш/pride’, ‘абырой/dignity’, ‘байлық/wealth’, ‘қазына/treasure’ offering bright future and opportunities.

In line with the research ethics, the research data incorporates the responses of those who gave their consent to participate in the study. The limitation of the study includes an unequal male/female distribution and a small sample of respondents of 70+ age group. However, it is the only study conducted among the Kazakh language and culture bearers, comparing different regions of Kazakhstan and age groups from the psycholinguistic perspective.

## Conclusions

The results of the word association tests are quite objective, reliable and verifiable. Though, the weakness of male/female and age groups distribution is among the limitations of the study, the data obtained through the word association test can be interpreted as a reflection of the mass consciousness of the culture representatives, identifying the features of language consciousness and the national and cultural specificity of the mentality.

Ranking of values of citizenship and patriotism, conducted among the representatives of the Kazakh language and culture of various age groups and regions of the Republic of Kazakhstan, showed that the highly ranked value among all respondents, across both gender categories, all age groups (except 70+ years), and regions in Kazakhstan (except East Kazakhstan) was ‘independence’ (ranging from 4.76 to 4.84). The least ranked value among the representatives of the Kazakh language and culture except age groups of 50-70 years and 70+ years and South Kazakhstan region was ‘patriotism’. However, the study demonstrated that the hierarchy of the citizenship and patriotism values, indicating the greater or lesser relevance of the values such as *Отан / homeland, отансүйгішілік / patriotism, тарих / history, тәуелсіздік / independence, еркіндік / freedom* for the Kazakh language and culture bearers, is not very much significant across various genders, age groups and regions. This indicates the unity of the socio-cultural space in Kazakhstan despite the heterogeneity of the language situation caused by historical events and contacts with neighboring countries. As stated by Bentya (2018), the Kazakh culture in the north of the republic is closer to Russian culture and is represented by Kazakh

and Russian elements with admixtures of other nations' cultures living in the north such as Ukrainians, Poles, Belarusians, Azerbaijanis, Armenians, Chechens, Germans and others, while in the south culture has preserved elements of the traditional Kazakh way of life to the maximum. However, other nation such as Uzbeks, Azerbaijanis, Tajiks, Tatars, Turks, Koreans, Kurds, Uighurs living in this territory also bring diversity to the cultural and linguistic space. The issue is addressed by the government of Kazakhstan trying to balance the north and south, thereby ensuring the cultural and linguistic homogeneity and internal stability of the country. In addition to language planning, including strengthening the status of the Kazakh language and expanding the scope of its use, the internal migration, when the population from the southern regions of Kazakhstan, with the support of the state, moves to the northern regions with families, is underway.

The conducted word association test resulted in the extensive association fields with large number of different reactions to the stimuli, that indicates the significance of values of citizenship and patriotism for the language consciousness of Kazakhs. Semantic zones common to all association fields are "Birthplace, home", "Country, city", "Family member, person", "Value", "Citizenship", and "Independence". The results that are universal and common for most nations include love and warm feelings for the birthplace, country and family. However, the certain originality of the national consciousness of the Kazakhs is indicated by the associations with the citizenship and patriotism values that are related to people striving for freedom and independence of the nation in the history of Kazakhstan. Namely, the Kazakh national heroes, who spread the glory of Kazakh to the world, Kazakh khans, presidents, leaders, athletes, writers were noticed across the association fields. The liberation movement Alash in the Socialist Russia and a political party of Alash Autonomy was referred to in three association fields *отансүйгіітiк / patriotism* (Алаш көсемдерi/leaders of Alash, қазақ зиялылары/Kazakh intelligentsia), *тарих / history* (Алаш Орда/Horde of Alash, Алаш/Alash), and *тәуелсіздік / independence* (Алаш/Alash).

In line with the new approach to citizenship in the world, aiming at raising people that are democratic, respectful to human rights, peaceful, responsible to the society, capable of critically reasoning and able to find solutions against the problems, the values of citizenship and patriotism are conceptualized by the Kazakh language and culture bearers as love for the birthplace and country, where a family and close people live, appreciation of courage of national heroes fighting for freedom and peace, considered as value, happiness, and pride, offering bright future and opportunities.

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# Inner Speech as a Brain Mechanism for Preconditioning Creativity Process

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**Abstract.** The current domain of creativity studies is characterized by a high diversity of psychological and neuroscience techniques and methods researchers use. However, the role of verbal processes, especially inner speech, remains underrepresented in this area. Existing studies point to the heterogeneity of inner speech brain mechanisms involved in creative thinking. While consciously controlled verbalized thoughts are associated with the activity of task-dependent brain networks (TPN), especially lateral-frontoparietal network (L-FPN), non-voluntary, mind-wandering thoughts are supposed to correlate with default-mode networks (DMN) activity. While DMN activity leads to an increased number of creative ideas, L-FPN activity results in fewer ideas but increased idea originality. From this point, rest state and state of getting prepared (preconditioning) to task completion, when both mind-wandering and control thoughts occur, are of specific interest. In our study, 49 volunteers completed divergent thinking tasks with rest state and preconditioning state preceded. We later divided all participants into two groups – with low and high creativity levels based on their performance during divergent tasks. EEG was recorded during rest state and preconditioning state and analyzed based on power spectrum and sLORETA data. Our results show an essential role of preconditioning alpha-2 EEG subband in creative thinking performance. The originality of the task solution correlates with the activity of L-FPN structures, while DMN activity does not differ significantly between the two groups.

**Keywords:** *creativity, divergent thinking, rest state, preconditioning, EEG, default-mode network, latera-frontoparietal network, inner speech.*

**Кузнецов Ілля, Козачук Наталія, Качинська Тетяна, Журавльов Олександр, Журавльова Олена, Раковець Оксана. Внутрішня мова як механізм налаштування мозкових процесів на інтелектуальну творчість.**

**Анотація.** Сучасні дослідження креативності характеризує велике різноманіття психологічних та нейрофізіологічних підходів та методів, які використовують дослідники. Утім, вивчення ролі вербальних процесів, насамперед, внутрішнього мовлення, залишається мало представленою в галузі досліджень креативності. Сучасні публікації вказують на гетерогенність механізмів внутрішнього мовлення залучених до креативного мислення. Так,

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вербалізовані думки, які контролюються свідомо, асоціюються з активністю мозкових мереж, орієнтованих на завдання (task-dependent brain networks, TPN), насамперед - латерально-фронтально-парієтальної мережі (L-FPN). Виникнення мимовільних думок корелює із активністю мереж пасивного режиму роботи мозку (default-mode network, DMN). Якщо активність DMN призводить до збільшення кількості креативних ідей, активність L-FPN проявляється у меншій кількості креативних ідей, але при цьому підвищує оригінальність ідей. З цього погляду, викликає значну увагу стан спокою та стан підготовки до виконання завдання, коли виникнення мимовільних думок чергується із виникненням контрольованих думок. У нашому дослідженні взяло участь 49 осіб, які спочатку знаходились в стані спокою та стані підготовки до виконання завдання, а потім вирішували дивергентні завдання. Усі учасники в подальшому було поділено на дві групи, з високим та низьким рівнем креативності, залежно від ефективності виконання дивергентного завдання. ЕЕГ реєстрували протягом стану спокою та стану підготовки до виконання завдання, а потім аналізували із визначенням показників спектральної потужності ЕЕГ та активності структур мозку за методикою sLORETA. Наші результати показують важливий зв'язок показників альфа-2 піддіапазону ЕЕГ при підготовці до виконання завдання із показниками креативності. За даними sLORETA, оригінальність розв'язання завдання корелює із активністю структур L-FPN, а активність DMN не має достовірних відмінностей між групами з різним рівнем креативності.

***Ключові слова:** креативність, дивергентне мислення, стан спокою, підготовка до виконання завдання, ЕЕГ, мережа пасивного режиму роботи мозку, латерально-фронтально-парієтальна мережа, внутрішня мова.*

## Introduction

Current state of neuroscience of creativity is characterized by the complexity of approaches used in this area (Benedek et al., 2011; Fink et al., 2009; Fink & Benedek, 2014; Gruzelier, 2014; Guilford, 1982; Luo & Knoblich, 2007). Even advanced neurovisualization methods are limited in identifying subtle neural mechanisms associated with divergent thinking. Hence, studying brain electrical activity under specific creativity-related conditions is a promising approach for detecting associated neural processes. We suppose that inner speech, as an integral component of thinking, can be the mechanism that preconditions brain for fruitful creative process.

Existing studies show the heterogeneity of inner speech processes involved in the implementation of creative thinking. Critical thinking has been shown to lead to decrease in creativity (Hirsch et al., 2015; Rooij, 2022). The results of the studies on the influence of monological or dialogical inner speech on convergent and divergent thinking are contradictory, implying no specific correlation between the type of inner speech and creativity (Rooij, 2022). At the same time, neuroimaging studies show the difference between voluntary verbal thoughts and spontaneous mind-wandering speech (Perrone-Bertolotti et al., 2014). Voluntary verbal thoughts associated with the activity of task-positive networks (TPN) do not correlate with the results of creativity tests. However, default-mode network (DMN) may play important role in the creativity-related mind wandering and episodic memory activity (Kim, 2010;

Wirth et al., 2011). The data from episodic memory are further processed in semantic memory (Ramey & Zabelina, 2021; Thakral et al., 2020, 2021) implying that DMN activation during divergent thinking is correlated with the processes of episodic memory involving spontaneous mind-wandering speech. The latter is a condition for the further activation of various TPNs involving semantic memory and mechanisms of controlled inner speech. Analysis of EEG microstates confirms the idea of DMN activation during idea generation, while self-controlled speech is related to idea evaluation stage and relies on the control network activity (CN, also known as the lateral-frontoparietal network, L-FPN) (Beaty et al., 2016; Jia & Zeng, 2021; Wu et al., 2020).

Of particular interest is the role salience brain network regions (bilateral insula). These areas are involved in brain function of switching between DMN and TPN. Bilateral insula activity strongly correlates with the divergent task performance (Beaty et al., 2015). Another explanation for the insula activity is supporting intensified idea generation by both the CN and the DMN (Heinonen et al., 2016). There's an active discussion regarding whether inner speech is a manifestation of metacognitive control, consuming brain resources during problem-solving, decreasing the intensity of decision-making, filtering out extra solutions, and decreasing the divergent tasks productivity (Perrone-Bertolotti et al., 2014; Vicente & Manrique, 2011). This metacognitive control is associated with the simultaneous activation of the dorsolateral prefrontal cortex (dlPFC) and temporal cortex speech centers (Perrone-Bertolotti et al., 2014; Shi et al., 2019). Wu and colleagues (Wu et al., 2015) suggest that left dlPFC activity is associated with the selection of loosely and distantly related concepts and their organization into creative ideas; in turn, anterior cingulate cortex (ACC) activity is associated with tracking and forming distant semantic associations when solving divergent tasks. Another brain area showing high involvement in creative process is the left inferior frontal gyrus (IFG), which increased activity is associated with more flexible semantic associative networks in highly creative subjects (Cogdell-Brooke et al., 2020; Perrone-Bertolotti et al., 2014; Shi et al., 2019). Another significant IFG function may also be supporting metacontrol processes (Zhang et al., 2020).

Different modalities information integration is crucial for generating creative ideas, and language may be considered a method of such integration (Benedek et al., 2011; Carruthers, 2002; 2006; Fink et al., 2009; Spelke, 2003; Wu et al., 2015). Our previous studies showed that the level of integration of activity in the frontal cortex positively correlates with the divergent thinking originality (Kotsan et al., 2016).

Interestingly, inner speech is associated with a stronger lateralization of brain activity compared to external speech condition. Furthermore, the activity in the cerebellum structures related to the process of generating ideas, mainly during visual divergent thinking tasks (Cogdell-Brooke et al., 2020; Gao et al., 2020; Heinonen et al., 2016).

Summing up, the literature analysis shows an active but different role of inner-speech-related brain networks in creative thinking. The activity of DMN is necessary for processes of spontaneous inner speech for making remote associations. This results in the increase of the number of ideas during divergent task. In turn, the activity of the L-FPN leads to more controlled inner speech process, allowing selection and rearrangement of weakly associated ideas, increasing the originality during divergent task. Stronger inner control lowers the number of generated ideas. Finally, insula-guided switching between DMN and L-FPN, results in the flexibility of associative thinking and higher originality.

Based on the literature data, we proposed the following working hypotheses.

Working hypothesis 1. During both the resting state and preparing to mental activity, brain regions associated with the inner speech will be more active in individuals with higher divergent task productivity.

Working hypothesis 2. During the resting state DMN speech-associated regions will show higher activity in subjects with high productivity.

Working hypothesis 3. During the state of preparing to mental activity, the L-FPN speech-associated regions, will show higher activity in high-productivity subjects.

Working hypothesis 4. The main differences in the activity of speech-related brain regions will be observed in the alpha-3 EEG subband.

## Method

49 females aged 18-21 years took part in the study. The study was conducted in accordance with generally accepted bioethical standards in compliance with the relevant international regulations for conducting experimental and clinical studies. All participants gave their voluntary written consent to participate in the study. All subjects participated in the study during the follicular phase of the menstrual cycle. Subjects were divided into two groups based on the results of the creative thinking test: subjects with high (29 subjects) and low (20 subjects) productivity of creative thinking.

The divergent type task was selected from the testbook (Altshuller, 2008) by a group of independent experts: "13 million date palms are growing in Bangladesh. During the season, each palm tree can produce 240 liters of juice, from which palm sugar is then made. But to collect this juice, one has to make an incision on the stem under the crown at a height of 20 m. Suggest as many ways as possible to make this incision." The task text was presented on the computer monitor. Each task was given 2 minutes to complete. Tasks were performed mentally. Solutions were registered at the end of EEG acquisition. No instruction for originality was given. The number of suggested responses indicated performance level. The 25th and 75th percentiles were determined for all subjects as typical performance (2-3 responses). The number of responses, lower or higher than these limits were rated as low and high performance, respectively.

Brain electrical activity was registered for 3 conditions: eyes closed rest-state, eyes open, preparing for mental activity with eyes open.

EEGs were registered in the laboratory of aging neurophysiology of Lesya Ukrainka Eastern European National University, Ukraine. The subject was sitting at a distance of 1.5 m from the stimuli-presenting computer monitor. EEGs were registered using 19 active monopolar electrodes positioned according to the 10/20 system using "Neurocom" EEG equipment. Linked ear electrodes were used as reference. EEG intervals of 60 seconds per condition were recorded. The sampling rate was 500 Hz; the input impedance for the common – mode signal was more than 100 Mohm. High-pass filters were set to .1 Hz, low-pass – to 50 Hz. The ICA analysis procedure was used to detect EEG artifacts, the artifact ICA components were rejected and non-artifact ICA components were used for resulting EEG composition. In case when artifact activity could not be filtered out using ICA processing, the artifact EEG segments were rejected manually.

Spectral power ( $\mu V^2$ ) was calculated using the discrete Fast Fourier Transform for the following frequency ranges:  $\Delta$ ,  $\theta$ ,  $\alpha 1$ ,  $\alpha 2$ ,  $\alpha 3$ ,  $\beta$ ,  $\gamma$ .

The frequency boundaries were determined based on the individual frequency of the  $\alpha$ -rhythm of each subject (Klimesch, 2012) using the following principle: the lower limit of alpha-1 is the value of the individual frequency minus 4, the upper limit of alpha-1 is the individual frequency minus 2; the upper limit of alpha-3 is the individual frequency plus 2. Resulting boundaries were used as the upper for theta rhythm boundary and lower beta rhythm boundary correspondingly.

Analysis of the EEG activity sources was implemented using LORETA-KEY software, sLORETA mode (Pascual-Marqui et al., 2011). Complete EEG recordings with previously rejected artifacts were analyzed. Activity analysis and analysis of statistically significant differences were performed using the LORETA-KEY built-in methods, for 5 EEG bands – theta, alpha-1, alpha-2, alpha-3, and beta, with the boundaries based on standard LORETA-KEY settings.

The significance of intra-group differences was calculated using the Student's t-test (in the case of normal distribution), the Wilcoxon test (in the case of non-normal distribution); inter-group differences were calculated using the Student's t-test and the Mann-Whitney test,  $p \leq .05$  as significance level. Power analysis was performed for the following conditions: analysis type – post-hoc for the average differences for two independent groups, two-tailed, effect value = .5 (average level), alpha – .05. The level of statistical significance of the t-test for selected conditions was 2.01 with a test power of .4. Statistical processing and graphical design of the obtained data was conducted using the following software: "Microsoft Office Excel 2003", "Statistica-5.5", "GPower 3.1", "CorelDRAW X3".

At the end of the experiment, all subjects participated in the survey reporting the way they prepared for mental activity. Subjects reported that they tried to calm down, thought about something pleasant, imagined possible future tasks, recalled numbers

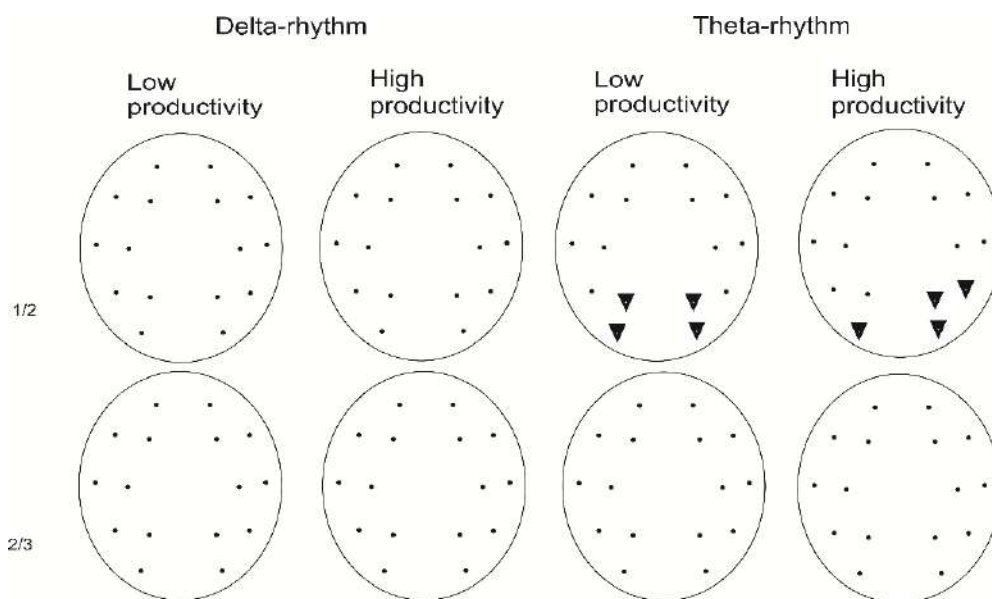
and dates, and so on. Thus, subjects were focused on their inner thoughts, implying their mental activity contained inner speech.

### Analysis of the EEG Spectrum Indices

Analysis of obtained results for low-frequency EEG showed no statistically significant (Figure 1).

#### Figure 1

*Changes ( $p < .05$ ) in EEG Power in the Delta and Theta Frequency Ranges in Study Groups*



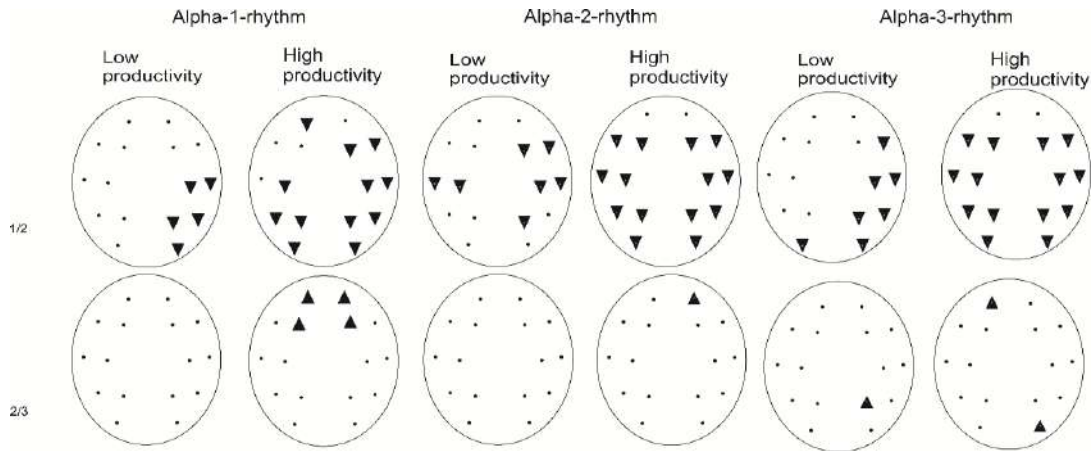
*1/2 – changes in the eyes open rest state compared to eyes closed rest state, 2/3 – changes in the mental activity preconditioning state compared to the eyes open rest state. A top-directed triangle indicates an increase of the EEG range power, bottom-directed triangle indicates a decrease.*

In the EEG alpha-range, different levels of cortical activation were observed as response to the open eyes condition in studied groups. In the high-level creative productivity group, a decrease in the power of Alpha-1,2,3-rhythms was widely distributed over the scalp. In the low creative productivity group, the decrease in EEG power was expressed mainly in the right hemisphere.

As for statistically significant changes in EEG power during mental activity preconditioning compared to open eyes rest state, they were sparse and more expressed in the high creative productivity group. The most significant changes were observed in the alpha-1 range. During mental activity preconditioning, an increase in the EEG power was observed in the frontal anterior and frontal posterior sites of both hemispheres (Figure 2).

**Figure 2**

*Changes ( $p < .05$ ) in EEG Power in the Alpha Frequency Sub-ranges in Study Groups*

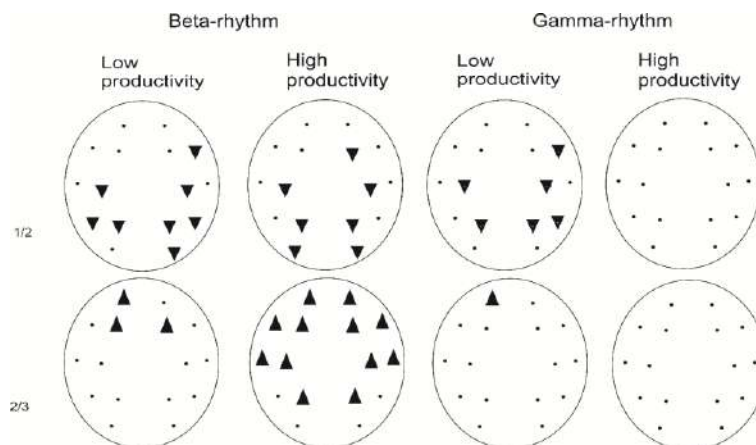


*1/2 – changes in the eyes open rest state compared to eyes closed rest state, 2/3 – changes in the mental activity preconditioning state compared to the eyes open rest state. A top-directed triangle indicates an increase of the EEG range power, bottom-directed triangle indicates a decrease.*

In the EEG beta-range the high creative productivity group showed the increase in the EEG power in all areas except for the posterior temporal and occipital regions. The low level productivity group showed the increase of gamma-range spectral power in both the posterior-frontal regions of the cortex and the left anterior-frontal region (Figure 3).

**Figure 3**

*Changes ( $p < .05$ ) in EEG Power in the EEG Beta and Gamma Frequency Ranges in Study Groups*



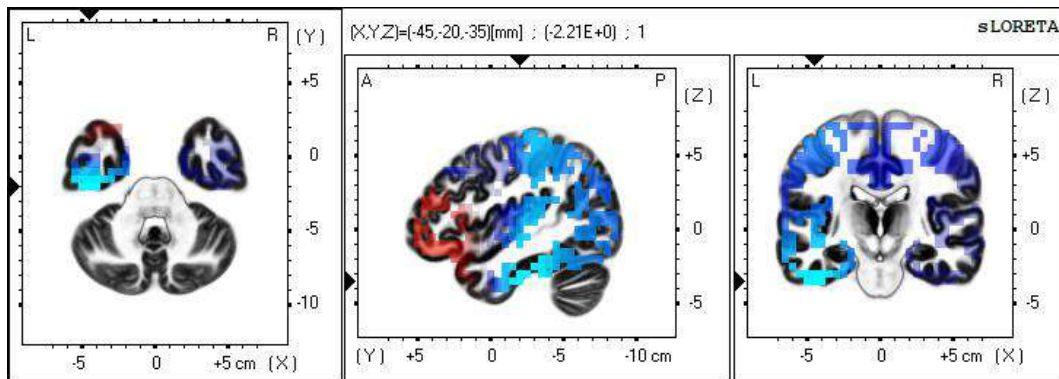
*1/2 – changes in the eyes open rest state compared to eyes closed rest state, 2/3 – changes in the mental activity preconditioning state compared to the eyes open rest state. A top-directed triangle indicates an increase of the EEG range power, bottom-directed triangle indicates a decrease*

## Analysis of the Brain Electrical Activity Sources

Analysis of the EEG sources during rest state showed that main differences between the groups are expressed in alpha-1 EEG range. Subjects with low productivity have higher brain activity in the lower left temporal region, Brodmann field 20 (Figure 4).

### Figure 4

*Differences in the Level of Brain Structures Activity Between Study Groups in the Alpha-1 EEG Sub-Band During Eyes Closed Rest State*

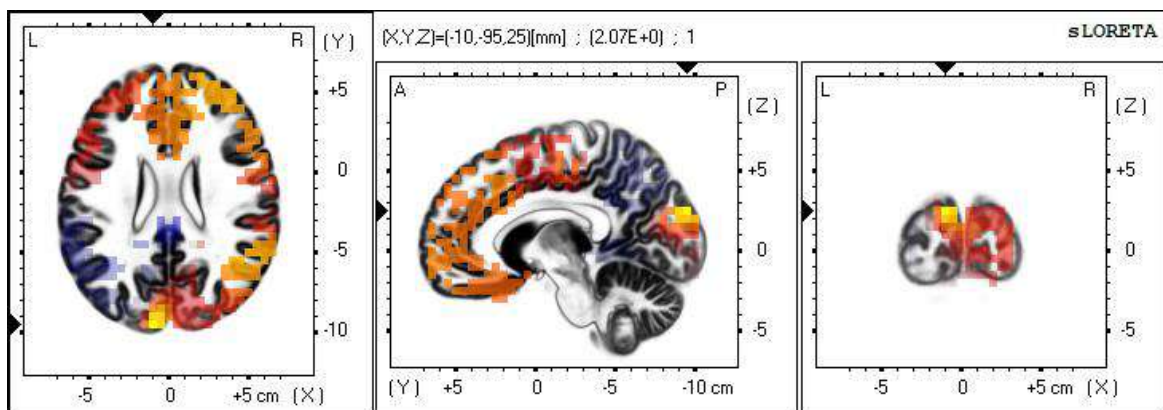


$t = 2.21$ , red indicates higher activity in the group with high performance level, blue in the group with a low performance level

During mental activity preconditioning, the main differences between the studied groups are observed in the theta range. Higher brain activity in the left cuneus area was registered specific for high creative productivity group (Figure 5).

### Figure 5

*Differences in the Level of Brain Structures Activity Between Study Groups in the Theta EEG Band During Mental Activity Preconditioning State*



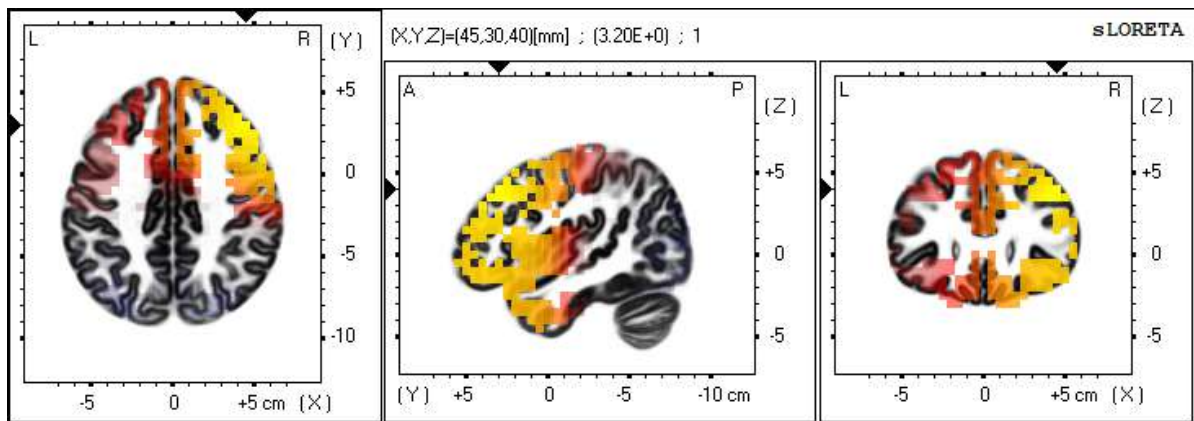


Illia Kuznetsov, Nataliia Kozachuk, Tetiana Kachynska, Oleksandr Zhuravlov, Olena Zhuravlova, Oksana Rakovets<sup>2</sup>-  
*in the group with a low performance level*

During mental activity preconditioning, a higher level of brain cortex activity in the EEG alpha-1 sub-band was shown for high creative productivity group in the right middle frontal gyrus (Figure 6).

**Figure 6**

*Differences in the Level of Brain Structures Activity Between Study Groups in the EEG Alpha-1 Sub-Band During Mental Activity Preconditioning*

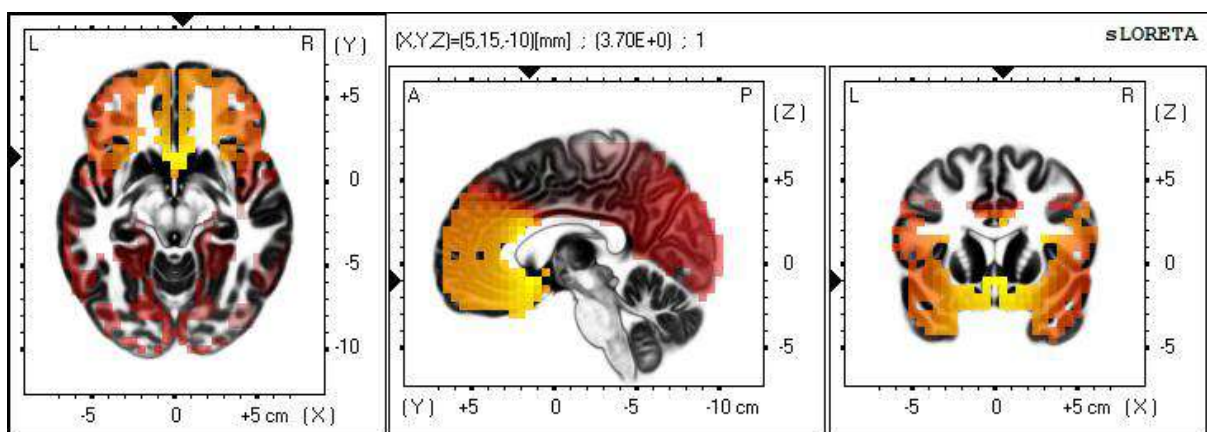


$t = 3.2$ , red indicates higher activity in the group with high performance level, blue-in the group with a low performance level

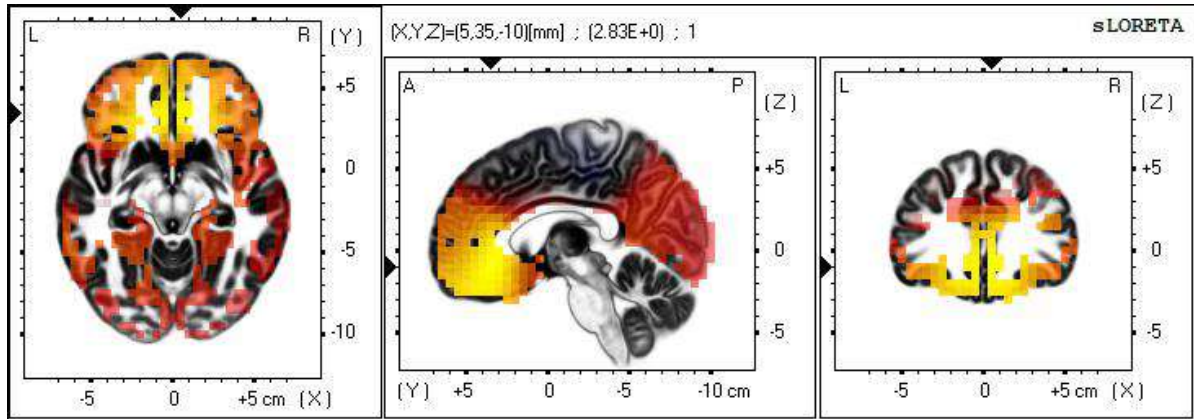
In the alpha-2 and alpha-3 EEG sub-bands, higher levels of brain cortex activity were recorded in high-productivity subjects in the anterior cingulate gyrus bilaterally (Figure 7).

**Figure 7**

*Differences in the Brain Structures Activity Between Study Groups in Alpha-2 (Top) and Alpha-3 (Bottom) EEG Sub-Bands During Mental Activity Preconditioning*



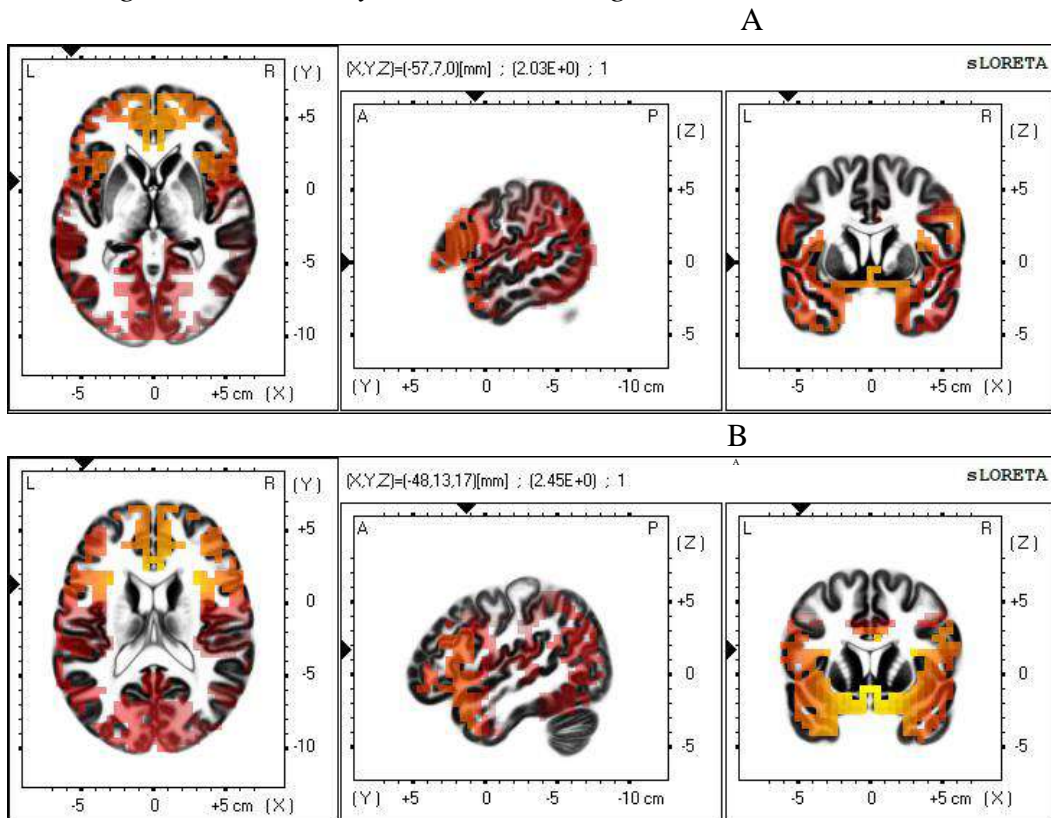


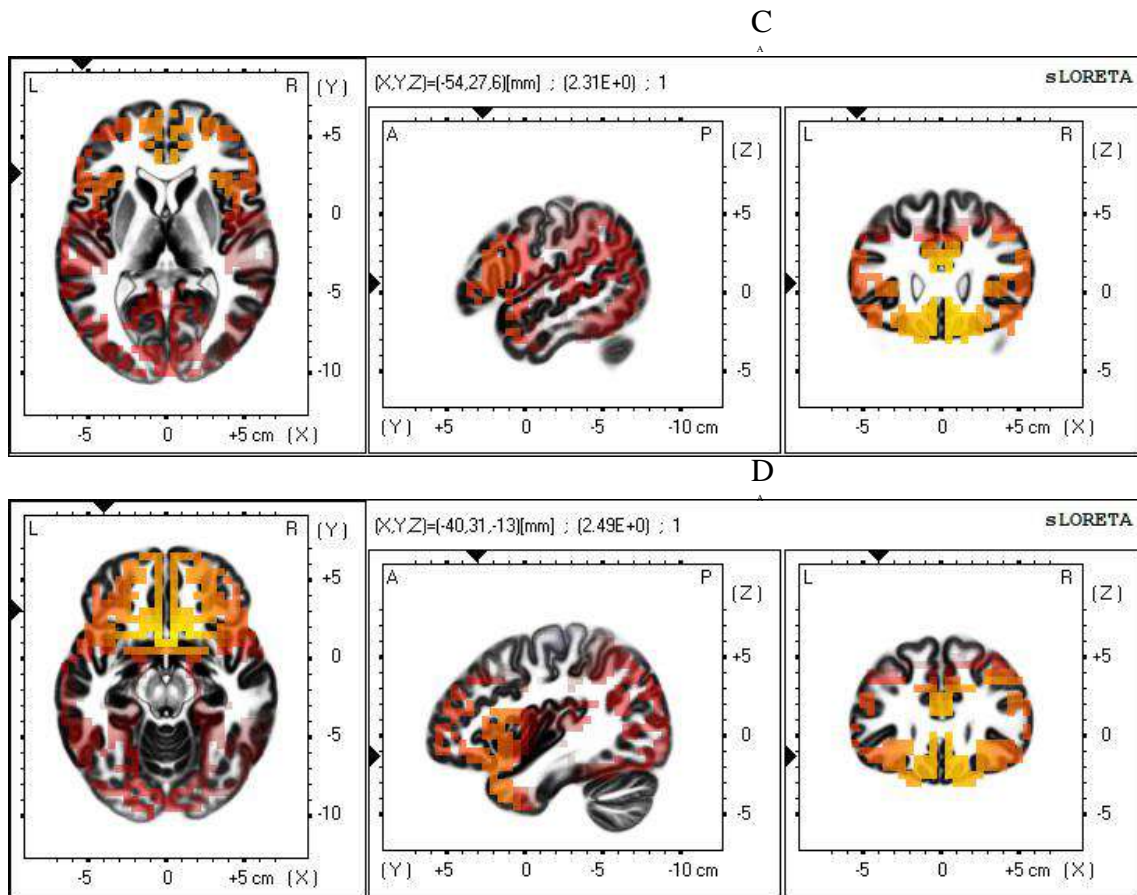


$t = 3.7$ , red indicates higher activity in the group with high performance level, blue-in the group with a low performance level

According to the existing literature data, the main brain regions supporting inner speech processes are: 22 (Wernicke's), 44, 45 (Broca's), 44, 45, 47 (IFG), 40 (supramarginal gyrus, SMG) Brodmann areas (Li et al., 2020; Perrone-Bertolotti et al., 2014). Analysis of brain activity differences showed the higher activity of these areas being specific for the high-performance subjects (Figure 8). A higher level of activity is typical for this group in the alpha-2 EEG sub-band in Brodmann areas 22 ( $t = 3.7$ ), 44 ( $t = 2.45$ ), 45 ( $t = 2.31$ ), 47 ( $t = 2.49$ ).

**Figure 8**  
*Differences in the Activity Level of Brodmann Areas 22 (A,  $t = 3.7$ ), 44 (B,  $t = 2.45$ ), 45 (C,  $t = 2.31$ ), 47 (D,  $T = 2.49$ ) Between Study Groups in the Alpha-2 EEG Sub-bands During Mental Activity Preconditioning*



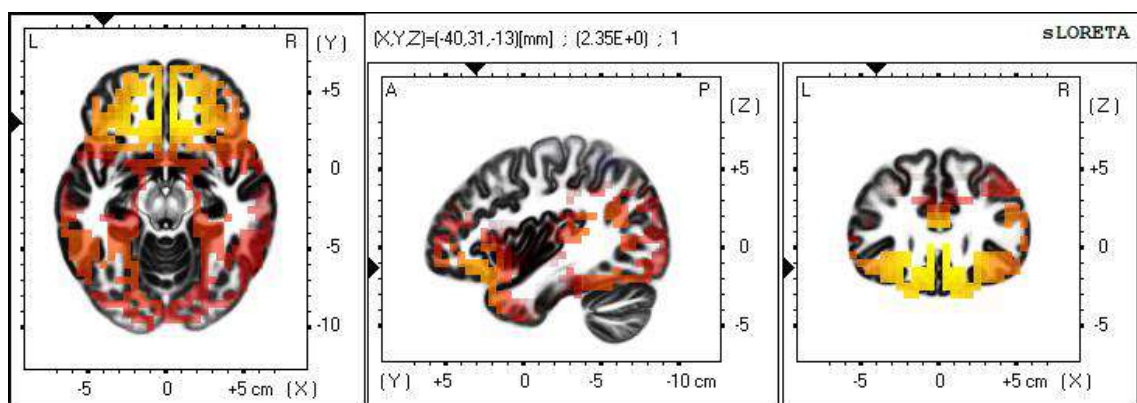


Red indicates higher activity in the group with high performance level, blue-in the group with a low performance level.

During mental activity preconditioning, high-productivity subjects have higher activity of Brodmann 47 area in the alpha-3 EEG sub-band (Figure 9,  $t = 2.35$ ).

### Figure 9

*Differences in the Activity of Brodmann 47 Area Between Study Groups in the Alpha-3 EEG Sub-Band During Mental Activity Preconditioning*



Red indicates higher activity in the group with high performance level, blue-in the group with a low performance level.

## Discussion

In general, the analysis of brain cortex activity shows that the spectral features of the EEG alpha-2 and alpha-3 sub-bands are functionally related to the divergent problem solving performance. First, the brain activity changes while transitioning from rest state to mental activity preconditioning state are similar for these two sub-bands. Group differences in the activation of the anterior cingulate gyrus during mental activity preconditioning are observed in both the alpha-2 and alpha-3 EEG sub-bands. For alpha-1 sub-band, the structures of the middle frontal gyrus are most sensitive to group differences. These results contradict the ideas about the functional role of alpha rhythm sub-bands proposed by Klimesh and co-authors. According to Klimesh (Klimesch, 2012; Klimesch et al., 2007), alpha-1 and alpha-2 sub-bands are associated with the activity of the attention system, while alpha-3 sub-band is considered being sensitive to the processing of semantic information from long-term memory. Since Klimesh interpretation is considered generally accepted and confirmed in other studies (Chikhi et al., 2022), we assume that the evidence we obtained about the functional unity of alpha-2 and alpha-3 EEG sub-bands can be explained by the following reasons: 1) we analyzed complete EEG records, and not spectral changes in EEG areas associated with stimulus onset; 2) we analyzed EEG indices in the absence of external stimulation; 3) our study is focused on analyzing integral indices instead of direct effects. However, the type of differences in the studied groups, especially during mental activity preconditioning, clearly indicates the activation of inner-speech-associated processes, confirmed by self-reports and by prominent alpha-2 EEG sub-band sensitivity to these processes. Accordingly, a less controlled process of inner speech without involving external stimulation is implemented by brain structures activity in the alpha-2 subband. The response to external stimuli, which requires more control of both sensory and associative parts of the brain cortex, results in either switching the same structures to operation at the frequency of alpha-3 sub-band, or in masking their activity by the activity of other brain areas in the alpha-3 sub-band. Indirect first evidence in favor of the latter mechanism is a small number of between-groups differences in the sources of brain activity in the alpha-3 EEG subband. The second indirect evidence is the same type of changes in the beta EEG band during the transition from eyes closed rest state to the state of mental activity preconditioning.

Regarding the role of brain networks in the implementation of inner speech processes, the increased activity of the anterior cingulate gyrus and lower frontal gyrus in the high productivity group should be noted. These structures are considered to be a part of L-FPN and their role in inner speech processes is associated with the activation and involvement of distant associations (Cogdell-Brooke et al., 2020; Perrone-Bertolotti et al., 2014; Shi et al., 2019; Wu et al., 2015; Zhang et al., 2020). Thus, a more effective solution of a divergent problem can be associated with a controlled use of long-term semantic memory, reflected in the EEG parameters during mental activity preconditioning stage. On the other side, subjects with a high

level of productivity may be more motivated and more responsible in completing the tasks. Interestingly, the structures associated with DMN do not show differences in brain activity between the study groups. In our opinion, this can be explained by low number of subjects with very high indicators of divergent thinking productivity and originality. In this case, an increase in the level of originality and productivity could be implemented at the expenses of either existing specific experience (Beaty et al., 2016; Madore et al., 2016; Schacter & Madore, 2016) or additional attention to external stimulation (Bitu et al., 2022; Salvi et al., 2016). However, the activity of DMN-related cuneus structures in the theta range was higher in high-productivity group during mental activity preconditioning, probably indicating the involvement of involuntary imagination in creative thinking (Beaty et al., 2015; Heinonen et al., 2016; Wu et al., 2015).

Summing up, the divergent thinking originality feature is highly independent of productivity. The divergent thinking performance depends on the level of inner control of mental processes and on the inner speech type (controlled or spontaneous). The interaction between originality and productivity can be separated into following cases, based on the specific neural mechanisms:

1. High productivity and low originality result from significant inner control of mental processes, supported by L-FPN activity, controlled inner speech, and active usage of semantic memory.

2. High productivity and high originality result from weak inner control, DMN activation, intensive usage of episodic memory and spontaneous, non-controlled inner speech.

3. Finally, low productivity and low originality are observed when L-FPN is active and supports strong inner control, controlled search of distant associations in memory.

## Disclosure Statement

No potential conflict of interest was reported by the authors.

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# Creating a Questionnaire to Explore Language Teacher Multilingual Beliefs and Practices

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**Abstract.** Ukraine is a multilingual country and its language policy strives at promoting language diversity. However, foreign language teaching is predominantly based on monolingual practice and languages are taught in isolation from one another in a foreign language classroom. These facts lead to realizing that language teachers should be trained in order to be able to promote their students' multilingualism through employing their multilingual resources. Prior to the multilingual training or programme design, it is important to evaluate teachers' multilingual beliefs and teaching practices in order to make targeted and informed changes. The paper describes the evolution of the questionnaire to explore Ukrainian university language teachers' beliefs about multilingualism and multilingual practices. For this purpose, a detailed insight into the phases and steps of the questionnaire development is presented. This comprises scrutiny of theory-based evidence to map the constituents of language teacher multilingualism, the description of how critical concepts for the study were identified and how relevant content for each part of the questionnaire was generated. In addition, the verification process of the questionnaire is described in details, which included item analysis carried out with Cronbach's Alpha to verify internal consistency of the items, participants' feedback and expert's opinion to explore content validity and participants' feedback to check feasibility. The study invited 37 language teachers, representing different European and Ukrainian universities, to fill in the pilot questionnaire. The preliminary results of the pilot version are discussed and a finalized version of the questionnaire is offered. In addition, this study is to add to the knowledge of teachers' current perspectives on practices in multilingual education.

**Keywords:** *multilingualism, multilingual beliefs and practices, a questionnaire, verification, content validity, reliability, feasibility.*

**Осідак Вікторія, Нацюк Мар'яна, Фогт Карен. Створення опитувальника для визначення ролі багатомовності у професійній діяльності викладачів іноземних мов.**

**Анотація.** Володіння декількома іноземними мовами та сприяння багатомовності населення визнане основним завданням мовної політики Європи (Council of Europe, 2020). Однак навчання іноземних мов в українському контексті переважно опирається на одномовні методики, які не передбачають залучення багатомовного ресурсу студентів у опануванні іноземної мови. Мета статті полягає у розробці опитувальника для дослідження переконань викладачів мовників щодо ролі багатомовності у викладанні іноземних мов та їх практичних умінь створювати сприятливі умови для залучення багатомовного лінгвістичного ресурсу

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студентів на заняттях з іноземної мови. Вивчення питання впровадження багатомовності на заняттях з іноземної мови підтвердило необхідність спеціальної підготовки викладачів іноземних мов для розвитку їх здатності використовувати багатомовний ресурс студентів. Однак, для здійснення планомірних змін у підготовці викладачів та запровадження навчання і розробки програм, які сприятимуть урахуванню багатомовності у вивченні іноземних мов, необхідно, передусім, визначити рівень професійної обізнаності викладачів вищів з проблемою багатомовності у навчанні мов та технологіями впровадження багатомовності у вивченні іноземних мов (Calafato, 2020). З цією метою, в статті представлено покроковий опис розробки опитувальника для визначення переконань щодо ролі багатомовності у вивченні іноземних мов та практичних умінь урахування багатомовності студентів на заняттях з іноземної мови. Процес створення опитувальника передбачав ретельний аналіз джерел для визначення складових багатомовності викладача іноземної мови, обґрунтування основних частин опитувальника та генерування змісту кожної частини. Окрім того, подано процес верифікації таких якісних характеристик анкети як надійність, валідність та практичність, що включав аналіз коефіцієнту надійності (коефіцієнт альфа Кронбаха), відгуків учасників і експертної оцінки щодо структури й змісту опитувальника та онлайн пілотування опитувальника. З метою пілотного впровадження опитувальника було залучено 37 викладачів іноземних мов з різних європейських та українських університетів. У статті також обговорено попередні результати піотної версії та пропоновано остаточну версію анкети.

***Ключові слова:** багатомовність, переконання, анкета, перевірка, валідність змісту, надійність, практичність.*

## Introduction

New trends in teaching and learning English as a second language have developed in the last few decades in response to a larger variety of languages used in society. These trends emphasise that learners' cultural and linguistic diversity should be acknowledged and valued in a foreign language classroom (Conteh & Meier, 2014; Duarte & Günther-van de Meij, 2018; 2020). Learners' linguistic repertoire is understood as a resource that enhances learning new languages. The main implication for education is then to create an environment where all languages a learner knows are embraced.

Numerous studies looked into how a learner's multilingual repertoire can be used as a resource for language learning (Conteh & Meier, 2014; Duarte & Günther-van de Meij, 2020; Duarte & Kirsch, 2020). For example, this can be achieved by an active inclusion of several languages in instruction through the implementation of pedagogical multilingual approaches such as language awareness, intercomprehension, immersion and content and language integrated learning (CLIL) (Duarte & Günther-van de Meij, 2020).

Although multiple research evidenced the importance of using all language resources of multilingual learners for optimizing an additional language learning (Cenoz & Gorter, 2011), Duarte and Günther-van de Meij (2020) concluded that teachers might fear to lose control over the classroom "when they allow home languages into the classroom and that pupils will use their home languages for non-educational related practices" (p. 3). Some language teachers may need guidance as

to how their teaching might benefit from the learners' knowledge of other languages (Otwitkowska, 2014). Another significant reason for prevailing monolingualism in foreign language teaching is that in teacher training education languages are offered separately through monolingual lenses (Arocena et al., 2015; Duarte & Günther-van de Meij, 2018; 2020). Consequently, teachers may lack knowledge about why and how to apply multilingual approaches in teaching a foreign language. As a result, teachers simply may not be prepared to apply multilingual approaches in the classroom. (Bolitho & West, 2017; Duarte & Günther-van de Meij, 2018).

Few studies have focused on exploring multilingualism as a teaching and learning resource in foreign language (FL) teacher education in different countries. Eugenio (2017) highlighted that it is difficult to find any language teacher training programme specifically designed for L3 teachers. Calafato (2020) in this respect remarked that implementing multilingual educational initiatives should not only be about designing effective curricula but the efforts should be initially directed to training language teachers 'in order to ensure that they develop and continue to nurture the skills and beliefs needed to promote their students' desire to be multilingual' (p. 1). In addition, Calafato (2020) highlighted that prior to the multilingual training or programme design it is important to evaluate teachers' multilingual beliefs in order to make targeted and informed changes relevant for local settings.

Questionnaires have often been used as a measurement tool to explore attitudes, beliefs and behaviours in language learning and teaching (Aithal & Aithal, 2020; Axenfeld et al., 2022; Dörnyei & Taguchi, 2010; Gu, 2016; Sundqvist et. al., 2021). On reviewing research on language teacher multilingual beliefs and practices in the foreign language classroom, it became clear that every measurement tool captures different aspect of multilingualism (see, for example, Arocena, Cenoz, & Gorter, 2015; Calafato 2020, 2021; Haukås, 2016; Sundqvist et. al., 2021), which is only natural considering various educational contexts and their necessities. Thus, we may conclude that there is no a questionnaire that can give us a well-rounded insight into teachers' beliefs about multilingualism in the Ukrainian educational context. Therefore, the main objective of the study was to develop a questionnaire that can capture focal fields of multilingualism and yield generalised data about Ukrainian foreign language teachers' multilingual beliefs and practices.

In pursuing this aim, we will:

- describe the development of an instrument that will help to get a comprehensive insight into Ukrainian university language teachers' cognition on multilingualism and their multilingual practices in the foreign language classroom;
- present in detail and critically evaluate each step of the questionnaire development process;
- explain the validation of the questionnaire

## Literature Review

### Mapping the Constituents of the Questionnaire

Dörnyei and Taguchi (2010) recommend to start questionnaire design by identifying theory-driven critical concepts. Otwinowska (2014), in her exploration of foreign language teachers' multilingual cognition, advocates that teachers of English require plurilingual awareness in order to train their learners to become multilingual citizens. Otwinowska (2014; 2017), specifies crosslinguistic and metalinguistic knowledge, knowledge about adopting a plurilingual approach in the language classroom, and psycholinguistic knowledge as important indicators of Polish teachers' of English plurilingual awareness.

Crosslinguistic component involves the awareness of similarities and differences between the target language and learners' L1, L2 and L3 or other languages known by learners. Metalinguistic knowledge is defined as the deliberate control of attention over the linguistic form and the ability to switch focus between form and meaning (Jessner, 2008). Metalinguistic knowledge traditionally refers to the explicit and declarative knowledge that learners have regarding language which plays a critical role in second language acquisition (Ellis, 2005). Jessner (2008) states that 'metalinguistic awareness implies a learner's ability to categorize words into parts of speech; switch focus between form, function, and meaning; and explain why a word has a particular function' (p. 277).

The second component of teachers' plurilingual awareness includes knowledge about existing plurilingual approaches and how to adopt a plurilingual approach in the classroom. This knowledge aims at enhancing understanding how to make use of the learners' linguistic repertoire effectively in teaching a new language (Neuner, 2004).

Psycholinguistic knowledge pertains to teachers' understanding of how individuals acquire language, how they use language to speak and understand each other, and how language is represented and processed in the brain (Alduais et al., 2022). In a multilingual context, psycholinguistic knowledge includes knowledge of how a number of languages used by the learner impact on his/her additional language attainment. In addition, psycholinguistic knowledge includes the knowledge about individual characteristics such as abilities to notice and memorise that play a role in the speed and success of learning in general.

Apart from the components of foreign language teachers' multilingualism defined by Otwinowska (2014) (crosslinguistic and metalinguistic knowledge, knowledge about plurilingual approaches and psycholinguistic knowledge), related literature review indicates other concepts that may be important for establishing foreign language teachers' multilingual cognition and practices. For example, the influence of context on shaping teachers' beliefs is well reported in the literature (e.g. Arocena et al., 2015; Yang & Gao, 2013). Television, social media, and computer games are among the sources that contribute significantly to language learning processes. For example, teachers in a non-English speaking area of Basque indicated

that having television programmes in English helped their pupils to advance (Arocena et al., 2015). In terms of multilingual beliefs, the socio-political setting, the status of the languages, language policy, parents' expectations and motivations about the different languages, job prospects, textbooks and materials can potentially have a considerable impact on teachers' beliefs about multilingualism and multilingual practices.

In addition, a lot of attention in multilingual pedagogy is given specifically to teachers' being multilingual themselves. Calafato (2020) speculated that being multilingual themselves is an important prerequisite for teachers to be able to apply multilingual practices in the classroom and develop their learners' multilingual identity (Calafato, 2020). Numerous research findings established a direct correlation between teachers' multilingualism and multilingual practices that they use in the classroom (Borg, 2015; Escamilla et al, 2021, Haukås, 2016; Otwinowska, 2014). However, according to Piccardo (2013), teachers do not have to be competent in the languages of their learners. What is important for teachers is to move from merely teaching a target language to a focus on the whole learner's language repertoire that entails the use of translanguaging, practices that enhance metalinguistic awareness, language awareness, and reflection on language learning.

In multilingual education, scholars report about the correlation between teachers' multilingualism, their beliefs and preferred language practices in the classroom (Borg, 2015; Escamilla et al., 2021). However, teachers do not necessarily apply their multilingual beliefs to their teaching practices for variety of reasons (Calafato, 2020; Otwinowska, 2014; Trinki & Krevelj, 2020). Teachers might lack tools how to implement multilingual pedagogy in the classroom or relevant training. The findings of Otwinowska's (2014) study reported that the teachers established low confidence in applying plurilingual practices in their teaching, for example, they did not know how to apply their own knowledge of additional languages in practice. Moreover, the concepts of plurilingual education, such as crosslingual comparisons or noticing similarities between languages, were not well established in teacher training programmes. Consequently, teachers felt confused as to what was allowed in the English classroom and preferred to keep languages apart despite their acknowledgement that the knowledge of additional languages might be an asset in learning a foreign language.

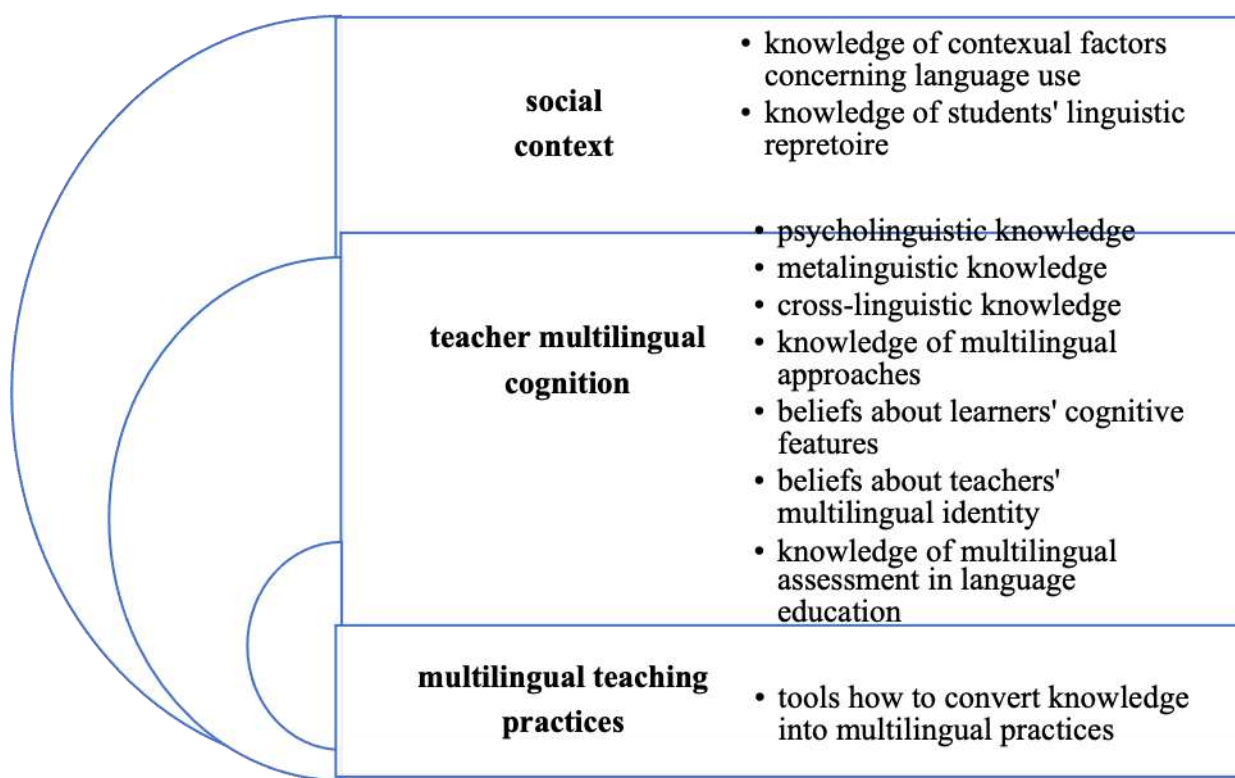
To our knowledge, no research has been carried out to learn about teachers' beliefs into multilingual assessment despite the numerous claims about the necessity to consider the focus on multilingualism not only in language learning but assessment as well. There is a shared understanding in the academic community that assessment tasks should introduce opportunities to demonstrate relevant language skills by observing performance on a relevant and authentic task (Gorter & Cenoz, 2017). In order to complete a task in real life settings, a plurilingual speaker can switch from one language to another, express oneself in one language and understand a person speaking another; deploy the knowledge of all languages they know to make sense of a text; mediate between individuals with no common language; collate sources in different languages, etc. (Council of Europe, 2020). Therefore, Gorter and Cenoz

(2017) highlight that tests should match actual language practices and that multilinguals should be able to use resources from their whole linguistic repertoire.

Drawing on this discussion, we concur that defining the complex nature of teachers' multilingualism or identifying components that constitute language teachers' multilingual cognition is extremely challenging. Synthesising the relevant concepts in the literature, a language teacher multilingual frame can include three main parts (see Fig. 1). The first part, socio-cultural context, encompasses teachers' understanding of social expectations and language policy situation in the country. In addition, it includes teachers' knowledge of their students' linguistic repertoire. The second part, language teacher multilingual cognition, considers teachers' established knowledge, concepts and beliefs about multilingual language education from training programmes, personal language learning experience or from other sources. Altogether, this part includes seven components: psycholinguistic, metalinguistic and crosslinguistic knowledge, cognitive features of a multilingual learner, beliefs about being a multilingual teacher, knowledge about plurilingual approaches and assessment practices in language education. The third part, skills and language teaching practices, refers to teachers' tools that convert their knowledge about multilingual language education into multilingual practices in certain educational settings.

**Figure 1**

*Language Teacher Multilingual Frame*



## Methodology

### Research Questions

For the purposes of this study, the following research questions were posed:

- 1) In what way(s) has the validation helped to improve the reliability of the questionnaire?
- 2) In what way(s) has the validation helped to improve the validity of the questionnaire?
- 3) In what way(s) has the validation helped to improve the feasibility of the questionnaire?

### Participants

The study carried out verification of the questionnaire by analysing the data collected from two sets of participants. The target participants of the first set included 37 university language teachers, representing different European and Ukrainian universities. The participants were recruited using convenience and snowball sampling (Dörnyei & Taguchi, 2010). An invitation email to participate in piloting of the questionnaire was sent to colleagues of the authors. They were also asked to forward the email to other members of their departments. Participation was restricted to university foreign language teachers. Some of the participants were also engaged in different research projects with a focus on multilingual education. By inviting them, the authors attempted to collect constructive feedback about the questionnaire.

Besides, the authors invited one expert in multilingualism, who analysed the questionnaire for its content validation. The expert was a professor of Teaching English as a Foreign Language and was involved in projects on multilingualism and multimodal language assessment.

### Measures

In developing the questionnaire, both qualitative and quantitative methods were employed in order to validate such necessary requirements of questionnaires as feasibility, reliability, and validity (Aithal & Aithal, 2020; Dörnyei & Taguchi, 2010; Gu, 2016; Prous et al., 2009; Sundqvist et. al., 2021). We included item analysis carried out with Cronbach's Alpha to verify internal consistency of the items, participants' feedback collected immediately after the pilot study and the expert's opinion to explore content validity and participants' feedback to check feasibility (see table 1).

Table 1  
*Measurement Instruments Employed in Validating the Questionnaire*

Characteristics	Aspects to consider	Analysis techniques
Reliability	Internal consistency	Cronbach's Alpha (quantitative data)
Validity	Content	Expert opinion Participants' feedback on the pilot questionnaire (qualitative data)
Feasibility	Time employed Clarity of the questions	Expert opinion Participants' feedback on the pilot questionnaire (quantitative data)

### **Study Design: Construction of the Questionnaire**

In designing the construct of the questionnaire for this study, we divided the procedure of the questionnaire development into 3 phases (see Table 2).

Table 2  
*Phases and Steps in the Questionnaire Development*

Phases	Steps
Phase 1	Reviewing topic-related literature and prior questionnaire research on language teachers' multilingual beliefs Identifying focal concepts to underpin the construct Deciding on questionnaire parts
Phase 2	Theory-driven content specifications Internal item vetting Deciding on a multi-item scale Designing online version of the pilot questionnaire
Phase 3	Administration of the pilot questionnaire Validation Procedure: - Analysis of informants' feedback - Item analysis - Feedback from external expert Deciding on content of the final questionnaire

### **Phase 1: Theory-Driven Decision on the Parts of the Questionnaire by Identifying Critical Concepts for the Study**

On reviewing topic-related literature and prior questionnaire research on language teacher multilingualism (Arocena et al., 2015; Calafato, 2020; Gorter et al., 2020, Otwickowska, 2014; Sundqvist et al., 2021), we defined the construct and the

fields that we intend to address in order to understand language teacher multilingual beliefs about and practices in teaching and learning languages in a multilingual context (see Literature review above). In the course of the related literature analysis, we have identified three critical concepts related to (i) the social context, namely teachers' understanding of the language situation in Ukraine, and their foreign language classroom multilingualism, (ii) language teacher multilingual cognition, and (iii) their multilingual practices. The questionnaire includes three constructs *Focus on social context*, *Focus on teacher multilingual cognition* and *Focus on multilingual teaching and assessment practices* in the classroom. These constructs include items that collect data about ten fields of our language teacher multilingual model (see Figure 1). There is also a section that collects background information about the participants of the study that can help better understand their foreign language teaching strategies.

## **Phase 2: Theory-Driven Content Specification**

In order to generate relevant content for each part of the questionnaire, we drew on existing questionnaires (Calafato, 2020; Sundqvist et al., 2021) specifically developed for replication in order to help researchers to evaluate language teacher multilingualism on a large scale. In addition, these instruments have been validated and have an acceptable level of reliability. As a result, it was possible for our research purpose to replicate some items (items 1-8; 10; 13; 27-42) by Calafato (2020, p. 5), who explored the factors influencing teachers' multilingualism focusing specifically on their beliefs about the learning and teaching of multiple languages and their use of multilingual practices in the classroom. Other studies, for example, by Arocena et al., (2015), Gorter et al., (2020), Haukås (2016), Otwitnowska (2014), Sundqvist et al. (2021) were analysed to understand the scope of the items to explore English teacher beliefs about multilingualism and consequently to generate relevant items. Thus, some of the items that are relevant to the key concepts of our studies were partially replicated from Calafato (2020), adapted from Sundqvist et al. (2021) and generated as the result of related literature analysis. The items were then processed as to their fit into a certain part of the questionnaire.

For construct I *Focus on social context* we elaborated twelve items that collect the information about participants' understanding of language policy in their educational context, if they view their country as multilingual and investigate whether individual multilingualism is seen as an asset and/ or the norm in their country, as well as teachers' understanding of their students' multilingualism. For the construct *Teacher multilingual cognition*, we generated items targeting at understanding beliefs about cognitive differences between multilingual and monolingual learners; whether drawing on background languages is a positive experience, or language inferences made on explicit knowledge can be an advantage etc. Overall, sixty-three items were created for construct 2. As for the specific



multilingual practices, studies show that multilingual teachers draw on cross-linguistic comparisons to enhance the teaching of vocabulary and grammar, and use translanguaging techniques and collaborative learning (Calafato, 2020, p. 3). Thirty-six items were generated for construct 3 that explores *Multilingual teaching practices*. Moreover, the questionnaire gathers data about teachers' age as a good predictor of responses about the use of different pedagogical approaches in teaching English as a second language (Morris, 2002), teaching experience, existing linguistic repertoire and their perceptions of their multilingualism.

### **Internal Vetting**

The research group carried out internal vetting after the first draft of items was generated. Then the items were logically distributed so they are clustered on the same target and mirror the critical concepts of the questionnaire. After the clusters were created, an internal vetting took place, which resulted in few changes such as wording, term substitution and paraphrasing (English teacher vs language teacher; English vs the target language, translanguaging vs code-switching) to ensure the clarity of the items.

### **Deciding on a Multi-Item Scale**

We used closed-ended items based on Likert scales with five steps, ranging from '1-totally disagree', '2-disagree', '3-agree', '4-totally agree', to '5-have never thought about it' to gauge teachers' multilingual cognition and practices in the language classroom. The questionnaire also included three open-ended items in Part 1 *Focus on social context* to yield data about languages commonly spoken in society and by students in society and the foreign language classroom. The part that collects data about teachers' background information included eight multiple-choice questions.

### **Finalising Online Version of the Pilot Questionnaire**

The questionnaire was transferred to an online platform Google Forms. Advance organisers were used to introduce each section of the questionnaire (for example, 'The following questions are about your beliefs concerning teacher multilingual identity in teaching foreign languages.'). Two colleagues and the authors themselves tested the instrument for typos or any other possible mistakes. Only after correcting misspelling and few typos, the questionnaire was ready to be administered. No time limit to complete the questionnaire was set and only one response was allowed. The authors did not collect participants' email addresses, as the survey was anonymous.

### Phase 3

#### The Administration of the Pilot Questionnaire

The pilot questionnaire was administered online with only basic ICT skills necessary to complete the forms. The questionnaire was open for three weeks during which 37 foreign language teachers, who represented different European and Ukrainian universities, could submit their responses.

#### Validation Procedure

Immediately after completing the pilot questionnaire, the participants were asked to give their feedback on the feasibility of the questionnaire and how topic relevant the items of the questionnaire were by considering three statements (see table 3). They were also encouraged to give other comments.

Table 3

*Statements Gauging Participants' Opinion on the Pilot Questionnaire*

	Yes	No	If not specify which one(s)
1. The statements are clear.			
2. I spent more than 20 minutes completing the questionnaire.			
3. Some of the questions do not relate to the topic of the study.			
4. Your comment.			

SPSS statistics 29.0 was used to ascertain the internal consistency reliability (Cronbach's alpha). For empirical research values above 0.7 indicate good results (Hair et al., 2010). External verification of the content entails inviting an expert in multilingualism who is not a part of the research group to assess the quality of the questionnaire, terminology and wording of the items.

## Results

### Results for RQ1

Research *Question 1* asked in what way(s) the validation has helped to improve the reliability of the questionnaire.

To ascertain item consistency only numerical data can be used (Aithal & Aithal, 2020; Dörnyei & Taguchi, 2010). Therefore, three open-ended items that yielded information about languages spoken in society and in the classroom were not a part

of internal consistency analysis. With only two items left in the field that garnered data about teachers' knowledge concerning their students' linguistic repertoire, this field was integrated with the '*contextual factors concerning language use*' part. As a result, the internal consistency was computed for nine fields of the questionnaire. Cronbach's alpha was acceptable or higher than acceptable for seven factors. Their values ranged between .631 and .917, suggesting satisfactory to excellent reliability. The '*multilingual teaching practices*' field and '*knowledge of multilingual approaches*' field indicated the highest reliability ( $\alpha = .917$  and  $.905$ ), '*teachers' multilingual identity*' field was also high ( $\alpha = .881$ ). The Cronbach's alpha for '*cognitive characteristics of a multilingual person*', '*metalinguistic knowledge in multiple languages acquisition*', '*knowledge of multilingual assessment in language education*' ( $\alpha = .769$ ;  $\alpha = .731$ ;  $\alpha = .717$ ) fields showed good coefficients. The '*crosslinguistic knowledge in multiple languages acquisition*' field indicated an acceptable level ( $\alpha = .631$ ). Two fields that evaluated '*contextual factors concerning language use / students' linguistic repertoire*' and '*psycholinguistic knowledge in multiple language acquisition*' showed unacceptable coefficients ( $\alpha = .576$ ;  $\alpha = .472$ ).

In order to improve the internal consistency of the questionnaire, we removed the items that loaded low in fields 1, 2, 3, 4, 5, 8. By deleting these items, we raised the internal consistency in each of the fields (see Table 4). Another concern for the internal consistency of the questionnaire are items whose value is  $0.9 < \alpha < 1.0$ , which is an indication that some items may be redundant (Aithal & Aithal, 2020). In this case, the researcher should revise the questionnaire for items that repeat a similar idea in multiple ways. Therefore, we revised the '*multilingual teaching practices*' part for items that introduce the same ideas and deleted 7 items. By this we achieved  $\alpha = .883$ , which is an indication of high internal consistency and reliability of the items (Aithal & Aithal, 2020). Table 4 illustrates the steps in validating the reliability of the questionnaire. Overall reliability after item deletion became  $\alpha = .912$ , which is an indication of high internal consistency.

Table 4  
*Steps to Improve the Reliability of the Questionnaire*

Field	Step 1 Cronbach's Alpha	Step 2 Items deleted	Step 3 Cronbach's Alpha if items deleted
Contextual factors concerning language use / student's linguistic repertoire	.576	3,5,7	.618
Cognitive characteristics of a multilingual person	.769	7,14	.811
Psycholinguistic knowledge in multiple	.427	2,3,4	.693

language acquisition			
Metalinguistic knowledge in multiple languages acquisition	.731	7, 8, 9	.771
Crosslinguistic knowledge in multiple languages acquisition	.631	1, 2, 3,10	.762
Knowledge of multilingual approaches	.905	No items deleted	.905
Teachers' multilingual identity	.881	No items deleted	.881
Knowledge of multilingual assessment in language education	.717	6	.790
Teaching practices	.917	6,14,16,17, 20, 23, 25	.883
Overall reliability	.920	Items deleted as indicated above	.912

## Results for RQ2

*Research Question 2* asked in what way(s) the validation has helped to improve the validity of the questionnaire.

## Expert Opinion

To investigate content validity, data was collected from the external expert. The expert was presented with all the items in the pilot questionnaire, alongside the ten sections, and was asked to assess the quality of the questionnaire by identifying how accurately the categorization of each item fit into these fields. According to the expert’s opinion, some of the fields of the questionnaire had to be revised. Altogether the expert identified five areas for revision (see Table 5):

Table 5  
*Content Validity: Expert’s Opinion*

Fields for revision	Expert’s opinion
Contextual factors concerning language use / student’s linguistic repertoire	(a) The items should be revisited for their fit into these sections. (b) To add an open-ended question that collects information how parents promote their children multilingualisms.

Psycholinguistic knowledge in multiple language acquisition	Item 2 does not fit into the section
Metalinguistic knowledge in multiple language acquisition	Explain a stress on syntax and grammatical knowledge / strategies.
Crosslinguistic knowledge in multiple languages acquisition	Not all the items are about crosslinguistic knowledge but rather about transmission of that knowledge in the classroom.
Multilingual teaching practices	a) In order to yield the results about how often language teachers employ multilingual practices different distractors should be chosen, for example from 1 (never) - to 5 (very often). b) Item 17 does not fit into teaching practices.

Comment 1(a): The items were regrouped to ensure a better fit with the fields of the construct. In addition, an open-ended item that yielded data about the languages spoken in society was excluded from the questionnaire as such that does not directly focus on teaching languages. 1(b) An open-ended question was added to collect information how parents promote their children multilingualisms.

Comments 2, 5(b): The items with an irrelevant fit with the categories they belonged to also loaded low and therefore were deleted during the second step (see table 5).

Comment 3: Communication in a multilingual context through partial knowledge in some languages does not always happen fluently and effortlessly. In this case metalinguistic knowledge as ‘the ability to focus on linguistic forms’ (Jessner, 2008) plays a crucial role (Jung, 2013). According to Ellis (2005), ‘explicit learning of language occurs in our conscious efforts to negotiate meaning and construct communication’ (p. 308) through the initial registration of pattern recognizers, the conscious building of novel linguistic utterances, pedagogical grammar (Ellis, 2005), etc. In this vein, other researchers also emphasized the importance of focus on form for bilinguals and multilinguals (Jung, 2013). With this in mind, we concluded that a stress on grammar, syntax and word-building patterns represents relevant content in this section.

Comment 4: After revising this section, the authors concluded that items 1, 2, 3, 10 focused on knowledge transmission rather than on beliefs about crosslinguistic knowledge. These items also loaded low. As the result, they were deleted (see table 5).

Comment 5: A new wording of the five step Likert scales was chosen that ranged from (1) never – (2) rarely – (3) sometimes – (4) often to (5) very often.

## **Participants' Feedback**

The participants of the study helped to validate the questionnaire by identifying the items that did not relate to the topic of the study or by leaving any comments they thought could help to improve the quality of the questionnaire.

The majority of the participants decided not to leave any constructive feedback apart from 'thank you'. In addition, 5 participants (13.5%) expressed their gratitude for the possibility to participate in the study and found the questionnaire thought-provoking, as it made them think about their own teaching beliefs and practices. Other comments that focused on the flaws of the questionnaire were considered in the decision-making stage about the modification of the questionnaire.

Two participants (5%) indicated that not all questions are relevant without specifying any area of concern. One participant commented on the repetitiveness of some questions.

Two participants (5%) also expressed their doubts whether items about assessment should be a part of the research on teacher multilingual beliefs and practices.

One participant suggested that the scale in the section on multilingual teaching practices should include a Likert scale that gauges the frequency of teaching practice applied in the classroom.

## **Results for RQ3**

*Research Question 3* asked in what way(s) the validation has helped to improve the feasibility of the questionnaire.

To investigate feasibility, we relied on the expert opinion and participants' feedback. First, the expert was asked to complete the online questionnaire to evaluate the time necessary to fill it in. The expert reported that it took 45 minutes to complete the questionnaire that significantly exceeded the time allotted for gauging reliable data (30 min. see for example Dörnyei and Taguchi, 2010) during which the study can yield complete and reliable data. The opinion of the participants regarding the time spent to complete the questionnaire was divided in half. Most teachers reported that it took them more than 20 minutes to fill in the questionnaire and seven participants (19%) commented on how long and exhaustive the questionnaire was.

Generally, the majority of the participants (30 participants, which is >81%) found the items to be clear, logical and relevant to the topic of the study.

## **Content and Design of Final Questionnaire**

Based on the above analysis and steps, the final questionnaire (see Appendix) consists of 88 items: 9 items in Part 1 (12 in pilot), 50 items in Part 2 (63 in pilot) 29 items in Part 3 (36 in pilot) (see table 6).

Table 6  
*Design of Final Questionnaire*

	Pilot version Items (n)	Final version Items (n)
<i>Part 1: Focus on social context</i>	12	9
Field 1 contextual factors concerning language use	8	5
Field 2 students' linguistic repertoire	4	4
<i>Part 2: Teacher Multilingual cognition</i>	63	50
Field 3 cognitive characteristics of a multilingual person	14	12
Field 4 psycholinguistic knowledge in multiple language acquisition	10	7
Field 5 metalinguistic knowledge in multiple languages acquisition	9	6
Field 6 crosslinguistic knowledge in multiple languages acquisition.	10	6
Field 7 knowledge of multilingual approaches	7	7
Field 8 beliefs about teachers' multilingual identity	7	7
Field 9 knowledge of multilingual assessment in language education	6	5
Field 10 <i>Part 3: Teaching Practices</i>	36	29
Total number of items	111	88
<i>Background information</i>	8	8

## Discussion

The study of teachers' beliefs has a long-established tradition and has had an important impact on developing pre-service programmes and assisting in-service teachers with professional development (Arocena et al., 2015; Haukås, 2016). The review of the literature on multilingualism in the Ukrainian context established that multilingualism in language education is an underresearched area. Scholars who did carry out research in the area mainly analysed the socio-cultural and theoretical background of multilingualism (see, for example, Kudriavtseva, 2015; Matvienko & Kuzmina, 2020) or focused on the needs of the minority population in Ukraine (Zabolotna et al, 2019). To our knowledge, no studies have been carried out to investigate multilingualism in the foreign language classroom in Ukrainian schools and universities or to explore Ukrainian teachers' multilingual beliefs and practices. Therefore, our objective was to account for the development and initial validation of

the questionnaire that can collect complete, comprehensive and reliable data about Ukrainian university language teacher beliefs about multilingualism and multilingual practices in teaching languages. The construction of the questionnaire was guided by Aithal and Aithal (2020), Dörnyei and Taguchi (2010) and Gu (2016).

The present study examined how validation procedures can help develop a reliable questionnaire aimed at collecting data about different aspects of language teachers' multilingual beliefs and practices. The results revealed correlation between validation and quality of the questionnaire. The absence of research on language teacher beliefs about multilingualism in the Ukrainian context, defined our major ambition to develop an instrument that is able to gauge teachers' beliefs about many faceted aspects of multilingualism and teachers' multilingual practices. In our intention to develop an all-encompassing instrument, we designed an online questionnaire that included 111 items. It took around 45-50 minutes to fill them in. However, according to Axenfeld et al., (2022) online surveys should be much shorter than face-to-face surveys to prevent breakoff rates, lower response quality and higher measurement error. Thus, the questionnaire had to be shortened. Validation procedures (Cronbach's Alpha analysis, Expert opinion, participants' feedback) were used to reduce the number of items. Such analysis helped us reduce the number of items from 111 to 88 (see table 6). As a result, of this modification, the approximate time spent on completing the questionnaire can be reduced by 20% of time, which is around 10 minutes.

The modifications did not shorten the questionnaire significantly. Therefore, there is a danger that it will not be able to collect complete and reliable data. Other modifications to the construct are possible. For example, some participants did not relate items about assessment beliefs and practices to multilingualism. In our view, it might be sensible to exclude the section about teachers' assessment beliefs (5 items) and 4 items about assessment practices in the multilingual classroom from the questionnaire. In addition, Split Questionnaire Designs may be considered as a solution (Axenfeld et al., 2022). This design can be used to reduce individual questionnaire length while collecting data on questions from a longer questionnaire. However, this method implies that a large number of missing data has to be imputed, which is a main drawback of Split Questionnaire Designs (Axenfeld et al., 2022). Another, solution might be to divide final questionnaire into two smaller questionnaires (1st aiming at gauging the information about beliefs; 2nd – yielding data about multilingual teaching practices) run consecutively among the same sample within a short period of time. Evidently, every option requires additional literature analysis on the topic and validation.

The multi-item scale of the final questionnaire presented a high level of reliability, which is a promising result. Therefore, the questionnaire may be used as an instrument for replication or adaptation. For example, the questionnaire was developed to investigate Ukrainian teachers' multilingual beliefs and practices in teaching English. However, in order to validate the questionnaire during the pilot study we invited university foreign language teachers from different European universities. For this, we replaced 'Ukraine' by 'your country', 'Ukrainian' by 'your



L1' and 'English' by 'the target language'. Similarly, the questionnaire may be used to evaluate language teacher multilingual beliefs and practices in other educational context with slight adaptations.

## Conclusion

This study provided a step-by-step review on how to design and validate a questionnaire on multilingual beliefs and practices in teaching English as a Foreign Language. The questionnaire was designed to gauge language teacher multilingualism specifically in the Ukrainian context. However, this tool can be used to measure language teacher multilingualism in other contexts. Theory-driven content specification helped to identify three parts that include 10 focus fields of the questionnaire. The pilot version of the questionnaire comprised 111 items, which were reduced to 88 items as the result of internal consistency analysis, content validity and feasibility verification procedure. The questionnaire thus validated provides a quantitative measure of assessing language teachers' beliefs about multilingualism and multilingual teaching practices and the collected data could function as a needs analysis for future professional development activities on multilingualism in foreign language education.

The area of focus for further research is to carry out a major study that will provide an insight into Ukrainian university teachers' multilingual beliefs and practices in teaching English. The collected findings will help to develop pre-service programmes and assist in-service teachers in their professional development.

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## Appendix

### The Final Version of the Questionnaire

#### Background information

Answer the following questions.

1. For how many years have you taught (a) language(s)?

0-5

5-10

10-15

15-20

20-25

more than 25

2. How many languages do you know?

1

2

3

4

5

6

more than 6

3. What is the level of your language proficiency in each language you know according to the CEFR?

A1

A2

B1

B2

C1

C2

L1

L10

4. Do you think yourself to be multilingual?

Yes

No

Have never thought about it

5. Do you reflect on how you learn a language?

Yes

No

Not always

6. Do you compare and contrast the languages when you learn/ improve them?

Yes

No

Not always

7. Do you think you learn better if you compare the language you are learning with your L1 or other languages that you know?

Yes

No

Not always

8. Where did you first come across the idea of multilingualism/ plurilingualism?

at school

at university

at professional training courses/ programmes

through educational Internet content

have never come across the idea before

other

Part 1: Focus on social context

The following questions are about your knowledge concerning contextual factors concerning language use in Ukraine.

Which of the options 1-5 best illustrate your teaching beliefs and attitudes: 1-totally disagree, 2-disagree, 3-agree, 4-totally agree, 5-have never thought about it?

1) In Ukraine, in addition to Ukrainian it is more important to know English than any other language.

1-totally disagree

2-disagree

3-agree

4-totally agree

5-have never thought about it

2) In Ukraine, your chances of getting a job increase if you are multilingual.

1-totally disagree

2-disagree

3-agree

4-totally agree

5-have never thought about it

3) Parents promote their children's learning of multiple languages in Ukraine.

1-totally disagree

2-disagree

3-agree

4-totally agree

5-have never thought about it

4) How do parents promote their children's multilingualism in Ukraine? Write your answers below

5) Most Ukrainians are bilingual or multilingual.

1-totally disagree

2-disagree

3-agree

4-totally agree

5-have never thought about it

The following questions are about your knowledge concerning your students' linguistic repertoire

6) I think I teach in a multilingual class.

1-totally disagree

2-disagree

3-agree

4-totally agree

5-have never thought about it

7) I think my students are bilingual/multilingual.

1-totally disagree

2-disagree

3-agree

4-totally agree

5-have never thought about it

8) How many languages do your students use in your classroom? \_\_\_\_\_

9) What languages, in your opinion, might your students know? \_\_\_\_\_

Part 2: Teacher Multilingual cognition

The following questions are about your beliefs concerning cognitive characteristics of a multilingual person.

Which of the options 1-5 best illustrate your teaching beliefs and attitudes: 1-totally disagree, 2-disagree, 3-agree, 4-totally agree, 5-have never thought about it?

I believe that....

- 10) learning multiple languages significantly improves cross-cultural awareness.
- 11) learning multiple languages improves one's cognitive skills.
- 12) learning multiple languages can improve performance in Science, Maths and Technology subjects.
- 13) students who speak several languages can serve as linguistic role models for other learners.
- 14) knowing multiple languages makes it easier to learn additional languages.
- 15) learning additional languages improves knowledge of previously learned languages.
- 16) a multilingual person has cognitive advantages over a monolingual person.
- 17) multilingual people has better cognitive skills for language learning than monolingual people.
- 18) multilingual learners are more autonomous language learners.
- 19) multilingual learners manage their language learning more efficiently.
- 20) multilingual learners are more willing to take responsibility for their own language learning process.
- 21) multilingual learners depend less on a teacher's support in language learning

The following questions are about your beliefs concerning psycholinguistic knowledge in multiple language acquisition. Which of the options 1-5 best illustrate your teaching beliefs and attitudes: 1-totally disagree, 2-disagree, 3-agree, 4-totally agree, 5-have never thought about it?

I believe that...

- 22) my learners' linguistic repertoire is a valuable resource for learning English.
- 23) one learns more effectively if only English is used during English lessons.
- 24) multilingual learners have a greater sensitivity to recognise the grammatical functions of words.
- 25) multilingual learners are able to deduce meaning of new words relying on their knowledge of other languages.
- 26) multilingual learners have a greater sensitivity to the proper use of words in context.
- 27) multilingual learners always compare the target language grammar to the grammar of other languages.
- 28) multilingual learners understand how to deduce language rules of the language system.

The following questions are about your beliefs concerning metalinguistic knowledge in multiple languages acquisition.

Which of the options 1-5 best illustrate your teaching beliefs and attitudes: 1-totally disagree, 2-disagree, 3-agree, 4-totally agree, 5-have never thought about it?

I believe that it is important for my students to...

- 29) know grammar rules;
- 30) explain syntactical composition of the sentence;
- 31) know linguistic terms;
- 32) understand word-building patterns;
- 33) be able to explain the use of grammar structures;
- 34) be able to notice similarities between languages;

The following questions are about your beliefs concerning crosslinguistic knowledge in multiple languages acquisition.

Which of the options 1-5 best illustrate your teaching beliefs and attitudes: 1-totally disagree, 2-disagree, 3-agree, 4-totally agree, 5-have never thought about it?

I believe that it is important to...

- 35) encourage students to translate from the target language during pair/group work.
- 36) encourage students to use the other languages they know or are learning in the English classroom.
- 37) to point out similarities and differences in English and the other languages my students and I know or are learning.
- 38) to create conditions when students compare English with their other languages.
- 39) create conditions for comparing English grammar to the grammar of other languages.
- 40) allow my students to use their L1 in English lessons.

The following questions are about your knowledge of multilingual approaches.

Which of the options 1-5 best illustrate your teaching beliefs and attitudes: 1-totally disagree, 2-disagree, 3-agree, 4-totally agree, 5-have never thought about it?

I believe that the following approaches and methods promote my students' multilingualism.

	Totally disagree	Disagree	Agree	Totally agree	Haven't heard about the approach
41) Language awareness					
42) Immersion					
43) Content and language integrated learning (CLIL)					
44) Intercomprehension					
45) Translanguaging					
46) Total Physical response method					
47) Task-based method					

The following questions are about your beliefs concerning teacher multilingual identity in teaching foreign languages.

Which of the options 1-5 best illustrate your teaching beliefs and attitudes: 1-totally disagree, 2-disagree, 3-agree, 4-totally agree, 5-have never thought about it?

I believe that the more languages teachers know the better they can ...

- 48) explain language structure;
- 49) identify the language-related challenges that learners face;
- 50) use more appropriate teaching methods/approaches;
- 51) increase their repertoire of activities;
- 52) develop learners' language learning strategies;
- 53) learners' cross-cultural competence;
- 54) inspire students to learn languages.

The following questions are about your beliefs concerning multilingual assessment in language education

Which of the options 1-5 best illustrate your teaching beliefs and attitudes: 1-totally disagree, 2-disagree, 3-agree, 4-totally agree, 5-have never thought about it?

I believe that ...

- 55) language assessment should employ mostly alternative forms such as compiling portfolios, completing projects, creating blogs etc.
- 56) self-assessment and teacher/peer feedback are a part of language assessment.
- 57) alternative forms of assessment more accurately evaluate students' language proficiency;
- 58) language assessment should be aligned with language teaching.
- 59) language assessment tasks reflect tasks used in the classroom.

### Construct 3: Teaching Practices

The following questions are about your Teaching Practices in the language classroom  
How often do you pursue a teaching practice on the scale from 1 (never) to 5 (very often)? (1-never, 2-rarely, 3-sometimes, 4-often, 5-very often)

- 60) I focus on explaining the structure of the language.  
61) I focus on practicing communication and learning language structure more implicitly.  
62) I encourage students to translate from English during pair/group work.  
63) I try to incorporate the other languages my students know or are learning into English lessons.  
64) I try to learn about the other languages my students know and use them in my English lessons.  
65) I always point out similarities and differences in English and the other languages my students and I know or are learning.  
66) I give my students advice on how to understand certain concepts in English by relating them to the languages my students know or are learning.  
67) I combine reading/listening activities in other languages that students know with speaking/writing activities in English.  
68) I combine speaking/writing activities in other languages that students know with reading/listening activities in English.  
69) I accept code-switching in the English classroom.  
70) I stick to 'English Only policy' in the English classroom.  
71) I use my students' diverse linguistic repertoire in teaching English.  
72) I adapt tasks to the plurilingual context.  
73) I use my students' knowledge of L1 to explain them English grammar.  
74) I encourage my students to use resources in any language to prepare a task in English.  
75) I promote comparison between different languages.  
76) I anticipate language difficulties more easily, using my knowledge about my students' other languages.  
77) I link new linguistic structures in teaching English to other languages that students know.  
78) I encourage my students to reflect on their language learning strategies.  
79) I promote my students' autonomy in learning languages.  
80) In my English classroom I work within the framework of the following approach(es). You can choose more than one option:  
Action-oriented approach  
Audiolingual approach  
Communicative approach  
Grammar-translation approach  
In teaching English, I often apply these approaches:
- |  | Never | Rarely | Sometimes | Often | Very often |
|--|-------|--------|-----------|-------|------------|
|  | 1     | 2      | 3         | 4     | 5          |
- 81) Language awareness  
82) Immersion  
83) Content and language integrated learning (CLIL)  
84) Intercomprehension  
85) My assessment practices include alternative forms such as compiling portfolios, completing projects, creating blogs etc.  
86) I use self-assessment and teacher/peer feedback as a part of assessment.  
87) I design assessment tasks that reflect the tasks used during English lessons.  
88) I encourage my students to use sources in different languages and collate information from these sources to complete an assessment task in English.



# Trending Topics About Performance in Second Language Learning

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**Abstract.** This article recomposes the background of this theme during the decade 2001 to 2011. This study aims to discover ten main current research trends of performance in second language from 2012 to 2022. It will search scientific articles in the Social Science Citation Index (WOS) and in the Educational Resources Information Center (ERIC) databases and discover which are emergently compared to the previous decade. Finally, the study discusses these topic trends, other alternates and transversal-related issues. It presents a critical vision of the state-of-the-art of the last 20 years, considering reference publications. The method is a documentary review that selects ten scientific articles from the last decade to discover deep trends. This documentary methodology differs from a systematic bibliographic review in that it allows selecting and delving deeper into the qualitative content of the articles. Thanks to the quality system implemented, the articles published in these journals included in the WOS database ensure significant studies that ensure scientific contributions and discoveries in the field. The main results are ten recurring topic trends with the previous decade on language learning programs, evaluation, teaching strategies, communication and psychological approach, digital devices, teacher action, cognitive approach, speaking performance, motivation and instructional performance language. The major conclusions highlight emerging interdisciplinary approaches to different variables and the adaptive study of emerging technologies, such as AI, without great interest in linguistic or economic policy issues. However, searches on other academic platforms find a broader open debate for two decades with other contextual parameters about economic factors and language policy, such as the literacy of immigrants in L2 as a factor of social and economic interest, the formal programming of a second language in institutions to obtain employment, especially in the professional framework of international mobility. This means that the WOS database collects general trends in this investigated topic. However, it only partially collects the breadth of scientific interest generated as a result of the needs of the socio-economic context.

**Keywords:** *research trends, performance, second language, learning, documentary review.*

**Пенья-Акунья Беатрис.** Актуальні теми щодо успішності оволодіння другою мовою.

**Анотація.** Ця стаття відтворює огляд літератури з теми протягом десятиліття з 2001 до 2011 рік. Дослідження має за мету знайти десять провідних сучасних наукових тенденцій у галузі вивчення другої мови протягом 2012-2022 років. Здійснено пошук наукових статей у базах даних Social Science Citation Index (WOS) та Educational Resources Information Center (ERIC) і встановлено, які з цих статей є новими, порівняно з попереднім десятиліттям. Наприкінці дослідження обговорено ці та інші тематичні тенденції, альтернативи й гострі питання, пов'язані з цими темами. Стаття представляє критичне бачення стану справ за останні

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20 років, беручи до уваги довідкові публікації. Методом дослідження є документальний огляд, який обрав десять наукових статей за останнє десятиліття, щоб виявити глибинні тенденції. Ця документальна методологія відрізняється від систематичного бібліографічного огляду тим, що дозволяє відбирати і заглиблюватися в якісний зміст статей. Завдяки впровадженій системі якості, статті, опубліковані в журналах, що входять до бази даних WOS, забезпечують проведення глибоких досліджень, які гарантують науковий внесок і відкриття в цій галузі. Результатом огляду є виокремлення десятих повторюваних тематичних тенденцій попереднього десятиліття щодо програм вивчення мов, оцінювання, стратегій викладання, комунікативного та психологічного підходу, цифрових пристроїв, дій викладача, когнітивного підходу, мовленнєвих навичок, мотивації та мови викладання. Висновки висвітлюють нові міждисциплінарні підходи до різних змінних та адаптивне вивчення нових технологій, таких як штучний інтелект, без великого інтересу до питань мовної чи економічної політики. Однак пошуки на інших академічних платформах виявляють ширшу відкриту дискусію протягом двох десятиліть з іншими контекстуальними параметрами щодо економічних факторів і мовної політики, такими як грамотність іммігрантів на рівні L2 як чинник соціального та економічного інтересу, формальні програми з другої мови в установах для отримання роботи, особливо в професійному контексті міжнародної мобільності. Це означає, що база даних WOS увібрала загальні тенденції в цій досліджуваній темі. Однак вона лише частково відображає широту наукового інтересу, викликаного потребами соціально-економічного контексту.

**Ключові слова:** дослідницькі тенденції, успішність, друга мова, навчання, документальний огляд.

## Introduction

The study of students' performance is planned based on the practises of nations that legislate the implementation of second language educational programs or on the fact that the state finds itself in a bilingual or multilingual state. The grouping of countries in major communities due to greater economic competitiveness, as is the case in the European Union, contributes to the modification of the legislation pertaining to these countries in terms of language policy directed towards multilingualism so that languages are promoted internally in the EU. Similarly, learning a second language is a topic that is required for immigrants in the EU.

The purpose of this research is to identify the major research trends concerning second language performance. The two research questions that were formulated were the following:

- What research trends are being carried out on L2 learning performance in the last decade in impact journals?
- What themes are emerging among these in such a way that they open up study horizons?

In a complementary way, this study aims to achieve the following:

- Track down the debate on the topic trends;
- Learn about these topic trends, as well as other alternatives and transversal issues;
- Gain a critical perspective on the state of the art over the last ten years using reference publications.

The discoveries and casuistry about performance in a second language are extensive in this field, considering the socio-economic circumstances of the educational segment in question. For example, Bassuk et al. (1998) are aware that the

educational opportunity to learn a second language implies the development of adult mothers without a partner in immigrant conditions. Gibb (2008) examines the attempt to couple a Canadian adult second language policy with a job skills policy. This author proposes another way of conceiving second language learning in adults and its potential for policy development. Betancur (2009) reveals that for Colombian immigrants, learning a second language in the US means demonstrating optimal communication skills in the workplace. Where there is no recognised linguistic-political debate, Keeves and Darmawan (2007) established debates in language learning.

The interdisciplinary interest is reflected in some studies. For instance, Miura and Okamoto (2013) study, from a language perspective, the characteristics of mathematical language with respect to L2 mathematics skills that affect performance. Haag et al. (2013) conclude that academic language increases the difficulty of math items for second language learners. Fernández-Fernández and Fonseca-Mora (2022) apply mental maps to improve reading skills.

## **Literature Review and Background**

The trends discovered during 2012-2022 are exposed as meta-analysis, which, for the most part, were also addressed in the previous period of 2001-2011.

Regarding the programming of L2, an inquiry is made about the evaluation of an L2 learning program in its beginning stages (Davin, 2011). Stepp-Greany (2002) describes students' perceptions of technology-enhanced language learning (TELL) programming. Cultural awareness, listening and reading skills, as well as individual learning skills, are emphasized. Montes (2002) investigates the Content Area Program Enhancement (CAPE) model based on the cognitive approach to language learning that improved reading and mathematics scores.

In contrast, there are other positions that are critical for learning the second language in a programmed or institutionalised way. Toukoma and Skutnabb-Kangas (1977) announced that the foundation for reaching the level of proficiency in L2 seems to be the level reached in the mother tongue. They stated that at an early age the child, belonging to a minority, is in the context of learning a foreign language, but if a learner does not receive adequate support in the mother tongue at the same time, the ability in the mother tongue will slow down or even cease, leaving the child with no basis for learning the second language properly. Along the same lines, reading difficulties in the mother tongue (L1) have been found to be correlative to the results in a foreign language (FL) (Fonseca-Mora & Fernández-Corbacho, 2017). Macnamara (1966) stated that learning in L2 as a means of instruction slows down learning. In this way, students who have L2 as a means of instruction, if they do not have adequate instruction in their mother tongue, are not guaranteed to participate satisfactorily in the current global economy.

Regarding the evaluation of L2, Okada (2015) investigates the conversational practises of the interviewer who evaluates the candidate in L2 job interviews for a particular position. This academic concludes that a candidate's understanding of the

expected behaviours and the ability to adapt to those behaviours in the interaction result in a positive evaluation from the interviewer.

Short memory and working memory are investigated in phonological functionality using a cognitive approach (Kormos & Sáfár, 2008). Kuiken and Vedder (2008) test and compare two models proposed to explain the influence of cognitive task complexity on L2 language performance in writing. The study supports the cognition hypothesis. Coiro (2011) presents models of think-aloud instruction to explicitly teach students how they approach texts, interact with them, regulate their comprehension, and respond to informational texts on the Internet.

Regarding teaching strategies, Oxford (2002) compiles the usual teaching strategies. In the same way, Chamot (2004) collects the procedures and debates about various approaches:

- The identification, terminology, and classification of learning strategies;
- The effects of learner characteristics on the use of the strategy;
- The effects of culture and context on the use of the strategy;
- The instruction of integrated strategy;
- The language of instruction;
- The transfer of strategies to new tasks;
- Language learning strategy instruction models.

In reference to the communicative and psychological approaches, the communicative approach is investigated by studying the interpretative, interpersonal, and presentation modes of communication (Glisan et al., 2007). In addition, the emotional aspect is still being investigated. Gregersen and Horwitz (2002) explore how perfectionism influences the emotional reaction of anxiety in language students. Lu and Han (2010) research student participation, isolating some influential variables: language; knowledge of the educational system; knowledge of the social system; personality; influence of traditional culture; and social/economic/political changes.

Chang and Ho (2009) investigate the effects of place control and learner control in web-based language learning to use digital devices in L2. Chinnery (2006) examines mobile assisted language learning (MALL) and foresees an expansion of technologically based research.

Regarding the influence of the teacher's actions in L2, Ibrahim (2001) studies an English Medium of Instruction (EMI) program in Indonesia. He points out that a teacher who does not speak fluent English can hinder student learning. Feryok (2013) suggests that teachers' language performances are complex and dynamic, and that even short-term programs with non-language objectives can have a positive effect on language performances.

The performance of orality in L2 is investigated in the dialogue (Swain et al., 2002). Likewise, aspects of orality are investigated using cross-disciplinary factors such as cultural studies (Morton & Jack, 2010). Likewise, other factors such as listening, writing, and reading are studied. Qian (2002) studies vocabulary mastery as an influence on reading comprehension. For this reason, this author recommends that vocabulary be assessed in L2.

With respect to motivation in L2, Petrides (2006) highlights that motivation is a crucial factor for learning L2, aimed at preparing classroom material or preparing a schedule. The desire to find employment is mentioned as one of the factors that encourage the study of a second language by a number of authors (González López, 2005; Pereira & Cassart, 2009).

Concerning the instructional language for performance, Cirino et al. (2007) talk about the language of instruction and the results. They discover that teacher quality is positively related to student engagement. In other publications on language performance, it appears to be referred to in WOS as computational language during 2022-2021.

## Method

The method is a document review of meta-analysis based on a selection of samples (Nuñez, 2002; Espinoza, 2003; Perdomo, 2008; Sánchez Abascal, 2021). In a first stage of research, the document review method selects 10 scientific articles from the last decade to discover and deepen trends. This documentation methodology differs from a systematic bibliographic review in that it delves deeper into the qualitative content, in a complete way, of the articles.

The database consulted is the Social Science Citation Index (Web of Science, or WOS). The WOS database is the most relevant generalist database (Lamé, 2019; Liang et al., 2021) and the one with the most prestige that collects scientific journals. This database reaches a multidisciplinary audience in English, above all, and includes other languages. In addition, this database brings together various collections: The Web of Science Core Collection, Current Contents Connect, Derwent Innovations Index, KCI-Korean Journal Database, Medline, Russian Science Citation Index, and SciELO Citation Index. The articles published in these journals, thanks to the quality system implemented in them, ensure significant studies.

In addition, a specific education database called the Educational Resources Information Center (ERIC) has been consulted. This database contains “close to one million citations and abstracts reflecting both published and ‘gray literature’ (conference papers, contractor reports, etc.) gathered by the 16 ERIC subject area clearing houses” (Hertzberg & Rudner, 1999, p.1).

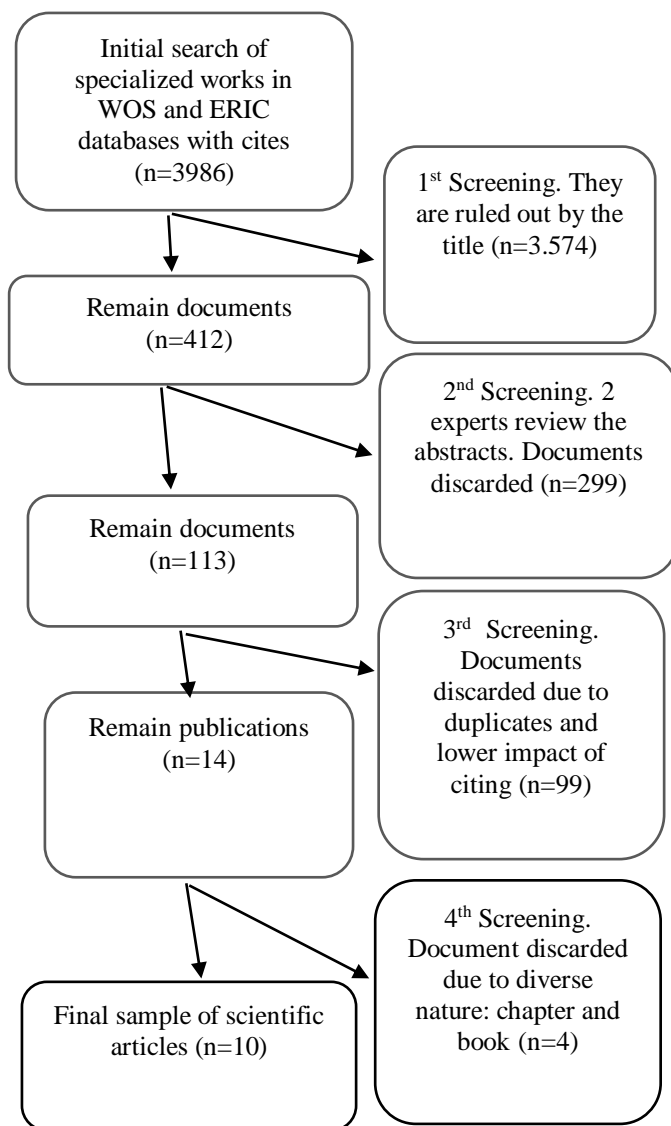
There were three inclusion and exclusion criteria at this stage. First, the texts needed to be peer-reviewed journal articles. Second, be written in English. Third, focus on L2 and performance (or synonyms) within the educational context. So, it should have the words ‘second language + learning + performance’, ‘L2 + learning + performance’, ‘foreign language + learning + performance’, ‘secondary language + learning+performance’ ‘alternate language + learning + performance’, ‘other language + learning + performance’ or ‘new language + learning + performance’, (or English variations of these terms) in the title and/or abstract.

The documentation selection process is described in Figure 1. In this first phase of research, a screening of peer-reviewed scientific articles with citations found in

WOS (401) and ERIC (3585) is carried out, for a total of (n=3986), during the period 2012-2022.

In the first screening, the publications are selected by title, and a total of (3579) are discarded, leaving (n=412). The data is extracted in Excel from the functions provided by WOS and ERIC. All the complete data from the references and the abstracts provided by WOS and ERIC are noted in a first-ever Excel document. In the second screening, in which two experts participate, the abstracts are reviewed, and (299) are discarded, leaving (n=113) documents.

**Figure 1**  
*Descriptive Flow Chart of the Documentation Process*



Source: own elaboration

In the third screening, 99 duplicates of this documentation are excluded, as are those documents with fewer citations. Instead, those documents that present frequent themes are selected, leaving a total of (n=14).

In the fourth screening, the references are reviewed, and those publications that, due to their content, are not articles (4), but chapters or papers or do not cover the selected subject about performance in L2 learning, are discarded from Excel. Once the articles that meet the requirements (=10) have been noted, the abstract is carefully reviewed, and then each of the articles is studied and criticised in depth.

The aims of this work are:

- discovering the ten main trends in students' second language performance over the last decade by searching the WOS and ERIC databases;
- finding out which of these trends are emerging.

## Results

A content analysis of the selected scientific articles is described below.

### **Selectivity of Content and Language Integrated Learning Programs in German Secondary Schools (2016)**

Dallinger et al. (2016) experimentally investigate the previous preparation of 1362 eighth graders inserted in a CLIL program in Germany. The quantitative study shows a positive appreciation of students with previous preparation, with significant differences in several variables: listening comprehension, verbal cognitive abilities, parental education level, socioeconomic and cultural level, as well as achievement orientation and motivation.

### **Improving the Validity of L2 Performance Assessments: Use of Many-Facet Rasch Measurement (2017)**

Kim (2017) attends performance evaluations from a theoretical standpoint. This type of assessment considers the new competency framework, or Competency-Based Educational Model (CBEM). This model values the actions and products carried out by the student during the learning process, allowing feedback on learning, as well as verifying the development of their skills.

Kim justifies that this type of performance evaluation is valid thanks to validation through the multifaceted Rasch measurement. The author compares it to other traditional assessment tests or a communicative approach. The Rasch model confirms the psychometric properties of the assessment tests. Its mathematical formula relates the probability of answering the item correctly to the difference in the level of the construct or attribute of the individual and the difficulty of the item.

### **One Task Fits All? The Roles of Task Complexity, Modality, and Working Memory Capacity in L2 Performance (2017)**

Zalbidea (2017) studied (n=32) North American pre-university students and administered various tests. First, the execution of an argumentative task, one complex task measurement test, and one quantitative test of working memory. She intends to know about a less studied topic, such as the roles of task complexity and modality (speaking or writing) in L2 (in this case Spanish) performance in combination with learners' working memory.

This author concluded that task modality played a more robust role than task complexity in promoting improved linguistic performance among lower-intermediate learners. In speaking tasks, learners produced more syntactically complex output. In writing tasks, learners produced language that was lexically more complex as well as more accurate overall. Besides, working memory can play a role in influencing certain types of linguistic measures of L2 performance, but only when the cognitive demands of tasks are increased.

### **Instructional Mode: A Better Predictor of Performance Than Student Preferred Learning Styles (2019)**

Moussa-Inaty et al. (2019) carried out a quantitative study with a sample (n=94) of undergraduate female students at the Zayed University (United Arab Emirates). These academics wanted to find out which variable significantly affected performance: preferred learning styles or cognitive load. The cognitive load, according to Sweller's psycho-cognitive theory (cited in Moreno & Park, 2010), corresponds to the amount of information that the working memory can store at the same time. The study's authors concluded that cognitive load was the best indicator of performance.

### **More Than Meets the Ear: Individual Differences in Trait and State Willingness to Communicate as Predictors of Language Learning Performance in a Chinese EFL Context (2020)**

Zhang et al. (2020) carry out a quantitative study on the variables of the willingness to communicate (WTC) in relation to individual differences regarding participation in the classroom of L1 (Chinese) and L2 (English) in the case of students. Chinese university (n=103). The strength of this study is that it emphasises the volitional-communicative aspect, or communicative will. They found that individual differences in L1 were correlated with the extraversion factor. However, individual differences in L2 were correlated to other factors: experience, conscientiousness, and agreeableness. Furthermore, they found that both the communicative trait and the communicative state influence L2 performance, despite being related differently to personality.



### **Improving English as a Foreign Language-Learning Performance Using Mobile Devices in Unfamiliar Environments (2021)**

Shadieff et al. (2021) carry out an experimental quantitative study with an experimental group (n=50) and a control group (n=50). However, we estimate that the sample size of only 50 individuals is small and should have been expanded. An intervention was carried out to check the performance of learning English (EFL) with mobile devices in unknown environments. So, the students took photographs of people, objects, situations, and scenarios that they described in detail, becoming familiar with the mobile. A pre-test and a post-test were applied to verify the translation of phrases, sentences, and writing elements. Five tasks were also assessed for quantity with respect to vocabulary, grammar, content, origin, and dimensions of creativity. The results showed an improvement in the experimental group only in relation to the writing element and in the quality of the tasks' writing. They were also enthusiastic about learning the mobile in new environments

### **An Instructor's Beat Gestures Facilitate Second Language Vocabulary Learning from Instructional Videos: Behavioral and Neural Evidence (2021)**

Pi et al. (2021) combined two experiments to approximate the phenomenon of the influence of the kinaesthetic gesture of rhythm in the teacher on vocabulary learning in L2 with three data collection tools. In a first quantitative experiment, they tested whether the instructor's speaking rhythm gestures on the screen of instructional videos improved performance in terms of accuracy and reaction time in EFL vocabulary learning in English. The sample consisted of 27 Chinese university students. The second experiment, carried out with a self-report test and electroencephalograms analysed with a quantitative technique, involved 53 university students. In this, they discovered that the benefits of rhythm gestures in learning L2 vocabulary are due to reducing the cognitive load during this process. The results are aimed at recommending the design of instructional videos with gestures by instructors for vocabulary learning in L2.

### **To What Extent Are Foreign Language Anxiety and Foreign Language Enjoyment Related to L2 Fluency? An Investigation of Task-Specific Emotions and Breakdown and Speed Fluency in An Oral Task (2022)**

Bielak (2022), from an interdisciplinary, affective, and attitudinal point of view, studies the relationship between anxiety (FLA) and enjoyment (FLE) of a foreign language correlated with speech fluency. The sample consisted of 43 Polish university students who spoke L2 English at a medium-to-high intermediate level (n = 43). Various data collection tools were used: a pre-test and post-test to measure FLA and FLE together with a monologue task, another for English level, another test to measure both speed fluency and breakdown fluency. For the first time, FLE and L2 fluency have been shown to be related. Moreover, with quite low FLA, and high FLE, the combined effects of proficiency level, FLA, and FLE on L2 fluency can be quite relevant. Thus, the level of acquired competence is the main predictor of fluency, followed by FLA. Therefore, for teachers, it is important to prepare tasks with a positive emotional impact and focused on enjoyment.

## Research on Language Learning Motivation in School Settings in System (2022)

Zhang et al. (2022) carry out a documentation review of the *System* journal from 1990 to 2021, analysing the theoretical and methodological changes regarding motivation. They conclude that the approaches enhance the complex, dynamic, and situated nature of motivation. Studies have focused on adult high school students. However, it is highlighted that it is still an expanding field of study. Among the aspects that have been discussed, the following are presented:

- Motivational change
- Interaction between instructional and motivational approaches
- The role of the sociocultural context in the formation and direction of student motivation
- Teachers' cognition about motivation
- Teachers' own motivation for language teaching

## An Analysis of the Types of Educational Performance Language and Its Use in High School English Class (2022)

Sung-Wook (2022) studied the specific use of language in educational performance in a real context, first categorising it theoretically and then observing most of these categories in the secondary classroom. The unobserved constructs were attributed to institutional conditions and class members' late recognition of education. The authors suggest additional research be conducted in this area through follow-up studies.

Table 1

*Summary of Authors' Selection, Year of Publications and Topics*

Authors	Year	Research Trending Topics
Dallinger et al.	2016	Language learning program.
Kim	2017	Assessment of L2
Zalbidea	2017	Cognitive approach for L2
Moussa-Inaty et al.	2019	Teaching strategies for L2
Zhang et al.	2020	Communicative and psychological approach
Shadiev et al.	2021	Digital devices for L2.
Pi et al.	2021	Influence of teacher action for L2
Bielak	2022	Enjoyment and speaking performance of L2
Zhang et al.	2022	Motivation for L2
Sung-Wook	2022	Performance language

Source: own elaboration

## Discussion

The findings of this study are revealed by responding to the intentions and research questions. In this way, the listed tendencies are discovered below, just as the first intention and first starting question of this inquiry were posed. In turn, in this section, the weight they contain as trends is highlighted. In the same way, other findings are presented, as well as the debates raised by the trending themes.

First, the interest in L2 programming is discovered in this study, it is a subject of constant tendency that arouses debate (Keeves & Darmawan, 2007). However, it is required by the competitive global socioeconomic environment. In the case of Europe, educational institutions invest in L2 programming because it is a necessary component of children's education within a broader legal framework, the European *Erasmus + (plus) Program* for the promotion of multilingualism and the adaptation of labour to the current context. In the case of Latin America, legislative programming is due to the fact that it is considered the key to access to studies, jobs, and higher income (Santana Villegas et al., 2016, p.80). The CLIL bilingual program is not exempt from criticism and studies in its favour.

It is highlighted bilingual CLIL programming (Dallinger et al., 2016) with advantages in verbal cognitive skills and listening comprehension over monolingual learning, opening a debate about the ideal type of monolingual or bilingual programming. Nieto-Moreno-de-Diezmas (2019) in another comparative study of a large sample, also adds positive results for CLIL in secondary school in overall results, oral comprehension, and complex tasks with respect to non-CLIL students. At this level, there is a difference, whereas in primary education, there is none. However, there are other concerns about programming. These results could be understood considering the age of the students and other contextual factors between the CLIL program in primary education and secondary education.

Demkura (2021) investigates the effects of a linguistic program that introduces immigrant students to L2 in a Swiss context so that, by recognising their culture, they find their identity, and also calls for policies that serve these segments.

Salaberri-Ramiro and Sánchez-Pérez (2021) quantitatively investigate the perceptions of Spanish university students (n=310) about the use of English in bilingual programs. The students' overall satisfaction with the teachers' command of the English language and use of comprehension strategies is concluded. However, the refusal to be evaluated in that language, the demand for greater interaction in the classroom, and the inclusion of language-related courses in bilingual higher education curricula are also concluded. For promoting multilingualism, Barros et al. (2021) recommend including trans language theories in the curricula of conventional and TESOL teacher preparation programs.

If possible, the offer of subjects within a multilingualism policy and programs is already being implemented in European universities (Council of Europe, 2020). It is being carried out and promoted in Spanish and European universities, aided by the *Erasmus + (plus)* international mobility framework, and approved KA2-type funded

European teaching innovation projects. This is the case with the project “Digitalization of multilingual programs in the EHEA” ([dimpe.inerciadigital.com](http://dimpe.inerciadigital.com)).

Second, this investigation confirms the appearance of a constant trend in the study of evaluation, as it is a subject closely related to performance. This is a common method for educational systems to verify this. Previously, it was debated whether the questionnaires could be used to assess L2 learning throughout the studies and in terms of speaking, writing, reading, and listening (Keeves & Darmawan, 2007). Research continues on this topic. Kim (2017) recommends the Rash test for checking questionnaires to assess performance tasks. In the same way, Kuiken and Vedder (2018) investigate the applicability of a rating scale to assess functional adequacy in L2, based on task-based language teaching (TBLT) and task-based language assessment (TBLA). The scale is composed of four components of functional adequacy, namely content, task requirements, understandability, and coherence and cohesion. They reach the conclusion that the scale appears to be a reliable and efficient tool for assessing the functional adequacy of written and spoken production in L2.

Third, in reference to the interest in cognitive issues, Zalbidea (2017) proposes a novel way to study task-based learning in relation to working memory. She says that working memory was shown to be related to the improvement in the cognitive complexity of tasks. This study is complemented by Awwad & Tavakoli (2019). These show that intentional reasoning had a significant influence on complexity and precision. Proficiency and working memory reliably predicted accuracy on both task archetypes. However, language proficiency and working memory favoured differently models predicting lexical complexity and fluency in speech rate. In this sense, the tendency to discover what influence memory has (Kormos & Sáfár, 2008) and the rationale on performance in L2 learning continues. Previously, Keeves and Darmawan (2007) highlighted the debate about the acceleration of cognitive procedures in the service of performance.

Fourth, the topic of teaching strategies is reaffirmed in these articles because they are teaching tools established to improve performance. However, there are previous studies (Chamot, 2004) and current ones that raise a debate about the impact on performance. On the one hand, the research by Moussa-Inaty et al. (2019) has been found, in which they conclude that the cognitive load of female students was a better predictor of student performance than auditory or visual learning styles. We understand that this study presents a sample bias, since it should also be carried out on male students. On the other hand, alternatively, Ku et al. (2015) propose a game-based learning strategy with Sifteo Cubes and a device with a tangible user interface in L1 that is influential in terms of performance. They conclude that the score was higher than that of the experimental group to which the learning strategy was applied, and that the Chinese idioms learning system (CILS) is adequate for active and visual learners. Levis et al. (2016) conclude a comparative study on the influence of native and non-native teachers that most affects teaching strategies.

Fifth, previously, there already existed a recurrent approach to the study of performance in L2 based on variables belonging to communication (Glisan et al.,

2007). One finding is the emerging preference of scientists for the approach of combining innovative variables from two fields: psychology and communication. These are more recent sciences that contribute to a greater knowledge of performance in learning L2. Shadiev et al. (2021) approach communicative will from the perspective of the correlative personality variable. They start from the problem that there is a stereotype about Chinese students being perceived as passive due to the presumed resistance to speak, especially in L2. They conclude that, despite being related to personality differently, both trait and willingness to communicate (L2) state are important predictors of L2 learning performance.

Indeed, there are other previously studied variables belonging to the psychology of education and affective learning, such as the emotion of anxiety (Salehi & Marefat, 2014), the relationship between anxiety and happiness (Dewaele & Alfawzan, 2018), the affections in L2, or the ability to work in an international context projected towards expanding employability (Martín, 2016; Michavila et al., 2018).

Sixth, the constant predisposition to understand the performance of digital devices is highlighted, and at the same time, emerging with respect to applying and studying emerging technologies, such as applications with artificial intelligence, is another innovative avenue of research on L2 teaching that has been highlighted in this study. It is a growing field of research into the performance and effectiveness of L2 learning through these devices as they are applied in the educational context. At the same time, the debate between supporters of technological methods versus traditional teaching is evident (Godwin-Jones, 2022). Shadiev et al. (2021) conclude that the effectiveness of mobile learning familiarisation strategies is reflected in writing performance. However, the study by Shadiev et al. (2021) is limited by the sample size. Palasundram et al. (2019) underline the quality of complementarity of the chatbot with artificial intelligence as an educational resource.

Seventh, it is a revelation from this study that there is a tendency to constantly investigate the concrete actions of the teacher in the context of the teacher's role in relation to performance. In relation to the gestural language of this, Pi et al. (2021), in an investigation with a neurological test, conclude that the use of rhythm gestures increased the precision of the students, reducing their reaction time and reducing their cognitive load during learning. Mahmoodi et al. (2022) investigate other aspects of professional training, such as guidance in classroom management, self-efficacy, or emotional management, such as burnout syndrome, in terms of student achievement. Wang et al. (2021, p. 6) present a model with a positive psychology approach with several factors influencing L2 and EFL learning: resilience, grit, well-being, academic engagement, enjoyment, loving pedagogy, and emotion-regulation. Derakhshan (2022) reviews the ways of investigating positive psychology (Seligman, 2006) focused on L2 teachers.

Eighth, the discovery of the constant concern about oral communication in L2 from different perspectives stands out from this study. Regarding orality, Bielak (2022) takes an interdisciplinary approach to both the affective trait of emotionality and the attitudinal, specifically anxiety (FLA) and enjoyment (FLE), in relation to speech fluency. It is concluded that L2 teachers use emotional impact and take care of

the emotional atmosphere in the L2 classroom, especially enjoyment. Bui and Huang (2018) conclude that pre-task planning stands out in the foreground and familiarity with the content in the background, since they optimise fluency. The availability of planning time also helps to compensate for a lack of familiarity with the content.

Foster and Wigglesworth (2016) deal with speech accuracy. Lan et al. (2016) study the performance of oral communication using the Second Life virtual community. Cong-Lem (2018) investigates Web-Based Language Learning (WBLL). Baumgarten (2016) advises reconsidering academic English instruction in L2 in non-native Anglophone multilingual contexts, where L2 development appears to be influenced by L2 learners' general language use habits. García-Carmona and Fernández-Corbacho (2022), from an affective perspective, improve the fluency of spelling in students with diversity thanks to dictations combined with music (Fonseca-Mora, 2015).

Suvorov (2015) investigates how images affect the performance of examinees in video-based L2 listening tests. This uses eye-tracking technology to record eye movements during the Video-Based Academic Listening Test (VALT). The study reveals statistically significant differences between fixation rates and total dwell time values. At the same time, there are also studies about other aspects of linguistic communication, such as writing or reading. Keeves and Darmawan (2007) indicate that there are debates about which components are important for reading ability. Hanjani and Li (2014) recommend peer scaffolding for collaborative revision in L2 writing.

Ninth, the tendency to study motivation from an attitudinal and volitional perspective, in relation to performance, is recurrent in L2 studies. Zhang et al. (2022) in a documentation review point out that the approaches in the publications allude to the complex nature of such issues as motivational change, the interaction between instructional approaches and motivation, the role of the sociocultural context in the formation and direction of student motivation, teacher knowledge about motivation, and teacher motivation for language teaching.

Ortega-Rodríguez (2022) discovers that the attitude of the students determines their self-efficacy, and anxiety has a negative impact, but the teacher's attitude is the predictive factor with the most influence on performance. Likewise, the documentation on motivation for language learning among adults is extensive. However, they suggest that motivation based on school stages could still linger. Toyama et al. (2017) conclude that the differentiation between intrinsic and extrinsic motivation may not always be useful for predicting L2 learning. Wichadee and Pattanapichet (2018) deduced that the experimental group obtained higher scores and that the motivation of the students was much higher than that of the control group. In the same way, the students revealed that they had a positive attitude towards the *Kahoot* application, a digital game, aimed at learning a foreign language. In the same way, the performance of the tasks is contrasted with contents actively generated by

the students in contrast to the teachers, manifesting higher performance in the former (Lambert et al., 2017).

Tenth, regarding language performance, it has been discovered in this study that it is a recurring trend. According to Sung-Wook (2022), in the observational research that he carried out, the author detected that most of the types of educational performance language that the expert had previously formulated had manifested themselves. This author encourages more research into this type of performance language in follow-up studies.

## Conclusions

The ten recurring trends (components) are summarised, as seen in Table 2, along with the emerging derivations (subcomponents) concerning the investigation of performance in L2.

First, effective L2 programs, whether bilingual (such as CLIL) or multilingual, must be implemented and tested.

Second, the importance of evaluation to measure performance. In this way, more instruments are created and validated to measure and evaluate the performance of L2.

Third, from the cognitive point of view, the impact of memory and rationing on L2 learning performance is analysed.

Fourth, the theme of learning styles is considered within the didactic context of learning strategies in contrast to other factors that affect performance.

Fifth, it investigates from the communicative and psychological perspective of education how both the will to communicate and personality affect performance in L2 in unfamiliar contexts, as well as emotions and affectivity.

Sixth, the performance and efficiency of digital devices in relation to L2 are studied at a time of rising digital convergence.

Seven, professional management behaviour and external actions subject to the teacher's role arouse interest as factors that contribute to student performance in their intervention in the classroom. These aspects consist of the use of gestural rhythm, orientation in classroom management, self-efficacy, and burnout.

Eighth, the study of the performance of orality predominates over writing and reading in L2. It is studied from different perspectives: emotionality, technology, multilingualism, or even interdisciplinary. It attends to different aspects of the speech act, for example, precision and fluency.

Ninth, the studies on motivation are lengthy, reflecting their complexity. Although the motivation of the elderly is extensive, it can nevertheless be extended in the studies of school levels. Technology is accepted by students and is shown as a motivating factor.

Tenth, studies on the specific language of performance, which manifests itself as a constant trend, are shown to be expanding.

Table 2  
*Research Trending Topics*

Components	Subcomponents
Language learning program.	Assess of effectivity belonging to L2 bilingual or multilingual programs
Assessment of L2	Concrete tools to measure performance
Cognitive approach for L2	Impact of memory and rationing on L2
Teaching strategies for L2	Learning styles combined with other factors related to performance
Communicative and psychological approach	How the will to communicate and personality affect performance in L2
Digital devices for L2.	Performance and efficiency of digital devices in relation to L2
Influence of teacher action for L2	Professional management behaviour and external actions subject to the teacher's
Enjoyment and speaking performance of L2	Research on performance of orality predominates over writing and reading
Motivation for L2	Motivation at the school level in relation to performance still needs to be further investigated
Performance language	The specific language of performance is expanding.

Source: own elaboration

Compared to the previous decade, in the period 2012-2022, as it can be seen in Table 3, interdisciplinary approaches to variables are emerging, the first indication of complexity, in addition to the study of emerging technologies such as AI. If possible, it has been discovered that most of the studies focus on English as L2, on young adults (specifically, university students), and to a lesser extent on young people (secondary level). The samples are not large; however, we found a second indication of complexity in the research design, since two or even three quantitative data collection tools were combined.

Few studies have been found on language learning models, language policy, or the economy. However, studies in the last decade of learning tasks have been frequent.

In addition, with less representation in WOS and ERIC, there has been a debate that has been open for two decades with other contextual parameters about economic factors and language policy. For example, the literacy of immigrants as a factor of social and economic interest (Demkura, 2021) or the formal programming of a second language in institutions with a view to obtaining employment, especially in the professional framework of international mobility.



Table 3  
*Emerging Trending Topics*

Emerging Trending Topics
Interdisciplinary approaches to variables belonging to different disciplines
Research on advanced technology (as IA)
Focus on English as L2 related to young adults
Complexity in research design because of combination of two or three quantitative research tools

Source: own elaboration

So, in this investigation, the second intention and the second research question are also answered, since the emerging topics for this field are revealed, giving advances due to a greater thematic specification or in terms of new combinations between variables or combining statistical tests with neurological tests.

The limitation of this study is that a tasting of 10 items is focused on discovering 10 main trends. In prospective, it should be combined with a subsequent bibliographic systematic review that shows the range of open topics in the last decade, giving a greater global vision of the object of study and promoting other studies.

Finally, it is said that human performance is becoming a science in itself, encompassing the multidisciplinary interests of the arts, business, education, medicine, science, and sport. Within this, L2 performance studies is a still-expanding area of study that offers challenges to researchers thanks to the complexity of variables and the digital transformation of teaching.

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# Second Language Word Processing in Sentence Contexts: Pre-Lexical Prediction Versus Post-Lexical Integration

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**Abstract.** This study investigated the effects of sentence contexts on the second language (L2) word recognition process. It aims at finding whether second language (L2) learners of English perform similar to English native speakers in terms of using the sentence context to predict upcoming word in their L2. A group of L2 participants and a control group of native speakers (L1) participants performed a cross-modal priming task in which they were asked to make a lexical decision on a visually presented word while listening to a semantically related or non-related English sentence. The test was conducted to determine whether both groups of participants were able to predict an upcoming word based on the context of the preceding sentence that is auditorily presented. The study is conducted using PsychoPy software whereas the data was analyzed using linear-mixed effects modeling in RStudio software. The results showed that the L1 speakers were able to predict an upcoming word based on the context of the preceding sentence. That is, a significantly faster recognition of the related word was observed compared to the less related words. On other hand, the English second language participants were not as able to predict an upcoming word as quickly as the English native speaker participants were. However, the L2 participants showed post-access lexical processing or what is called an integrating process of the presented word to the previous sentence context. That is, an effect of the sentence context was observed with L2 participants, yet only after reading the presented word, they decide whether it is appropriate to the preceding sentence context or not.

**Keywords:** *second language, word prediction, sentence context, lexical processing.*

**Курбі Есса. Перероблення слів другою мовою в контексті речення: Пре-лексичне прогнозування чи пост-лексична інтеграція.**

**Анотація.** Дослідження вивчає вплив контексту речення на процес розпізнавання слів другою мовою (L2). Воно має на меті з'ясувати, чи можуть студенти, які вивчають англійську мову як другу, використовувати контекст речення для передбачення майбутнього слова в їхній L2. Група учасників L2 та контрольна група носіїв мови L1 виконували крос-модальне завдання, в якому їх просили прийняти лексичне рішення щодо візуально представленого слова під час прослуховування семантично пов'язаного або непов'язаного англійського речення. Тест проводився для того, щоб визначити, чи здатні обидві групи учасників передбачити наступне слово на основі контексту попереднього речення, сприйнятого на слух. Дослідження проводили за допомогою програмного забезпечення PsychoPy, а дані аналізували за допомогою моделювання лінійно-змішаних ефектів у програмному забезпеченні RStudio. Результати засвідчили, що носії L1 здатні передбачити наступне слово

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на основі контексту попереднього речення. Тобто, спостерігалось значно швидше розпізнавання пов'язаного слова порівняно з менш пов'язаними словами. З іншого боку, учасники, для яких англійська була другою мовою, не змогли передбачити наступне слово так швидко, як учасники, для яких англійська була рідною мовою. Однак учасники з L2 продемонстрували доступ після лексичного перероблення, або те, що називають процесом інтеграції пред'явленого слова в контекст попереднього речення. Інакше кажучи, в учасників L2 спостережено ефект контексту речення, але тільки після прочитання пред'явленого слова вони вирішували, чи інтегровано воно до контексту попереднього речення чи ні.

*Ключові слова:* друга мова, прогнозування слів, контекст речення, лексичне перероблення.

## Introduction

The effects of context on word recognition have been a recent topic of investigation in the field of psycholinguistics, where ample evidence has suggested a facilitative effect of the prior context on upcoming word recognition in either the native language (L1) or the second language (L2) (Batel, 2020; Boston et al., 2008; Demberg & Keller, 2008; Hale, 2001; Levy, 2008; Linzen & Jaeger, 2015). Faster reaction times to plausible word continuation in a given sentence compared with low-cloze probability word continuation have been shown to indicate a facilitative effect of the context of sentences (e.g., Arnon & Snider, 2010; Traxler & Foss, 2000) in different behavioral experiments and event-related potential (ERP) studies (e.g., DeLong et al., 2005; Kutas & Federmeier, 2011), where a reduced plausibility amplitude of N400 was observed in a given sentence. The same effect was observed in eye-tracking studies in which the participants fixated their sight less on plausible word continuation (Rayner et al., 2001; Boston et al., 2008; Demberg & Keller, 2008; Demberg et al., 2013; Smith & Levy, 2013; Staub, 2015). For example, eye-tracking studies (e.g., Altmann & Kamide, 1999) have found that readers spent less time fixating on words with the high cloze probability (HCP) than on words with low cloze probability. Cloze probability is a measurement of a word that is the best fit in the context of a given sentence, expressed as the percentage of subjects who offer that word as a continuation of the context of a given sentence (Block & Baldwin, 2010).

With respect to the effects of context on word processing, three different models have been proposed to offer different explanations of the underlying cognitive process that leads to the facilitative effect of word recognition based on context. First, the serial model assumes that only the word candidate with the HCP is the first word to be predicted by the comprehender. Only if this word candidate is not supported by a given context does the comprehender then turn to the word candidate with the next HCP (MCP) (Van Petten & Luka, 2012, cited in Kuperberg & Jaeger, 2016). Second, in the parallel model, all plausible lexical candidates are computed, considered, and activated in varying degrees of cloze probability. The word candidate with the HCP has a higher threshold compared with the word candidate with the MCP. Therefore, the MCP is also activated, but with a lower threshold compared with the word with the HCP (DeLong et al., 2005; Wlotko & Federmeier, 2012; Staub et al., 2015, as in Kuperberg & Jaeger, 2016). In other words, the serial model assumes that the

comprehender predicts only one word candidate at a time, while the parallel model assumes that the comprehender activates all plausible word candidates at the same time in varying degrees.

The third is the bottom-up processing model, which assumes that only after low-level information is activated by the input is the target word candidate or candidates activated to match the bottom-up input (e.g., Jackendoff & Jackendoff, 2002; Traxler & Foss, 2000). In this model, a large number of plausible word candidates fit a specific sentence context, and predictions can be made of a large number of words prior to encountering them, such that it is a needless waste of cognitive resources (e.g., Forster, 1981; Van Petten & Luka, 2012). Thus, this model suggests the post-access integration of a word into the prior context. Hence, the fast recognition of a plausible word candidate is the result of the easy integration of this word into the prior context rather than the prior activation of this candidate word (Libben & Titone, 2009). In this case, all plausible word candidates may not vary from each other in terms of recognition times, yet each may be recognized more quickly than low-cloze probability word continuations.

## Second Language Studies

With respect to the L2 context-based word recognition process, previous studies have found conflicting results. Some previous studies found a facilitative effect of context on word recognition time (e.g., Ito et al., 2017), which was longer compared with L1 participants. Other studies (e.g., Martin et al., 2013) did not find a facilitative effect of a semantically high-constraint context on L2 word recognition time compared with a semantically low-constraint context.

Libben and Titone's (2009) eye-tracking study found that French–English bilingual speaker participants showed shorter gaze times on cognate words (i.e., words of similar spelling and meaning in both languages, such as *piano*) compared with the control words (i.e., words that had different spellings and meanings in the two languages) in early eye-tracking measurements (i.e., first fixation duration, first pass gaze duration, and proportion of skipped targets when presented in a semantically high-constraint sentence context). In contrast, cross-language homograph words (e.g., *coin*, [corner in French]) took longer gaze times compared with the control words in the early eye-tracking measurement. However, in the late eye-tracking measurement (i.e., go-past time and total reading time), both homographs and cognates took times that were comparable with the control words in semantically high-constraint sentence contexts. Libben and Titone (2009) interpreted the results of the late effect of sentence context on L2 word recognition as the post-access integration of a word into a prior context that “reflect[ed] comprehension processes subsequent to lexical access” (p. 387). In other words, the semantically high-constraint sentence context did not affect the process of cognate words, which was expected to take shorter processing times than control words, or the processing of homograph words, which was expected to take longer processing times than control words, until a later stage of processing, when the effects of rich semantic

context sentences became evident. These results indicated the presence of a process of word integration into the prior context, which supports the bottom-up processing hypothesis concerning the post-access integration of a given word based on the sentence context.

In line with these results, Martin et al.'s (2013) study showed the effects of semantically rich sentence contexts on L1 words, but not on L2 words during an Event-related Potential (ERP) experiment. Native speakers of English and native speakers of Spanish, who were also advanced L2 English speakers, performed a passive sentence-reading task in English. The sentences were either semantically high-constraint or low-constraint, and critical words were preceded by either the article *an* (e.g., *She has a nice voice and always wanted to be an artist*) or the article *a* (e.g., *She has a nice voice and always wanted to be a singer*). The N400 amplitude was used in these articles to observe differences in amplitude resulting from the expected upcoming noun (e.g., the more plausible probability “*singer*” vs. the less plausible “*artist*”) in a given sentence context. The results showed the predicted effect/behavior (modulated by the lower N400 amplitude) in the L1 English speakers on the article preceding the more plausible noun (i.e., *a* in “a singer”) and on the noun itself (i.e., “singer”) compared with the article and the noun that were less plausible (i.e., “artist”). However, a non-significant difference was observed between the L2 participants in either the articles or the nouns following them. The study suggested that the lack of an amplitude difference of N400 shown by L2 speakers could have been due to the slower processing of upcoming words in the L2 sentence context. Conversely, this might indicate that the L2 participants adopted an integration process to semantically connect any given word to the preceding sentence. This post-access integration, which was referred to as L2 “passive integration” by Martin et al. (2013, p. 584), was also observed by Ito et al. (2017), who found that L2 speakers did not show larger N400 amplitudes regarding a more plausible noun continuation compared with a less plausible noun continuation in a given sentence context, whereas L1 participants showed a larger N400 effect on the less plausible word. However, when the time window was extended beyond the 400-msec timeframe, both L1 and L2 speakers showed a lower negativity amplitude in the more plausible word continuation, which indicated the facilitative effect of the sentence context, compared with the less plausible word continuation.

The results of these studies for L2 participants support the bottom-up hypothesis of context-based L2 word processing. That is, the L2 participants did not indicate a pre-access prediction based on the semantic constraint of the preceding sentence context. This result did not eliminate the effect of semantically high-constraint sentences on the L2 word recognition process because easier processing of a more plausible word continuation was observed in an extended timeframe (Ito et al., 2017). These previous studies showed a different interaction between L2 and L1 word recognition regarding the effect of sentence context. However, these studies did not focus on a mechanism for predicting L2 words.

Therefore, the present study explored the effects of sentence context on L2 word recognition to determine whether a prediction process is employed by L2 speakers.

The aim was not to test the effect of sentence context on L2 words per se, but to investigate whether L2 speakers, similar to L1 speakers, could predict upcoming words or whether they would use a bottom-up (post-access integration) process after reading or listening to a given sentence context. In addition, as noted in the preceding review of the results of previous studies on L2 speakers, the effects of semantically high-constraint sentence contexts have been observed in several studies despite the slow recognition time of L2 speakers. However, previous findings regarding slow recognition time neither support nor reject a prediction mechanism that might be employed by L2 speakers. Finally, by integrating visual and auditory modalities, the present study applied a cross-modal priming modality paradigm to elicit results. In this task, the participants were visually presented with a single word while listening to a sentence; they had to make a lexical decision on whether the visually presented string of letters was a word or not. The effect of the sentence context is apparent when the more plausible word (based on its cloze probability ranking in relation to the given context) is recognized more quickly than the low-cloze probability word (Bishop, 2012). The cross-modal priming paradigm has been used since the late 1970s (e.g., Holcomb & Anderson, 1993; Onifer & Swinney, 1981; Swinney et al., 1979; Tabossi, 1988) because it provides a mechanism that allows for capturing the effect of the sentence semantics on a target word during ongoing sentence comprehension (Swinney et al., 1979). It is also one of the few tasks that “can measure moment-to-moment semantic processing while providing only minimal interference with normal ongoing comprehension processes” (Swinney et al., 1979, p. 161).

## **The Present Study**

### **Study Question**

The goal of the present study was to investigate whether L2 speakers showed signs of predicting an upcoming word based on a given sentence context. A group of 36 English L2 speakers and a control group of 36 L1 English speakers participated in this study. Both groups performed a cross-modal priming task in which they were visually presented with a word while listening to an English sentence that was either semantically plausible or low-cloze probability in relation to a given word. They then made a lexical decision on the visually presented word regarding whether it was a word in English or not. This study hypothesized that the stronger the relationship between a word and a given sentence, the faster the recognition time. The main research question (RQ) asked whether a biased sentence context led L1 and L2 participants to predict the upcoming word prior to encountering it.

RQ1: Is there a sentence context-based prediction of an upcoming word in L1 and L2?

It was hypothesized that L1 speakers, in general, would show faster recognition times compared with L2 speakers. It was also expected that the native speaker participants would perform context-based predictions of an upcoming word as an

effect of the sentence context. However, in this study, the L2 speakers were not expected to show this predictability, but they were expected to perform a post-access integration process after reading the given L2 word.

## Method

### Participants

The study sample consisted of 72 participants who were divided equally into two language groups: the English L1 speaker group (36 participants) and the English L2 speaker group (36 participants). All participants were compensated for their participation in this study. To reduce variability, the native language of all L2 participants was Arabic. All L2 participants were advanced-level English as a second language (ESL) learners in the fourth year of their academic program, which was the final stage of their studies at Najran University, Saudi Arabia. In addition, the L2 participants completed a self-assessed proficiency rating questionnaire in which they were asked to self-assess their L2 English proficiency in reading, speaking, writing, and listening on a 10-point scale.

Table 1

*Self-Assessed Proficiency Ratings of the L2 English Participants (N = 36) on a 10-Point Scale*

L2 Skills	English (L2)
Listening	7.5
Speaking	7
Reading	8
Writing	6.5

Self-rating has been widely used as a criterion for selecting L2 participants in the past (e.g., Schwartz & Kroll, 2006). The participants' ages ranged from 23 to 27 years old; 17 were females and 19 were males. The native English speakers were recruited using the MTurk platform (a global online platform used to recruit participants for scientific studies) based on their answers to a pre-study survey related to their native languages, ages, and country of residence. The participants who indicated that they were monolingual native speakers of American English and whose ages ranged from 22 to 28 years old, which matched the age range of the L2 participants, were asked to participate in this study. Eight participants were excluded because they indicated that they spoke a second language in addition to their L1 of English. These participants were excluded from the final sample of 72 participants.

## Materials

The materials consisted of 36 experimental sentences and 20 filler sentences, and all created with a software called PsychoPy that records reaction time in millisecond. The experimental sentences were equally divided into three categories, as follows:

### 1a. Sentences with the high cloze probability (HCP) target words (in brackets)

- (1) *Emily walked to the bakery in the downtown area to get some (bread) sandwich for dinner.*

### 1b. Sentences with the Medium-cloze probability (MCP) words

- (2) *Emily walked to the bakery in the downtown area to get some (soup) sandwiches for dinner.*

### 1c. Sentences with the Low-cloze probability (LCP) words

- (3) *Emily walked to the bakery in the downtown area to get some (cloths)sandwiches for dinner.*

Table 2

*An Example of the Experiment Sentences and the Target Words for Lexical Decision*

Sentence Context	High-cloze prob.	Medium-cloze prob.	Low-cloze prob.
Emily walked to the bakery in the downtown area to get some* sandwiches for dinner.	(bread	soup	cloths)

\* The time when the target word appears on the screen for lexical decision.

To determine the cloze probability of the experimental words, a plausibility ranking survey was administered by a group of 10 English native speakers who were different from those who participated in this study. These L1 participants worked as judges who were recruited online using Mechanical Turk webpage where each one was asked to write the first and then second word that comes to mind as a continuation when encountering a blank in the given sentence (i.e., the blank represents the position of the critical word). They were also asked to write a third word that is less likely to be a continuation of the given sentence. This third word represents the low-cloze probability.

Based on these judges' word choices, the word that receives the highest percentage was used as the high-cloze probability word followed by the word that received the next highest percentage for each sentence. The same was done with the

word with the low-cloze probability where the word that was most frequently written by these judges as a word that is less likely to be a plausible word continuation was used to represent the low-cloze probability word.

The sentences consisted of 10–25 words (average = 17.5 words), and all critical words were nouns. Because the experiment sentences were presented auditorily, a native speaker was recruited to record them in normally paced speech. One-third of the experimental sentences included words in the HCP category (e.g., sentence 1a above), one-third consisted of sentences that were presented with words in the MCP category (e.g., sentence 1b above), and one-third of the sentences included words in the low-cloze probability word category (e.g., sentence 1c above).

## Procedure

The participants were required to read the consent form on the screen and sign it by pressing a key on their keyboard before they started the experiment. Each participant performed a cross-modal priming paradigm using the web-based platform Pavlovia (PsychoPy software, <https://www.psychopy.org/>). Through this platform, the participants were provided with a link through which they could access and perform the experiment online. The results were synchronously sent and recorded in the experimenter's account.

In this task, the participants were required to listen carefully to a recorded sentence. They were told that a string of letters would appear at the center of the screen while they were listening. The participants had to decide whether the presented string of letters was a word or a non-word in English (i.e., a lexical decision) by pressing a designated key on the keyboard as quickly as possible (i.e., the right *SHIFT* key for a word and the left *SHIFT* key for a non-word). The string of letters (e.g., the critical word *bread* in 1a) was presented visually on the offset (i.e., at the end) of the word that preceded the designated position of the critical word in the sentence. For example, in the sentence “*Emily walked to the bakery in the downtown area to get some sandwich for dinner,*” the critical word *bread* (the HCP in this sentence) was presented at the offset (i.e., at the end) of the word *some*, which preceded the word *sandwich* (i.e., the word *sandwich* was put in the position of the word *bread*). The participants were required to listen carefully to the sentence until a word was visually presented on the screen. At that moment, they were required to decide whether the visually presented string of letters was a word or a non-word in English by pressing either the right *SHIFT* key (for a word) or the left *SHIFT* key (for a non-word) on their keyboard. The same was done in response to the MCP word (i.e., *soup* in this sentence) and the low-cloze probability word (i.e., *clothes*). The visual stimuli (i.e., the string of letters) remained on the screen for three seconds before they disappeared. If a participant did not make a lexical decision by pressing on a designated key within this timeframe, their answer was discarded, and it was not included in the data analysis.

The participants were also asked a True & False (T/F) comprehension question immediately after each sentence. This step was included to ensure that the

participants were paying attention and carefully listening to the recorded sentences. The participants were informed that the T/F questions were about information that was given in the recorded sentence prior to the visually presented string of letters (i.e., word vs. non-word stimuli) about which they had to make a lexical decision. This made it easier for the participants to focus on the visual string of letters when it was presented on the screen before making a correct lexical decision. Twenty sentences were filler sentences in which the presented strings of letters were non-words. There were 36 experimental sentences. In addition, the experimental sentences were counterbalanced across the participants so that no single participant worked on the same sentence more than once. Finally, the experiment started with 10 practice trials to ensure that the participants were familiar with the experimental procedure.

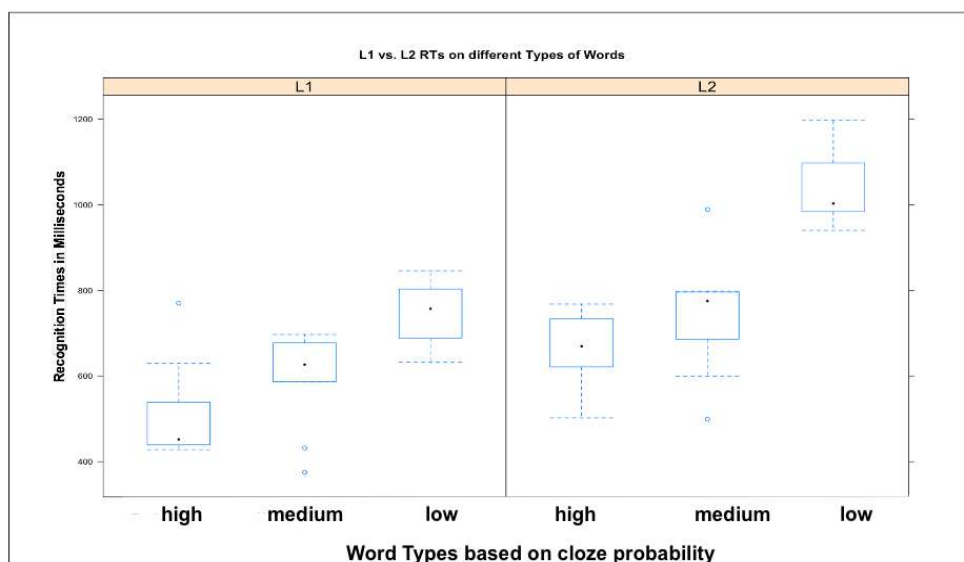
## Data Analysis

The data were analyzed using a two-way mixed Analysis of Variance (ANOVA), where recognition time (RT) was the dependent factor, and word type (HCP, MCP, and LCP words) and language group (L1 and L2 speakers) were the independent factors. The overall error rate of word/non-word lexical decisions when a participant checked a word as a non-word was less than 4%, which was not included in the data analysis.

The results showed a significant effect of word type ( $F(2.66) = 68.91, p < .001, \eta^2 = .67$ ) and of language group ( $F(1.66) = 81.64, p < .001, \eta^2 = .55$ ). In addition, there was a significant interaction between word type and language group ( $F(2.66) = 4.144, p = .020, \eta^2 = .11$ ), indicating that the two language groups had different results for word type. Based on this result, a post-hoc multiple comparison analysis was conducted by language group (L1 vs. L2) to determine each group's performance on each word type.

### Figure 1

*Recognition Times for Types of Words by L1 and L2 Participants*





The post-hoc results showed that the L1 participants had significantly faster recognition times ( $p = .0306$ ) for the HCP words compared with the MCP words (high-cloze probability < Medium-cloze probability), and the RT for the words of HCP was significantly faster ( $p < .0001$ ) than the RT of the low-cloze probability words (high-cloze probability < low-cloze probability). In addition, the RT for MCP words was significantly faster ( $p = .0008$ ) than the RT for low-cloze probability words (medium-cloze probability < low-cloze probability).

Table 3  
*Means of Recognition Times in Milliseconds*

Language	High-Cloze Probability (HCP)	Medium-Cloze Probability (MCP)	Low-Cloze probability (LCP)
L1	503	602	750
L2	669	746	1038

In contrast, the post-hoc results showed that the L2 participants had non-significant recognition times ( $p > .05$ ) for HCP words than the RT of MCP words (i.e., high-cloze probability = medium-cloze probability). However, the RT for HCP words was significantly faster ( $p < .0001$ ) than the RT for the low-cloze probability words (HCP < LCP). Also, the RT for the MCP words was significantly faster ( $p < .0001$ ) than the RT for the low-cloze probability words (MCP < LCP).

## Discussion

The present study investigated whether L1 and L2 speakers predicted upcoming words based on a given sentence context. The effects of prior sentence context on upcoming word recognition were assessed according to three models. The first one was the serial model, which suggests that only a word with the HCP (based on a biased sentence context) is activated. The second hypothesis was the parallel model, which suggests that all plausible lexical candidates become active but to varying degrees, based on their cloze probability level. The third hypothesis was the bottom-up processing model, which suggested the ease of integration of a plausible word into the prior context rather than the pre-lexical activation of a target word. Therefore, based on the bottom-up model, a plausible HCP word is not expected to be recognized significantly faster than the MCP word because both words are highly congruent. However, a slower recognition time of a less congruent word was expected because it could not be plausibly integrated into the preceding context.

First, the results showed the facilitative effect of sentence constraint on word recognition in both L1 and L2 participants. low-cloze probability words were recognized significantly more slowly compared with either of the two more plausible words (i.e., the HCP word and the MCP word). In other words, the sentence context led both the L1 and L2 participants to recognize the plausible target word more

quickly when it was an appropriate continuation of a given sentence. This result is in line with previous studies that also found a facilitative effect of semantically biased sentence context on word recognition in both L1 (e.g., Altmann & Kamide, 1999; Kuperberg & Jaeger, 2015) and L2 (e.g., Batel, 2020; Kaan, 2014).

The L1 results showed a significantly faster recognition time for the HCP words compared with the MCP and LCP words. In addition, the L1 participants showed a significantly faster recognition time for MCP words compared with LCP words. The L1 participants' hierarchy-based processing of words indicated a prediction pattern that was motivated by the effect of the preceding context. This result suggests that prediction processing occurred prior to encountering the target word, which is compatible with previous studies (Boston et al., 2008; Demberg & Keller, 2008; Demberg et al., 2013; Smith & Levy, 2013; Arnon & Snider, 2010) that found recognition time to be correlated with surprisal as a result of more vs. less predictable words. Hence, words that elicited faster recognition times (i.e., HCP words) reached higher levels of activation compared with words that elicited slower recognition times (i.e., MCP words and LCP words). These results provide evidence that prediction is graded in nature and therefore can be interpreted by the parallel model, in which all possible word candidates are considered to varying degrees based on their cloze probabilities. This finding is based on the significant results for not only HCP words and MCP words but also MCP words and LCP words. That is, if the serial model were used to interpret the results, the difference between the MCP words and LCP words would not be significant because the cognitive process would only activate HCP words and exclude any other word candidates, regardless of their cloze probability (or plausibility) status.

However, the results for the L2 participants differed only slightly from those for the L1 participants. The L2 group showed a non-significant difference in recognition time between HCP words and MCP words. However, the L2 results showed a significant difference between MCP words and low-cloze probability words. In addition, the L2 participants showed a significant difference between HCP words and LCP words (see Figure 1).

Table 4

*Results for the L2 Group Regarding Types of Words*

High-cloze probability words = Medium-cloze probability words  
 High-cloze probability words < Low-cloze probability words  
 Medium-cloze probability words < Low-cloze probability words

These results for the L2 participants showed that the effect of the sentence context was not significantly different on HCP words and MCP words. This finding led to the interpretation that the L2 participants, although they showed an effect of the sentence context on slower recognition times for low-cloze probability words, did not conduct a context-based prediction process. In other words, the sentence context did

not lead to faster RTs for HCP words than for MCP words, in contrast to the L1 participants. However, both language groups showed significantly slower recognition times for low-cloze probability words, which indicated that they employed the sentence context. Thus, the results for the L2 participants could be interpreted by the bottom-up hypothesis (e.g., Jackendoff & Jackendoff, 2002; Traxler & Foss, 2000), in which a word was integrated into the preceding context after being encountered, but there was no sign of pre-lexical prediction. The large number of plausible word candidates that could fit into the given context would make it difficult for L2 speakers to make pre-lexical predictions. Thus, the bottom-up hypothesis suggests the post-access integration of a word into the prior context. Hence, the fast recognition time for a plausible word candidate resulted from the ease of integration of this word into the prior context rather than its prior activation (Libben & Titone, 2009).

## Conclusion

This study examined L2 and L1 speakers' processing of words in English sentence contexts. It was based on three hypotheses regarding whether L2 and L1 speakers could predict an upcoming word based on the preceding context. The first hypothesis was the serial model, the second was the parallel model, and the third was the bottom-up model. The results showed that L1 speakers were able to predict an upcoming word based on the given sentence context, which was compatible with the serial model hypothesis. However, although the L2 speakers showed faster RTs of HCP words and MCP words compared LCP words, they showed no significant differences between HCP words and MCP words, indicating that there was no effect of predictability on these words. The results for the L2 participants could be interpreted according to the bottom-up model, in which ease of integration occurred after the target word was encountered. That is, words in the same category (e.g., food, drinks, transportation, etc.) were semantically supported by the preceding sentence context. Although this process facilitated the integration of these category-related words, it did not lead to the pre-lexical prediction of specific words in this category, which was similar to the processing shown by the L1 participants.

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# Language Acquisition by Roma-Slovak Bilingual Children over Time and by Three Types of Roma Communities

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**Abstract.** This research aims to determine the significance of the progress in the first and second language acquisition by Roma-Slovak bilingual children in their first year of schooling, differentiated by three types of Roma communities (type 1, type 2 and type 3) at the beginning of the school year (test) and the end of the school year (post-test). The partial aim is to analyze the context and relationships of the progress in the first and second language acquisition by Roma children, determined by the type of Roma community in which individual children live. The research set as a whole (n = 68) consists of Roma-Slovak bilingual children with Romani as their native language and Slovak as their second language in their first year of schooling. Subsequently, the research set is differentiated into three groups by the type of Roma community in which the children live, namely: type 1 – municipal and urban concentrations (n = 22); type 2 – settlements located on the outskirts of a city or municipality (n = 23); and type 3 – settlements spatially remote or separated by a natural or artificial barrier (n = 23). We used a standardized research tool, OOS Test – image-vocabulary test (Kondáš, 2010). We conducted the research in two phases, at the beginning of the school year (test) and the end of the school year (post-test). To analyze the data statistically, we used the SPSS 20.0 statistical program. As one of the important findings, this study has shown statistically significant differences between Roma-Slovak bilingual children from type 1, type 2 and type 3 Roma communities in L1 and L2 at the beginning and the end of the school year. Moreover, the research has shown statistically significant differences in the acquisition progress in L1 and L2 between children from the type 1, type 2 and type 3 communities at the given time. The main research problem arising from the findings is that the progress in the first and second language acquisition by Roma-Slovak bilingual children is determined by the type of Roma community in which the Roma children live. Furthermore, the findings show a relationship and connection between the first and second language acquisition development and the type of Roma community in which the children live.

**Keywords:** *Roma, Roma community type, bilingualism, acquisition, Romani, Slovak.*

**Самко Мілан, Росінські Растислав. Оволодіння мовою у часовому розрізі ромсько-словацькими дітьми-білінгвами з трьох ромських спільнот.**

**Анотація.** Метою цього дослідження є визначення значущості прогресу в оволодінні першою та другою мовами ромсько-словацькими двомовними дітьми протягом першого року навчання, диференційованого за трьома типами ромських громад (тип 1, тип 2 та тип 3)

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на початку навчального року (тест) та наприкінці навчального року (пост-тест). Частковою метою є аналіз контексту та взаємозв'язку прогресу в оволодінні ромськими дітьми першою та другою мовами залежно від типу ромської громади, в якій проживають окремі діти. Досліджувана сукупність загалом ( $n = 68$ ) складається з ромсько-словацьких двомовних дітей, для яких ромська мова є рідною, а словацька – другою мовою в перший рік навчання в школі. Згодом досліджувана сукупність була диференційована на три групи за типом ромської громади, в якій проживають діти, а саме: тип 1 – муніципальні та міські поселення ( $n = 22$ ); тип 2 – поселення, розташовані на околиці міста або муніципалітету ( $n = 23$ ); і тип 3 – поселення, просторово віддалені або відокремлені природним або штучним бар'єром ( $n = 23$ ). Ми використовували стандартизований дослідницький інструмент OOS Test – образно-словесний тест (Kondáš, 2010). Дослідження проводилося у два етапи: на початку навчального року (тест) та наприкінці навчального року (пост-тест). Для статистичного аналізу даних ми використовували статистичну програму SPSS 20.0. Одним із важливих результатів дослідження є те, що воно показало статистично значущі відмінності між ромсько-словацькими двомовними дітьми з ромських громад типу 1, типу 2 і типу 3 в мовах L1 і L2 на початку і наприкінці навчального року. Крім того, дослідження показало статистично значущі відмінності в прогресі засвоєння мови на рівнях L1 і L2 між дітьми з громад типу 1, типу 2 і типу 3 на певний момент часу. Основна дослідницька проблема, що впливає з отриманих результатів, полягає в тому, що прогрес в оволодінні першою та другою мовами ромсько-словацькими двомовними дітьми визначається типом ромської громади, в якій проживають ромські діти. Крім того, результати показують взаємозв'язок між розвитком засвоєння першої та другої мов і типом ромської громади, в якій живуть діти.

**Ключові слова:** *роми, тип ромської громади, двомовність, оволодіння, ромська мова, словацька мова.*

## Introduction

Linguistic and non-linguistic factors influence the processes taking place in individual speakers in the community, but also among Roma communities of various types. Communities of the same type are also diverse and differ in many ways. Comparisons between different types of communities and individual language development within one type of community may differ from each other. For example, the volume, intensity and extent of contact with L2 forms one of the factors of contact-induced changes in the bilingual Roma community. Hence, the language situation in Roma communities also varies and requires different ways of research: “Multilingual situations differ in so many ways that each researcher has to decide for himself/herself how to best systematize or organize many obvious differences” (Fishman, 2004, p. 114). From the spatial point of view, this study is based on three types of Roma communities<sup>1</sup> as language communities, with the strategic goal of

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<sup>1</sup> In the 2011 population and housing census in the Slovak Republic, 105,738 inhabitants officially declared their Roma nationality (Stat. Office., Tab. 115). However, unofficial estimates of the number of Roma in Slovakia are significantly higher, for example, based on sociographic mapping and a qualified estimate, the 2013 Atlas of Roma Communities states that there are 402,840 Roma living in Slovakia (Mušinka et al., 2014). 122,518 inhabitants officially declared the Romani language as their native language (Stat. Office., Tab. 156). This means that 19,780 more inhabitants declared the Romani as their native language compared to the inhabitants who declared to be of Roma nationality. There is a total of 803 settlements in cities and municipalities in Slovakia, including 324 settlements on the outskirts of municipalities, 246 settlements inside municipalities and 233 segregated settlements. 95,020 Roma live in settlements

their linguistic characteristics. These communities include: 1. communities concentrated in a municipality [Roma inhabitants living within a municipality but only concentrated in part thereof], 2. communities concentrated on the outskirts of a municipality [Roma inhabitants living concentrated in the outskirts of a municipality] and 3. communities concentrated outside a municipality [Roma inhabitants living in a settlement remote or separated from a municipality by some kind of a barrier]. One of the characteristics of Roma settlements and poverty is the link with social exclusion, including its spatial expression, where part of the Roma living in segregated communities is considered to be the most endangered by poverty and social exclusion (Rusnáková, Rochovská, 2016). Sociocultural and socioeconomic factors with their influence on the acquisition of both languages represent another characteristic of Roma communities. Collins, Toppelberg examined sociocultural and socioeconomic factors as predictors of Spanish and English language skills in Spanish-English bilingual children who speak primarily Spanish at home and are exposed to varying amounts of English. They found that sociocultural variables assumed proficiency in Spanish and socioeconomic variables assumed low to zero knowledge of English (Collins & Toppelberg, 2020). González critically evaluated the literature on sociocultural and socioeconomic factors influencing development in children of linguistic minorities and proposed recommendations to broaden the current understanding of the interaction effects of these factors (González, 2001). Our broadened approach to research into the acquisition of Roma languages in different types of Roma communities can demonstrate different language processes, while contributing to their greater understanding of the subject matter. Although Roma are bilingual in all the countries in which they live, research on bilingualism in the context of SLA (Second Language Acquisition) in language pairs, which include L1–Romani and L2–various languages, is rather rare (Hancock, 2006; 2012). Kyuchukov deals with this issue on an international scale, namely focusing on the linguistic, sociolinguistic, but mainly psycholinguistic aspects of Roma bilingualism (Kyuchukov 2000; 2005; 2014, but also his other works). SLA theories based primarily on behaviorism, language interaction, error analysis between languages, and cognitive perspectives demonstrate that SLA as a complex process is influenced by many social, intercultural, linguistic, and psycholinguistic factors (Song, 2018). In international linguistics, we know a number of first and second language researches with a wider variability of SLA theories, standardized research tools and diverse research methodology with regard to SLA. Long analyzed the methodological problems of SLA research, the role of modified input, and interaction in second language acquisition. Long in this analysis, he perceives input as the language forms used, and interaction as a functions of forms. He perceives this distinction as important on a theoretical level in relation to SLA processes but also on a practical level in relation to efficiency in second language acquisition (Long, 1981).

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on the outskirts of municipalities, 73,920 in segregated settlements and 46,496 in settlements inside municipalities. 187,305 Roma live dispersed among the majority population (Mušinka et al., 2014).



Subsequently, Block critically examined the assumptions underlying the input-action-output model in second language acquisition, and proposed an interdisciplinary approach to SLA research. He argues that the input-action-output approach does not take sociolinguistic considerations into account, and that a sociohistorical and sociolinguistic approach to language is necessary in SLA research, suggesting that the approach to language acquisition needs to be expanded (Block, 2003). Pica analyzed the classroom as a social and linguistic environment in language acquisition and argues that the element of assistance with comprehension is important in language acquisition and its absence reflects the unequal relationship of the participants in the interaction (Pica, 1987). It is clear that there may be significant differences among speakers from these Roma communities in their first year of schooling. These differences in psycholinguistic research provide a source of evidence related to major problems in language acquisition and processing theories and language system architecture (Kidd, 2018).

## Methods

This study theoretically and methodologically applies a sociolinguistic and psycholinguistic approach to research into the acquisition of Roma languages in the context of Roma communities, time and schooling. This research aims to determine the significance of the progress in the first and second language acquisition by Roma-Slovak bilingual children in their first year of schooling, differentiated by three types of Roma communities (type 1, type 2, and type 3) at the beginning of the school year (test) and at the end of the school year (post-test). The partial aim is to analyze the context and relationships of the progress in the first and second language acquisition by Roma children, as determined by the type of Roma community in which individual children live. The research tests the following research question: (RQ) What is the acquisition progress in L1 and L2 in Roma children in their first year of schooling, differentiated by three types of Roma communities (type 1, type 2 and type 3) at the beginning of the school year (Test) and at the end of the school year (Post -test).

## Participants

The research group as a whole (n = 68) consists of Roma children with L1 – Romani and L2–Slovak in their first year of schooling. Subsequently, the research set is differentiated into three groups by the type of Roma settlement in which they live: type 1 – municipal and urban concentrations (n = 22); type 2 – settlements located on the outskirts of a city or municipality (n = 23); and type 3 – settlements spatially remote or separated by a natural or artificial barrier (n = 23).

## **Research Tool**

In the research, we made use of a standardized research tool, the OOS Test - image-vocabulary test (Kondáš, 2010). The OSS test determines children's vocabulary and verbal readiness. The OOS test - image-vocabulary test is one of the psychological tools to examine certain dimension of the child's readiness for school. For our purposes, the test was modified and culturally adapted for Roma children, pairing the Romani–Slovak languages.

## **Test Completion and Scoring**

The standardized O-S-S tool is structured to include 30 colorful images illustrating common or less common objects, animals and activities, which are presented to children on an individual basis. Each child is shown an image and asked a related question: "What is it?" In images 16-21, which illustrate activities, each child is also given an instruction: "Now, tell me what the boy is doing?" Each correct answer is scored with 1 point. Half-point values (.5) can only be assigned in six cases. The maximum score is 30 points. We carried out the testing in the school premises in the presence of a teacher's assistant and recorded it with the informed consent of parents.

## **Statistical Data Analysis**

To analyze the data statistically, we made use of the SPSS 20.0 statistical program. Due to non-standard distribution of the data, we made use of the Wilcoxon test, a nonparametric version of the t-test for two dependent selections, the Mann-Whitney test and the Kruskal-Wallis test. We accepted a standard significance level of  $\alpha \leq .05$ .

## **Research Implementation Schedule**

### **The First Phase of Research: Test**

We carried out the first phase of the research in September, at the beginning of the school year. We first tested Roma pupils in L2 (Slovak language) with 68 tests. Subsequently, after two weeks, we tested Roma pupils in L1 (Romani language) with 68 tests. In the first phase of the research, we carried out a total of 136 tests.

### **The Second Phase of Research: Post-Test**

We carried out the second phase of the research in June, at the end of the school year. We first tested Roma pupils in L2 (Slovak language) with 68 tests. Subsequently, after two weeks, we tested Roma pupils in L1 (Romani language) with

68 tests. In the second phase of the research, we carried out a total of 136 tests. In both phases of the research, we carried out a total of 272 tests.

## Results

Table 1

*Progress in Noun and Verb Acquisition in Romani L1 and Slovak L2, Type 1*

	Roma children, community 1					
	N	M	SD	SEM	Z	p
Test_L1_Nouns	22	16.41	2.88	.62	-.689	.491
Post-test_L1_Nouns	22	16.64	2.98	.64		
Test_L1_Verbs	22	5.05	.89	.20	-2.460	.014
Post-test_L1_Verbs	22	5.45	.73	.16		
Test_L2_Nouns	22	12.18	4.01	.86	-3.024	.002
Post-test_L2_Nouns	22	13.25	3.59	.77		
Test_L2_Verbs	22	3.55	1.65	.35	-2.032	.042
Post-test_L2_Verbs	22	4.09	1.71	.37		

When comparing the language skills of Roma children in the type 1 community achieved in the September test and the June post-test, we found a statistically significant progress in correctly marked verbs in Romani ( $Z = -2.460$ ;  $p = .014$ ) and in Slovak ( $Z = -2.032$ ;  $p = .042$ ), nouns in the Slovak ( $Z = -3.024$ ;  $p = .002$ ). In Romani, the difference represented 0.4 points for verbs and .23 points for nouns. In Slovak, the difference represented 1.07 points for nouns and .54 points for verbs. Children from the Roma community type 1 achieved higher success in L1 than in L2 in both the first and the second measurement. At the same time, children from Roma community type 1 achieved lower success in both L1 and L2 in verbs than in nouns. In nouns, they made higher acquisition progress in L2 than in L1.

Table 2

*Progress in Noun and Verb Acquisition in Romani L1 and Slovak L2, Type 2*

	Roma children, community 2					
	N	M	SD	SEM	Z	p
Test_L1_Nouns	23	12.52	3.24	.68	-3.157	.002
Post-test_L1_Nouns	23	14.41	3.62	.76		
Test_L1_Verbs	23	3.61	1.70	.35	-2.862	.004
Post-test_L1_Verbs	23	4.74	1.45	.30		
Test_L2_Nouns	23	7.13	2.39	.50	-3.233	.001
Post-test_L2_Nouns	23	9.02	2.94	.61		
Test_L2_Verbs	23	.96	1.46	.31	-3.188	.001
Post-test_L2_Verbs	23	2.70	2.03	.42		

When comparing the language skills of Roma children in the type 2 community achieved in the September test and the June post-test, we found a statistically significant progress in correctly marked nouns and verbs in both Slovak and Romani languages. The Wilcoxon test values ranged from -2.862 to -3.233. The significance of differences ranged from 0.004 to 0.001. In Romani, the difference represented 1.13 points for verbs and 1.89 points for nouns. In Slovak, the difference represented 1.89 points for nouns and 1.74 points for verbs. Children from the Roma community of type 2 scored higher in L1 than in L2 in both the first and second measurements. At the same time, children from the Roma community of type 2 achieved lower success in both L1 and L2 in verbs than in nouns. In nouns, they made higher acquisition progress in L2 than in L1.

Table 3

*Progress in Noun and Verb Acquisition in Romani L1 and Slovak L2, Type 3*

	<i>Roma Children, Community 3</i>					
	N	M	SD	SEM	Z	p
<i>Test_L1_Nouns</i>	23	10.89	1.69	.35	-2.059	.039
<i>Post-test_L1_Nouns</i>	23	11.50	2.18	.45		
<i>Test_L1_Verbs</i>	23	3.04	1.22	.26	-2.914	.004
<i>Post-test_L1_Verbs</i>	23	3.96	1.67	.35		
<i>Test_L2_Nouns</i>	23	2.98	2.66	.55	-3.462	.001
<i>Post-test_L2_Nouns</i>	23	4.67	2.15	.45		
<i>Test_L2_Verbs</i>	23	.13	.34	.07	-2.694	.007
<i>Post-test_L2_Verbs</i>	23	.91	1.16	.24		

When comparing the language skills of Roma children in the type 3 community achieved in the September test and the June post-test, we found a statistically significant progress in correctly marked nouns in both Slovak and Romani languages. The Wilcoxon test values ranged from -2.059 to -3.462. The significance of differences ranged from 0.039 to 0.001. In Romani, the difference represented 0.92 points for verbs and 0.61 points for nouns. In Slovak, the difference represented 1.69 points for nouns and 0.78 points for verbs. Children from the Roma community of type 3 scored higher in L1 than in L2 in both the first and the second measurement. At the same time, children from Roma community type 3 achieved lower success in both L1 and L2 in verbs than in nouns. In nouns, they made higher acquisition progress in L2 than in L1.

Table 4

*Progress in Noun and Verb Acquisition in Romani L1 and Slovak L2, Summary for Type 1, Type 2, and Type 3*

	Roma children, community 1, 2, 3				Z	p
	N	M	SD	SEM		
Test_L1_Nouns	68	13.23	3.51	.43	-3.799	<.001
Post-test_L1_Nouns	68	14.15	3.62	.44		
Test_L1_Verbs	68	3.88	1.55	.19	-4.650	<.001
Post-test_L1_Verbs	68	4.71	1.47	.18		
Test_L2_Nouns	68	7.36	4.85	.59	-5.516	<.001
Post-test_L2_Nouns	68	8.92	4.56	.55		
Test_L2_Verbs	68	1.51	1.93	.23	-4.555	<.001
Post-test_L2_Verbs	68	2.54	2.11	.26		

When comparing the language skills of Roma children achieved in the September test and the June post-test, we found a statistically significant increase in correctly marked nouns and verbs in both Slovak and Romani languages. The Wilcoxon test values ranged from -3.799 to -5.516. The significance of differences was at the level of  $\alpha \leq .001$ . In Romani, the difference represented .83 points for verbs and .92 points for nouns. In Slovak, the difference represented 1.56 points for nouns and 1.03 points for verbs. In summary, the progress is shown in Fig. 1.

**Figure 1**

*Progress in the Noun and Verb Acquisition by Roma Children, by Community Type*

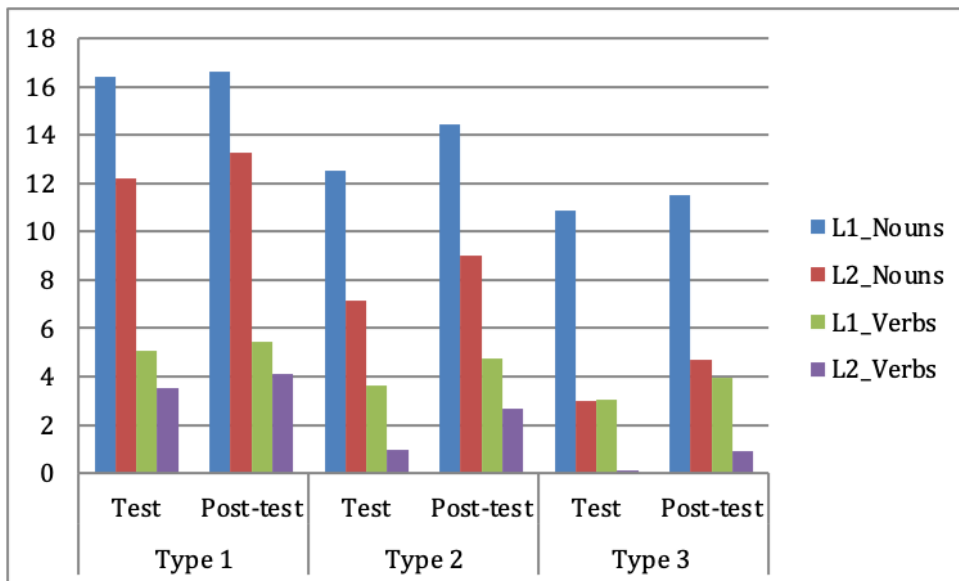


Figure 1 shows statistically significant differences between Roma-Slovak bilingual children from the first, second and third type of Roma communities. This is shown in Graph 1 at L1 and L2 at the beginning of the school year and at the end of the school year. It also shows statistically significant differences in both L1 and L2 acquisition progress between children from Type 1, Type 2 and Type 3 communities at the same time. According to the success rate in the first measurement (test), the second measurement (post-test) in both L1 and L2 for both verbs and nouns, the highest success rate was achieved by children from community type 1, followed by children from community type 2, and the lowest success rate was achieved by children from community type 3.

## Discussion

This research aimed to determine the significance of the progress in the first and second language acquisition by Roma-Slovak bilingual children in their first year of schooling, differentiated by three types of Roma communities (type 1, type 2 and type 3) at the beginning of the school year (test) and at the end of the school year (post-test). The partial aim was to analyze the context and relationships of the progress in the first and second language acquisition by Roma children, as determined by the type of Roma community in which individual children live. It is generally assumed that in the linguistic communication environment in which Roma children from type 1, type 2 and type 3 Roma communities live, Romani language is functionally dominant and used in a wide generational and linguistic contact circle in the given community. At the same time, it is assumed that Romani children from these types of communities primarily speak in Romani language at home and are secondarily exposed to Slovak language input. In the context of the study objectives and the research question, this research showed statistically significant differences between Roma-Slovak bilingual children from the first, second and third types of Roma communities in L1 and L2 in their first year of schooling both at the beginning and at the end of the school year. At the same time, we found statistically significant differences in the L1 and L2 acquisition progress between children from type 1, type 2 and type 3 communities. The findings suggest that the progress in the L1 and L2 acquisition is determined by the type of Roma community in which the children live. These findings can be explained in accordance with the suggestion of this research that children from different types of Roma communities are exposed to different amounts of Romani and Slovak language input. These are verbal manifestations affecting Roma children in both languages, mothers' language oriented at Roma children, direct and indirect language input in the second language acquisition by Roma children, which does not only affect preschool-aged children. Sorenson revealed a complex relationship between the level of education the child's mother achieved, the language in which that education took place, and the language input she provides to her children. With this complexity, she emphasized that monolingual studies on the linguistic input of bilingual children may not offer a sufficiently

different perspective to take into account a higher degree of variability in bilingual situations (Sorenson, 2020). Of course, not only language input plays an important role in the language acquisition (Clark, 2009), but also the language ideologies, approach and attitudes of Roma mothers, families and Roma communities towards languages. This attitude has an impact on the command and use of languages, or the development of Roma - Slovak bilingualism in a Roma child in both home and Roma community environments. Another significant finding of the study is the fact that according to the success rate in the first test at the beginning of the school year (test) and the second test at the end of the school year (post-test) in L1 and L2 in both verbs and nouns, the highest success rate was achieved by children from type 1 community, followed by children from type 2 community and the lowest success rate was achieved by children from type 3 community. At the same time, children from all three communities achieved a higher success rate in L1 than in L2 in both the first and second tests. This finding can possibly be explained by the diversity of Roma communities in the use of the Romani language according to communication situations in terms of the scope and reach of the Romani language network, its limitation to space or use in frequent social spaces according to the child's reach. According to Fishman, language situations differ in many ways, and there are many descriptive and analytical variables that can explain language selection in different situations. "However, it turned out that the usual choice of language is not at all random determined by the current disposition [...], certain communicating classes choose only one language from several theoretically possible languages on certain occasions" (Fishman, 2004, p. 114). Furthermore, the findings show that children from all three communities achieved lower success rate in verbs in both L1 and L2 than in nouns. In the case of nouns, we saw higher acquisition progress in L2 than in L1 in all three types of communities. However, in the case of verbs, we saw a higher acquisition progress in L2 than in L1 in type 1 and type 2 communities, while we saw a higher acquisition progress in L1 than in L2 in type 3 community. This finding can be explained by the influence of school language input in L2 and the language competence of Roma children in both languages, which we do consider as a whole composed of two mono-linguists. "An ideal bi-linguist, but also an ideal a native speaker, whose command of his or her mother tongue is perfect and absolute, is in a way a myth, [...]. Therefore, we should not expect something from bilinguals that does not even exist at the level of mastering a single system" (Štefánik, 2005, p. 103). Subsequently, idiolect as the language of one speaker, individual language competence in Romani and Slovak, which in the analysis can show the context in L1 and L2 language acquisition and processes that may not be strikingly visible in the analysis of a larger language corpus in the context of communities. "An analysis of the development of two linguistic competencies in one person may help us understand to what extent the depth logic of development is determined by the specific grammatical system or the specific way of processing the human language, rather than by the characteristics of the individual or the communicative situation"(Meisel, 2004, p. 260).

## Conclusion

This research aimed to analyze the language acquisition by Roma-Slovak bilingual children with Romani as their native language and Slovak as their second language in their first year of schooling, differentiated by three types of Roma communities at the beginning of the school year (test) and at the end of the school year (post-test). The partial aim of the study was to analyze the context and relationships of the progress in the first and second language acquisition by children, as determined by the type of community in which individual children live. The results of this research provide mainly knowledge about the progress in the language acquisition and their differences determined by three types of Roma communities. As one of the important findings, this study has shown statistically significant differences in L1 and L2 between Roma-Slovak bilingual children from type 1, type 2 and type 3 Roma communities and, at the same time, between the beginning and the end of the school year. Moreover, the research has shown statistically significant differences in the acquisition progress in L1 and L2 between children from the type 1, type 2 and type 3 communities at the given time. According to the success rate in the first test at the beginning of the school year (test) and the second test at the end of the school year (post-test) in L1 and L2 in both verbs and nouns, the highest success rate was achieved by children from type 1 community, followed by children from type 2 community and the lowest success rate was achieved by children from type 3 community. At the same time, children from all three communities achieved a higher success rate in L1 than in L2 in both the first and second tests. Furthermore, the findings show that children from all three communities achieved lower success rate in verbs than in nouns in both L1 and L2. In the case of nouns, we saw higher acquisition progress in L2 than in L1 in all three types of communities. However, in the case of verbs, we saw a higher acquisition progress in L2 than in L1 in type 1 and type 2 communities, while we saw a higher acquisition progress in L1 than in L2 in type 3 community. These findings also indicate that children from different types of Roma communities are exposed to different amounts of Romani and Slovak language input. The findings clearly show that children from different types of Roma communities need different support and different approach to acquire competences in both languages. The main research problem arising from the findings is that the progress in the first and second language acquisition by Roma-Slovak bilingual children is determined by the type of Roma community in which the Roma children live. At the same time, it is a research problem of the relationships and connections between the progress in the first and second language acquisition and the type of Roma community. This study is mainly limited by the non-existence of a standardized research tool to evaluate Roma-Slovak bilingualism and by the fact that the research set is only limited to Roma community types in the region around Spišská Nová Ves. Therefore, the results of this research cannot be considered to apply throughout the entire Roma language community, or to apply for sets of individual types of Roma community. This research primarily raises questions about



the direction of further language research differentiated by the types of Roma communities. These are mainly questions concerning the diversity of factors and predictors in the context of the extent and scope of their fundamental influence on the first and second language acquisition differentiated by the type of Roma communities.

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## Disclosure Statement

No potential conflict of interest was reported by the authors.

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# On the Impact of Mode of Presentation and Age on Parsing Structurally Ambiguous Relative Clauses

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**Abstract.** The relative clause attachment preferences of female Persian learners of English were investigated regarding their age and modes of presentation (online/offline and holistic/segmented). 50 female native speakers of Persian ranging in age from 15 to 25 participated in the study. The instruments used in the present research included two tests of ambiguous sentences: 1) a grammaticality judgment test, and 2) the main test which was presented in three separate forms: a) offline, b) online complete presentation (timed) and c) online segment by segment sentence (self-paced). This study used the method employed by Kim and Christianson (2013) for determining the attachment preferences of the participants. The results revealed that the participants' age affected the attachment preferences significantly in that adolescents had a clear determiner phrase 1 preference. There was also a statistically significant difference among the three modes of presenting the materials. The findings revealed that learners transferred their attachment strategies from their mother tongue to English, which provided support for transfer hypothesis. The research findings on whether L2 learners can achieve native like patterns of ambiguity resolution is still less than conclusive and findings seem to suggest that L2 learners apply parsing strategies which are less automatized than native speakers and even at odds with some studies reporting no transfer of L1 parsing strategies. Language teachers should make their learners cognizant of relative clause attachment preferences in English to avert their transfer of their mother tongue strategies in determining the antecedents of the relative clauses.

**Keywords:** age, attachment preferences, offline presentation, online presentation, Persian.

**Саркгош Мегді, Гаед Рахмат Мегді. Про вплив віку та способу подання на аналіз структурно неоднозначних означальних підрядних речень.**

**Анотація.** У статті досліджено переваги студенток-носіїв перської мови, які вивчають англійську мову, щодо приєднання підрядних означальних речень з урахуванням вікових особливостей та способу подання матеріалу (онлайн/офлайн та цілісний/сегментований). У дослідженні взяло участь 50 жінок-носіїв перської мови віком від 15 до 25 років. Інструменти включали два тести неоднозначних речень: 1) тест на граматичну правильність і 2) основний тест, який був представлений у трьох окремих формах: а) офлайн, б) повна презентація онлайн (із заданим часом) і в) посегментне відтворення речення онлайн (у власному темпі). У цьому дослідженні було використано метод Kim і Christianson (2013) для визначення переваг респонденток у способах приєднання. Результати показали, що вік учасниць суттєво вплинув на їхній вибір, оскільки юнки мали чітко виражену перевагу у виборі фрази 1. Також було виявлено статистично значущу різницю між трьома способами представлення матеріалу. Дані показали, що студентки перенесли свої стратегії приєднання з рідної мови на

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англійську, що підтвердило гіпотезу про ефект наслідування. Результати досліджень щодо того, чи можуть студенти, які вивчають мову L2, досягти моделей вирішення неоднозначності, подібних до рідної мови, все ще не є остаточними. Отримані дані свідчать про те, що студенти, які вивчають мову L2, застосовують менш автоматизовані стратегії синтаксичного аналізу, ніж носії мови, і навіть суперечать деяким дослідженням, в яких повідомляють про відсутність перенесення стратегій синтаксичного аналізу, які використовують у рідній мові L1. Викладачам іноземних мов слід ознайомити своїх студентів з перевагами щодо приєднання підрядних означальних речень в англійській мові, щоб запобігти перенесенню студентами стратегій їхньої рідної мови при визначенні антецедентів у підрядних означальних реченнях.

**Ключові слова:** вік, переваги у приєднанні, офлайн подання, онлайн подання, перська мова, англійська мова.

## Introduction

Ambiguous sentences usually have more than one interpretation. One type is structural ambiguity an example of which is *someone shot the servant of the actress who was on the balcony*. There are two determiner phrases (DPs): *the servant* (DP1) and *the actress* (DP2), followed by a relative clause (RC): *who was on the balcony*, which can modify either *the servant* or *the actress*. Previous psycholinguistic research on such ambiguous sentences has investigated the preferences of native speakers in attaching RC to either DP1 or DP2 in such genitive constructions.

Earlier studies have reported contradictory results. For example, some studies showed that adult native speakers of English preferred to associate the RC with the second DP (Dussias, 2003; Gilboy et al., 1995; Hemforth et al., 2015). A preference for DP1 attachment was also reported for similar genitive constructions in Spanish (Cuetos & Mitchell, 1988). Research findings have confirmed that even the speakers of a single language show variations in their preferences (see, e.g., Dussias, 2003; Fernandez, 1999; Papadopoulou & Clahsen, 2005). A vast majority of studies, however, have explored attachment preferences among English native speakers (e.g., Cuetos & Mitchell, 1988; Dussias, 2003; Fernandez, 2003; Gilboy et al., 1995), and non-English languages (see, e.g., Bidaoui, Foote, & Abunasser, 2016 for attachment preferences in L2 learners of Arabic; Arabmofrad & Marefat, 2008 for RC ambiguity resolution in Persian; Karimi, Samadi, & Babaii, 2021 for the effect of semantic priming on the resolution of ambiguous RCs among Persian learners of English).

The present study focuses on female Persian-speaking English learners who acquired their second language (L2) after puberty. In the previous studies in the Persian context, gender was rarely controlled for and we decided to control gender variable in the present study. Hence, this study zeroed in on female learners of English and their attachment preferences to resolve the conflicts due to the gender factor. In other words, different genders may have different attachment preferences and by focusing on female learners, more conclusive results can be acquired. Besides, a replication study is warranted in the future research on male learners to compare the results and determine if both genders exhibit similar preferences.

The present study investigated RC attachment preferences among female Persian learners of English with regard to two factors: a) age, and b) RC presentation modes. The study investigated whether the age of the learners (adolescents vs. adults) and different modes of presenting the material (i.e., offline vs. online and segmentation vs. holistic) might differently affect the female learners' attachment preferences. Previous research (Arabmofrad & Marefat, 2008; Fernández, 1999) revealed that L2 learners of English produced more high-attachment (DP1) answers than the native speakers. Therefore, this study targeted the interface of RC presentation modes with the age factor and its influence on the attachment preferences among Persian English learners.

Speakers of some languages like Spanish prefer to attach the RC to DP1, while there are speakers of other languages like English, who prefer DP2 attachment. There are still languages like Japanese (Hawkins, 1999) whose speakers do not show any preference for either DP1 or DP2 attachment. A number of studies have examined attachment preferences among L2 learners (see, for example, Bidaoui et al., 2016; Karimi et al., 2021; Marefat & Farzizade, 2018; Marefat & Samadi, 2015; Papadopoulou & Clahsen, 2003). Papadopoulou and Clahsen (2003), for example, investigated RC attachment preferences among three different groups of Greek learners and native speakers. They found that with preposition phrase antecedents, the learners showed similar preferences to the native speakers of Greek, which is low attachment. However, with genitive antecedents, no clear preferences were observed among the learners. The findings disclosed that L2 learners processed ambiguous sentences neither like their L1 nor like Greek native speakers. The authors concluded that the L2 learners tended to rely more "on lexical cues than the native speakers and less on purely structurally-based parsing strategies" (Papadopoulou & Clahsen, 2003, p.502). Bidaoui et al. (2016) investigated RC attachment preferences among Arabic speakers and the L2 learners of Arabic. In the offline task, both native speakers and the learners preferred high attachment, but only the L2 learners of Arabic favored high attachment in the online task. Their findings supported the structurally-based explanations of RC attachment preferences and presented an argument against the claim that L2 learners use non-native-like parsing principles in sentence processing.

In the Persian context and among Persian learners, Arabmofrad and Marefat (2008) aimed to discover how Persian native speakers dealt with RC attachment ambiguities in sentences containing a complex NP followed by RC. They used an online technique to identify the nature of this process. The results revealed that high attachment was the strategy utilized by Persian native speakers for this type of ambiguity. In another study on the Persian learners of English by Karimi et al. (2021), the effect of semantic priming on RC ambiguity resolution was examined. They found that semantic priming impacted the participants' attachment preferences. Their findings were compatible with the Constraint-Based Models of sentence processing, which claim that multiple sources of information, including semantics, are utilized in sentence processing. Marefat and Samadi (2015) attempted to investigate if parsing ambiguous RCs was affected by semantic priming among the Persian learners of English with different proficiencies and working memory loads.

They reported that semantic priming did not influence the antecedent choice but syntactic information did.

In a more recent study in the Persian context, Marefat and Farzizade (2018) attempted to find out if the Persian learners of English could switch to optimal processing strategies and whether working memory capacity contributed to this. They found that the learners utilized the strategies applied by English native speakers, which demonstrated target language-like processing of RCs and the attrition of L1-like parsing processes. Their findings corroborated “skill-through-experience” model adopted by the researchers, who criticized the role of working memory capacity in the parsing of L2. However, high-capacity L2ers' preferences in L1 had attrited (becoming English-like), and low-capacity ones had no preference. They reported that L2 learners did not differentiate between L1 and L2 parsing in RCs.

As the above review makes manifest, no study has examined the effect of age on RC attachment preferences among Persian learners. Nor has any researcher investigated if online vs. offline and segmented vs. holistic presentation of RCs impacts the attachment preferences among Persians. Therefore, in light of the previous findings, the present research answers the following questions.

RQ1: Does age have any significant effect on the attachment preferences of female Persian learners of English?

RQ2: Does online/offline presentation of RCs have any significant effect on the attachment preferences of female Persian learners of English?

RQ3: Does segmented/holistic presentation of RCs have any significant effect on the attachment preferences of female Persian learners of English?

## Method

### Participants

Fifty female native speakers of Persian, who studied in a private language school, participated in this study. Their age ranged from 15 to 25 (Mean = 19; SD = 3.7). Some were high school students and others graduated from different universities. A general proficiency test, namely the Quick Oxford Placemen test, was used to homogenize the participants. The participants were unaware of the purpose of the study. The participants were divided into two groups according to their age, namely, adolescents (n=23) and adults (n=27). In fact, those below 18 were classified as adolescents and those above 18 were categorized as adults. In the present study, we intended to investigate the impact of age on RC attachment preferences, as elucidated in the introduction.

### Instruments

The instruments used in the present research included two tests of ambiguous sentences: 1) a grammaticality judgment test, and 2) the main test, which was

presented in three separate forms: a) offline, b) online complete presentation (timed), and c) online segment by segment sentence presentation (self-paced).

### **Grammaticality Judgment Test**

A grammaticality judgment test consisting of 12 grammatical and ungrammatical sentences was used. The participants were supposed to rate the sentences on a scale from 1 (the least acceptable) to 6 (the most acceptable). The test assessed the participants' familiarity with the sentence structures they used in the main experiment. Hence, any possibility that their lack of grammatical knowledge might oblige them to the selection of an option was excluded. The participants were required to rate the sentence grammaticality from 1 to 6 since due to the multiple choice format of the questions they might have answered the questions by chance. This possibility was, therefore, ruled out.

### **The Main Test**

The main test used in this study was presented in three forms to the participants. Totally, 40 sentences including five practice sentences, 15 experimental sentences, and 20 filler sentences were used in the main phase of the study. All the experimental sentences contained both DP1 and DP2, followed by an RC that referred to both DP1 and DP2. DPs functioned as objects and RCs as subjects. The practice, experimental, and filler sentences were controlled concerning complexity and length and were created by the researchers. The practice sentences acted as a warm up and the experimental sentences were interspersed with filler sentences to prevent strategy use in selecting DPs. Practice, experimental and filler sentence were followed by two choices in order to find out which DP was preferred by the participants. Almost in half of the sentences, the first option referred to DP1, and the other choice represented DP2. Two examples are provided below:

#### **Experimental sentence and the options:**

The doctor recognized the nurse of the pupil who felt very tired.

- A) The nurse felt very tired
- B) The pupil felt very tired

#### **Filler sentence and the options:**

The logic explained during the lecture was quite complicated.

- A) The lecture was quite complicated.
- B) The logic was quite complicated.

### **Procedure**

To address the research questions, a series of experiments on the processing abilities of the participants were designed and implemented. At first, the sentence acceptability judgment test was distributed among adolescents and adults. Each group was tested separately. The sentence acceptability judgment test consisted of 12

sentences that were supposed to be answered in 10 minutes, and the participants were asked to rate the sentences from 1 to 6. Numbers "1" and "2" were interpreted as ungrammatical, and "5" and "6" showed grammaticality. In addition, numbers "3" and "4" were interpreted as either "I don't know", or a haphazard answer. The participants were asked to select the correct number by circling or ticking their choices on the test paper. In the same session, the participants took other tests as explained below.

### **Procedure for Offline Test**

In the main offline experiment, the participants (n=16) began with five practice sentences as a warm-up, and continued with 20 filler and 15 experimental sentences. Each sentence in the test was followed by two options about the truth value of the previous sentence. The participants were asked to select one option in their test papers. Before administering the test, the participants were ensured that there was no time limitation for answering.

### **Procedure for Online Complete Sentence Presentation (Timed)**

The sentences were presented on a laptop screen. In this test, each sentence remained for five seconds on the screen, and sentences were presented on black and white background. One slide was allocated for each sentence from 1 to 35, and their options were presented on a separate slide. The options were piloted before the main experiment, and the decision to devote five seconds to each sentence was made based on the pilot results. The options were presented in the form of statements that showed the truth value of the sentence. The participants (n=17) were asked to answer the questions only by choosing "A" or "B," and then the test taker transferred the answers to a pre-developed answer sheet. This test was employed to determine whether presentation modes (online/offline) significantly affected the attachment preferences of L2 female Persian learners.

### **Procedure for Online Segment-by-Segment Sentence Presentation (Self-Paced)**

In this test, the sentences were presented in segments. The participants (n= 17) were asked to read each segment carefully and move to the next segment by pressing the "Enter" key until they reached the full stop. By pressing the "Enter" key again, they were able to see the options. In this type of online test, there was no time limitation. In order to make the students familiar with the online test, they were asked to answer practice sentences as a warm-up activity. The experimental sentences were interspersed with filler sentences to rule out any possibility that the participants might guess the purpose of the study. In fact, this test intended to determine if sentence segmentation had any significant effect on the participants' attachment preferences.



## Scoring System

### Attachment Preference

This study used the method employed by Kim and Christianson (2013) to determine the attachment preferences of the participants. They assigned zero to DP2 and one to DP1. They added up all the ones and zeroes and divided this number by ambiguous sentences. If the number was more than .5 and close to one, the attachment preference was considered DP1 and if the number was less than .5 and close to zero, the attachment preference was considered DP2. For example, if one participant selected 13 DP1s and 2 DP2s for 15 ambiguous sentences, the formula to determine the attachment preference would be:  $(13 \times 1) + (2 \times 0) = 13:15 = .86$

## Results

### The Effect of Age on Attachment Preferences

The first research question was "Does age have any significant effect on the attachment preferences of female Persian learners of English? According to Table 1, the mean score of the adults (.33) is less than that of the adolescents (.54). To find out the significance of the existing difference, *an independent samples t-test* was administered. The results are presented in Table 2.

Table 1

*Descriptive Statistics for Attachment Preference Scores in Adults (n=27) and Adolescents (n=23)*

	Participants' age	Mean (SD)
Attachment preference scores	Adults (15-18 years old)	.34 (.16)
	Adolescents (19-25 years old)	.54 (.09)

Table 2

*The Independent Samples Test Between the Mean Attachment Preference Scores in Adults (n=27) and Adolescents (n=23)*

Attachment preference scores			Sig. (2-tailed)	95% Confidence Interval of the Difference
	t	df		
	-5.496	48.00	<.001	[-.30; -.13]
	-5.739	41.70	<.001	[-.28; -.13]

As shown in Table 2, the participants' age significantly affected female Persian learners' attachment preference ( $t=-5.49_{(48)}$ ;  $p<.001$ ). In more specific terms, adolescents showed a DP1 preference, and adults preferred DP2.

### The Effect of Presentation Modes on Attachment Preferences

Table 3

*Descriptive Statistics for Different Presentation Modes Scores in All Participants (n=50)*

Different Modes Scores	Presentation	N	Mean (SD)	Min-Max
Offline test		16	.37 (.12)	.20 .66
Online timed test		17	.21 (.20)	.00 .60
Online self-paced test		17	.55 (.09)	.40 .70
Total		50	.38 (.20)	.00 .70

According to the results, there was a statistically significant difference among the three modes of presenting materials ( $F=23.78_{(2,47)}$ ,  $p<.001$ ). Therefore, the mode of presenting RC had a significant effect on the participants' attachment preferences. In order to locate the place of the difference, the post-hoc test was run. The results indicate that presenting RCs in a self-paced online mode led to a significant difference from the other two modes.

### The Effect of Segmentation on Attachment Preferences

Table 4

*Descriptive Statistics Comparing Holistic Presentation of Material with Segmented Presentation (n=50)*

	N	Mean (SD)	t	Sig. (2-tailed)	df
Holistic	33	.29 (.18)	-5.588	<.001	48.00
Segmented	17	.55 (.09)	-6.851	<.001	47.92

Based on the results presented in Table 4, RC segmentation played a significant role in the participants' attachment preferences. Holistic presentation led to DP2 preference, while segmented presentation induced DP1 preference among the learners.

## Discussion

The present study explored the effects of learner age, presentation modes (online/offline), and RC segmentation on the attachment preferences of female Persian learners of English. In total, DP1 attachment preference was more frequent among the learners. More specifically, in the majority of the experimental sentences, Persian female learners selected the first DP as the RC antecedent. It was found that the participants' age significantly impacted the attachment preferences in that the adolescents showed a DP1 preference. Concerning age, our results buttress the study of Frenck-Mestre (1997), which examined RC attachment preferences in temporarily ambiguous French sentences among native speakers and beginning adolescent L2 learners with English or Spanish as their L1s. An overall high-attachment preference was found for adolescent native speakers and Spanish L2 learners, and no preference for English L2 learners. Frenck-Mestre attributed this finding to L1 transfer. Moreover, most studies on the native speakers of English show a low-attachment preference. Given this, L1 transfer in the case of English learners should produce a low-attachment preference (rather than no preference). In fact, the results reported by Frenck-Mestre (1997) are in line with the findings of the present research in terms of DP1 attachment preference among adolescent L2 learners. In addition, the present research findings about DP1 attachment preference are similar to those of Cuetos and Mitchell (1988), who claimed that Spanish parsers (adolescent L2 learners) preferred attaching the incoming items to the first DP or high attachment.

The second research question addressed RC presentation mode in influencing the attachment preferences of learners. The findings showed that the online self-paced mean score was higher (DP1 preference) compared to that of the other modes. In this respect, the results of the present study are in line with the study by Papadopoulou and Clahsen (2005), whereby acceptability judgment and self-paced reading experiments consistently showed that lexical and/or thematic properties of the antecedent affected the RC attachment. Despite such studies, findings on L2 learners' processing of ambiguous sentences in real-time are still inconclusive (Juffs, 2001). In this study, we noted that in an offline mode, though there was ample time to think about the proper antecedent, learners preferred DP2 attachment. In the online timed mode, learners had DP2 preference, whereas they opted for DP1 preference in the online self-paced mode. This finding is in line with the previous studies in that their findings are also conflicting, and still, researchers do not precisely know how L2 learners tend to process sentences in real-time (see Klein, 1999). In the present study, it seems that our L2 learners transferred their sentence processing strategies from their L1 (Persian), in which DP1 is the preferred antecedent. This finding accords with the previous research which has found learners transfer their L1 parsing strategies to L2 parsing (see Fernandez, 1999; Kim & Christianson, 2017). However, it should be conceded that there is inadequate evidence as to why the online self-paced presentation of RCs leads to DP 1 preference (see Klein, 1999).

The last question explored the roles RC segmentation played in the participants' attachment preferences. It was found that the segmentation of the experimental sentences played a significant role in the participants' attachment preferences. When the sentences were presented in segments, the participants opted for DP1. However, this was not the case in the holistic presentation, and DP 2 was preferred. These findings corroborate the Implicit Prosody Hypothesis (Fodor, 1998), claiming that intra-lingual variation influences attachment preferences. According to this hypothesis, dividing the elements of a sentence into different phrases and parts affects syntactic parsing, which resolves the ambiguity. According to the Implicit Prosody Hypothesis, this segmentation might have made the participants insert a pause after the second DP. The insertion of this pause might have created a prosodic boundary, which blocked the attachment of the RC to DP2. As a result, the participants ascribed the RC to the head of this chunk, DP1. Therefore, the syntactic disambiguation of the structurally ambiguous sentences might result from the prosodic packaging of different sentence elements. Consequently, we cannot deny that there are variations in parsing in general and ambiguity resolution in particular, which might arise from differences in segmentation.

In total, there was a higher DP1 preference among Persian learners, substantiating Marefat and Meraj's (2005) reports on parsing preferences (early vs. late closure) of the native and L2 learners of both English and Persian when they read ambiguous RCs. The results revealed the monolingual Persian speakers' significant preferences for high attachment or DP1 (early closure), whereas monolingual English speakers showed a high preference for low attachment or DP2 (late closure). The results also indicated that bilinguals adopted the same parsing strategy as in their L1, suggesting that their L1 might influence the processing of RCs in L2. Similarly, in the present study, DP1 was selected more than DP2, which corroborates Marefat and Meraj's (2005) study on the Persian Learners of English. These findings corroborate the idea that learners transfer their L1 RC preferences (DP1 in Persian) to L2, which supports the Transfer Hypothesis in RC attachment studies.

## Conclusion

The overarching aim of the present study was to determine if the female Persian learners of English opted for DP1 or DP2 in resolving RC ambiguity in ambiguous English sentences, depending on whether the sentence was presented in a segmented or holistic manner or whether the task was online or offline. RC ambiguity resolution was also examined in light of the age variable. The findings depict that the variations in attachment preferences in ambiguous RCs might have been partly the result of methodological differences since both segmentation and different ways of presenting the RCs impacted the participants' attachment preferences. This implies that the conflicting findings in the literature can be traced back to the methodological differences and cautions future researchers to consider this point in discussing their findings.

Research findings on whether L2 learners can achieve native-like patterns of ambiguity resolution are still less than conclusive, and conflicting findings seem to suggest that L2 learners employ fewer automatized parsing strategies compared to the native speakers. In the present study, the Persian learners showed different attachment preferences than the English speakers, which might have emanated from their non-native-like parsing of RCs or transfer of L1 attachment preferences. As regards the transfer of L1 parsing strategies to L2 parsing, the results are far from conclusive and even at odds with some studies reporting no transfer of L1 parsing strategies and some, like the present study, suggesting the occurrence of this transfer. Thus, this issue warrants further research to help secure more robust and conclusive results.

## Disclosure Statement

No potential conflict of interest was reported by the authors.

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# A Prospectus for Bilingual Early Reading Instruction

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**Abstract.** In this paper, we describe a framework for bilingual decoding instruction, with a call for collaborators. Decoding is the ability to apply knowledge of letter-sound correspondences to pronounce words. We adopt a standard phonological approach for early instruction that could be expanded to include practice with constructive morphemes, like prefixes and suffixes, and reading for meaning. Decades of research have shown that word decoding is a bottleneck in reading comprehension. Unless children develop sight-word reading capabilities, comprehension of texts is severely hampered. The present approach draws on children's spoken vocabulary knowledge in their native language as a bridge to decoding in a second language. The goal is to develop a tutoring system that draws on current and forthcoming multimedia technologies, and to implement the system in multilingual countries, e.g.: USA, India, Ukraine and across national borders. As a starting point, the authors will use a web platform <https://ethicalengineer.ttu.edu> designed in 2017 by the USA, Indian, and Ukrainian collaborators, several of them being co-authors of this paper, as a model for the new website for reading instruction. The *Ethical Engineer* website demonstrates one mechanism through which instructors can reach out to establish connections within and outside their native country around topics and issues of common interest and support educator cooperation and research development. The new model hopes to achieve success comparable to that of the *EthicalEngineer*. Using computer-based instruction allows for empirical testing of teaching methods, thereby optimizing the educational process. It is important to take advantage of this to ensure the most effective methods are used in early reading instruction for children.

**Keywords:** *bilingual, decoding, multimedia, technology, tutor, reading, USA, India, Ukraine.*

**Тарабан Роман, Меза Ізабел, Лернатович Оксана, Засєкін Сергій, Сарафф Свєта, Бісвал Рамакришна. Проспект раннього двомовного навчання дітей читанню.**

**Анотація.** У цій статті ми описуємо концепцію двомовного навчання декодування і запрошуємо до співпраці. Декодування – це вміння застосовувати знання про відповідності між буквами та звуками для вимови слів. Ми використовуємо стандартний фонологічний підхід для раннього навчання, який можна розширити, включивши в нього практику з конструктивними морфемами, такими як префікси та суфікси, а також читання за змістом. Десятиліття досліджень показали, що декодування слів є вузьким місцем у розумінні

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читання. Якщо діти не розвинуть навички читання зорового сприйняття слів, розуміння текстів буде серйозно ускладнене. Цей підхід спирається на знання дітьми розмовної лексики рідною мовою як на місток до декодування другої мови. Мета полягає в тому, щоб розробити систему навчання, яка спирається на сучасні та майбутні мультимедійні технології, і впровадити цю систему в багатомовних країнах, наприклад, у США, Індії, Україні та інших країнах. За основу автори візьмуть веб-платформу <https://ethicalengineer.ttu.edu>, розроблену у 2017 році спільно американськими, індійськими та українськими колегами, деякі з яких є співавторами цієї статті, як модель нового веб-сайту для навчання читання. Веб-сайт "Ethical Engineer" демонструє один із механізмів, за допомогою якого викладачі можуть налагоджувати зв'язки у своїй країні та за її межами щодо тем і питань, які становлять спільний інтерес, а також підтримувати співпрацю освітян і розвиток наукових досліджень. Нова модель, сподіваємося, матиме популярність, порівнювану з успіхом "Ethical Engineer". Використання комп'ютерного навчання дає змогу здійснювати емпіричну перевірку методів викладання, тим самим оптимізуючи навчальний процес. Важливо скористатися цією можливістю, аби забезпечити використання найефективніших методів раннього навчання дітей читанню.

**Ключові слова:** двомовний, декодування, мультимедійний, технологія, викладач, читання, США, Індія, Україна.

*Learning to read is learning how one's writing system encodes one's language*  
(Perfetti & Dunlap, 2008)

## Introduction

Reading is an essential skill, yet not all children become proficient readers. Two-thirds (64%) of 10-year-olds across low-, middle-, and high-income countries worldwide are unable to read and comprehend a simple story. Christina de Bruin from UNICEF regards these statistics as indicative of a crisis of *learning poverty* (Gidikova, 2022). Prior to the COVID pandemic, 66% of fourth graders in the US were not reading at grade level, however, reading rates for fourth graders from low-income families were even worse, with 88% failing to read at grade level (Snapshot, 2014). In India, despite massive investments in primary education many children fail to acquire basic reading abilities. A study conducted in five Indian States by PRATHAM (A Mumbai-based NGO) revealed that even after four years of schooling nearly 70% children find it difficult to navigate text in Hindi and other vernacular languages that is meant for children two grade level below (Bhattacharjea et al., 2011). In Ukraine, 13.2% of 4th-grade students who completed their primary education in 2018 lack basic reading skills (Ukrainian Center for Educational Quality Assessment, 2019). This category of elementary school graduates faces significant difficulties in reading and comprehending both literary and informational texts. In 2021 the proportion of fourth-grade students who did not reach the basic threshold of reading competence increased over the course of three years to 16.9% (Ukrainian Center for Educational Quality Assessment, 2022).

Remote learning due to COVID resulted in lower rates of reading proficiency at all levels (Barshay et al., 2021). The deficits in basic literacy are widespread and



affect disadvantaged communities the most. According to de Bruin (Gidikova, 2022), vulnerable children are especially affected in systems that perpetuate inequality. This is partly because education systems provide the least resources to children who need them the most. In low-income countries, 11% of public education resources go to the poorest children while 42% goes to the richest (Gidikova, 2023). Overall, there is a worldwide crisis in the acquisition of basic reading skills among children.

Chall (1979) proposed that reading development proceeds in phases. One of those phases occurs around the fourth grade, when students presumably have mastered word decoding and begin reading for content. Current data are consistent with Chall's model, showing that children who are proficient readers by the end of the third grade are more likely to graduate from high school and become economically secure as adults (Snapshot, 2014). In India, the Ministry of Education (2020) has set as its highest priority that children are able to read with meaning by Class 3, because "These are crucial basic skills that help them succeed in life" (p. 3). Worldwide, deficits in basic reading skills fail to prepare children for future occupations and lifelong learning, and there is a need to help children achieve these skills by Grades 3-4.

Decoding, also known as phonological recoding, is the ability to apply knowledge of letter-sound correspondences, and knowledge of letter patterns, to pronounce words. Mastery of these relations is necessary to tackle challenging vocabulary words, like *mitochondria*, and to study complex topics in history and science.

The purpose of this article is to outline what is currently known about early reading acquisition, from empirical and computational perspectives and, further, to propose developing new technologies for teaching children basic word decoding skills across languages (e.g., Hindi-English, Ukrainian-English, Odia-English, Kurukh (Oraon tribe of Odisha use this script)-Hindi, Kurukh-English), based on a highly successful web platform (<https://ethicalengineer.ttu.edu>). The teaching materials will capitalize on a child's native language knowledge in order to develop L2 decoding skills (Culatta et al., 2006). Data from the website will be used to understand how bilingual learning affects the acquisition of decoding skills and to apply research findings in a continuous manner to develop the web platform.

## **Stages of Reading Development**

The goal of skilled decoding is to read all words automatically by sight. The basic units of reading in many languages (e.g., English, Italian, German, Ukrainian, Serbian, Croatian) are graphemes, consisting of a single letter or group of letters (e.g., *th*, *ph*, *igh*), and phonemes, which are the smallest perceptually distinct units of speech. English, for example, has 44 phonemes, based on the 26 letters of the alphabet, and represented by multiple graphemes (Perfetti & Dunlap, 2008). Among Slavic languages, Ukrainian has 38 phonemes (Pivtorak, 2023), based on 33 letters of

its alphabet. Prior to tackling decoding, it is important for pre-readers to develop an ability to auditorily recognize and manipulate the phonemes in words, termed *phonological awareness*. Children must understand that the words they hear are made up of sounds, or phonemes, and, in learning to read, that these phonemes can be represented by letters, or graphemes.

Languages differ in how children develop phonological awareness. In English, rhyme patterns can help children to segment the *onset* (the initial consonant or consonant cluster) in a syllable from the *rime* (the vowel and consonants that complete the syllable), e.g., *b + at* in *bat* (Goswami, 1999; MacLean et al., 1987). Alliteration, the repetition of the same consonant sound across adjacent or closely occurring words, can also help children to analyze the phonemes composing words. In Spanish, though, rhyme is not salient (Culatta et al., 2006) and thus rhyme may not be pertinent in developing decoding ability across all languages. Despite differences in methods and manner of acquisition, phonological awareness has been shown to be important and to transfer from one language to another (Durgunoglu et al., 1993).

Linnea Ehri (2005) described developmental phases in learning how to read words by sight. These phases apply to opaque writing systems, like English, and transparent systems, like Italian, Spanish, and Ukrainian. Young children begin this developmental process by learning the letters of the alphabet and typical sounds associated with those letters. Early on, they identify how graphemes match up with phonemes in a word, forming connections between graphemes and phonemes for the word. By reading those words multiple times, the connections are securely encoded in memory. Letter-sound connections are supplemented by larger units, like *onset + rime* units that repeat across words and which children can apply in learning pronunciations of new words. This is related to a process of learning to read new words by analogy to known words (Goswami et al., 2003). The process of securely binding grapheme-to-phoneme connections into memory for sight words can occur, in part, through instruction, and in part through implicit learning and practice.

### **English Spelling Is a Mess**

Decoding is a fundamental process of reading ability. Some languages have consistent and transparent relationships between spelling and sound, like Italian, Spanish, and Finnish, some languages have semi-transparent orthographies, like Polish and Hindi, while others, like English and Urdu are opaque. Characteristic of opaque orthographies, spelling-sound relationships in English are, as Calfee (2005) declared, a mess. In English, the same letter can be associated with more than one phoneme, and a phoneme can be represented by more than one letter.

Building on Venezky's seminal analysis of English orthographic structure (Venezky, 1970), Calfee (2005) proposed a two-prong tactic for teaching reading: one involving the phonetic structure of words and one involving the morphemic structure. Venezky derived an analysis of English consisting of approximately 100

productive grapheme-phoneme correspondences. These included single consonants, consonant blends, short and long vowels, vowel digraphs, and *r* and *l* controlled vowels. Calfee et al. (2013) describe a decade-long series of educational experiments putting Venezky's ideas into practice.

Later elementary grade levels benefit from a focus on the morphemes – i.e., the basic units of meaning – especially in word constructions. These include prefixes like *pre-*, *post-*, *uni-*, *bi-*, *anti-*, *tele-*, and *multi-*, and suffixes like *-graph*, *-man*, *-ive*, *-al*, and *-ology*. Recognizing that words are composed of productive morphemes aids both decoding and, importantly, comprehension. It provides children with the ability to develop skills in content area reading and writing. Henry (2012) provides examples of how to bring a morphophonemic approach into classroom instruction.

### **The Reading Bottleneck**

According to the *verbal efficiency* theory proposed by Perfetti (1985), skilled reading comprehension depends in large part on rapid and efficient retrieval of a word's pronunciation and meaning. Learning to efficiently access a word's pronunciation from its spelling is a major task of early reading development (Castles et al., 2018). Efficient single-word decoding is a consistent predictor of later reading success (Steady et al., 2022). Fast and accurate word decoding is essential to long-term reading success and knowledge acquisition. Simply, "Comprehension skill depends on word reading skill" (Perfetti & Hart, 2002, p. 67).

According to Perfetti (1992), "Phonological knowledge is clearly critical to skilled reading. The heart of lexical access is the activation of a phonologically referenced name code. Although this assumption does not appear to be universally shared, it should be without contention" (pp. 164-165). For Perfetti, the central theoretical component in reading acquisition is the development of lexical representations, that is bound grapheme-phoneme codes linked to a word's pronunciation and meaning. High-quality representations become highly specific and autonomous, function much like sight words in Ehri (2005), and can become part of a child's lexicon early in reading development.

The goal of reading is to access meaning and ideas; however, this is not necessarily the primary goal of learning to read. For Perfetti and Duncan (2008), "learning to read is learning how one's writing system encodes one's language" (p. 25). This means converting symbols, like letters or characters, to words and their meanings. This highlights the fact that readers around the globe are presented with different writing systems, and in each instance, readers are presented with the same fundamental problem, namely, how to link the graphic representations to the person's spoken language. In tandem with the instructional challenges, there remains the need to develop sufficient processing models to address the central theoretical questions of how the associated lexical representations develop and become automatic (Perfetti, 2017).

## **Early Reading Challenges in the United States: A Need for Bilingual Reading Models**

According to the Migration Policy Institute, “Worldwide, the United States is home to more international migrants than any other country,” with large immigrant population coming from Mexico, India, and China (Ward & Batalova, 2023). About 27% (87.7 million people) of the United States’ population is comprised of immigrants and their U.S. born children (Ward & Batalova, 2023), the majority of whom do not speak English as a second language or are dual language learners (DLLs). “Children who are DLLs in the U.S., on average, lag behind their monolingual English-speaking peers in academic achievement” (U.S. Department of Health and Human Sciences & U.S. Department of Education, 2016, p. 1). In efforts to support children who are DLLs, in-school programs have been created (such as *Head Start*) to promote bilingualism in language development, instead of full English immersion. Many studies support the benefits of bi-/multilingual instruction (Culatta et al., 2006; López, 2012) yet children may still struggle to perform at the same level as their monolingual peers. The development of a remote tutoring program that utilizes a bilingual reading model can potentially begin to close the gap between the academic achievements of DLLs and their monolingual peers.

## **Early Reading Challenges in India: A Need for Bilingual Reading Models**

The Annual Status of Education Report (ASER) survey found that only fifty percent of Grade 5 children could read a passage of Grade 2 level (ASER Centre, 2019). Given the striking imbalance in reading abilities among primary school children in India, current National Educational Policy (NEP, 2020) seeks to ensure that all girls and boys have access to quality early childhood development, care, and pre-primary education so that they are ready for primary education, in a linguistically diverse country like India. The current national policy on education by the Government of India emphasizes the inclusion of the mother tongue or native language as a medium of instruction for second language (L2) learning. It promises to raise the reading level among primary and secondary government school children struggling with reading and writing in their first or spoken language.

A multilingual country like India poses unique challenges and opportunities to teach kids in the pre-primary and primary grades that is contextual as well as relevant for future learning outcomes. Especially, when it comes to teaching the tribal children in their mother-tongue, lack of trained teachers in the local languages becomes the major impediment. Further, due to lack of a script in many tribal spoken languages, children are forced to learn in the official language of the particular state. Such a practice leads to comprehension difficulties and lack of interest in addition to other challenges resulting in high dropout rates in the primary grades.

## Reading Challenges and Bilingual Preference Changes in Ukraine

In the academic years 2008-2009, the proportion of students enrolled in full-time secondary schools with Ukrainian as the medium of instruction amounted to 81.1%, compared to 47.5% in 1989-1990. Similarly, the proportion of students enrolled in Russian-language schools was 17.6% in 2008-2009, compared to 51.8% twenty years earlier (Pavlenko, 2011). In 2016-2017, 355,955 students in schools in Ukraine learned in Russian. This was about 9% of the total number of students. The most significant proportion of secondary schools offering Russian language instruction was located in the eastern and southern oblasts of Kharkiv, Odesa, Dnipro, Zaporizhzhia, Donetsk, Luhansk, and Kherson. These oblasts also had a significantly higher number of people considering Russian their native language than other parts of Ukraine (Kudriavtseva, 2020). The percentage of the population claiming Russian as their native language in the eastern regions of Dnipropetrovsk, Kharkiv, Luhansk, and Donetsk ranged in 2001 from 32% to 74.9%, and from 24.9% to 48.2% in the southern regions of Kherson, Odesa, and Zaporizhzhia, compared to an average of 5.5% in the rest of the country (Ukrainian Census, 2001).

In 2013, the proportion of students enrolled in Ukrainian-language secondary schools surged to 82 percent, a proportion higher than the demographic weight of Ukrainians (78 percent in the 2001 census) and much higher than those claiming Ukrainian as a language of origin (67 percent in the 2001 Census) let alone using Ukrainian as their language of preference (around 50 per cent in surveys) (Kulyk, 2017). In 2020, 73% of Ukrainians considered Ukrainian their native language. They predominantly communicated at home in Ukrainian, with 53% using it as the primary language, while 29% of Ukrainian citizens use Russian.

Since the Russia's invasion of Ukraine in 2022, there have been considerable changes in language preferences among Ukrainians. Russian language is dramatically becoming less popular due to objective reasons, i.e. killing of Russian- and Ukrainian-speaking citizens resulting in their disgust to everything connected with Russia including the language. As recently as 2019, only 8% of Ukrainians believed that it was not worth studying Russian in schools at all, while now 52% consider Russian unnecessary (KIIS, 2023a). English as a second language is rapidly gaining popularity. In March 2023, 51% of Ukrainians indicated that they have some knowledge of the English language (KIIS, 2023b). However, a more detailed analysis showed that only 23% could read, write, and communicate in English at everyday and professional levels. Almost one-third of adult residents of Ukraine, or 31.8%, do not possess any foreign language skills at any level. In this context, the Russian language was not considered, only English, Polish, Turkish, Hungarian, Spanish, French, and German. Knowledge of foreign languages is higher among younger, educated, and wealthier individuals. There is a relatively higher prevalence of foreign language proficiency in cities with a population of 500,000 or more (77%) and in the capital city, where it reaches 84%. Since the beginning of 2023, 61% of the respondents had

experience using English daily, primarily related to leisure activities and communication with acquaintances. English was used in professional activities by 19% of respondents and in education by 18%. Half of the children (51%) study English within educational institutions, while 27% study it outside, and 22% do not. For the entire adult population of Ukraine, the overall indicator of English proficiency stands at 2.86 out of 10 points on the scale. 93% of parents, regardless of gender, level of English knowledge, time spent learning English, or a personal desire to learn it, want their children to study and improve their English language skills. Among this 93% of parents, 37% are confident it will significantly improve their child's life. In comparison, another 55% believe that increasing English language proficiency will positively impact their child's future.

The top motivating factors for learning English include increased travel opportunities (43%), interest in learning foreign languages (36%), more diverse leisure activities such as books, movies, and music (33%), and the possibility of working in international companies (31%). (KIIS, 2023b).

On June 28, 2023, the President of Ukraine submitted to the Verkhovna Rada a draft law *On the Use of the English Language in Ukraine*. The bill proposes officially recognizing English as one of Ukraine's languages for international communication.

In summary, there is a pressing need to develop English reading, writing, and speaking skills by Ukrainians today as bilingualism is shifting towards Ukrainian–English and the tendency seems to keep.

## **A Multimodal Bilingual Model**

The present initiative and call for collaboration is for the exploration and development of a multimodal and bilingual model that is theoretically coherent and that could function successfully as an instructional paradigm within and across national borders. The prospects of this initiative are partly supported by the highly successful web platform for students' reactions to engineering ethics, the *Ethical Engineer*: <https://EthicalEngineer.ttu.edu> (Taraban et al., 2019, 2023). The *Ethical Engineer* website is a virtual context for ethical reflection and shared discourse that provides an interactive platform for college students to present their comments and reactions to ethical dilemmas. Although unrelated in content to decoding instruction, the *Ethical Engineer* website demonstrates one mechanism through which instructors can reach out to establish connections within and outside their native country around topics and issues of common interest.

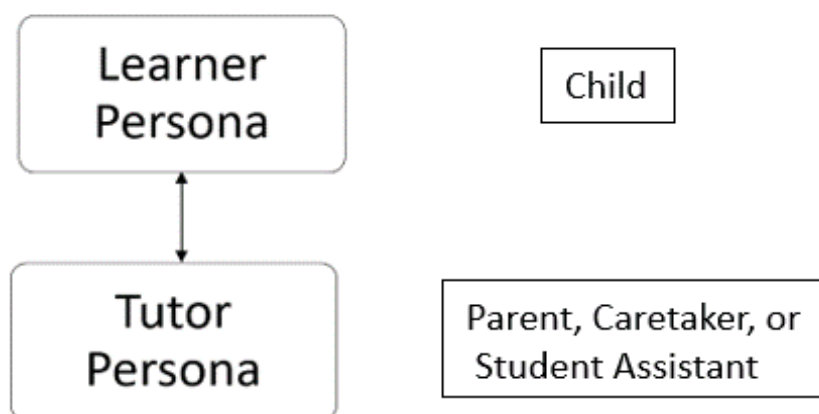
To develop and launch the *Ethical Engineer* website, several of the present authors worked collaboratively across several academic disciplines and with international contacts to promote participation on the website. After mutual discussion and agreement, the website was incorporated into course curricula at partner institutions in somewhat different manners, depending on instructional objectives and content and specific instructor goals. Since its inception in 2017, the

website has been viewed by individuals from at least 50 different countries, and the website has accumulated nearly 3,000 registered participants, with a large proportion of registered members from non-US countries. Similar goals of mutual development and cooperation in the development and implementation of current technological tools are envisioned for the present project.

Below we present several possible variations of child-tutor interactions (see Figure 1) within a more general interactive model (see Figure 2). The basic child-tutor interaction is presented in Figure 1.

### Figure 1

#### *Basic Model for Child-Tutor Interactions*

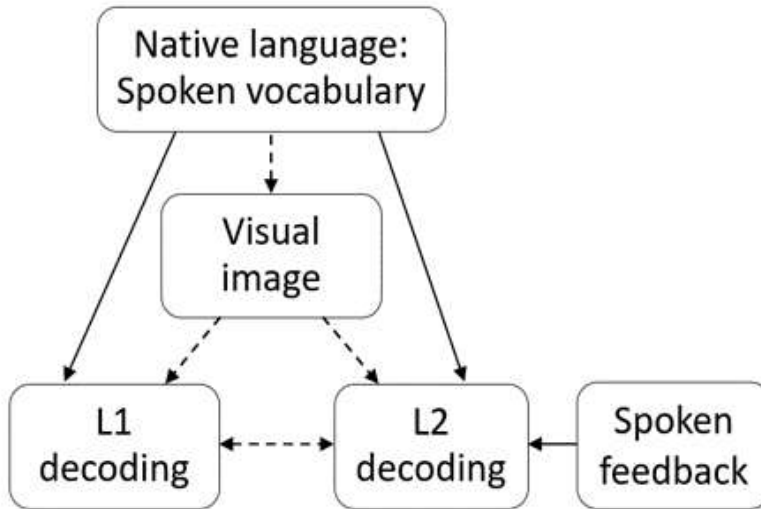


In order to protect privacy and assure confidentiality, interactions between the child and tutor are through character personas. These are essentially pseudonyms, but can be implemented as interactive agents using present technologies, comparable to the Microsoft® Agent character Peedy the parrot<sup>1</sup>. The interactions between child and tutor can be in-person and direct, or between children and tutors in remote locations, like trained university research assistants tutoring children in rural locations. Child-tutor interactions can also take place across national borders.

The more general model is shown in Figure 2. The primary link in this model is between Native Language and L2 decoding. The goal is to draw on children's oral vocabulary in order to build meaningful connections to words in the second language (L2). Spoken feedback for children's decoding attempts in L2 can be automated, as well as other elements of feedback, like encouragement. Links associated with a visual image are shown with dashed lines to indicate optionality. Images could be used for scaffolding mental connections between the native language and L2, but can be withdrawn as the child is able to independently decode in L2. There is also an option to separately or simultaneously connect into decoding in the child's native language, as indicated by the link between Native Language and L1 vocabulary. Figure 2 presents the first pass at a robust model for bilingual decoding instruction that can be modified and improved as variations of the model are implemented and tested.

<sup>1</sup> <https://learn.microsoft.com/en-us/windows/win32/lwef/microsoft-agent-animations-for-peedy-character>

**Figure 2**  
*Model for Bilingual Decoding Instruction*



Over several decades, many good instructional programs have appeared for second-language (L2) learners. Lukatska (2022), for example, reviews a number of programs to teach Ukrainian to English speakers, with examples like Palinska and Turkevych (2010). Another project, *Yabluko*, launched by the Ukrainian Catholic University published a series of textbooks for Elementary, Intermediate, and Advanced level learners of Ukrainian (Bartkiv & Borodin, 2015; Burak, 2015; Synchak, 2015). Others are *Крок-1* for beginning Ukrainian readers and Dzhura (2007) *Let's Learn Ukrainian*. Existing materials for Ukrainian and other languages provide rich sources of ideas and examples for development within a globally-accessible and technology-rich interactive learning system.

A benefit of computer-based implementations for decoding instruction is the ability to empirically test questions related to teaching and learning methodologies. In our most recent work (Meza, 2023), we have implemented a rudimentary computer-based method for researching the benefits of organizing practice sets of words by rhyme endings. In one method children practiced sets of rhyming words: e.g., *sun, bun, run*. In the other method, children practiced sets of mixed words: e.g., *sun, get, fan*. Children in both conditions are exposed to the same overall set of practice words, which allows us to address whether organizing reading practice using rhyme benefits learning and retention of grapheme-phoneme correspondences and the development of sight words (Ehri, 2005).

## Conclusions and Call for Collaborators

The method of developing and implementing a digital instructional platform for the *Ethical Engineer* has been quite successful. Since its inception in 2017, the website has been viewed by individuals from at least 50 different countries, and the website has accumulated nearly 3,000 registered participants, with a large proportion



of registered members from non-US countries. The website demonstrates the capacity of current technology to support educator cooperation and research development within and across national boundaries. The present model hopes to achieve comparable success in early reading instruction for children. Chrabaszcz et al. (2022) provide a recent example of teaching language skills over the internet, involving more than 1,000 volunteer teacher applicants and about 3,700 student applicants. The teachers engaged students in learning a foreign language, most commonly English, French, German, or Spanish, using vocabulary exercises, role playing, and discussions of everyday topics. Students made significant gains in language proficiency and motivation to learn a new language, through participation in the program. The researchers concluded that “harnessing digital technologies for online language learning through volunteer-based communities [of practice] seems like a viable option” (p. 25).

Reading research in the US since the 1960s has been characterized by phonics wars, with some researchers arguing for reading phases similar to those proposed in Ehri (2005), described in the National Reading Panel Report (National Reading Panel, 2001), and other researchers arguing for immersion programs (Bond & Dykstra, 1967) that depend on a natural acquisition of print to sound relationships through an immersion in children’s literature. There is merit in both positions. In spite of the centrality of a sight word vocabulary to skilled reading, more is required for the development of literacy. This includes attention to comprehension, writing skills, inferential ability, critical thinking, and an appreciation for text and literature (Calfee, 2005). These elements are part of a comprehensive model of reading skill (Shanahan, 2003), and will ultimately need to be incorporated into the present model.

Perfetti and Dunlap (2008) ask whether there are universals in reading and suggest that there are. The most basic universal, the Language Constraint, holds that “writing systems encode spoken language, not meaning” (p. 26). Meaning is derived from the associated language. The signs in the written form do not communicate meaning independently of the language. This universal applies to alphabetic, syllabary, and logographic representations. The second universal is the Phonological Principle: word reading activates phonology at the phoneme, syllable, morpheme, and word levels. These universals prompt one to ask about reading skill in terms of mental representations and learning. Perfetti and Hart (2002) define high-quality mental representations for reading words in this way:

*A lexical representation has high quality to the extent that it has a fully specified orthographic representation (a spelling) and redundant phonological representations (one from spoken language and one recoverable from orthographic-to-phonological mappings). If a lexical representation is specific and redundant, its retrieval is more likely to be coherent and reliable.* (p. 68)

The present project seeks to apply current digital technologies and research on reading to aid children in developing high-quality word representations for reading. A key idea is to link these to children’s knowledge of their native language. The tools and methods of this project will be tested in local settings to develop L1 reading skill, as well as more broadly to develop L2 reading skills.

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# The Language of the Weather Forecast in Italian and Spanish Television Broadcasts: Linguistic-Descriptive Analysis of the End of Winter on RTVE and TG5 Television Channels

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**Abstract.** Weather information is of great importance to society due to the impact of the physical environment on everyday life. As a result, popular tradition has disseminated many proverbs related to human activities that have been the subject, over time, of scientific studies, with the aim of verifying the veracity of such predictions. For this reason, this article initially presents a brief bibliographical and regulatory analysis of the evolution of atmospheric language and a presentation of the bodies that regulate its communication in Spain and Italy. Subsequently, a corpus of weather reports extracted during the month of December 2022 from an Italian and Spanish news channel will be illustrated with the aim of studying the communication of weather forecasts from a macro- and microstructural linguistic level, given the lack of studies in both languages in this respect. For this purpose, Speechnotes will be used for the transcriptions and Skech Engine for the creation of the corpus. As a result of the analysis, Spanish news programmes devote more time to the space of time, show a much higher speed of locution than the Italian corpus, provide a greater number of mechanisms to show probability and uncertainty, and a great variety of linguistic-discursive strategies to exemplify the scientific context. We also find a recurrent gerund, which we will call "atmospheric gerund". In Italian, on the other hand, we find a greater deixis, more synthetic information, and less dynamism in the interaction with the data.

**Keywords:** *atmospheric language, atmospheric forecasting, probability, technicalities, scientific context.*

**Васхо Рубен Гонзалес. Мова прогнозу погоди в італійському та іспанському телевізійному мовленні: Лінгводескриптивний аналіз прогнозів погоди наприкінці зими на телеканалах RTVE та TG5.**

**Анотація.** Метеорологічна інформація має велике значення для суспільства через вплив, який умови фізичного середовища мають на повсякденне життя. Як наслідок, народна традиція поширила велику кількість прислів'їв, пов'язаних з діяльністю людини, які з часом стали предметом наукових досліджень, спрямованих на перевірку правдивості таких прогнозів. З цієї причини в цій статті спочатку представлено короткий бібліографічний та нормативно-правовий аналіз еволюції атмосферної мови та презентацію органів, які регулюють її поширення в Іспанії та Італії. Згодом буде проілюстровано корпус повідомлень про погоду, витягнутих протягом грудня 2022 року з італійського та іспанського новинних

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каналів, з метою вивчення комунікації прогнозів погоди на макро- та мікроструктурному мовному рівні, враховуючи відсутність досліджень в обох мовах у цьому відношенні. Для цього буде використано *Speechnotes* для транскрипції та *Skech Engine* для створення корпусу. В результаті аналізу було виявлено, що іспанські програми новин приділяють більше часу часовому простору, демонструють значно вищу швидкість локуції, ніж італійський корпус, надають більшу кількість механізмів для відображення ймовірності та невизначеності, а також велику різноманітність лінгвістично-дискурсивних стратегій для ілюстрації наукового контексту. Ми також знаходимо повторюваний герундій, який назвемо "атмосферним герундієм". З іншого боку, в італійській мові ми знаходимо більше дейкисусу, більше синтетичної інформації та менше динамізму у взаємодії з даними.

**Ключові слова:** *атмосферна мова, атмосферне прогнозування, ймовірність, формальності, науковий контекст.*

## Introduction

Traditionally, the concentration of work in the countryside and the sea has led to the development of a popular scientific belief that, through observation, attempts were made to predict the coming weather. The repetition with which these physical changes occurred has led to popular knowledge that has been transmitted, in linguistic terms, in the form of popular sayings and has given rise to specific studies, such as the structure and images used in the Spanish, French and Basque languages (Calzacorta Elorza, 1999); or the study of meteorological proverbs in León (Rúa Aller & García Armesto, 2010-2011), those relating to Castilla-La Mancha (García Mouton, 2012) and those from Asturias (Álvarez Pérez, 2013). While traditionally they have been highlighted as fixed expressions, their variability has been demonstrated through experimental and corpus studies (Mancuso et al., 2020).

As for the pair that concerns us, Italian and Spanish, the paroemias of the month of January have been analysed (Peña Huélamo, 1999); the functional and lexicographic study of symmetrical and asymmetrical polysemy in corpuses, which highlights the lack of study of phraseological polysemy between the two languages (Dal Maso, 2019); the frequency of use and context of Spanish and Italian paroemias in journalistic texts, determining that the use in Italian is greater and that the images or metaphors provided generally lack idiomatic use, compared to other types of proverbs (Sidoti, 2020). Likewise, Raimondi (2012) highlights, in his analysis of the reception of the communication of weather forecasts by Italian and Spanish citizens, the great disparity in the quality of communication between the two countries, since in Italy there is no unification of atmospheric information and the different regional services do not coordinate with each other.

However, over time, awareness of new communicative methods and the study of language in the media has cast doubt on the scientific context of these linguistic forms. In fact, this cultural perception shown through different linguistic mechanisms has been overshadowed in the scientific study of forecasts, which have omitted popular imprecision in favour of exact knowledge with stereotyped and literal language, and outside the consideration of the rest of human contingencies (García

Gabaldón, 1994). Specifically, in weather forecasts we find, initially, a technical language that is far from the understanding of the non-expert and, on the other hand, more accessible information to which everyday concepts are added for a better understanding by the non-expert, although they may be susceptible to misinterpretation (Raimondi, 2010). However, a recurring theme among scholars in weather forecasting has been probability (Nadav-Greenberg & Joslyn, 2009; Crespo, Revilla & Elizaga, 2014; World Meteorological Organization, 2008), whose use in communications is under constant tension, as more effective communication is required to enable the receiving public to understand the uncertainty and scientific activity behind the forecasts (Hall, 2017).

As for the official bodies in charge of meteorological communication, in Spain there is the Agencia Estatal de Meteorología (AEMET) and in Italy there is the Aeronautica Militare. Since its creation in 1987, AEMET had focused its efforts on responding mainly to the needs of aviation. In 1955, a change of manoeuvre was decided and in 1956, with the appearance of the weather bulletin on television, meteorological communication began to be opened to the population. Spain was one of the first signatories to the constitution of the WMO (World Meteorological Organisation), although its international collaboration intensified when Azcárraga was vice-president of the organisation between 1959 and 1967 (Palomares Calderón de la Barca, 2015).

In the Italian case, since Italy joined the WMO, the Military Aeronautics has traditionally been officially in charge of the national meteorological service by means of Law 1237 of November 1950. Alongside it, information has been supplemented by national and regional meteorological services included in the Regional Agencies for the Protection of the Environment (ARPA), the Civil Protection and research bodies such as the National Research Centre (CNR). However, although it is still in the drafting phase, the National Agency for Meteorology and Climatology (Agenzia nazionale per la meteorologia e climatologia), of a civil nature and known as ItaliaMeteo, appeared with the law 205/2017 (2018 budget law), with the aim of reinforcing and centralising services at national level.

Both AEMET and the Aeronautica Militare have numerous publications by scientists and meteorologists, in the form of repositories and specialised journals. However, only AEMET has a document aimed at homogenising the terms used in meteorological forecasts and their wording, the Manual on the use of meteorological terms, to reform and further adapt the messages addressed to citizens, making a correct and concrete use of the language. The result of the revision of its predecessor in 1992, which in turn was based on the Glossary of Terms drawn up in 1963 by the National Meteorological Service, it has seen the collaboration of the Spanish Meteorological Association (AME), the Association of Meteorological Communicators (ACOMET) and the Fundéu, in the revision of new terms in the forecasts. Among the main modifications are the elimination of the terms risk in

terms of probability and moderate, for reasons of danger and for not being relevant, respectively; and instead of possible, the construction "low probability" will be used<sup>1</sup>.

The mechanism of probability, which corresponds to an intralinguistic translation where the meteorologist translates data into discourse, is also related to the rhetorical discourse used. In this regard, we must consider that the final phase of weather prediction corresponds to the selection of useful information for viewers, and this has led to two phenomena: on one hand, viewers absorb the specialized language of meteorology without fully understanding the scientific meaning of the terms, and on the other hand, there is an excessive use of language stemming from a lack of knowledge or sensationalistic intentions (Martín León, 2018). Lastly, as evidence of the impact of weather on current communicative discourse, metaphors or images of atmospheric phenomena hold great relevance in the news today. However, this is not a recent phenomenon, as early as the 1990s, news programs already incorporated adjectives and adverbs that highlighted the narrated action and captured the viewer's attention, along with a language that approached everyday speech, making the viewer feel connected through clichés ("dar luz verde"), idiomatic expressions ("quitar hierro al asunto"), Latinisms ("in situ"), and euphemisms ("perder la vida") (Marín, 2020, p. 12).

## Method

The aim of this study is to study the communication of weather forecasts in Italian and Spanish news programmes from a macro- and microstructural linguistic point of view, given the lack of studies in both languages. Although it is assumed that uncertainty is inherent to the predictive discourse (Gill, 2008), and being aware that meteorological communication has two aspects, that is, the creation of the content by the official information source and its transmission by the media (García-Legaz Martínez, 2007), we have focused on the latter, since it is responsible for directly transmitting the message and creating expectations in the population through the nature of the communication.

For this purpose, a corpus has been compiled in Sketch Engine with the transcriptions derived from two news channels, one Italian and one in Spanish, using the Speechnotes software (<https://speechnotes.co/es/>), which is freely available and whose function is available in both languages. For reasons of availability in the video library of the news channels, the time span of the study covers the month preceding the emptying of the corpus, i.e., from 20 February to 20 March, coinciding with the end of winter. In the case of Spain, the news programmes of the TVE television channel were selected as the most watched of those offering free access to the video library. Specifically, the 9.30 p.m. news programme was chosen, as it was the only one that regularly offered space for weather forecasts. In this corpus, there are 34 310

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<sup>1</sup> In this regard, we gather the considerations of Prior et al. (2011) in their study on translation and adapt them to the interlinguistic translation of discourse on probability, whereby the recipient will complete the decontextualization of indefinite adjectives through their experience and encyclopedic knowledge.



tokens and 2 hours, 35 minutes, and 21 seconds of transcription. In the Italian case, the news programmes of the TG5 television channel were chosen, as the news programmes of the Mediaset Group are the most followed in Italy after those of RAI, whose video library was incomplete. In particular, the 8 a.m. news programmes were chosen because they were the only ones that regularly provided information on weather forecasts. In this corpus, there are 7,149 tokens and 38 minutes and 47 seconds of transcription.

Finally, we have indicated the examples with the structure `date_month_language` (18\_03\_sp/ 22\_02\_it) and the presenters as [pres.1] and [pres.2], corresponding to the general news presenter who gives way to the weather forecast space and the meteorologist, respectively. The study and the analysis carried out are presented below.

## Results and Discussion

### Macrostructure/ superstructure

The first notable difference concerns the speaking speed of the presenters in both news programmes, which is quite different from the speaking speed of the rest of the news items in the general section. Specifically, we have calculated the average number of words per minute of both corpuses, and we have compared it with that of the last three news items of the general section of the last news programme, that of 20 March 2023, to obtain differences. In the Spanish corpus, we find an average of 199 words per minute, while in the news of the general section the calculation is 150 words per minute, which creates an additional speech difference of 32.29% more. In the Italian case, on the other hand, the average of the corpus is 173 words per minute and that of the analysed news items 160 words per minute, which creates a difference in speaking speed of 8.07%. As for the time spent, in the Spanish corpus the average duration of the news programmes is 56:23, where 5:42 are devoted to the weather news, which represents 10.10% of the total space. In Italian, on the other hand, the average length of the news programmes is 35:31 and the average length of the forecasts is 1:24, with the total time devoted to the weather representing 3.75% of the television programme.

In the Italian news programme, the presenters remain still and present the discourse based on different images with visual information that is displayed on a single screen, i.e., in order of appearance, a general map of the country with the symbols of the atmospheric elements, a graph with the minimum and maximum temperatures, a graph with thermal information to show the masses of air and, on occasions, a final graph with visual information on alerts or highly relevant data.

In Spanish, on the other hand, there are different screens in the studio, which facilitates the physical movement of the broadcasters around the available space. The screens offered depend on the phenomena that are the protagonists of the meteorological information at the time of the broadcast, where graphs can be found

on the current squall (Juliette), the longest-lasting cyclone (Freddy), wave height graphs in the presence of thick sea storms, the haze that has affected part of the country in the weeks prior to the broadcast of the news programme and the air quality as a result of sand and dust in suspension; and snowfall warnings, snow levels and the situation of reservoirs used for consultation as a cause of the winter's outcome. In general order of appearance, the atmospheric information is provided by means of a graph of minimum and maximum temperatures, wind, isobars, and precipitation, accumulated or recorded precipitation, cloudiness, rain and wind, and a graph with atmospheric symbols to explain the meteorological situation area by area. Finally, we highlight the photos sent in by fans, which are displayed at the end of the news programme as a review.

This visual information functions as semiotic support for the presenter, as the graphs and maps serve to separate the structure from the oral discourse through their function as paratext, since each of them corresponds to a specific discourse, although the viewer who is already used to receiving meteorological information will be able to infer certain information from the colours and numbers. In this respect, the passage of screens generally takes place through calls to the viewer in the first-person plural in both Spanish and Italian: "diamo però un po' uno sguardo a quel che ci succederà nel corso della settimana" (20\_02\_it) and "vamos ya con las temperaturas que teníamos hoy" (20\_02\_sp), among many others.

Regarding the introduction of the space dedicated to forecasts and the interaction between the presenter of the general section and the bulletin presenter, in both cases there is a great discrepancy. Specifically, in the Spanish case, the opening of the dialogue is always carried out by the presenter of the bulletin through a statement or question and, therefore, the meteorologist's response is usually reduced to a ratification of the information (ex. 1), a complementation (ex. 2), a clarification (ex. 3) or a general explanation to the question before introducing his own speech (ex. 4). In the Italian case, the introductions are merely formal, as in "vediamo quali sono le previsioni per le prossime ore con Serena Giacomini, buongiorno" (20\_02\_it) or "e ora il momento delle previsioni del tempo con Martina Hamdy" (06\_03\_it), among others, apart from some statements by the newscaster which the meteorologist ratifies (e.g., 5 and 6).

[pres. 1] *"nos queda ya poco de este tiempo más primaveral de lo que toca"*

[pres. 2] *"efectivamente, a los que les gusta el calor tienen malas noticias"* (21\_02\_sp)

[pres. 1] *"Nuria, buenas, hablábamos de que teníamos frío y más que vamos a tener"*

[pres. 2] *"y nieve a cotas bajas incluso"* (26\_02\_sp)

[pres. 1] *"y que todo indica, Andrés, que va a seguir unos días"*

[pres. 2] *"sí, al menos un par de días más hasta el lunes, donde incluso las temperaturas pueden volver a subir"* (11\_03\_sp)

[pres. 1] *"ha sido un fin de semana bastante caluroso, primaveral. ¿esto va a continuar?, ¿va a cambiar?"*

[pres. 2] “*vamos a tener para todos los gustos porque lo cierto es que va a ser como una montaña rusa térmica*” (13\_03\_sp)

[pres. 1] “*arriva il maltempo in Italia. Tutti i dettagli con Stefania Andriola, ben ritrovata*”  
[pres. 2] “*Buongiorno. Siamo sotto attacco e le perturbazioni sono due*” (26\_02\_it)

[pres. 1] “*Eccola Sabrina Giacomini. Il meteo che ci ricorda come siamo proprio nel mese di marzo*”

[pres. 2] “*Sì esatto, proprio così. Alta dinamicità atmosferica*” (14\_03\_it)

Finally, only in the Spanish case are general conclusions of the meteorological information introduced both at the beginning and at the end of the speech and which support the macro-structure of the speech, giving a title to the information in the bulletin by way of a summary, such as the beginning of the speech after the presenter of the general space in “of course, it has been a very interesting day with these snowfalls that have occurred in different areas of the interior of the peninsula” (23\_02\_sp) and “efectivamente, Ana, vamos a tener que abrigarnos y ya no solo el fin de semana” (24\_02\_sp); and at the end, to close the speech, in “bueno, ya han visto que esta semana llega con subida de temperaturas y también con algo de lluvia” (06\_03\_sp) or “bueno, ya han visto que vamos sumando grados, cada vez más, y lo que está por venir” (07\_03\_sp), among many others.

## Microstructure

The verb form par excellence is the future indicative in both corpuses, as in “el viento de levante nos dejará nubes acumuladas” (19\_03\_sp). However, we find numerous references to probability, which we mentioned earlier, and which has been the object of criticism. In this respect, among the different mechanisms we have found in the corpus to show uncertainty, we highlight:

- The use of *probable* and *probablemente*: “para el viernes todavía con precipitaciones en el noroeste va a nevar probablemente en distintas capitales de provincia” (20\_02\_sp) and “da un punto di vista termico probabilmente mite” (24\_02\_it);
- The use of the conditional: “de cara a la jornada del miércoles y jueves sí que llegaría un sistema frontal que solo nos dejaría lluvia en la zona occidental” (19\_03\_sp) and “e lunedì potrebbe portare un brusco calo delle temperatura” (21\_02\_it);
- The verb *poder*: “en el estrecho podría caer alguna gota despistada” (19\_03\_sp) and “mañana puede haber rachas próximas a los 90 100 kilómetros por hora” (15\_03\_sp);
- Indefinite adjectives: “y en Canarias también esperamos algo de lluvia, sobre todo hacia el centro” (16\_03\_sp), “por el norte, chubascos, que pueden ir acompañados de alguna tormenta puntual” (17\_03\_sp), “sabato ancora poche piogge” (23\_02\_it), “molto vento al centro sud e isole” (25\_02\_it) and “più che altro qualche debole pioggia” (25\_02\_it);

- Use of expressions such as “alguna precipitación por Sanabria, pero nada, van a ser cuatro gotas” (09\_03\_sp) and “se podría escapar en el sur peninsular, pero anecdótico” (26\_02\_sp);
- Use of negation to mitigate the effect: “va a ser un día parecido al de hoy, no va a llover mucho en ningún punto del país” (05\_03\_sp) and “avremo anche piogge sparse non di particolari intensità” (19\_03\_it).

As far as verb forms are concerned, we highlight a very specific use of the gerund in the Spanish corpus, which we will call here "gerundio atmosférico" (atmospheric gerund) due to its notable recurrence in the forecasts. Consider phrases such as "Tramontana mañana soplando en Mahón" (24\_02\_sp), "nubes aumentando en la Región de Murcia Comunidad Valenciana y archipiélago balear" (05\_03\_sp) or "avance de pronóstico con el resto de ese sistema frontal el de mañana afectando al Pirineo" (12\_03\_sp), among many others. From a grammatical point of view, it is an incorrect use of the gerund of simultaneity as there are not two actions, so that in the first case we want to express "mañana soplará", "que las nubes aumentarán" and "que afectará", respectively.

In terms of terminology, the forecast includes a whole catalogue of geographical reference names, typical of meteorological information, to which the viewer is not accustomed. Thus, in Spanish there is talk of “zonas de la ibérica” (26\_02\_sp), “interior peninsular” (28\_02\_sp), “archipiélago balear” (20\_02\_sp), “sistema bético” (17\_03\_sp), “la ibérica riojana” (21\_02\_sp), “islas de más relieve” (06\_03\_sp), “área pirenaica” (13\_03\_sp), “zona prepirineo” (12\_03\_sp), “ibérica turolense” (17\_03\_sp), “las Béticas” (18\_03\_sp), “Maestrazgo” (17\_03\_sp), “capital oscense” (20\_03\_sp), “fachada atlántica” (04\_03\_sp) or “litoral mediterráneo” (14\_03\_sp), entre otros. We also find the same pattern in the Italian corpus with “settori tirrenici” (20\_02\_it), “levante ligure” (22\_02\_it), “versante tirrenico” (24\_02\_it), “isole maggiori” (27\_02\_it), “regioni settentrionali” (03\_03\_it), “mari di Ponente” (01\_03\_it), “settori di Ponente” (02\_03\_it) or “regioni centrali tirreniche” (05\_03\_it), among others.

On the other hand, there is a veritable array of names for the same element. Thus, winds can be "cierzo" (25\_02\_sp), "tramontana" (25\_02\_sp), "alisios" (09\_03\_sp), "poniente" (09\_03\_sp), "levante" (14\_03\_sp), "viento de norte" (23\_02\_sp), "viento de componente este" (07\_03\_sp) or "viento de terral" (11\_03\_sp); clouds may be "lenticular" (07\_03\_sp) or "cumulonimbus" (09\_03\_sp); a warning can be "naranja" (27\_02\_sp), "rojo" (26\_02\_sp) or "amarillo" (06\_03\_sp); an "asociado" (04\_03\_sp) or "ocluido" (06\_03\_sp) front; an "aislada" trough (22\_02\_sp); and "mar combinada", "mar de fondo" and "mar de viento" type of swell (12\_03\_sp). The same for the Italian case, e.g., for "Bora" (26\_02\_it), "Scirocco" (16\_02\_it), "Tramontana" (01\_03\_it), "Libeccio" (08\_03\_it), "Maestrale" (10\_03\_it).

It is worth noting that the terminology present in both corpuses refers not only to technical terms, but also to their collocations, which help to decorate the specialised language used. Not without reason, through the corpus we know that the air *se desploma*, *avanza* and *empuja*; that the Dana “se desgaja de la circulación atmosférica”; that a squall *circula*; that showers *se desplazan*, *salpican*, *llegan* and

*escapan*; and that fronts *se conforman, se cuellan, se acercan, afectan, cruzan, se aproximan, avanzan* and *se retiran*; among many others. However, this knowledge that is transmitted is not always easy for the spectator to recognise. Sometimes, linguistic-discursive mechanisms are used to deal with the knowledge-unknowledge sphere. In this respect, in our analysis we found a great divergence between the two corpuses. In Italian, communication is more synthetic and relies solely on connectors such as *quindi, infatti* and *dunque*, as well as verbs that produce a consequence such as *portare* and *fare*. In Spanish, on the other hand, we find a large presence of strategies, such as constructions (*por ello* and *por eso*), explanatory expressions (*es decir*), question-answer sequence, comparisons, conjunctions (*pues*), conjunctive locutions (*ya que* and *así que*), prepositional locution (*gracias a* and *debido a*) and adverbial locutions (*de hecho, por ejemplo* and *por tanto*), as well as verbs that also imply consequence, such as those already mentioned for the Italian case (*provocar, permitir* and *hacer*). In the following, we show examples for each of the strategies we have found in our analysis.

#### Connectors:

*ecco che le temperature caleranno da nord a sud, **quindi** i valori si riporteranno [...]*  
(14\_02\_it)

*queste neviccate in serata tenderanno a scendere **infatti** sarà possibile qualche fiocco di neve*  
(26\_02\_it)

*Ma tenderanno a diradarsi a sollevarsi nel corso della giornata, **dunque** pomeriggio prevalentemente soleggiato* (20\_02\_it)

#### Verb forms denoting consequence:

*[ciclón Freddy] lo cierto es que **va a provocar** importantes precipitaciones* (08\_03\_sp)  
*y luego tenemos esa línea de inestabilidad situada sobre Galicia que va a hacer que ahí las precipitaciones se reactiven* (16\_03\_sp)

*la perturbazione numero 8 del mese che in questo momento **sta portando** molte nuvole molte precipitazioni* (27\_02\_it)

#### Constructions:

***por ello** la Agencia Estatal de Meteorología aún tiene activado los avisos por esas temperaturas bajas* (04\_03\_sp)

*[el Cierzo] no permitía que el aire frío se posara en el valle y bajarán las temperaturas, **por eso** han subido justo en esa zona* (03\_03\_sp)

#### Explanatory expressions:

*máximas mañana que estarán cinco o seis grados más altas que las de hoy, **es decir**, son valores que no son propios para esta época del año* (15\_03\_sp)

*tenemos los datos los embalses de uso consultivo se encuentran al 42% de su capacidad, **es decir**, 15 puntos por los últimos diez años* (21\_02\_sp)

### Question-answer sequence:

*una semana con ese tren de borrascas, ¿qué queremos decir con eso? bueno tenemos un anticiclón situado sobre el archipiélago canario (06\_03\_sp)*

*¿cómo pueden subir así las temperaturas? Bueno, pues por dos motivos tenemos una masa de aire cálido y el viento un viento de componentes suroeste (07\_03\_sp)*

### Comparisons:

*hemos notado que han bajado, pero **no eran tan bajas como** en jornadas anteriores (26\_02\_sp)*

*va a ser como una montaña rusa térmica van a oscilar bastante las temperaturas (13\_03\_sp)*

### Conjunctions:

*el lunes será 20 de marzo, primavera astronómica, **porque** el 1 de marzo empezó la primavera meteorológica (17\_03\_sp)*

*dovremo ancora far i conti con il maltempo **perché** sull'Italia insiste questa perturbazione (28\_02\_it)*

### Conjunctive locatives:

*la temperatura del mar estará rondando los 13 grados, **así que** en el aire 30, en el mar 13 (10\_03\_sp)*

***ya que** estamos hablando de nevadas queremos hacer un apunte internacional (23\_03\_sp)*

### Prepositional locution:

*las máximas sí que suben excepto en el litoral mediterráneo, **debido también al** role de vientos (14\_03\_sp)*

*con temperaturas que como ven, pues, van a ir subiendo en Bilbao también **gracias al** viento de suroeste (06\_03\_sp)*

### Adverbial expressions:

*allá sumamos otros ingredientes también, **por ejemplo**, la nuclear, la solar, [...] (09\_03\_sp) ha empeorado la calidad del aire. **De hecho**, de ayer a hoy ha aumentado la concentración (21\_02\_sp)*

*se va hacia el Mediterráneo central, **por lo tanto**, la precipitación en Baleares va a menos (28\_02\_sp)*

Both discourses are characterised by a strong deixis, which accompanies the visual information provided by the maps and graphs, by means of different grammatical elements, such as adjectives "occidente asturiano" (24\_02\_sp), "cantábrico oriental" (28\_02\_sp), or "l'Emilia occidentale" (22\_02\_it), etc. ;

prepositions, which stand out notably in the Italian case, as in "e più giù anche la campagna" (28\_02\_it), "poi più giù anche Toscana" (18\_03\_it) and "e poi è più giù Abruzzo" (23\_03\_it), among many others; and nouns with the cardinal points: "se empieza a retirarse hacia el norte" (03\_03\_sp), "borrascas por el noroeste" (06\_03\_sp), or "riguarderanno il nord ovest" (09\_03\_it), among many others.

## Conclusions

The meteorological information holds great importance in determining the conditions of our physical environment. As a result of long observation, a popular knowledge rooted in specific areas has been generated and transmitted in the form of proverbs. This has traditionally led to a certain level of understanding of meteorological phenomena as part of the wisdom of the citizens, although the communication provided in the news broadcasts, at times, enjoys a high level of specialization. Consider notes on "la dana" such as "la dana se acaba desgajando de la circulación general atmosférica" and "la depresión aislada en niveles altos se vuelve un poco más errática", or in the case of storms, which "se distancian un poco el anticiclón y la borrasca" and "circulan con sus respectivos frentes" (excerpted from our corpus). This can lead to a lack of understanding on the part of the recipient if no information is provided about the phenomena or explanations about their origin or consequences. In this regard, no style guides dedicated to meteorological communication for oral bulletins have been found, beyond the guidelines on their drafting by AEMET, so the forecaster must intralinguistically translate the official forecast and, in this way, freely adapt the communication to the target audience.

Furthermore, the weather report is a special section with very special characteristics due to the limited time available to the presenters, which is why the visual and semiotic space is used as support to present the information. Therefore, aware that weather forecasts employ a specific language, encompassing both technical terms and efforts to adapt the communication to the viewer, in the future, we hope to compare these results by expanding the study to various news broadcasts from different national and regional, public and private channels, and for longer periods, with the aim of analyzing the language associated with the different seasons more thoroughly.

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# Linguistic Strategies for Professional Politeness Among Aspiring Managers: An Analysis of Organizational Psycholinguistics

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**Abstract.** In order to effectively communicate in a professional setting, it is essential for managers to have a mastery of the language specific to their field. One tool that can be used for professional communication is verbal politeness, which involves using appropriate words and phrases to show respect for the listener and soften unfavourable information. These linguistic units promote a culture of professionalism and ethical business relationships and are a key indicator of a manager's speech competence. A psycholinguistic study examined the usage of polite language by aspiring managers. The participants were 218 undergraduate and graduate students enrolled in the Management program across various universities in Ukraine's oblasts. The organizational psycholinguistics research aimed to assess the extent to which aspiring managers incorporate professional language units such as polite words and phrases in their speech. We analyzed the references of 1,308 respondents to determine how politeness language units corresponded to the structural parts of the document. By studying 928 selected language units of politeness, we could assess the level of politeness markers. This indicator reflects future managers' skill level in applying synonymous ranges of politeness. The analysis found out that respondents used various linguistic units to soften the impact of unfavourable information when conveying it to others. These units formed synonymous ranges based on context and semantic content. Only half of the students showed a wide range of knowledge and skills in appropriately using polite language. Thus, aspiring managers need to improve their knowledge and practical skills in using a variety of linguistic units of politeness in business documents. Therefore, we recommend implementing programs to improve communication levels for those pursuing higher education in management.

**Keywords:** *politeness, professional communication, manager, language means of politeness.*

**Власенко Олена, Майструк Вікторія. Лінгвістичні стратегії професійної ввічливості в мовленні майбутніх менеджерів: аналіз у контексті організаційної психолінгвістики.**

**Анотація.** Для ефективного спілкування в професійному середовищі менеджерам важливо досконало володіти мовою, характерною для сфери їхньої діяльності. Одним з інструментів, який може бути використаний для професійного спілкування, є вербальна ввічливість, яка передбачає використання відповідних слів і фраз, спрямованих на вияв поваги до слухача і пом'якшення невігідної для нього інформації. Ці лінгвістичні одиниці

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сприяють формуванню культури професіоналізму та етичних ділових стосунків і є ключовим показником мовленнєвої компетентності менеджера. Психолінгвістичне дослідження вивчало особливості вживання ввічливої лексики майбутніми менеджерами. У ньому взяло участь 218 студентів магістратури та бакалаврату, які навчаються за спеціальністю "Менеджмент" в університетах різних областей України. Дослідження з організаційної психолінгвістики мало за мету оцінити, якою мірою майбутні менеджери використовують у своєму мовленні такі професійні мовні одиниці, як ввічливі слова та словосполучення. Було проаналізовано тексти 1308 респондентів, аби визначити, наскільки мовні одиниці ввічливості відповідають структурним частинам документа. Проаналізувавши 928 відібраних мовних одиниць ввічливості, ми змогли оцінити рівень показників ввічливості. Цей показник відображає рівень володіння майбутніми менеджерами синонімічними рядами ввічливості. Синонімічні ряди слів та словосполучень ввічливості були сформовані на основі контексту їх уживання та семантичного наповнення. Аналіз показав, що респонденти використовували різні мовні одиниці для зменшення впливу несприятливої інформації під час її донесення до інших. Лише половина студентів продемонстрували широкий спектр знань та навичок щодо використання ввічливого мовлення. Отже, майбутнім менеджерам необхідно вдосконалювати свої знання та практичні навички використання різноманітних мовних одиниць ввічливості в ділових документах. Тому ми рекомендуємо впроваджувати програми з підвищення комунікативного рівня для тих, хто здобуває вищу освіту в галузі менеджменту.

*Ключові слова:* ввічливість, професійне мовлення, менеджер, мовні засоби ввічливості.

## Introduction

Various scholars have researched different strategies for business communication (Anthony & Garner, 2016; Orwig, 2020; Halmari, 1993; Vettorel, 2019). In the field of psycholinguistics, verbal business communication is an essential aspect of organizational psycholinguistics (Myskin, 2021), with politeness being a crucial element of such communication (Brown, 2015; Freytag, 2019; Fuertes-Olivera & Nielsen, 2008; Halbe, 2011; King, 2011; Kim & Lee, 2017; Pearson, 1988; Pilegaard, 1997; Ronan, 2022; Schnurr & Chan, 2009). According to Brown (2015, p. 326), politeness is the aspect of language use that most clearly reflects human sociality as expressed in speech. Each researcher analysed a specific area of politeness, such as Ronan (2022), who studied Irish English politeness and noted that few high imposition directives should be used in this variety to preserve the interlocutors' face needs (pp. 175, 178). The results of her research showed that imposition strategies are the most frequently used strategy.

In her work, Brown (2015) accurately distinguished two types of politeness. These two types correspond to different emotions that should be considered when communicating with others. The first type is "negative politeness", which is used when the message may be unwelcome. One should use respectful, restrain, and avoidance expressions in such cases. The second type is called "positive politeness" and is used when maintaining long-term relationships with people is essential (p. 326). In these situations, one should use social closeness, caring, and approval expressions. Schnurr and Chan (2009) noted that social norms play a significant role

in determining appropriate ways of integrating power and politeness in the workplace (p. 131). Broader cultural expectations influence these norms. Politeness is an essential indicator of professional speech competence. It reflects an individual's ability to use language means that demonstrate respect for the interlocutor or mitigate threats to their social face. According to Avramenko et al. (2015, p.32), one should speak delicately without offending others to communicate effectively.

According to Pentyliuk et al. (2011), professional speech requires politeness, courtesy, attentiveness, and restraint. Each situation demands specific language, like using the phrase "With pleasure! Gladly! Please..." to express agreement, "unfortunately, I can't..." for rejection, and "give me, please..." for a request. Sternin (2003) also noted that verbal politeness involves the use of standard etiquette formulas, such as "Hello" and "Goodbye." Moreover, Zaveriushchenko et al. (2019) suggested using forms of politeness, like "dear" and "highly respected." Bolotnikova (2018) suggests the latter being a distant vocative of politeness (p. 6).

Furthermore, avoiding giving direct negative evaluations of the interlocutor's actions, thoughts, and suggestions is crucial. Instead, one should comment on them in a way that allows the interlocutor to "save face." If refusing the interlocutor's offer, it should be done in a non-categorical form, explaining the reason for the rejection and suggesting whom the interlocutor can approach to solve the problem. The most critical aspect of using words of politeness is emphasizing positive aspects in communication and choosing pleasant topics for all participants in the conversation while demonstrating a positive, friendly mood.

The idea of "politeness theory" introduced by Brown and Levinson back in 1987 suggests that it is vital to maintain and save each other's face during dialogue. Avramenko et al. (2015) pointed out that when writing, it is crucial to be polite, as written messages can come across as rude and aggressive (p. 93). This is because written communication lacks the informal information that could soften the negative message. Therefore, choosing each word and phrase carefully is essential when writing business documents. Various studies have confirmed the importance of mastering the appropriate use of language means of politeness for managers to acquire a high level of professional speech. This research aimed to analyse the politeness indicator of the professional speech competence of future managers, which shows their degree of using language means out of the synonymous range of politeness language means and their level of mastery of skills in their use under different situations.

## **Method**

For managers to communicate effectively in a professional environment, they must deeply understand the language specific to their field. Verbal politeness is a powerful technique they can employ to enhance their communication, which involves utilizing appropriate terms and phrases to show respect for their audience and

mitigate negative information. These linguistic units are essential to cultivating a culture of professionalism and ethical business relationships, serving as a critical indicator of a manager's communication proficiency.

A psycholinguistic study was conducted to examine the usage of polite language by aspiring managers. The participants were 218 undergraduate and graduate students enrolled in the Management programme across various universities in Ukraine's oblasts.

The objective of the research was to assess the extent to which aspiring managers incorporate professional language units such as polite words and phrases in their speech. The research used context and situational analyses that examine the specifics of using functional characteristics of language units in certain text types.

The task completion required writing a letter of rejection to an enterprise or person while maintaining a positive relationship. Students were instructed to follow a specific structure consisting of six parts and use six different sets of polite language that demonstrate their proficiency in using common expressions of politeness. The frequency of these language units within each set was analyzed.

The study involved analyzing references from 1,308 respondents to determine the correlation between politeness language units and the structural components of the document. We focused on 928 selected language units of politeness to evaluate the politeness indicator, which provides insight into the proficiency level of future managers in using synonymous ranges of polite language. These ranges were established based on semantic content and areas of application. Our analysis of the politeness indicator of professional speech competence revealed the ability to soften the psychological impact of unfavourable information conveyed to an interlocutor. This indicator reflects knowledge of a range of polite language means and the skill to apply them appropriately. We also assessed the specific weight of linguistic means used within the synonymous range for this application area. Primary information was collected, and then individual information was aggregated using manual and machine processing methods. Statistical research methods were used to process all respondents' choices and relative indicators.

## **Results and Discussion**

The psychological phenomenon of an individual's professional speech has always piqued the interest of researchers. By studying the mechanisms behind generating and perceiving professional speech, we can gain insight into an individual's mental activity. Through psycholinguistic analysis, we can also explore the connection between the professional language of future managers and their thinking, which reflects the development of their linguistic professional consciousness. The letter of rejection follows a specific structure consisting of six semantic blocks. These blocks include the address, information about familiarization with the offer, the result of familiarization, rejection, the possibility of further

cooperation, and the end. To determine an individual's skills in using language means of politeness, we categorize all the means of politeness into six groups of synonymous ranges. The distribution criterion is the area of application and semantic content. Based on the letter of rejection structure, we can identify six semantic synonymous ranges, including the address, thanks for the offer, information about examining the offer, rejection, the possibility of further cooperation, and the end of the letter.

Table 1

*The Analysis Results of the Synonymous Range of Words and Phrases of Politeness Used by Participants When Addressing*

No.	Phrases of politeness	N of respondents who used these phrases	Specific weight to the N of respondents who used phrases of this synonymous range (%)	N of respondents who used these phrases (%)
1	Шановний(на)... / "Dear..."	163	74.8	74.8
2	Пане(ні)... / "Mr./Ms..."	34	15.6	15.6
3	Шановний(на) пан(ні)... / "Dear Mr./Ms..."	19	8.7	8.7
4	Вельмишановний(на)... / "Highly respected..."	2	.9	.9
	Total	218	100	100

When starting a letter, the address used can set the tone for how the rest of the information is perceived. Several polite phrases can be used, such as "Dear...", "Mr./Ms...", "Dear Mr./Ms...", "Dear Sirs," "Dear colleagues," "Dear Sir/Madam...", "Deeply respected...", and "Highly respected...". A survey showed that 45% of respondents used these synonymous ranges of politeness when addressing, and all respondents used polite words or phrases. The most commonly used address was "Dear..." (75% of respondents). Expressing gratitude politely is important, especially when the information being conveyed is negative.

Table 2 shows the different synonymous ranges of politeness respondents use when thanking for an offer.

Table 2

*The Analysis Results of the Synonymous Range of Politeness Words (Phrases) Used by the Respondents as a Gratitude for the Offer*

No.	Phrases of politeness	N of respondents who used these phrases	Specific weight to the N of respondents who used phrases of this synonymous range (%)	N of respondents who used these phrases (%)
1	Дякуємо за вашу пропозицію... / "Thank you for the offer..."	81	59.6	37.2
2	Дякуємо за вашу увагу... / "Thank you for your attention..."	24	17.6	11.0
3	Щиро вдячні за вашу увагу... / "We sincerely appreciate your attention..."	12	8.8	5.5
4	Щиро дякуємо вам... / "We express our sincere gratitude to you..."	8	5.9	3.7
5	Дякуємо за ваші зусилля... / "Thank you for your efforts..."	5	3.7	2.3
6	Дуже дякуємо вам... / "Thank you very much..."	2	1.5	.9
7	Дякуємо за ваш внесок... / "Thank you for your contribution..."	2	1.5	.9
8	Дякуємо за можливість... / "Thank you for the opportunity..."	2	1.5	.9
	Total	136	100.0	62.4

Various polite phrases can be used to express gratitude for an offer, such as "We express our sincerest gratitude for...", "We thank you sincerely for your...", and "First of all, let me thank you for...". However, the text could benefit from providing more context and examples to clarify the meaning of these phrases and when to use them in different situations. Additionally, using active rather than passive voice could

make the writing more engaging and concise. Including practical tips on expressing gratitude and appreciation in a professional setting would also make the text more valuable and useful for readers looking to improve their communication skills. According to the results, respondents used only half of the synonymous range of polite words and phrases when thanking for an offer, and the most common expression used was "Thank you for your offer...".

Out of all the respondents, only 62.4% utilized the polite expression when informing about their familiarity with the offer. The most frequently used phrase was "Thank you for your offer..." by 59.6% (n=81) of the total number of participants who opted for polite phrases. To make the result of familiarization with the offer more effective, it is recommended to include an optimistic evaluation of the addressee using polite words and phrases, as shown in Table 3.

Table 3

*Synonymous Range of Words (Phrases) of Politeness Used by the Respondents When Formulating the Result of Familiarisation with the Offer*

No.	Phrases of politeness	N of respondents who used these phrases	Specific weight to the N of respondents who used phrases of this synonymous range (%)	N of respondents who used these phrases (%)
1	Уважно ознайомившись.../ "Having carefully studied..."	43	47.3	19.7
2	Ретельно вивчивши.../ "Having carefully examined..."	25	27.5	11.5
3	Ми уважно вивчили... /"We have carefully examined..."	15	16.5	6.9
4	Ми із задоволенням ознайомились... /"We were pleased to examine..."	3	3.3	1.4
5	Високо оцінюючи... /"Highly appreciating..."	3	3.3	1.4
6	Уважно прочитавши.../ "Having read carefully..."	2	2.2	0.9
	Total	91	100.0	41.7

In order to express familiarity with an offer politely, several phrases can be used interchangeably. These include "After careful consideration of your offer...", "We have reviewed your offer...", "Thank you for your offer, we appreciate it...", "We



have taken note of your high level of qualifications...", "After a thorough examination of your offer...", "We were pleased to have the opportunity to review your offer...", "We highly appreciate your offer...", "After careful review of your offer...". The research found that half (50%) of respondents utilized these polite phrases when expressing familiarity with an offer.

Table 4 displays our research findings on the use of polite language in rejection letters. Only 41.7% of the respondents used polite phrases when communicating their decision. Among those who did, the most commonly used phrase was "Having read carefully..." which accounted for 47.3% of the total number of participants who used politeness. It is crucial to note that the primary goal of a rejection letter is to communicate a negative result while minimizing any negative emotional impact on the addressee. Therefore, it is essential to formulate the rejection in a way that is objective and adequate without causing any unnecessary discomfort or offence.

Table 4

*Synonymous Range of Words (Phrases) of Politeness Used by the Respondents When Formulating the Rejection*

No.	Phrases of politeness	N of respondents who used these phrases	Specific weight to the N of respondents who used phrases of this synonymous range (%)	N of respondents who used these phrases (%)
1	На жаль, змушені.../ "Unfortunately, we have to..."	67	54.5	30.7
2	Змушені відхилити.../ "We are forced to reject..."	34	27.6	15.6
3	На великий жаль, повідомляємо.../ "We regret to inform you..."	14	11.4	6.4
4	На великий жаль, повідомляємо... / "We are sorry to inform you..."	6	4.9	2.8
5	Щиро жалкуючи... / "Sincerely regretting..."	2	1.6	0.9
	Total	123	100.0	56.4

When turning down an offer, it is crucial to use courteous language. To do so, one can choose from a variety of polite phrases such as "Regrettably, we are unable to accept your offer...", "We're sorry to inform you, but we won't be able to...", "I apologize, but we're obligated to...", "We sincerely regret, but due to the circumstances...", "Unfortunately, we have to...", "We are compelled to decline...", "We regret to inform you...", "We're sorry to say...", "Sincerely regretting...", "We regret to inform you that we are unable to...", "Unfortunately, we are unable to...", "However, unfortunately...", "It's a shame, but we can't at the moment...", "Sadly, given the complications...". According to research, only 36% of these polite phrases were utilized by respondents when declining an offer.

While a majority (56.4%) of respondents did include some form of politeness in their rejections, the most commonly used phrase was "Unfortunately, we have to..." (54.5% of respondents who used polite phrases). It is essential to include the possibility of changing circumstances and reconsidering the decision in favour of the addressee when writing a letter of rejection. Table 5 displays the results of the analysis of polite words and phrases used by respondents when discussing the potential for future collaboration.

Table 5

*Synonymous Range of Polite Words (Phrases) Used by the Respondents When Formulating the Possibility of Further Cooperation*

No.	Phrases of politeness	N of respondents who used these phrases	Specific weight to the N of respondents who used phrases of this synonymous range (%)	N of respondents who used these phrases (%)
1	Ми сподіваємось на подальшу співпрацю... / "We look forward to further cooperation..."	65	45.8	29.8
2	Із надією на подальшу співпрацю... / "We hope for further cooperation..."	26	18.3	11.9
3	Будемо ради побачити нові... / "We will be glad to see new..."	18	12.7	8.3

4	Із надією, очікуємо надалі від вас... / "Looking forward to hearing from you in the future..."	14	9.9	6.4
5	Будемо вдячні... / "We would appreciate..."	11	7.7	5.0
6	Сподіваюсь, у подальшому ми зможемо... / "I hope that in the future, we will be able to..."	6	4.2	2.8
7	Із надією розглянути наступну... / "We would be glad to consider the next..."	1	0.7	0.5
8	Із зміною ситуації, плекаємо надію на подальшу співпрацю... / "With the change in the situation, we look forward to further collaboration..."	1	0.7	0.5
Total		142	100.0	65.1

Based on the research, it was found that a majority of respondents (62%) utilized a variety of polite words and phrases when expressing the potential for future collaboration. Some common examples included expressions like "We look forward to further cooperation", "Looking forward to hearing from you in the future", "We will be glad to see new...", "We will be grateful ...", and "I hope that in the future we will be able to ...". Other similar options included "We would be glad to consider the next...", "With the change in the situation, we look forward to further collaboration...", "We look forward to cooperating with you...", "We hope that you will consider it possible...", "We would be glad if you ...", "We are interested in the possibility of further cooperation...", "We look forward to new offers from you...", and "We would be happy to consider your other offers...".

In formulating the possibility of further cooperation, most respondents, specifically 65.1% or 142 individuals, utilized politeness. Among the polite phrases used, the most frequent was "We look forward to further cooperation...", which was used by 45.8% or 65 of those who utilized polite language. The analysis results of the sixth synonymous range of words and phrases of politeness utilized by the respondents at the end of the letter are presented in Table 6. Lastly, the letter ends with a closing speech phrase of politeness followed by a signature, wherein the final word or phrase of politeness is expressed before the signature.

Table 6

*Synonymous Range of Polite Words (Phrases) Used by the Respondents When Formulating the End of the Letter*

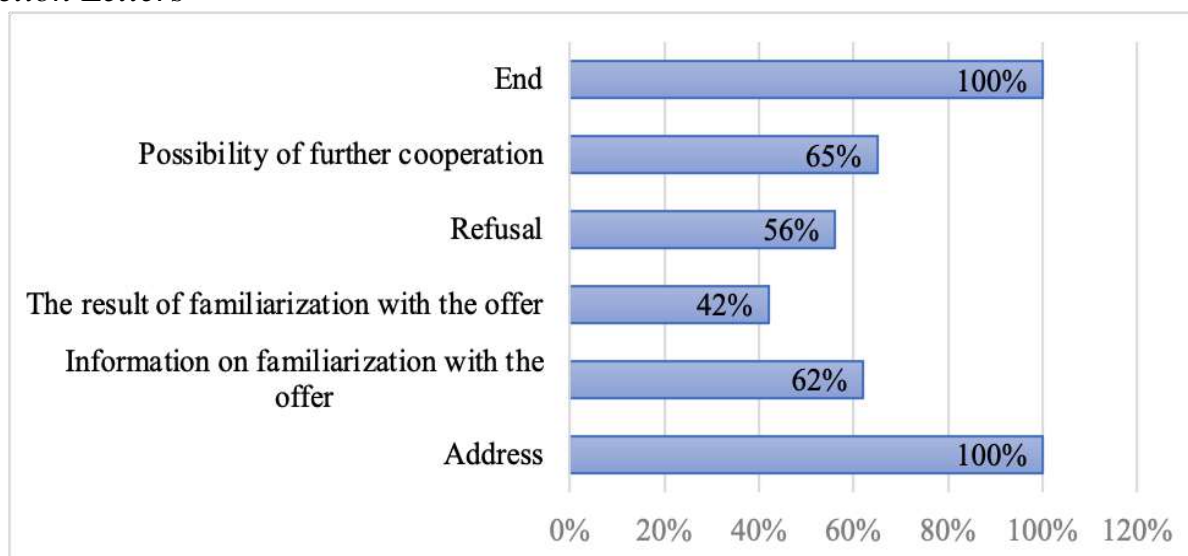
No.	Phrases of politeness	N of respondents who used these phrases	Specific weight to the N of respondents who used phrases of this synonymous range (%)	N of respondents who used these phrases (%)
1	З повагою... / "Best regards..."	203	93.2	93.2
2	З вдячністю... / "Gratefully yours..."	11	5.0	5.0
3	З побажанням подальших успіхів... / "Wishing you further success..."	2	.9	.9
4	Щиро Ваш(а)... / "Sincerely yours..."	2	.9	.9
	Total	218	100.0	100.0

It is customary to end a letter with a signature. However, it is also common to precede it with polite words or phrases such as "With all due respect," "With deep respect," "With gratitude and respect," "Regards and best wishes," "Sincerely," "Best regards," "Wishing you further success," or "Sincerely yours." In our study, we found that half of the respondents used these polite words or phrases in their letters of rejection, and all of them used polite words or phrases at the end of their addresses. The most commonly used phrase was "Sincerely," which 93.1% of the respondents used. Figure 1 shows the degree to which respondents used words or phrases of politeness in different parts of their letters of rejection.

The research shows that politeness is only consistently used when addressing and finishing, with most respondents using the standard phrases "Dear..." and "Sincerely,..." respectively. However, using a synonymous range of words was only partially complete. When familiarising with the offer and the possibility of further cooperation, there was a lower usage of polite language, with only around half of the respondents using a synonymous range of words.

**Figure 1**

*The Weight Assigned to Respondents Who Utilized Polite Language in Their Written Rejection Letters*



The standard phrases "Having read carefully..." and "We hope for further cooperation..." were commonly used, indicating a need for more practical skills in polite language and a limited variety of linguistic expressions under the document's structure.

According to the study, the use of polite language in the structural parts of a letter of rejection and familiarisation with an offer needs improvement. The study found that only 36% and 50% of respondents fully utilised the synonymous range of polite words and phrases for rejection and familiarisation, respectively. Moreover, many respondents used limited language references, indicating a need for more theoretical knowledge and practical skills in this area. It is essential to improve the use of polite language and avoid phrases such as "Unfortunately, we have to..." and "Having carefully studied..." when writing the structural parts of a letter of rejection or familiarisation with an offer.

## Conclusions

After conducting a linguistic analysis of the use of polite language by future managers, it was found that the frequency of using synonymous language units correlates with the level of professional speech competence. Through analysing the individual verbal responses of the respondents, it was observed that all participants expressed their cognitive responses using polite language. However, most respondents used standard phrases without exploring the variety of synonymous ranges. This suggests a limited ability to demonstrate linguistic strategies of politeness among the studied aspiring managers.

All participants expressed their cognitive response to the meeting and bid farewell using polite language. However, the majority of respondents used standard phrases rather than a diverse range of synonyms, suggesting limited linguistic expression among the group. It is important to note that the use of polite language in other sections of the letter of rejection still requires refinement. Approximately half of the participants (ranging from 42% to 65%) omitted polite language in their written variations of the document. Upon examination of the corresponding range of synonyms, it became evident that standardized phrases were commonly used (ranging from 43% to 81%), indicating a constraint in linguistic references.

The information presented in the data suggests that the politeness indicator needs to be improved, reflecting the participating students' professional communication competence. This may be due to a lack of knowledge and practical skills in using different language units and following the structure of a business document. Therefore, we recommend that further studies in organizational psycholinguistics be conducted to address this issue. We also suggest that programs be implemented to improve the level of professional speech of master candidates who have completed higher education in the Management speciality.

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# Linguistic and Semiotic Representation of Pessimism in *The Happy Prince and Other Tales* by Oscar Wilde

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**Abstract.** This paper focuses on the indirect means of verbalising the phenomenon of pessimism in the texts of literary fairy tales from the point of view of linguosemiotics. The study aims to identify the linguistic and semiotic means that create the pessimistic discourse of Oscar Wilde's collection *The Happy Prince and Other Tales*. Pessimistic discourse is treated as a person-centred type of discourse, represented by a complex system of means that reveals the speaker's pessimistic worldview and is characterised by its aims, style, and tenor. The study employs semantic and lingo-semiotic analysis of the ontological phenomenon of pessimism in fictional texts, using content analysis to ensure the reliability and validity of the results. Furthermore, the four-stage methodological procedure used in this research allows us to define a general literary context of the analysed works, select the research material, determine the frequency characteristics of the symbols as lingo-semiotic means that create the pessimistic tonality and discourse of Oscar Wilde's collection *The Happy Prince and Other Tales*. The research identifies the symbols of nature (seasons, flowers), the material world (colours, everyday objects), distance and death (as an ontological category) as verbal triggers of the author's pessimism implemented in the narrative through the contextual markers of basic, adjacent and related qualitative features of pessimism reflecting its social, psychological and cognitive aspects. The study contributes to the development of linguistic semiotics, psycholinguistics and discourse studies by enriching the knowledge of idiostyles. The proposed methodology of the given research is considered promising within the framework of different genres.

**Keywords:** *English literary fairy tale, indirect indicators of pessimism, linguistic semiotics, pessimism, pessimistic tonality, verbal triggers of pessimism, symbols.*

**Волкова Світлана, Бойчук Валентина, Павлюк Алла, Єфремова Наталія.**  
**Лінгвoseміотична репрезентація песимізму в текстах збірки О. Вайлда «Щасливий принц та інші казки».**

**Анотація.** У статті досліджено непрямі засоби вербалізації феномену песимізму в текстах літературних казок з погляду лінгвoseміотики. Мета статті – виявлення й опис лінгвoseміотичних засобів, які сприяють створенню песимістичного дискурсу. Песимістичний дискурс є особистісно-орієнтованим типом дискурсу, який представлений

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комплексною системою засобів репрезентації песимістичного світобачення мовця й характеризується своїми власними цілями, стилем, комунікативними стратегіями та тональністю. Песимізм – це спосіб світосприйняття, який акцентує негативні прояви буття. На індивідуально-психологічному рівні феномен песимізму проявляється певними диспозиціями, атрибуціями, когнітивними стратегіями та настроєм, які визначаються когнітивними параметрами оцінки, мотивації, мети, очікування, самоефективності, надії, віри, волі й супроводжуються негативними атистюдами, психічними станами та емоціями. Дослідження базується на семантичному та лінгвосеміотичному аналізі онтологічного феномену песимізму в художніх текстах із застосуванням контент-аналізу для забезпечення достовірності та валідності отриманих результатів. Крім того, чотириетапна методологічна процедура, використана в цьому дослідженні, дозволяє визначити загальний літературний контекст аналізованих творів, відібрати матеріал дослідження, виявити частотні характеристики символів як лінгвосеміотичних засобів, які створюють песимістичну тональність і дискурс збірки Оскара Вайлда «Щасливий принц та інші казки». У результаті аналізу встановлено та проаналізовано символи природи (пори року, квіти), матеріального світу (кольори, речі повсякденного вжитку), дистанціювання, смерті (як онтологічної категорії) як вербальні тригери авторського песимізму, реалізованого в авторському наративі контекстуальними маркерами, які експлікують базові, суміжні й супутні якісні ознаки песимізму, що відображають його соціальні, психологічні та когнітивні аспекти. Дослідження лінгвосеміотичної репрезентації феномену песимізму на матеріалі збірки Оскара Вайлда «Щасливий принц та інші казки» сприяє розвитку лінгвосеміотики, психолінгвістики та дискурсології, збагачує систему знань про індивідуальні стилі письменників. Запропонована методологія є перспективною для дослідження дискурсів різних типів на матеріалі різножанрових літературних творів.

**Ключові слова:** англійська літературна казка, непрямі ознаки песимізму, лінгвосеміотика, песимізм, песимістична тональність, вербальні тригери песимізму, символи.

## Introduction

Pessimism, a worldview paradigm of human existence, occupies an important place among the controversial problems of philosophical discourse. The pessimistic worldview indicates the predominance of suffering and the futile struggle between good and evil, the triumph of injustice, the absurdity of human life, and the historical process (Schopenhauer, 2015). It is imbued with hopelessness and despair; pessimistic philosophical concepts in the analysis of life and knowledge are based on the premise that the world is not arranged in the best way: it is controlled by natural forces, it is irregular, so there are many coincidences, the world is chaotic and meaningless (Dienstag, 2009). As a socio-philosophical concept, pessimism reflects the evaluative-volitional aspect of the worldview, which negatively determines the world, the state and a person's place in it (Lepskyi, 2006).

At the individual psychological level, pessimism as a way of perceiving the world that emphasises negative aspects of being is manifested by certain dispositions (dispositional pessimism) (Extremera et al., 2007; Milam, 2002), attributions (pessimism as attributional style) (Peterson et al., 1995), cognitive strategies (defensive pessimism) (Norem & Illingworth, 1993), and mood (situational

pessimism) (Keivom-Lockhart, 2013), determined by cognitive parameters of evaluation, motivation, goal, expectation, self-efficacy, hope, belief, will.

Linguistics offers fragmentary studies focusing on specific aspects of the phenomenon of pessimism, such as its verbal expression, strategic potential and communicative tonality. As a strategy, pessimism is considered by Brown & Levinson (1987) within the theory of negative politeness (strategy of being pessimistic). This strategy is one of the distancing strategies aimed at demonstrating to the interlocutor the recognition of his independence and personal autonomy. The speaker is willing to show that he has no intention of violating the boundaries that exist between him and the addressee. With the help of this strategy, the negative face of the addressee is preserved, as the speaker expresses doubts about the possibility of the addressee performing the action to which he is urged. This reduces the degree of influence on the addressee, which may contribute to the refusal to perform the proposed action (Brown & Levinson, 1987).

Pessimistic tonality as a type of communicative tonality in diary discourse is studied by Ihnatieva (2013). It has been found that the types of communicative tonality contribute to the organisation of a more extensive communication model in diary discourse: auto-communication, polycommunication and radial communication. Furthermore, it was found that pessimistic tonality, in contrast to optimistic tonality, is focused on the communicant's despair.

Attempts to investigate the impact of pessimistically marked language means on the overall tone of income press releases were made by Davis et al. (2006) in "Beyond the Numbers: An Analysis of Optimistic and Pessimistic Language in Earnings Press Releases". The authors were the first to explore the role of language in providing investors with reliable information. Continuing the predecessors' work, Rombach (2011) uses the method of content analysis based on DICTION 5.0 software and statistical research methods to analyze optimistically / pessimistically marked vocabulary and concludes that there is an interdependence between the tonality of press releases and market profits.

Despite considerable advances in researching the phenomenon of pessimism in linguistics, there have been very few works that have provided studies on indicators of pessimism in literary texts in general, and no works on indirect indicators of this phenomenon in the texts of literary fairy tales from the linguosemiotic point of view.

Fairy tales remain the object of philosophical, sociological, psychological, literary, and linguistic studies due to their composition, structure, heroes, functions, and poetics. We consider the fairy tale as a linguosemiotic construct that consists of images being in trichotomy relations according to the theory developed by Ch. Pierce (1991). This relation may be iconic, indexic, or symbolic. All these images verbalized in the text are the containers of some cultural, ethnocultural, or sociocultural, codes. Here, we share our contemporary American semiotician Skaggs' point of view that "symbols are often the result of an explicit code, linguistic or otherwise, and always the result of either habitual or repetitive cultural practice" (Skaggs, 2017, pp. 58–59). So, symbols make culturally agreed-upon connections between the sign and its referent. Virtually all words in a language are symbolic (except onomatopoeic words

– they are iconic). In a symbolic relation, according to S. Skaggs, there is neither a resemblance nor physical/environmental connection, but simply an agreed-upon relation. Consequently, the interpretation of symbols and signs necessarily requires special knowledge about their relation to other units in the sign system. Symbolism expresses the relationship between objects, phenomena, and ideas and reveals the laws of connection of the material world with the supernatural one. Sandner (1991) explains that “Life symbols make of a culture what it is specifically, and govern the thoughts and feelings of the people who are part of it”. These ideas are not only relevant in a historical context. For, as Sandner (1991, p. 13) reminds us, referring to an American anthropologist White (1973), “All human behavior originates in the use of symbols”. Furthermore, “All civilizations have been generated, and are perpetuated, only by the use of symbols”.

Therefore, this research aims to identify the linguosemiotic means that create the pessimistic poetics of Oscar Wilde’s fairy-tales collection *The Happy Prince and Other Tales*.

Even though his works are at the center of literary critics’ and linguists’ attention, little attention has been paid to the analysis of the symbolism in his fairy tales. Thus, recent studies have focused on the verbal systems of signs of O. Wilde’s “The Happy Prince” (Alsheikh, Alsady, 2022); the symbolic and decadent elements in O. Wilde’s lyrical dramas (Im, 2017); the symbols of Mirror and Portrait in teaching symbolism based on “The Picture of Dorian Gray” (Toirova, 2019); the symbolism of the Garden (Karpinska, 2018); the role of artistic details in the structure of the novel “The Picture of Dorian Gray” (Shtepa, 2018); the Biblical intertextuality of poetry in the prose work “The Master” (Hrabovetska, 2019), etc.

The following sections cover analysis and linguosemiotic interpretation of indirect indicators and contextual markers of Oscar Wilde’s pessimistic discourse, which are characterized by negative semantics. Causes, aspects, consequences, and various psychological and socio-cognitive features of pessimism are captured, confirmed, clarified, and explained through the system of symbols with pessimistic connotations in literary fairy tales by Oscar Wilde.

## Methods

We focus our linguistic interest on the linguosemiotic poetics of pessimism in literary fairy tale texts. Thus, the paper provides a linguosemiotic approach to a literary text considered as an example of *pessimistic discourse*, which is considered as a person-centred type of discourse, represented by a complex system of linguistic means that show the speaker's pessimistic worldview and is characterised by its own goals, style and tenor.

In addition to the method of quantitative analysis according to the four-stage algorithm, the study also uses semantic and textual analysis methods.

In the first stage, the definitional and componential analyses of the lexical units *pessimism*, *pessimist*, *pessimistic* and *pessimistically* (dictionary definitions from 16

explanatory dictionaries of modern English were analysed) are applied. It was found that the semantic structure of these words contains integrative and differential semantic components that identify psychological, social and cognitive aspects of pessimism. These semantic components are the basis for identifying the basic qualitative features of pessimism: "sadness", "negative expectations", "hopelessness", "misfortune", "uncertainty", "failure", "distrust", "disbelief", "pain", "despair". Implicitly, these features of pessimism correlate with neighbouring emotional entities of different intensity, which are implemented in the semantics of the word by relevant differential semantic components. For example, for the basic qualitative feature of pessimism 'sadness', the adjacent features are 'bad mood', 'depression', 'gloom' and 'grief'. The basic feature of pessimism 'uncertainty' correlates with such adjacent features as 'doubt' and 'indecision'. The adjacent feature for the basic feature of pessimism "pain" is "suffering". The analysis proves that within the semantic structure of the words, the semantic components indicating basic and adjacent qualitative features of pessimism attract semantic components indicating the accompanying emotional reactions and mental states experienced by the pessimist and their consequences. Our observations confirm that related qualitative features of pessimism are "anxiety", "irritation", "disappointment", "fear", "boredom", "lack of enthusiasm", "dissatisfaction", "complaints", "confusion", "passivity", "nervousness", "lack of interest", "loneliness", "negative attitude", "lack of will", "agitation", "apathy", "lack of purpose", "lack of optimism", "deterioration", "lack of motivation". To identify the corpus of lexical units designating the phenomenon of pessimism, 7 dictionaries-thesauruses of the modern English language (Macmillan Dictionary and Thesaurus, Merriam-Webster Online Thesaurus, Online Thesaurus, Roget's 21st Century Thesaurus, The Collins English Thesaurus, Webster's New Thesaurus, Webster's New World Thesaurus) were analyzed. These dictionaries contain lexical units entering the synonymic series of the direct thesaurus, the synonymic series of the reverse thesaurus, and the synonymic series with secondary dominants (in which any member of the synonymic series of the direct thesaurus is dominant). The componential analysis was applied to clarify the inner structure of the selected 611 lexical units – indicators of pessimism, the semantic structure of which represents semantic components that point out basic, adjacent, and related qualitative features of pessimism.

The second stage involves selecting the textual fragments of Oscar Wilde's collection *The Happy Prince and Other Tales* which imply pessimistic connotations indicated in the text either by the above-mentioned lexical units designating the phenomenon of pessimism or by the indirect indicators of the pessimistic narration – the contextual markers of pessimism. These are fragments of literary texts, which with the help of language means, characterized by negative semantics of their elements, capture, confirm, clarify, complete, and explain causes, aspects, consequences, and ways of expressing pessimism. Again, they were selected and analyzed using the *Tropes V8.4* software. This program allows the analysis of large volumes of data by compressing the text into multiple content categories. The use of the *Scenario* function and the option of *Reference Fields* made it possible to single

out fragments containing lexical identifiers of pessimism and contextual markers of pessimism in the analyzed texts.

The third stage of the study reveals the linguosemiotic means of verbalizing the *pessimistic tonality* in the narration of a literary fairy tale. *SentiStrength Software 2.2.* made it possible to identify the intensity and emotionality of text fragments in terms of negative or positive potential. The average value of positive (+ve) / negative (-ve) tonality is the total tonality of the narration.

The fourth stage of the investigation is aimed at establishing the frequency characteristics of the symbols designating the phenomenon of pessimism in Oscar Wilde's collection *The Happy Prince and Other Tales*. Modern linguistics distinguishes several procedures for the distribution of linguistic units by frequency. The most common classifications of such units are based on the absolute and relative frequency of use. Absolute frequency is the number of observations in a given statistical category. In any set of lexical units, according to Dewey (1923), there is always a small group of words with a high frequency of use (the nucleus) and a large number of low-frequency words (the periphery). But between these subsets, there is a transition zone in which the differences between nuclear and peripheral elements are uncertain. Though, as the frequency decreases, the number of units that are in the same interval increases (p. 6). In our research, we adhere to Perebyinis' (1970) point of view, according to which the nucleus includes the elements which make up 75% of the material. The transition zone includes the elements which make up (together with the nucleus) 90%, and the rest (10%) belong to the periphery (p. 165). To indicate the nucleus, the transition zone, and the periphery, we have calculated the relative frequency, that is, the percentage ratio of the absolute frequency to the number of units in the system under consideration, based on the absolute frequency indicators.

## Results and Discussion

The research revealed that symbols as linguosemiotic markers of the pessimistic narrative in Oscar Wilde's collection *The Happy Prince and Other Tales* could be classified into the following groups: symbols of nature (seasons, flowers), symbols of the material world (colours, everyday objects), symbols of distance and ontological symbols.

The symbolism of the seasons is deeply rooted in the world literary tradition and thus represents the temporal code of culture. Autumn is a highly symbolic season because it heralds the beginning of the end. In *The Happy Prince*, Oscar Wilde uses this symbol to represent the end of the relationship between the Swallow and his beloved Reed:

*When the autumn came they [other Swallow] all flew away. After they had gone he felt lonely and began to tire of his lady love* (Wilde, 1888, p. 5).

The results of the sentiment analysis confirm that the lexical tonality of this fragment ranges from +1 to -2 (the average lexical tonality is -1), which indicates a

negative tonality of the narration, supported by the contextual realisation of such qualitative features of pessimism as "sadness", "hopelessness" (basic); "suffering", "gloom" (adjacent); "boredom", "dissatisfaction", "lack of interest", "loneliness", "apathy" (related).

*Winter* is an element of the fairy tales in the collection, except for *The Remarkable Rocket*. The season signals the end of the year and the death of summer. This symbol is used to represent some of life's most painful experiences, like solitude, death, grief, and depression:

*During the spring, the summer, and the autumn he was very happy, but when the winter came, and he had no fruit or flowers to bring to the market, he suffered a good deal from cold and hunger, and often had to go to bed without any supper but a few dried pears or some hard nuts. In the winter, also, he was extremely lonely, as the Miller never came to see him then* (Wilde, 1888, p. 64).

The sentiment analysis shows that the lexical tonality of this fragment ranges from +1 to -4 (the average lexical tonality is -3). The negative tonality of the narrative is achieved by implementing in the text basic, adjacent and related features of pessimism: "sadness", "misfortune", "failure", "despair", "depression", "suffering", "gloom", "dissatisfaction", "passivity", "loneliness", "lack of will", "apathy", "deterioration", "lack of motivation".

The symbolic language of flowers also supports the symbolic realisation of the author's pessimism. In the Victorian era, flowers carried messages that could not be spoken aloud. Oscar Wilde was no exception, using flowers in his collection of tales to implement a biomorphic cultural code.

The rose is the most popular but complex floral symbol (Tresidder, 2005). According to legend, this "queen of flowers" grew in paradise without thorns, but received them after a man's fall. A red rose can represent love and passion. However, its thorns symbolise pain, blood and martyrdom, which are considered to be the basic ('despair'), adjacent ('suffering') and related ('anxiety', 'nervousness') features of pessimism (average lexical tonality score -1):

*You must sing to me with your breast against a thorn. All night long you must sing to me, and the thorn must pierce your heart, and your life-blood must flow into my veins, and become mine* (Wilde, 1888, p. 33).

The symbol of withered flowers extends the pessimistic narration, indicating the basic ("sadness", "hopelessness", "misfortune", "failure"), adjacent ("suffering") and related ("loneliness") qualitative features of pessimism:

*... a young man in a garret... is leaning over a desk covered with papers, and in a tumbler by his side, there is a bunch of withered violets... He is trying to finish a play for the Director of the Theatre, but he is too cold to write anymore. There is no fire in the grate, and hunger has made him faint* (Wilde, 1888, p. 14).

Sentiment analysis proves that the lexical tonality of this extract ranges from +1 to -2 (the average number of lexical tonality -1), which testifies to the pessimism of the narration.

The results of the content and sentiment analyses of the symbols of nature as linguosemiotic indicators of pessimistic discourse are shown in Table 1.

Table 1

*Symbols of Nature as Linguosemiotic Markers of Pessimism*

Symbol	Basic features of pessimism	Adjacent features of pessimism	Related features of pessimism	The average number of lexical tonality
Seasons	sadness, hopelessness, misfortune, failure, despair	depression, suffering, gloom	boredom, dissatisfaction, passivity, lack of interest, loneliness, lack of will, apathy, deterioration, lack of motivation	autumn: -1; winter: -3;
Flowers	sadness, hopelessness, misfortune, failure, despair	suffering	anxiety, nervousness, loneliness	rose: -1; withered flowers: -1;

Not only the symbols of nature but the symbols of the material world (colours, things of everyday use) are often used as the examples of the objective code, indicating pessimistic tonality.

The role of symbolic colours in Oscar Wilde's tales is great as it is one of the main semiotic tools of his aesthetic worldview. In *The Nightingale and the Rose*, the nominative meaning of *crimson* has the connotation of approaching *death*, thus implementing the author's pessimism. Having originated from Celtic mythology, where the end looks like a red rider (Tresidder, 2005), the red colour dominates in the texts of English folk and literary tales. Dominating red colour implements a biomorphic code (cultural code that reveals the idea of fauna and flora). The author deliberately uses the symbol of crimson to show the death of the rose and to reveal the range of relative qualitative characteristics of pessimism - basic ("sadness", "negative expectations", "hopelessness", "disbelief", "pain", "despair"), adjacent ("depression", "suffering", "gloom", "grief") and related ("loneliness", "apathy", "lack of optimism"):

*So the Nightingale pressed closer against the thorn, and the thorn touched her heart, and a fierce pang of pain shot through her. Bitter, bitter was the pain, and wilder and wilder grew*



*her song, for she sang of the Love that is perfected by Death, of the Love that dies not in the tomb. And the marvelous rose became crimson, like the rose of the eastern sky* (Wilde, 1888, p. 38).

Though due to the results of the Sentiment analysis, the given fragment has positive strength 1 and negative strength -3 (the average number of lexical tonality - 1), the positive connotation refers mainly to the lexeme *marvelous*. At the same time, the rest of the text shows a negative tonality.

*Black*, another in number symbolic colour that helps to create the pessimistic poetics of Oscar Wilde's tales, is the colour of hostile forces and sad events. It is associated with death and evil. As it is entrenched in contemporary English idioms, *black* is synonymous with *misfortune* (Tresidder, 2005). As shown by the results of the analysis, Oscar Wilde uses black colour as a symbol of the implementation of the spiritual and cultural code, which reflects basic ("sadness", "negative expectations", "hopelessness", "misfortune", "uncertainty", "pain"), adjacent ("depression", "suffering", "gloom", "grief") and related ("fear", "boredom", "dissatisfaction", "loneliness"), "apathy") qualitative features of pessimism, which create a general pessimistic tonality of the narration:

*He flew into dark lanes and saw the white faces of starving children looking out listlessly at the black streets* (Wilde, 1888, p. 19).

*The night was so black that little Hans could hardly see* (Wilde, 1888, p. 81).

*...he walked at the head of the procession in a long black cloak, and every now and then he wiped his eyes with a big pocket handkerchief* (Wilde, 1888, p. 83).

The average lexical tonality ranges in the examples above from -2 to 0, indicating the pessimistic discourse.

One more colour symbol, which adds to the pessimistic tonality of the narration, is *grey*. Though the frequency of its use is low, it creates an atmosphere of renunciation, humility, and melancholy and is sometimes associated with death and mourning, thus implementing a range of qualitative features of pessimism – basic ("sadness", "negative expectations", "hopelessness", "misfortune", "uncertainty", "pain", "despair"), adjacent ("depression", "suffering", "gloom", "sorrow") and related ("anxiety", "dissatisfaction", "nervousness", "loneliness", "negative attitude", "apathy"):

*Leaf after leaf of the fine gold the Swallow picked off, till the Happy Prince looked quite dull and grey* (Wilde, 1888, p. 20).

*He was dressed in grey, and his breath was like ice* (Wilde, 1888, p. 48).

*Only true lovers could drink out of this cup, for if false lips touched it, it grew grey and dull and cloudy* (Wilde, 1888, p. 91).

Thus, rendering the spiritual code, the symbol of grey colour furnishes the narration with negative lexical tonality, which ranges from -2 to 0, reflecting the pessimistic expectations of the author.

Apart from the colours, pessimistic symbols of the material world in Oscar Wilde's literary fairy tales are represented by the things of everyday use. Seif (2019, p. 124) notices that there is a distinction between what we observe through our senses as *things* and what we perceive as *objects*. According to the American semiotician Deely (2009), the quasi-error of routinely mistaking objects for things leads to confusion about the external reality which lies inside thoughts and within objective reality. The opposite error of mistaking things for objects leads to the conclusion that things are the whole reality (Deely, 2001), of which death is considered the most final. "Thing" in a literary work is understood as a set of artificial objects that are part of the world of literary work. This may be the character's costume, the interior of the house, personal items, and the like. A thing directly related to the individual's behavior and consciousness evokes a certain attitude and is a source of impressions, experiences, and reflections. Since literature reflects the world in its physical and concrete-subject forms, it is quite natural that things, invariably present in human reality become one of the components of artistically rethought reality.

Hence, the *cart-wheel* in *The Nightingale and the Rose* that destroys the rose after the Student throws it into the street is pessimistically symbolic of how little society values love:

*Well, upon my word, you are very ungrateful," said the Student angrily; and he threw the rose into the street, where it fell into the gutter, and a cart-wheel went over it (Wilde, 1888, p. 40).*

The cart wheel is a helpful utilitarian object for transportation and commerce, while the rose is an archaic symbol of romanticism. By crushing the flower with a wheel, Oscar Wilde represents how the practical considerations of Victorian society (industry and money) destroy romantic ideas and trample on sentimentalism, thus implementing in the fairy tale the range of various qualitative features of pessimism – basic ("sadness", "failure"), adjacent ("bad mood") and related ("anxiety", "irritation", "nervousness", "negative attitude", "agitation") - and creating negative pessimistic lexical tonality of the narration (the average number of lexical tonality -3).

The *Student's shoes* in the same tale symbolize social status and lack of wealth. When the Professor's daughter rejects the Student, and the Student calls her ungrateful, she retaliates by mocking his shoes:

*I tell you what, you are very rude; and, after all, who are you? Only a Student. Why, I don't believe you have even got silver buckles to your shoes as the Chamberlain's nephew has"; and she got up from her chair and went into the house (Wilde, 1888, p. 40).*

The negative pessimistic tonality of the fragment (average lexical tonality -1) is supported by the verbal realisation of basic ("negative expectations", "hopelessness", "misfortune", "failure"), adjacent ("suffering", "gloom") and related ("anxiety", "irritation", "disappointment", "dissatisfaction", "complaints", "nervousness") qualitative features of pessimism. Table 2 demonstrates the correlation between

symbols of the material world, qualitative features of pessimism embodied in them, and the general tonality of pessimistic discourse.

Table 2

*Symbols of the Material World as Linguosemiotic Markers of Pessimism*

Symbol	Basic features of pessimism	Adjacent features of pessimism	Related features of pessimism	The average number of lexical tonality
Colours	sadness, negative expectations, hopelessness, misfortune, uncertainty, disbelief, pain, despair	depression, suffering, gloom, grief	anxiety, boredom, dissatisfaction, nervousness, loneliness, negative attitude, apathy, lack of optimism	fear, crimson: -1; black: -2 to 0; grey: -2 to 0
things of everyday use	sadness, negative expectations, hopelessness, misfortune, failure	suffering, gloom, bad mood	anxiety, irritation, disappointment, dissatisfaction, complaints, nervousness, negative attitude, agitation	cart-wheel: -3; the <i>Student's shoes</i> : -1

A *wall*, being both the symbol of the material world and the symbol of distancing, reflects the pessimism of narration, indicating a range of qualitative features of pessimism, such as basic ("sadness", "negative expectations", "hopelessness", "uncertainty", "distrust", "disbelief", "pain", "despair"), adjacent ("depression", "suffering", "gloom", "grief", "doubt", "indecision") and related ("fear", "lack of enthusiasm", "dissatisfaction", "passivity", "lack of interest", "loneliness", "negative attitude", "lack of will", "apathy", "lack of purpose", "lack of motivation"), qualitative features of pessimism.

In *The Happy Prince*, a very lofty wall around the garden, which protects the Prince from the tragic reality of life outside, is the pessimistic symbol of negative expectations, uncertainty, distrust, disbelief, gloom, indecision, passivity, loneliness, and apathy:

*Round the garden ran a very lofty wall, but I never cared to ask what lay beyond it, everything about me was so beautiful. My courtiers called me the Happy Prince* (Wilde, 1888, p. 8).

The average number of lexical tonality of the given fragment (-2) enhances the pessimistic symbolism of narration.

In *The Selfish Giant*, the *wall* represents the Giant's heart closed to children. The pessimistic tonality of the utterance is supported by the average number of lexical tonality (-1), which renders a range of pessimistic feelings and attitudes: sadness, negative expectations, distrust, disbelief, gloom, loneliness, and negative attitude:

*So he built a high wall all round it and put up a noticeboard. TRESPASSERS WILL BE PROSECUTED. He was a very selfish Giant (Wilde, 1888, p. 46).*

The ontological symbol of *death* became one of the most vivid linguosemiotic markers of the pessimistic narration in Oscar Wilde's collection *The Happy Prince and Other Tales*. The concept of *death* has a deep semiotic root, so its sense can be explained from a semiotic perspective. In his book "De-Sign in the Transmodern World", Seif states: "When we cross the world of the living to the world of the dead, our physical existence is no longer here and now, but our souls and thoughts are, and will forever be, 'living' life semiotically" (Seif, 2019, p. 124). The metaphysics of death having transmitted into the tragic European pessimism of the XIX century became a new form of cultural and moral identifications based on nihilistic pessimism, catastrophic worldview, metaphysics of the end, and aestheticization of death as a fundamental human and cultural positive value.

*I am going to the House of Death. Death is the brother of Sleep, is he not?" (Wilde, 1888, p. 21).*

*Death is a great price to pay for a red rose," cried the Nightingale (Wilde, p. 33).*

*Bitter, bitter was the pain, and wilder and wilder grew her song, for she sang of the Love that is perfected by death, of the Love that dies not in the tomb (Wilde, 1888, p. 37-38).*

*...the little boy may fall into the deep river and be drowned (Wilde, 1888, p. 101).*

*At last, he lost his way and wandered off on the moor, which was a very dangerous place, as it was full of deep holes, and there poor little Hans was drowned (Wilde, 1888, p. 82).*

The average negative pessimistic tonality of the fragments is -1. It is supported by the verbal implementation of basic, adjacent and related qualitative features of pessimism ("sadness", "negative expectations", "hopelessness", "misfortune", "uncertainty", "failure", "pain", "despair"; "depression", "suffering", "gloom", "grief"; "disappointment", "fear", "nervousness", "loneliness", "negative attitude", "lack of will", "agitation", "apathy").

The linguosemiotic approach to a literary text, viewed as a sample of a pessimistic discourse, makes it possible to define symbols of distancing and an ontological symbol of death representing the pessimistic poetics of the narration (See Table 3).

Table 3  
*Symbols of Distancing and Ontological Symbols as Linguosemiotic Markers of Pessimism*

Symbol	Basic features of pessimism	Adjacent features of pessimism	Related features of pessimism	The average number of lexical tonality
Wall	sadness, negative expectations, hopelessness, uncertainty, distrust, disbelief, pain, despair	depression, suffering, gloom, grief, doubt, indecision	fear, lack of enthusiasm, dissatisfaction, passivity, lack of interest, loneliness, negative attitude, lack of will, apathy, lack of purpose, lack of motivation	wall: -2
Death	sadness, negative expectations, hopelessness, misfortune, failure, pain, despair	depression, suffering, gloom, grief	disappointment, fear, nervousness, loneliness, negative attitude, lack of will, agitation, apathy	death: -1

Having applied the method of quantitative analysis we defined the frequency characteristics of the symbols designating the phenomenon of pessimism in the collection under study (See Table 4).

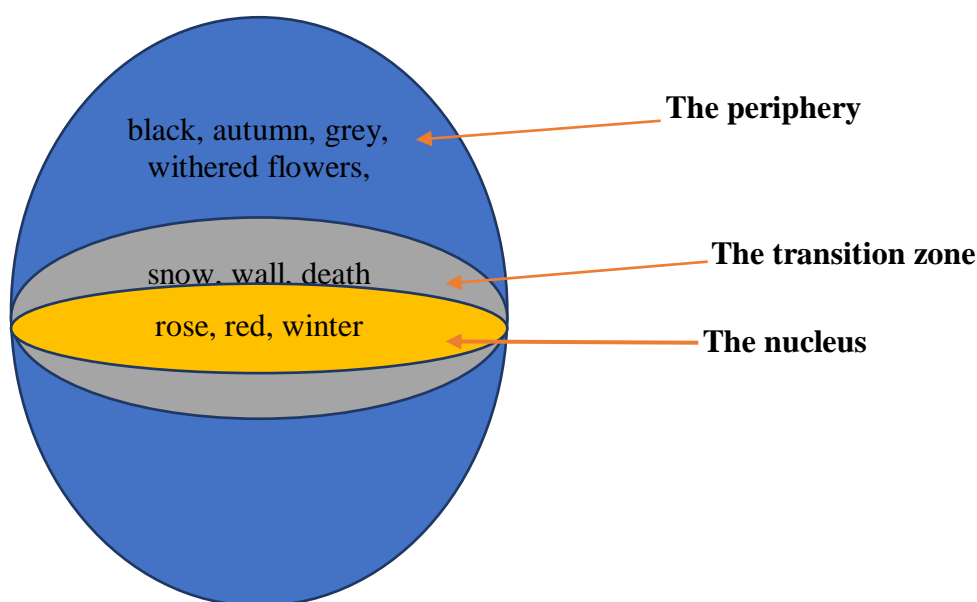
Table 4  
*Absolute and Relative Frequency of the Symbols Designating the Phenomenon of Pessimism*

Symbol	Absolute frequency	Relative frequency
rose	61	36.75
red	44	26.51
winter	15	9.04
snow	10	6.02
wall	9	5.42
death	8	4.82
black	5	3.01
autumn	4	2.41
grey	4	2.41
withered flowers	3	1.81
student's shoes	2	1.2
cart-wheel	1	.6
	166	100

As can be seen from the data the nucleus comprises the following symbols: **rose** (36.75%), which belongs to the group of *flowers*, **red** (26.51%), which belongs to the group of *colours* and **winter** (9.04%), which belongs to the group of *seasons*. Symbols of four groups of the material world (colours, seasons, things of everyday use, flowers) stand out on the periphery. As the border between the nucleus and the periphery is unclear, and amorphous, we can talk about a transitional group of symbols, which includes *snow*, *wall* and *death*. Thus, the quantitative distribution of elements between the nucleus, the transition zone, and the periphery are three, three, and six symbols, respectively (See Figure 1).

**Figure 1**

*The Quantitative Distribution of the Symbols Designating the Phenomenon of Pessimism*



The data given above, which demonstrate the quantitative evaluation of the frequency characteristics of the separate symbols designating the phenomenon of pessimism in Oscar Wilde’s collection *The Happy Prince and Other Tales*, still fail to explain the general pessimistic markedness of the groups these symbols enter. The results of quantitative analysis which represent the relative frequency of the groups of pessimistically marked symbols are illustrated in Table 5.

Table 5

*Relative Frequency of the Groups of Symbols Designating the Phenomenon of Pessimism*

Groups of symbols	Relative frequency
Symbols of nature: flowers	38.56
Symbols of the material world:	31.93

colours	
Symbols of nature: seasons	17.47
Symbols of distancing and ontological symbols	10.24
Symbols of the material world: things of everyday use	1.8
	100

Having indicated the relative frequency of the groups of pessimistically marked symbols, we can assume that the symbols of nature (seasons, flowers) have the highest general relative frequency – 56.03; the symbols of the material world show the decrease in the general relative frequency – 33.73. The general relative frequency of the group of symbols of distance and ontological symbols is 10.24.

## Conclusions

Oscar Wilde's collection "The Happy Prince and Other Tales" is an example of pessimistic discourse, rich in linguosemiotic means of creating the poetics of pessimism. Symbols of nature (seasons, flowers), the material world (colours, everyday objects), distance and death are considered as indirect markers of pessimism through the textual implementation of basic, adjacent and related qualitative features of pessimism, reflecting its psychological and socio-cognitive aspects. The relative frequency of the groups of symbols denoting the phenomenon of pessimism indicates their potential for creating a pessimistic discourse with its negative tonality in such a way that the higher the frequency, the more pessimistic the author's narrative. Pessimistic symbols identified in Oscar Wilde's collection "The Happy Prince and Other Tales" are components of the semiotic fabric of literary prose text, endowed with significant information about the author's conceptual picture of the world and idiosyncrasy.

The proposed methodology has potential applications in psycholinguistics, linguosemiotics, cognitive semiotic linguistics, communicative linguistics and discourse studies. The obtained results contribute to the elaboration of the linguosemiotic study of ontological phenomena in fictional texts and to the enrichment of the knowledge of the author's idiosyncrasy. Furthermore, the application of semantic and linguosemiotic approaches to the interpretation of textual facts can make it possible to identify the indirect indicators and contextual markers of these phenomena in texts of different genres..

## Disclosure Statement

No potential conflict of interest was reported by the authors.

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# Defining Conceptual Boundaries of Moral Injury and Post-Traumatic Stress Disorder in Military Population: A Systematic Review

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**Abstract.** Moral injury is one of the main emotional distress in military personnel. Findings suggest that in wartime there are an endless number of potentially morally injurious events, which determine maladaptive cognitions, moral emotions of guilt and shame, and inefficient behaviour. Notwithstanding the strong association between moral injury and post-traumatic stress disorder (PTSD) recognized in the number of studies, there is still a gap of accurate data aligned with identifying the differences between moral injury and PTSD in terms of treatment and healing. This study aims to establish conceptual boundaries of moral injury, post-traumatic stress disorder and systematically review the empirical literature on them in military personnel. Specifically, we explored and summarized co-occurrence of moral injury and PTSD in military personnel and evaluated the association between moral injury and PTSD, as well with other emotional distress. An intensive bibliography search screening, extraction and report focusing in moral injury and PTSD was conducted following the PRISMA recommendations. The results indicate that the key aspects of comparison of moral injury and PTSD include definition and symptomology, measurement, neural underpinning, and treatment. Considering the consequences of poor social well-being, emotional sufferings and inefficient behavioral patterns, interventions focusing on moral injury separately from PTSD-focused evidence-based protocols are much needed.

**Keywords:** *moral injury, post-traumatic stress disorder, military personnel, conceptual boundaries.*

**Засєкіна Лариса, Кокун Олег, Глова Ірина, Бойко Марта. Визначення концептуальних меж моральної травми й посттравматичного стресового розладу у військових: систематичний огляд.**

**Анотація.** Моральна травма є вид емоційного дистресу у військовослужбовців. Результати досліджень свідчать про те, що у воєнний час існує суттєва кількість потенційно морально травматичних подій, які зумовлюють спотворені когніції, моральні емоції провини та сорому, а також неадаптивну поведінку. Незважаючи на кореляційний зв'язок між моральною травмою та посттравматичним стресовим розладом, визнаний у низці досліджень, досі існує прогалина в наукових даних, пов'язаних з визначенням відмінностей між моральною травмою та посттравматичним стресовим розладом з погляду лікування та

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зцілення. Це дослідження має за мету встановити концептуальні межі понять моральної травми, посттравматичного стресового розладу та систематично проаналізувати літературу щодо спільних та відмінних проявів цих конструктивів у військовослужбовців. Зокрема, ми дослідили й узагальнили випадки спільного перебігу моральної травми та посттравматичного стресового розладу у військовослужбовців й оцінили зв'язок цих конструктивів із іншими супутними симптомами психічного здоров'я. Інтенсивний бібліографічний пошук, скринінг, вилучення та звіт, присвячений моральній травмі та посттравматичному стресовому розладу, проведено відповідно до рекомендацій PRISMA. Результати вказують на те, що ключовими аспектами порівняння моральної травми та посттравматичного стресового розладу є визначення цих понять та їхня симптоматика, діагностика, нейронна зумовленість та лікування. Ураховуючи наслідки низького соціального благополуччя, емоційних страждань і неадаптивних поведінкових моделей, вкрай необхідні методи інтервенцій, орієнтовані на моральну травму, окремо від науково-базованих протоколів лікування посттравматичного стресового розладу.

*Ключові слова:* моральна травма, посттравматичний стресовий розлад, військовослужбовці, концептуальні межі.

## Introduction

### Moral Injury and Potentially Morally Injurious Events

Moral injury (MI) is one of the major concerns recognized in military population (Farnsworth et al., 2014). MI relates to emotional distress felt when individuals perpetrate, witness or fail to prevent actions which transgress their core moral or ethical beliefs (Litz et al., 2009). Evidence consistently suggests that transgressive acts can be justified in the context of war and yet still be morally injurious (Farnsworth et al., 2014; Litz et al., 2009). In addition, Fleming (2021) points out that MI roots are deeper than perpetrating, witnessing or failing to prevent actions and are aligned with moral and ethical paradoxes during wartime. He defines seven of them, namely political ideas vs actual experience, professional role vs organizational procedure, myth of war vs reality of war, religious belief vs military values, order vs chaos, dead vs alive.

Findings suggest that in wartime there are endless number of potentially morally injurious events (PMIEs). They include killing or injuring others, rape, atrocities, engaging in retribution or disproportionate violence, or failing to save the life of others (Braitman et al., 2018; Currier et al., 2018; Farnsworth et al., 2014). PMIEs are associated with self-harm and suicidality, substance use and social problems, and an increased risk of post-traumatic stress disorder (PTSD) and depression. Houle et al. (2020) point out eight major features of PMIEs-related distress, namely change in moral attitude, increased sensitivity and reactivity to moral situations, loss of trust in self and others, disruptions in identity and relatedness to others, weakening religious beliefs, rumination, persistent behavioral and emotional patterns. PMIEs also relate to a range of emotional distress, including guilt, anger, shame, depression, social isolation and self-blame (Griffin et al., 2019; Litz et al., 2018).

How best to measure the MI and to treat it is still one of the major concerns in the field. The findings consistently suggest that treatment must be focused to include

MI and guilt components as opposed to standardised PTSD treatment programs (Frankfurt & Frazier, 2016; Griffin et al., 2019; Litz et al., 2009). Koenig et al. (2017) provided rationale for Spiritually Oriented Cognitive Processing Therapy (SOCPT), a version of standard cognitive processing therapy for the treatment of MI in military population. The obtained results indicate that evidence-based treatment for MI should include spiritual beliefs of military personnel.

The most frequent measures with high psychometric properties are Moral Injury Events Scale (MIES) (Nash et al., 2013) and Moral Injury Symptom Scale–Military Version (MISS-M) (Koenig et al., 2018). However, these tools require translation, adaption and standardization in different languages and cultural settings.

Most MI studies have been conducted on military personnel in the US, UK and Canada (Bryan et al., 2018; Currier et al., 2018; Koenig et al., 2017; Williamson et al., 2020). However, as Plouffe et al. (2021) point out the internal consistency of MIES in Canadian military personnel is high, although the dimensionality of the scale remained still unclear (Plouffe et al., 2021). There is a qualitative study of MI in Nigeria population, focused on circumstances of exposure to morally injurious situations (Okulate et al., 2021), and cultural adaptation and standardization of MI scales on the sample of veterans and military personnel in Netherlands (Nieuwsma et al., 2021). In an Israeli population there have been few studies on MI and the experience of PMIEs (Dekel et al., 2016; Levi-Belz and Zerach, 2018). It is estimated that 21% of Israeli combat soldiers have displayed potentially morally injurious behaviours and 34% have witnessed another soldier do so (Levi-Belz and Zerach, 2018; Zerach & Levi-Belz, 2018). The recent findings suggest that MI is associated with collective trauma of the genocide in the Holodomor survivors and their offspring in Ukraine (Zasiekina, 2020) and family trauma in childhood. MI has negative consequences for veteran psychological wellbeing and adversely affects daily functioning, with several difficulties relating to employment described, including increased trouble coping with occupational stress, authority figures and interpersonal difficulties (Williamson et al., 2019a). In addition, combatants with MI were more likely to engage in risky behaviours or use substances though this was strongly mediated by distress (Feingold et al., 2019). More recent attention has focused on women military personnel. Researchers attempted to evaluate the MI and PTSD impact on perinatal outcomes during the period following women veterans' separation from military service. The results from this study indicate that both PTSD symptoms and MI are associated with adverse perinatal outcomes (Nillni et al., 2020).

All studies reviewed use measures currently designed for a US military population. However, there have been no studies to assess MI in civilians during armed conflict and wartime. The prevalence of MI within a general military sample through a targeted qualitative study identified patients with a morally injurious component in a PTSD, evidence-based therapies for MI vs PTSD treatment.

Further research of MI in civilian and military samples during wartime applying both qualitative and quantitative measures will have important theoretical and practical implications.

## PTSD in Military Population

PTSD seems to be the most frequently occurring negative mental health outcome of traumatic events that involve life threat and elicit in an individual such feelings as fear, helplessness and/or horror (Gates et al., 2012; Rahman & Brown, 2021; Tanielian & Jaycox, 2008). The most known examples of such traumatic events are combat, natural disasters, physical or sexual assaults (Bomyea et al., 2012). PTSD has received special attention because it results in significant social and economic burdens and it is related to many negative health outcomes (Rauch et al., 2010), such as physical and mental health difficulties, including depression and suicide (Bomyea et al., 2012). PTSD can affect 7–8% of the general population, but its occurrence is much more often among certain subgroups, such as active-duty military personnel and veterans (Gates et al., 2012).

According to the Fifth Statistical and Diagnostic Guide to Mental Disorders (DSM-5; American Psychiatric Association, 2013), PTSD symptoms include: intrusion symptoms (nightmares, flashbacks, emotional distress and physical reactivity after exposure to traumatic reminders), avoidance (trauma-related thoughts or feelings, external reminders of the trauma, like people, places, activities and conversations), negative alterations in cognitions and mood (inability to remember important aspects of the trauma, blaming oneself or others for causing the trauma, overly negative thoughts and assumptions about oneself or the world, diminished interest in activities, feeling isolated), alterations in arousal and reactivity (irritability or aggression, hypervigilance, heightened startle reaction, risky or destructive behaviour, difficulty concentrating and sleeping).

At the same time, there is still no consensus on specific trauma types and their corresponding PTSD symptom profiles (Fajarito & Guzman, 2017; Graham et al., 2016), as well as the corresponding severity of manifested symptoms (Graham et al., 2016). Moreover, individual differences existing before, during, or after trauma may be important in order to understand why some people suffers PTSD while others recover naturally (Bomyea et al., 2012).

PTSD is a leading mental health problem among military personnel who have served in wars along with depression, substance abuse, impairment in social functioning and inability to work (Hoge et al., 2004; Hruby et al., 2021; Kamphuis et al., 2021; Shen et al., 2009). PTSD is associated with numerous deleterious outcomes both for veterans and active-duty service personnel, and PTSD has substantial costs for individuals, their families and society overall (Gates et al., 2012; Koven, 2018).

In addition, we can include the following negative *personality outcomes*, related to PTSD of military personnel which have emerged in various studies: significantly decreased life satisfaction (Hashemi Dezaki et al., 2021), diminished interest in, and detachment and estrangement from others (Graham et al., 2016), increased anxiety, anger and aggression (Dami et al., 2018; Gates et al., 2012) and appeared suicidal ideations (Jakupcak et al., 2009).

The negative *health* effects of PTSD on military personnel are: higher risk of cardiovascular, respiratory, gastrointestinal, nervous system and autoimmune disorders (Gates et al., 2012), accelerated weight gain and obesity (Hruby et al., 2021; Takemoto et al., 2021) and increased fatigue (Shastry et al., 2022).

The main adverse *society outcomes* are: reduced military readiness of military personnel and worsened accomplishment of military goals (Dami et al., 2018); marital and family problems (Gates et al., 2012; Koven, 2018); social withdrawal (Dami et al., 2018); job instability (unemployment and underemployment (Koven, 2018; Smith et al., 2005); alcoholism, drug abuse, homelessness, and criminal acts (Koven, 2018).

According to various researchers, the PTSD frequency in veterans can be up to 30% (Kokun et al., 2020). According to Gates et al. (2012), the PTSD frequency in deployed U.S. military personnel was within 14–16%. Numerous authors revealed that PTSD among veterans of the Enduring Freedom and Iraqi Freedom operations was within 11–23%: 11–17% according to Hoge et al. (2004), 13–15% in Lapierre et al. (2007), 21.8% in Seal et al. (2009) and 23% in Fulton et al. (2015). As for Ukrainian military personnel who participated in the armed conflict in eastern Ukraine in 2014–2016, 20.2% of them had a predictive PTSD diagnosis (Kokun et al., 2020). Ferrajão and Oliveira (2015) determined that 30% of Portuguese veterans suffered from chronic PTSD. Also, Seal et al. (2009) revealed that active-duty veterans younger than 25 years had higher PTSD rates compared with active-duty veterans older than 40 years.

Paige et al. (2019) revealed four types of potentially traumatizing war zone experiences: threats to life, committing a moral injury, observing a moral injury and traumatic loss. However, the most important PTSD risk factor for military personnel is combat exposure (Pietrzak et al., 2011), as personnel deployed in a combat role with higher combat exposure are at higher PTSD risk (Hines et al., 2014; Sipos et al., 2014). In particular, Cesur et al. (2012) found that active-duty U.S. soldiers serving in combat zones were at greater PTSD risk than their active-duty counterparts serving in non-combat zones outside the United States.

The immediate combat stressors causing PTSD in military personnel to the most degree are: frequent enemy firefights (Cesur et al., 2012); being exposed to "friendly" fire and land mines/traps (Pietrzak et al., 2011); being surrounded by an enemy (Kokun et al., 2020); danger of being injured, killed or ambushed (King et al., 1995; Kokun et al., 2020); wounds or injuries (Cesur et al., 2012); physical killing of an enemy (Kokun et al., 2020); personally witnessing someone from one's unit or an ally unit being seriously wounded or killed (Cesur et al., 2012; Pietrzak et al., 2011; Shen et al., 2009); personally witnessing someone non-combatant being seriously wounded or killed (Cesur et al., 2012; Shen et al., 2009); personally witnessing handled or uncovered human remains (Guyker et al., 2013; Kokun et al., 2020); ruined buildings, machinery, structures, and landscape (Kokun et al., 2020).

The need for timely and targeted screening of PTSD as part of post-deployment clinical examinations for troops returning from military conflicts was specified by Kang et al. (2003) and Seal et al. (2009). The issue of both vulnerabilities for PTSD

development and protection against it depending on military personnel factors is also quite important (Sheerin et al., 2018). In particular, such vulnerability factors for military personnel's PTSD were mentioned: an avoidant coping style (Sheerin et al., 2018; Thomassen et al., 2018); higher levels of negative self-beliefs (Sheerin et al., 2018); negative attributions, rumination and appraisals, fear of emotion, and looming cognitive styles (Bomyea et al., 2012). It should also be borne in mind that reservists were exposed to traumatic experiences at a higher rate than the regular forces (Browne et al., 2007).

Protective factors for PTSD symptoms included hardiness/resilience resources (Kamphuis et al., 2021; Thomassen et al., 2018); cognitive flexibility (Sung et al., 2019); existing meanings in life (Fischer et al., 2020); horizontal unit cohesion (Campbell-Sills et al., 2022). However, we should note that scientific data on vulnerability for PTSD development and protective factors associated with PTSD are clearly insufficient, since, as we can see, only single and non-systematic studies on this subject are available. Moreover, there is still a gap of accurate data aligned with difference of MI and PTSD in terms of treatment and healing.

Therefore, the present study aims to systematically review the empirical literature on MI and PTSD in military personnel to explore and summarize co-occurrence of MI and PTSD in military and evaluated association between MI and PTSD, as well with other emotional distress.

## Methods

To assess the association of MI and PTSD, this study aimed to systematically review the empirical literature on MI and PTSD in military personnel. Specifically, we explored and summarized the published literature to examine the co-occurrence of MI and PTSD in military personnel and evaluated the published studies to better understand the association between MI and PTSD, together with other emotional distress. For this purpose, the study applied parallel literature searches in Scopus, Medline (PubMed), PsycINFO (EBSCOhost) and Web of Science (Clarivate) using the key terms “moral” and “injury”, “PTSD”, “traumatic stress”, “stress disorder”, “acute stress”, combined with terms relating to “military”, “combatants”, “veterans”, “active-duty”. These databases were selected based on their significant coverage of psychological and philosophical literature as well as accessibility for the researchers. The study extracted only articles, and books chapters. Additional inclusion criteria included that the studies assessed the association between MI and PTSD, were empirical research studies with reliable and valid results, and recruited participants from military personnel. After searching in these databases, we compared the identified list of articles with the results of another literature search in Research4Life, an initiative which provides institutions in lower income countries with online access to academic and professional peer-reviewed content as a way to improve teaching, research and policymaking in health and other life, physical and social sciences. An initial review and selection protocol assessed the biases of each study and identified



the appropriateness and quality of the available evidence. Figure 1 illustrates a step-by-step procedure of the literature search and selection process. The extracted data from the selected studies were then entered into a pre-designed protocol form which summarized the key methodological aspects (research aims; study design; measures; participants) and the obtained results and major findings of the reviewed studies. Screening and selection of studies was conducted by the first and the third authors. Thirty studies met all eligibility criteria (for PRISMA 2020 flowchart see Figure 1) (Page et al., 2021).

## Results

Our final review includes 30 peer-reviewed articles representing empirical studies, with sample sizes ranging from 68 to 9,566. Table 1 indicates methodological issues and major findings of studies examining association between MI and PTSD, including cross-sectional, randomized/control and longitudinal designs.

### The Features of Relations Between MI and PTSD

According to the performed analytical review of the selected research articles (Table 1), 15 articles examined the features of relations between MI and PTSD in different contexts and each of these articles reported significant or strong relations between MI events and PTSD symptoms (Aldridge et al., 2019; Bryan et al., 2018; Currier et al., 2018, 2019, 2020, 2021; Jordan et al., 2017; Kinney et al., 2022; Koenig et al., 2020; Levi-Belz et al., 2020; Nichter et al., 2021; Nieuwsma et al., 2021; Nillni et al., 2020; Plouffe et al., 2021; Zerach & Levi-Belz, 2018).

In particular, Aldridge et al. (2019) determined a significant link between PTSD and morally injurious events for British military veterans, accounting for 43% of the variance, with a medium effect size. Bryan et al. (2018) showed that guilt and shame caused by MI events were independently associated ( $p < .001$  and  $p = .002$ ) with PTSD symptoms in US military personnel and veterans. All studies performed by Currier et al. (2018, 2019, 2020, 2021) with different samples of US and UK veterans showed that greater MI-related outcomes were strongly linked with severity of PTSD symptom.

Koenig et al. (2020) showed that total MISS-M scores in US active-duty military and veterans were more strongly associated with PTSD symptom of D cluster (negative cognitions and emotions) in both bivariate and multivariate analyses. The network analysis applied by Levi-Belz et al. (2020) revealed strong bridge associations between the PTSD nodes and most of the PMIEs nodes for Israeli combat veterans. The authors also found that the nodes of PMIE-betrayal and PTSD NACM symptom cluster had a bridging function between other PMIEs and PTSD.

Therefore, the above analysis has proven unequivocally that morally injurious events are one of the most important factors that cause PTSD in military personnel. In previous works (in particular, Paige et al. 2019), committing and observing a MI mostly referred to potentially traumatizing war experiences but appropriate empirical

evidence was not presented. At the same time, we are generally inclined to believe that morally injurious events on average (because individual variations are quite possible) are less likely to cause PTSD in military personnel than immediate combat stressors. This is evidenced, in particular, by studies performed by Williamson et al. (2021), which found that the likelihood of meeting criteria for probable PTSD was the greatest in those who had had experienced a non-morally injurious trauma.

As for the factors that may mediate such a link between MI and PTSD, they have received very little attention in various studies. Thus, only Jordan et al. (2017) showed that the relations between betrayal-based PMIEs and PTSD were mediated by anger, and there was marginal evidence of mediation of the relations between perpetration-based PMIEs and PTSD by shame and guilt. Dennis et al. (2017) determined that involvement in wartime atrocities was predictive of increased PTSD severity after controlling for overall combat exposure.

### **MI and PTSD Are Often Co-Occurring but Yet Are Different**

Our review revealed an agreement across studies in defining MI ranging from perpetrating, witnessing or failing to prevent actions which transgress one's core moral beliefs to suffering of moral paradox and core ethical dilemmas. Although several distinct approaches were applied to examine association between MI and PTSD in the reviewed studies, all articles conceptualized MI as a unique form of emotional distress and distinguish it from PTSD. Our findings suggest four key aspects of comparison of MI and PTSD: *definition and symptomology, neural underpinning, measurement, and treatment*.

Considering *definition* of MI and PTSD, the basic common feature is that both are emotional distress and sufferings after experiencing traumatic event. However, PTSD is mental disorder, which is currently represented in DSM-5-TR, including direct or indirect exposure to a traumatic event, followed by symptoms in four categories: intrusion, avoidance, negative changes in thoughts and mood, and changes in arousal and reactivity (APA, 2013). MI is separate from PTSD construct, containing moral emotions, mostly of guilt and shame, and reflecting changes and intrusive character of thoughts and mood, which are not represented in DSM. Therefore, it is reasonable to presume that MI often co-occurs with PTSD, however, MI has specific core beliefs, emotions, and behavioural patterns, which are not usually met during PTSD-focused therapy. The recent findings suggest that MI and PTSD *symptoms* have dissociable neural underpinnings, and specific behavioral patterns in morally injurious events are different in neural responses (Sun et al., 2019). Specifically, Sun et al. (2019) found that MIES sub-scales, that is, transgression and betrayal, are dissociated by spontaneous fluctuations indexed by amplitude of low frequency fluctuation (ALFF) as well as functional connectivity during resting-state functional magnetic resonance imaging scanning. ALFF in the left inferior parietal lobule (L-IPL) was positively associated with MIES subscores of transgressions, negatively associated with subscores of betrayals, and not related with PTSD symptoms. This study indicated important findings *aligned with neural underpinning* of moral injury vis-à-vis PTSD, and has significant practical implications for potential MI-focused interventions.

The core beliefs in MI are aligned with loss of trust towards others, feelings of self-worthlessness, increased responsibility, and blaming oneself, while PTSD is connected with continuous threat of harm and catastrophizing cognitions (Boska and Capron, 2021). As mentioned above, these cognitions are closely associated with cluster D in PTSD (Koenig et al., 2020). The core cognitions lead MI to its common comorbidities with feelings of shame and guilt. Moreover, the feelings of guilt were independently associated with severity of current suicidal ideation besides the effects of depression, PTSD symptoms, and the depression-by-PTSD (Bryan et al., 2018). PTSD contains mostly catastrophic core beliefs, aligned with fear of reoccurrence of traumatic event. Therefore, fear, terror and helplessness are more common for PTSD compared with MT, whereas MI is often associated with depression and suicidality (Bryan et al., 2018; Currier et al., 2018; Held et al., 2021; Williamson et al., 2021). The core beliefs and emotions related to self-blame lead to specific patterns of behaviour, namely apologizing and seeking forgiveness (Boska & Capron, 2021). The results in the reviewed articles demonstrated declines in social well-being, with self- and other-directed MI reactions (Chesnut et al., 2021; Currier et al., 2019). The more specific behaviour for individuals with PTSD is avoiding everybody and everything which remind the traumatic event (APA, 2013).

The articles reviewed for this systematic analysis have demonstrated an increased scholarly interest to possible associations between PTSD and MI and other emotional distress. Evidence consistently suggests that there is association between both MI and PTSD and depression and suicidality, alcohol use disorders and anger reactions. In addition, the studies demonstrate that both MI and PTSD relate to different aspects of military personnel life, namely poor well-being, work and social adjustment, and undeveloped conflict resolution skills. In addition, MI and PTSD are connected not only to traumatic event but also adverse childhood experiences (Williamson et al., 2020). However, the greater number of reviewed articles connect MI more likely with PMIEs while adverse childhood experiences more often relate to PTSD (Jordan et al., 2017; Levi-Belz et al., 2020; Nichter et al., 2021).

Our review also revealed the most frequent measure for assessing MI and PTSD as separate constructs. Nearly half of the articles (12 of 30) represent studies applied MIES, which has high psychometric properties. Koenig et al. (2020) and his team apply mostly MISS-M and emphasize its high reliability, convergent, and discriminant validity. EMIS-M and MIQ-M are more rarely utilized to assess MI in military personnel. More than a half of the reviewed studies (16 of 30) applied PCL for assessing PTSD, with PCL-5 is the most frequent tool among them.

Considering the consequences of poor social well-being, emotional sufferings and inefficient behavioral patterns, treatments focusing on MI separately from PTSD-focused models are much needed. Addressing MI in individuals, the reviewed studies suggest close association between positive effects of MI healing and religiosity and spirituality as factors of meaningful life (Ames et al., 2018; Corona et al., 2019; Koenig et al., 2017). In addition, guilt and shame-focused interventions are applied (Capone et al., 2021). Therefore, spiritually oriented cognitive processing therapy and trauma-informed guilt reduction therapy can reduce MI (Capone et al., 2021; Koenig et al., 2017; Volk & Koenig, 2019). However, more studies with experimental design exploring the efficacy of MI-focused interventions are needed.

## Conclusion

Our study found that MI can be conceptualized as a unique form of emotional distress and is distinguished from PTSD. MI is a separate construct from the PTSD construct, containing moral emotions, mostly of guilt and shame. MI reflects changes and an intrusive character of specific thoughts and mood, which are not represented in DSM. At the same time, morally injurious events unequivocally are one of the most important factors that cause PTSD in military personnel. There is an association between both MT and PTSD and depression and suicidality, alcohol use disorders and anger reactions.

We suggested four key aspects for comparing MI and PTSD: definition and symptomology, measurement, neural underpinning, and treatment. MI often co-occurs with PTSD, however, has distinct core beliefs, emotions, and behavioural patterns, which are not usually met during PTSD-focused therapy. Therefore, interventions are needed focusing on MI separately from PTSD-focused models. More studies using experimental designs which explore the efficacy of MI-focused interventions in military personnel are also needed.

A final finding from our review is that almost all studies used measures currently designed for a US military population. However, there have been no studies to assess MI in civilians during armed conflict and wartime. This unexplored population can provide a deeper insight into MI and further research of MI in civilian and military samples during wartime applying both qualitative and quantitative measures will have important theoretical and practical implications.

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## CALENDAR

### PSYCHOLINGUISTIC RESEARCH EVENTS

#### *Current Issues in Comparative Syntax 2: Boundaries of Ellipsis Mismatch*

**Host institution:** Tsuda University, Japan

**Deadline for submitting abstracts:** August 27, 2023

**Location:** Kodaira Campus of Tsuda University, Japan

**Start Date:** 1st September, 2023

**Contact:** Yosuke Sato

**E-mail:** [yosukes@tsuda.ac.jp](mailto:yosukes@tsuda.ac.jp)

**URL:** <https://sites.google.com/view/yosuke-sato-linguistics/current-issues-in-comparative-syntax-2-boundaries-of-ellipsis-mismatch>

#### *Eye-tracking and Language Processing Conference, Athens 2023*

**Host institution:** National and Kapodistrian University of Athens

**Deadline for submitting abstracts:** September 1, 2023

**Location:** Athens, Greece

**Start Date:** 7th December, 2023

**Contact:** Antonia Boznou

**E-mail:** [antoniaboznou@gmail.com](mailto:antoniaboznou@gmail.com)

#### *Current issues in Syntax, Semantics, and Pragmatics, 47th Austrian Linguistics Conference (ÖLT 2023)*

**Host institution:** University of Graz

**Deadline for submitting abstracts:** September 24, 2023

**Location:** Graz, Austria

**Start Date:** 8th December, 2023

**Contact:** Madeleine Butschety

**E-mail:** [synsemprag.oelt2023@gmail.com](mailto:synsemprag.oelt2023@gmail.com)

**URL:** <https://sprachwissenschaft.uni-graz.at/en/researching/47th-austrian-linguistics-conference-2023/>

#### *Psychology of Language Learning Conference*

**Host institution:** National Distance Education University

**Deadline for submitting papers:** September 20, 2023

**Location:** Madrid, Spain

**Start Date:** 15th May, 2024

**Contact:** Imelda Katherine Brady

**E-mail:** [pll5.Madrid.information@gmail.com](mailto:pll5.Madrid.information@gmail.com)

**URL:** <https://easychair.org/conferences/?conf=pll5>

#### *The 18th International Conference on Language and Social Psychology*

**Host institution:** Tallinn University

**Deadline for submitting abstracts:** October 31, 2023

**Location:** Tallinn, Estonia

**Start Date:** 12th June, 2024

**Contact:** Anastassia Zabrodskaja

**E-mail:** [anastassia.zabrodskaja@tlu.ee](mailto:anastassia.zabrodskaja@tlu.ee)

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