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The role of metalinguistic abilities in decoding an unknown language in trilingual learners

The present study investigates whether greater metalinguistic awareness in multilingual Hungarian L1 speakers enrolled in a French bilingual programme is related to an increased ability to decode an unfamiliar language. Language proficiency is also examined as a factor contributing to the comprehension of the text passages in the new language. 134 Hungarian high school students having learnt English as L2 and French as L3 were administered a Language Experience and Proficiency Questionnaire, French and English proficiency tests, a reading comprehension test in Italian, which is an unknown language to them, and a retrospective questionnaire investigating the process of decoding the novel language. The results showed a significant relationship between metalinguistic skills and the ability to decode an unknown language. The role of language proficiency and contextual cues in the comprehension of written Italian was also demonstrated. In addition, the findings revealed that awareness of the linguistic distance between languages has influenced the participants' choice of the source language for crosslinguistic consultations.

Keywords: metalinguistic awareness, crosslinguistic awareness, multiple language learning, decoding, unknown language

1. Introduction

1.1. Dynamic Model of Multilingualism

Multilingualism is a complex phenomenon in all its aspects. It is vibrant, intriguing and one of the most globally important social practices (Aronin, 2019). In this vein, Herdina and Jessner (2002) have introduced a holistic approach to multilingual development that views language systems within the multilingual system as dynamic and interdependent, interacting and influencing each other over time. The Dynamic Model of Multilingualism or DMM (Herdina & Jessner, 2002) applies the dynamic systems complexity theory (hereafter DSCT) to provide a holistic and dynamic view of multilingualism and to identify synergistic developments across the languages of multilinguals (Clyne, 2003). According to DSCT, the multilingual system is a dynamic, adaptive, nonlinear, and complex system that fluctuates over time due to the perceived communicative needs of a multilingual speaker (Hufeisen & Jessner, 2019). It has the ability to adapt to temporary changes in the systems' environment and the ability to develop new system properties in response to altered conditions (Herdina & Jessner, 2002). According to the DMM, multilingual proficiency (MP) is described as the

dynamic continuous interaction between the manifold psycholinguistic systems $(LS_1/LS_2/LS_3/LS_n/$ etc.), in which the individual languages (L1, L2, L3, Ln) are integrated (Jessner, 2008), cross-linguistic interaction (CLIN, i.e. the connections and influences of languages on each other), and the M(ultilingualism)-factor (i.e. a set of skills in multilingual learners that contribute to and have a catalytic effect in Ln learning), as shown in the following approximate formula:

 $LS_1/LS_2/LS_3/LS_n + CLIN + M$ -factor = MP

1.2. Metalinguistic awareness

As the key element of the M-factor which comprises a set of abilities in multilingual speakers, metalinguistic awareness (MLA) is a metacognitive ability that develops with further language learning (Török & Jessner, 2017). It is a subcomponent of metacognition and a meta-emergent property in bi- and multilinguals as described from a dynamic systems and complexity theory perspective in the Dynamic Model of Multilingualism (Herdina & Jessner, 2002). MLA refers to the ability to think abstractly about language and consequently manipulate languages (Jessner, 2006; Jessner & Allgäuer-Hackl, 2020). It contributes to the development of linguistic, cognitive, and metacognitive abilities as well as literacy skills (Jessner, 2015). It influences further language learning by acting as a catalyst for the successful acquisition of additional foreign languages (Kemp, 2001). A substantial body of research studies has attributed a crucial role to the higher level of MLA as a fundamental factor contributing to multilingual learning and multiple language use (e.g., Jessner, 2014; Kemp, 2001; Thomas, 1988; Woll, 2019). It has been argued that bi- and multilinguals are more privileged than monolinguals when learning an additional foreign language, because they develop a higher level of language awareness that allows them to reflect objectively on the structural features of languages objectively (Jessner, 2006).

1.3. Crosslinguistic awareness

Crosslinguistic awareness (XLA), according to Cenoz and Jessner (2009, p. 127), is "the learner's tacit and explicit awareness of the links between their language systems". The ability of multilinguals to make explicit or implicit use of the connections and interactions between their language systems has been associated with a greater propensity for positive transfer and is considered a learning asset that facilitates (further) language learning (Apaloo & Cardoso, 2021). Angelovska and Hahn (2014, p. 18) define crosslinguistic awareness as "a mental ability which develops through focusing attention on and reflecting upon language(s) in use and through establishing similarities and differences among the languages in one's multilingual mind". This definition implies the interrelatedness of crosslinguistic awareness as metalinguistic awareness, which in turn facilitates cross-lingual lexical consultations (Mayr,

2021). Möller-Omrani and Sivertsen (2022) note that any instance of metalinguistic awareness that requires language comparison falls under the definition of crosslinguistic awareness. In this vein, Angelovska (2018) argues that crosslinguistic awareness can be seen as a subset of metalinguistic awareness. It allows L3 learners to make use of all their prior language resources, thereby enabling them to consciously examine morphosyntactic connections between the languages they know (Angelovska, 2018) and transfer knowledge and skills across languages (Hofer, 2015). Similarly, Angelovska and Hahn (2012) concluded that learners' ability to make cross-linguistic comparisons when reflecting on L3 syntactic structures promotes overall grammatical awareness.

1.4. Decoding an unknown language system: the role of metalinguistic abilities and prior linguistic knowledge

Metalinguistic awareness enables individuals to apply logic and reasoning to language. For instance, learners at this stage can reason that a word that frequently occurs in a story and begins with a capital letter is likely to refer to the main character (Ter Kuile et al., 2011). Metalinguistic awareness correlates with a greater ability to resolve linguistic ambiguities and to decide "on deeper meanings or intentions from words choices or paralinguistic cues" (Edwards & Kirkpatrick, 1999, p. 314). In this light, Ter Kuile et al. (2011) suggested that such reasoning with language promotes the comprehension and decoding of texts written in an unfamiliar language. Gibson and Hufeisen (2003) evidenced that knowing more foreign languages, especially those that derive from the same language family such as German and English, facilitates additional foreign language learning. This can be explained by learners' reflection on their previously learnt languages and use of various conscious and subconscious techniques including transfer strategies to comprehend and produce elements of the target language. In their study, Gibson and Hufeisen (2003) investigated how well multilingual foreign language learners would translate a Swedish text, a language unfamiliar to them, to either English or German. The results showed that previously acquired languages can help decode a new language system and that the more languages a person knows, the better they can use their linguistic knowledge to understand an unfamiliar language.

Ter Kuile et al. (2011) conducted a similar study which aimed to investigate the role of metalinguistic awareness in the comprehension of a text written in an unfamiliar language. An Indonesian reading comprehension test was designed to measure Dutch high school students' metalinguistic awareness in a naturalistic setting in which a person is "[...] comprehending language in a customary fashion while concurrently making decisions about what is being perceived" (Edwards & Kirkpatrick, 1999: 315). The results showed that the bilingual students outperformed their monolingual peers on the Indonesian language test, ergo supporting the notion that bilingual education enhances metalinguistic awareness and thus the ability to decode an unfamiliar language. Smidfelt and van de Weijer (2019) brought to light some intriguing features of how Swedish upper secondary students used their background languages to process Italian, an unfamiliar language, in a translation task. Data from the retrospective questionnaire revealed that students relied not only on lexical but also structural and phonological similarities between the languages involved to decode the new language system. A more recent study by Spechtenhauser and Jessner (2024) showed that learners benefited from higher metalinguistic awareness levels when decoding a novel language system. Respondents with a greater metalinguistic awareness were able to activate and rely on their prior linguistic knowledge at either the implicit or explicit level, ergo establishing the role of metalinguistic awareness as a catalyst in the decoding process and a driving force in multilingual systems. Spechtenhauser and Jessner (2024) demosntrated that crosslinguistic awareness plays a crucial role in the decoding of a new language system, as learners' awareness of the connections between their languages would lead to crosslinguistic consultations.

In summary, the findings from previous research presented in this section show that learners' awareness at the meta- and cross-linguistic level of the similarities and overlaps between their languages is fundamental in decoding a new language system. There is evidence that a multilingual learner relies on their background languages, especially the more (psycho)typologically similar ones, when performing a translation or reading comprehension task in an unfamiliar language. However, research on the metalinguistic activities involved in deciphering unfamiliar language texts in the context of reading comprehension tasks remains remarkably scarce.

1.5. Limitations of recent studies

Over the last two decades, cognitive and psycholinguistic research has investigated cognitive and metacognitive phenomena in the context of multilingual systems (Spechtenhauser & Jessner, 2024). Nevertheless, there is still a research gap regarding the role of metalinguistic awareness, as a fundamental metacognitive property, in third and additional language learning. A notable limitation of research on metalinguistic awareness is the predominance of studies focusing on monolingual and bilingual contexts. Only a limited number of research studies have investigated the development of metacognitive skills, including MLA, within multilingual systems involving three or more languages. Consequently, it is imperative to address this gap in order to foster a comprehensive understanding of how metalinguistic awareness functions and evolves in a complex and dynamic multilingual systems context. Studying multilingual learners' metalinguistic thinking when confronted with an unfamiliar language system could unravel the complex dynamics of (further) language learning and highlight the role of MLA skills in facilitating subsequent language acquisition and the development of learning strategies.

2. The present study

This study explores metalinguistic awareness in relation to multilingual learning, cross-linguistic awareness, language proficiency, and its implications for decoding of an unfamiliar language system from a DMM perspective. It aims to answer the following research questions:

RQ1: What is the relationship between L2 and L3 proficiency and MLA skills used in decoding the unfamiliar language system?

RQ2: How do learners use their MLA skills to decode the unfamiliar language system?

RQ3: Does typological proximity help substantially in decoding the unfamiliar language system? Which of the previously acquired languages is considered most helpful?

3. Methods

3.1. Settings and participants

The study was conducted in three Hungarian public high schools: *Vetési Albert Gimnázium* (Veszprém), *Leőwey Klára Gimnázium* (Pécs), and *SZTE Gyakorló Gimnázium* (Szeged). All schools offer a French bilingual programme, which meets the quality of French bilingual education worldwide. The programme begins in grade 9 and continues until grade 12. Students receive intensive French language instruction where several subjects including history, geography, civilisation, and mathematics are taught in French. Other foreign language courses, including English, are also offered within the French bilingual programme. In fact, students usually start learning their first foreign language, often English, at the age of 8-9 (3rd-4th grade). When they reach grade 9, they start learning their second foreign language. If English is not their first foreign language, it is often chosen as their second.

In the current study, the 10th, 11th, and 12th graders (N=139) who were invited to participate predominantly learned French as L3 starting from the 9th grade as part of the French bilingual program and English as L2 from primary school. Five participants were excluded from the study because they reported having learnt Italian, the unfamiliar language system used in this research. Hence, the final number of participants is 134 (104 female). During the first year of the program (grade 9), the participants received an intensive training in French with the aim of enabling them to start content learning in the foreign language from grade 10 onwards. From grade 10 to grade 12, students receive 5 to 6 hours of French instruction and 3 hours of English language classes per week. The age of participants ranges between 16 and 19 years (M=17.67). 37 participants are in grade 10, 35 are in grade 11, and 62 are in grade 12. Although being exposed more to French in their schools, 76.1% of the participants reported that they were more dominant in English than French. Only 18% of them stated that they were more dominant in French. On a daily basis, participants are more exposed to Hungarian (M=68.75), followed by English (M=18.18) then French (M=17.00). Although the difference in the mean exposure to English and French seems minimal, the majority of students expressed a stronger inclination and motivation towards learning and using English. They reported using English more frequently than French in various contexts, such as with family and friends as well as when watching TV and listening to music. Moreover, 26.8% of respondents stated that they identified with the English culture to varying degrees, while 24.6% identified with the French culture. All students expressed a degree of identification with their L1 Hungarian culture, choosing values between 2 and 10 on a scale of 0-10. A few students reported identifying with other cultures including Japanese, Spanish, German, Croatian, Polish, and Korean.

3.2. Materials used

Five instruments were used in this study: the Language Experience and Proficiency Questionnaire (LEAP-Q), a French proficiency test, an English proficiency test, an Italian reading comprehension test, and a retrospective questionnaire.

3.2.1. Language Experience and Proficiency Questionnaire (LEAP-Q)

The Hungarian version of the Language Experience and Proficiency Questionnaire (LEAP-Q), first developed in English by Marian, Blumenfeld and Kaushanskaya (2007) to assess language profiles of bilinguals and multilinguals, was used to collect self-reported background information about the participants such as language dominance, language use, language exposure, and self-reported language proficiency. Questions 7 and 8 in the original version were excluded from this study as they were irrelevant, dealing with the highest level of education and immigration experience. Similarly, questions 6 and 7 under each language profile were omitted, as they dealt with learners' perceptions of their accent in their foreign languages, which is considered irrelevant to the focus of the study.

3.2.2. French Proficiency Test

A French proficiency test at B2 level was designed for this study. The test consists of two sections: a reading comprehension task and a lexical grammatical task containing 7 and 10 multiple-choice questions, respectively. The first task was taken from one of the standardised DELF (Diplôme D'études en Langue Française) exams. The lexical and grammatical items in the second task were taken from the Test de Connaissance du Français (TCF Tout Public), a standardised test of French knowledge developed by the French Ministry of Education, and the Test de Français International (TFI), a standardised test developed and administered by the Educational Testing Service (ETS). Both of these tests are designed to assess French competence in non-native speakers of French for educational, professional, or personal purposes.

3.2.3. English Proficiency Test

An English proficiency test has been developed to assess learners' English language competence at B1-B2 levels. The test consists of a reading comprehension section and a grammatical section with 7 and 10 multiple-choice questions, respectively. The reading comprehension section has been adapted from the EF Standard English Test (EF SET), a standardised test designed by EF Education First, a global educational company, in accordance with CEFR standards, to measure English proficiency. The 10 grammatical items in the second section were based on the curriculum adopted by Hungarian secondary schools for teaching English grammar. This curriculum is designed to guide students through the learning of basic grammatical rules, thereby fostering their understanding of basic language structures, which is essential to reach a B2 level by the end of grade 12.

3.2.4. Italian Reading Comprehension Test

An A1 level Italian language test has been designed to measure students' ability to decode an unfamiliar language system. Italian has been chosen because it was unfamiliar to the participants and because it belongs to the Indo-European language family which also includes French and English. Italian and French, on the other hand, belong to the Romance languages, while English is a Germanic language. Learners' L1 Hungarian, however, belongs to the Finno-Ugric branch of the Uralic languages, which makes it typologically different from their L2 and L3.

The Italian test consists of three reading comprehension tasks with multiplechoice questions. The first text consists of 76 words with 4 questions in Italian. The task has been adopted from CILS (Certificazione di Italiano come Lingua Straniera - Italian Certificate as a Foreign Language) A1 standardised exam developed by the University of Siena to measure the Italian language skills of nonnative speakers of Italian. The text is about a special discount on parking fees offered by the Italian railway company Trenitalia to travelers. The second Italian text consists of 131 words with 6 questions in English. It has been taken from an online platform Lingua, designed to help learners develop various skills in multiple languages. The Italian materials have been developed by professional Italian teachers to provide a solid foundation for learning Italian. The text describes a typical day in the life of 18-year-old Carlo. The third and final text consists of 118 words and is followed by 6 questions in French. The task has been taken from Lingua and is a description of Sofia's family. A grammar question was included in each of the second and third tasks, to assess learners' awareness of structural similarities between their languages. The reason for providing the questions in L2 and L3 in the second and third tasks is to ensure that the students' focus remains on decoding the Italian texts and making educated interpretations about the content.

3.2.5. Retrospective Questionnaire

Unlike other experimental techniques used in previous psycholinguistic research investigating metacognitive operations, the retrospective questionnaire aims to capture the involvement of metalinguistic awareness in the decoding process. An advantage of this method is that it provides access to learners' processing of the different Italian texts and not only to the final product (Smidfelt, 2017). The retrospective questionnaire used in this study is based on Gibson and Hufeisen (2003) and was used by Smidfelt and van de Weijer (2019). The questionnaire was slightly adapted to meet the aims of the study and was translated into the participants' L1 Hungarian. It contained the following questions:

- 1. Did Hungarian help you understand texts 1, 2, and 3? If so, please give examples from each text.
- 2. Did French help you understand texts 1, 2, and 3? If so, please give examples from each text.
- 3. Did English help you understand texts 1, 2, and 3? If so, please give examples from each text.
- 4. Which background language do you think is the most helpful for understanding the texts and answering the questions? Hungarian, French, or English?
- 5. Was the task easy, medium (not too easy not too difficult), or difficult?
- 6. Did anything else help you understand the texts, such as the context? Please give examples!

Participants were encouraged to give as many examples as possible of how they could understand the Italian texts in order to gain a deeper insight into the strategic processing methods used to decode an unfamiliar language system. They were free to answer the questions in any of their languages.

3.3. Procedure

3.3.1. Reliability of the tests

At the beginning of the data collection phase, the Italian Reading Comprehension Test, the French Proficiency Test, and the English Proficiency Test were piloted to ensure their reliability. The pilot study was conducted on 10 participants with a similar linguistic background to the participants involved in the present study. Data analysis showed that the tests were comprehensible and reliable. The Cronbach's alpha values were as follows: Italian Reading Comprehension Test, α =.80; French Proficiency Test, α =.82; English Proficiency Test, α =.79. Since the α measures were considerably high, all tests had therefore good reliability and were used in the subsequent data collection.

3.3.2. Data collection

Four Hungarian-French bilingual secondary schools were contacted in order to obtain their consent to conduct the present study with their students, and three of them agreed to take part in this research. Data collection took place on five different days within a period of three months during the French language classes and in the presence of the students' French teacher and the researcher. First, I gave a brief verbal explanation, in French, of the objectives of the study and the questionnaires and tests they would be completing. The students were also informed in advance that participation in the study was completely voluntary. Participants were given the option of using pseudonyms instead of their real names if they wished, and were informed that all data would be treated anonymously. Finally, they were instructed to complete the tasks individually.

Participants were first administered the LEAP-Q to gather relevant information, followed by the French Proficiency Test and the English Proficiency Test. Immediately afterwards, students were asked to decode the Italian texts, a language unfamiliar to them, and then to complete the Retrospective Questionnaire. All tests were administered in written form. The whole procedure took about 50 to 120 minutes. This variation in duration is attributed to the fact that some students preferred spending more time carefully decoding the Italian texts and providing detailed responses to the retrospective questionnaire. Additionally, the participants' differing levels of engagement and desire for accuracy might have also contributed to variation in completion time.

3.4. Data analysis and coding criteria

Quantitative data analysis was based on the French and English proficiency tests and the Italian Reading Comprehension Test. All tests were coded on a binary scale. Zero points were given if the answer was wrong, and one point was given if the answer was correct. As the maximum score is one point for each item, the maximum score that can be achieved is 17 points for both proficiency tests and 16 points for the unfamiliar language test. Additionally, quantitative data were obtained from the retrospective questionnaire on the extent to which previous languages helped decode the Italian texts. All scores were statistically analysed using IBM-SPSS software.

Qualitative data were extracted from the retrospective questionnaire. It was of paramount importance to identify categories that align with the research questions and are theoretically grounded. To this end, Qualitative Content Analysis (QCA) was employed, as suggested by Mayring (2014). QCA emphasises an integrated view of text or speech and their respective contexts, allowing for "the development of new theories and models, as well as validating existing theories and providing thick descriptions of particular settings or phenomena" (Zhang & Wildemuth, 2009: 11). This study uses a directed content analysis (Hsieh & Shannon, 2005) of the raw data in which the initial coding is based on relevant research findings or a theory, but new categories may emerge from the data, during data analysis. Three categories were generated based on deductive reasoning based on previous research findings (Smidfelt & van de Weijer, 2019): awareness of phonological similarities, awareness of lexical similarities, and awareness of structural similarities. Moreover, an additional category emerged during the data analysis phase: awareness of typological proximity. As the structuring of the category system through definitions, anchor samples, and encoding rules is central to the Qualitative Content Analysis, a coding agenda was developed to determine the categories involved in the decoding process.

4. Results and data analysis

All data were examined for skew and kurtosis. The assumptions of normality of distribution and homogeneity of variance were checked in each case, following which parametric and non-parametric tests were conducted. Descriptive statistics for all the quantitative data items examined are presented in Table 1.

	Ν	Minimum	Maximum	Mean	Std. Deviation
French Proficiency	134	2.00	17.00	9.26	2.96
Reading task		1.00	7.00	4.97	1.46
Grammar task		.00	10.00	4.29	1.98
English Proficiency	134	1.00	17.00	14.59	2.38
Reading task		1.00	7.00	6.42	.79
Grammar task		.00	10.00	8.20	1.78
Italian language test	134	3.00	16.00	11.39	2,15
Reading task 1		.00	4.00	2.58	.96
Reading task 2		.00	6.00	5.12	1.02
Reading task 3		2.00	6.00	3.67	.96

Table 1. Descriptive statistics for proficiency and unknown (Italian) language test

As part of the preliminary analyses, the students' scores on the French and English proficiency tests were compared. Table 1 shows a higher performance on the English test (M=14.59) compared to the French test (M=9.26). The frequency values showed that only 13.43% of the students scored considerably high between 13 and 17 on the French test, whereas 88.05% of them scored between 13 to 17 points on the English test. With regard to the Italian Reading Comprehension test, 51.49% of the respondents received scores between 12 and 16, with the majority scoring 12 points.

4.1. Decoding the Italian language system and French proficiency

One of the main aims of the paper was to investigate the relationship between the metalinguistic abilities of the learners, as shown by the unknown language test and their French proficiency. To this end, a non-parametric Spearman's rho correlation was conducted (Table 2).

			Italian language test	French proficiency
I	Italian language test –	Correlation Coefficient	1.00	.205*
	language test	Sig. (2-tailed)		.017
		Ν	134	134

Table 2. Correlation betw	ween Italian test accurad	cy and French proficiency

*. Correlation is significant at the 0.05 level (2-tailed)

A closer look at the correlation shows a highly significant positive relationship between the two variables, r = .20, p = .01. Although the correlation is not robust, the increase in the learners' knowledge of French is accompanied by an increase in their ability to decode the unfamiliar language system.

4.2. Decoding the Italian language system and English proficiency

In order to examine the connection between learners' metalinguistic skills, as measured by the Italian Reading Comprehension test and English proficiency, a non-parametric Spearman's rho correlation was conducted (Table 3).

Table 3. Correlation between Italian test accuracy and English proficiency

			Italian language test	English proficiency
Spearman's rho	Italian language test	Correlation Coefficient	1.00	.179*
	language test	Sig. (2-tailed)		.038
		N	134	134

*. Correlation is significant at the 0.05 level (2-tailed)

There is a significant but weak correlation between the two variables, r = .17, p = .03. Although the unknown language and English proficiency scores might increase in response to one another, the relationship is still minimal.

4.3. The effect of L2 and L3 proficiency on Italian language test accuracy

To further investigate the relationship between L2 and L3 proficiency and the development of learners' metalinguistic awareness as indicated by the Italian language test scores, a multiple linear regression analysis was conducted (Table 4).

The regression analysis indicates that 15.5% of the variation in learners' ability to decode a novel language system can be explained by the level of proficiency, suggesting the contribution of French and English proficiency to the overall development of MLA skills in multilingual learners. However, this suggests that language proficiency is one partial contributing factor to the development of MLA skills, positing that other important determinants might influence MLA.

-		Model sum	nary		
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.393	.155	.142	1.993	
		Α	nova		
	Sum of squares	df	Mean square	F	Sig.
Regression	95.222	2	47.611	11.976	.000
Residual	520.815	131	3.976		
Total	616.037	133			
		Coefficie	nt		
	Unstandardised	Unstandardised Coefficients		t	Sig.
			Coefficients		
	В	Std. Error	Beta		
(constant)	6.285	1.088		5.777	.000
French proficiency	.121	.062	.166	1.940	.054
English proficiency	.274	.077	.303	3.536	.001

Table 4. Linear regression analysis of the relationship between proficiency and decoding in Italian

4.4. Results of the retrospective questionnaire

4.4.1. Reliance on prior language knowledge in decoding the unfamiliar language

The analysis of the retrospective questionnaire showed that 86.6% of the participants reported being most helped by L3 French and 7.5% by L2 English. The only student who reported L1 Hungarian as the most helpful language performed very poorly on the unfamiliar language test and had very low scores on both proficiency tests. Figure 1 shows the distribution of participants' answers (%) on the most helpful language for decoding the unfamiliar language.

Figure 1. Frequency (%) of languages reported as the most helpful in decoding the Italian texts

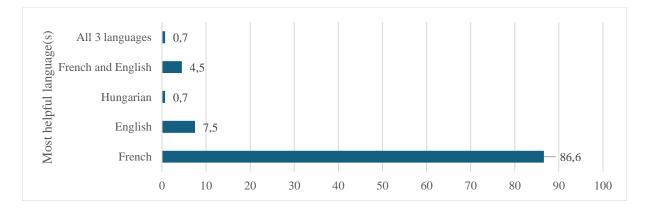
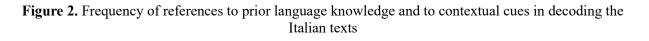
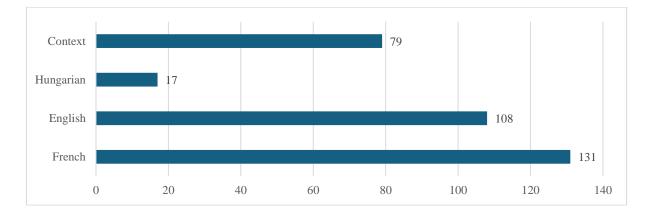


Figure 2 shows the frequency of references to prior language knowledge and to contextual cues in decoding the unfamiliar language system.





The evidence from the retrospective questionnaire, regarding the use of other strategies to understand the new language system, such as the context, showed that the learners relied on keywords in the texts, names of cities, time, and cognates to answer the questions in the reading comprehension test. The following excerpts illustrate the use of context in the decoding process (translated Hungarian-English version).

- (1)* yes [the context helped], e.g., "[Mio marito si chiama] Allessandro e ha 36 anni" > her husband; "Torino, Milano e Padova" > because the names of the cities are mentioned; "Alle 22:30 circa" > because the time is mentioned
- (2) The context helped, e.g., cities, names, dates, etc

(3) The questions, the time, e.g., 7:00

- (4) Numbers, days, times of the day. E.g., 19:00, lundi [Monday]
- *. Translated French-English version

Excerpts (1-4) show that the respondents were able to understand chunks of the unfamiliar language text using cues about age, city names, and time. These specific cues served as anchor elements to support the understanding of the surrounding items (words). Recognising a city name or a person's age helped learners make educated guesses about the meaning of the sentence or adjacent items in the text. Some students were also helped by the questions provided in English and French in the second and third tasks. Furthermore, cognate words seem to have led respondents to decode certain phrases or sentences. The following excerpts show the use of cognates in inferring the meaning of certain chunks (translated Hungarian-English version).

(5) I could rely on some things like "my family". I could then relate this to children.

(6) The context helped because some sentences weren't totally understandable for me in the Italian texts unless similar words were there to help me understand a little.

(7) The context helped me deduce the meaning of the whole sentences from main words similar to either French or English.

As the excerpts above show, the use of keywords in the texts that seemed familiar to the participants contributed to the understanding of the sentences. References to prior linguistic knowledge (cognates) in the decoding process are observed. The conscious use of cognates as contextual cues, hence a strategic and supportive tool in successfully understanding the Italian texts, demonstrate a higher degree of metalinguistic awareness.

4.4.2. Decoded items and different categories of awareness

The students' comments showed their ability to reflect on different structures, pronunciation, and lexicons, therefore demonstrating their metalinguistic reasoning and crosslinguistic thinking. Those who relied on their linguistic experiences provided examples of how Italian and the languages they have previously learned were comparable at the lexical, structural, and phonological levels. Some students showed awareness of typological proximity between these languages, highlighting the close typological distance between Italian and French.

Students relied on lexical similarities between their languages to understand Italian, as they found this strategy to be the most effective in decoding the new language system. There were 96 explicit references to the lexical similarities existent between prior linguistic knowledge and the unknown language. The following comments highlight the students' awareness of and reliance on lexical similarities (translated Hungarian-English version).

- (8) Words similar to French helped me the most.
- (9) Many Italian words are similar to French. That's how I understood them.

(11)* I tried to focus on the words because I found this way of understanding more efficient.

(12) I could only rely on the words I knew from French which were similar.

*. Comment originally written in English

Participants were able to successfully decode items in the Italian texts and answer the reading comprehension questions when making crosslinguistic comparisons. Explicit reflections on their known languages and Italian showed a degree of metalinguistic awareness, where learners consciously analysed the

⁽¹⁰⁾ Context and similarities between French and Italian helped me understand words.

lexical similarities between languages to infer meaning. Most students who relied on English and more significantly on French reflected on cognates, in the decoding process. The following excerpts exemplify the use of French cognates as valuable clues for meaning, when decoding the new language system (translated Hungarian-English version).

(13) P6. The French language helped me understand Italian. Most verbs were similar, such as offerta, that is, in French, offrir. Nouns and prepositions are also very similar.

(14) P10. In the Italian text, there were many words similar to French, for example: sorella-soeur, marito-mari

(15) P18. [French helped] There was an example of it in the Italian text, like the verb to live [*abita* (Italian)-*habite* (French)]. Examples: Monday [*lunedi* (Italian)-*lundi* (French)] or the numbers [*cinque* (Italian)-*cinq* (French)]

(16) P29. It [French] helped in all the texts because there were very similar words and numbers. For example, "cinque-cinq".

(17) P66. There were similarities [between French and Italian]. offerta-offrir, sociéta-société, té-thé, lunedi-lundi, ore-heure

(18) P80. I think [French] helped the most among the 3 languages. "la societa" is I think "la société", the word "ferroviarie" is almost the same in French [ferroviaire]. All in all, it helped me the most in the first text.

(19) P82. French helped me understand the French and Italian texts. For example, in Italian, "lontano da" is very similar to "loin de" in French.

(20) P116. There were a lot of similar words. For example: anni-an, campagnacampagne, cinque-cinq, lontano-loin

(21) P95. cinque-cinq, sorella-soeur, persone-personne, famiglia-famille, annians, campagna-campagne

131 respondents gave examples from each text of cognates that helped them understand the Italian language, 35 of whom gave the French equivalents of these words, trying to articulate their meta- and cross-linguistic thinking.

A few students were misled by false cognates as shown in the following comments (in bold). The three participants (P102, P107, and P122) scored an average of 10-12 points on the Italian language test but scored considerably lower on the French proficiency test, which may have hindered their ability to process cognates effectively.

(22) P102. French helped a lot. prendo-prendre, porta-porte, materie-material [matière (French)-subject (English)], letto-lettre {letter} [lire (French)-read (English)], libri-libre {free} [livres (French)-books (English)], amico-ami
(23) P107. alle-aller {to go} [à (French)-at (English)], biglietto-bicyclette {bicycle} [billet (French)-ticket (English)], compiti-comprendre {to understand} [devoirs (French)-homework (English)], la società-la société, italiana-italien, offerta-offrir, prendo-prendre

(24) P122. **alle-aller** {to go} [à (French)-at (English)]

Note: { } = English translation of the equivalent provided by the participant; [] = correct equivalent in French and English.

English has also been reported to support students' understanding of the unfamiliar language. Although English comes second to French in supporting the decoding process, 10 students found it the most helpful, 8 of whom scored significantly low on the French proficiency test but scored higher on the English proficiency test. The following comments (translated Hungarian-English version) highlight the reliance of participants P17 and P80 on English, as they were more confident in their knowledge of English compared to their knowledge of French. Although they obtained average and high scores, respectively, on the French proficiency test, their reported stronger command of English influenced their approach to decoding the Italian texts, on which they obtained high scores.

(25) P17. Almost everything on the internet is in English, so I'm used to it. It is the language I speak the best beside my native language, which sometimes helps me remember words.

(26) P80. English [was the most helpful] because I'm more confident in my knowledge of the language.

Other students, however, commented, as shown below (translated Hungarian-English version), that they relied less on their English language and emphasised their awareness of the existing similarities between French and Italian. Participant P105 shows her awareness of the connections between her previously learned languages as well as between these languages and Italian, indicating a developed meta- and cross-linguistic awareness.

(27) P58. If I only spoke English, I wouldn't have understood, but the French numbers and structures helped.

(28) P81. [English helped] just a little. French helped me a bit more. But words like "biscotti" and "l'autobus" are similar to the English words.

(29) P105. There were fewer words that I understood from English, those were generally similar to French.

The cognate words (*biscotti* [biscuit], *autobus* [autobus], *famiglia* [family], *treno* [train], and *informatica* [information technology]) that the students mentioned when asked whether English helped in the decoding process were mostly of Latin origin. A number of participants reported that "French is closer to Italian" compared to English and especially Hungarian. French, as a language typologically related to Italian, obviously influenced the decoding strategies used by the learners. The comments below (translated Hungarian-English version) illustrate the participants' awareness of the typological proximity of the languages studied.

(30) P17. French and Italian are quite similar.

(31) P17. French helped; there are many similarities between French and Italian, and the grammar is also similar.

(32) P28. Context and similar words with the same Latin origin [helped]. Example: lontano, long [Latin root]

(33) P19. The Hungarian language did not help me because it is not similar to any other language.

(34) P109. It [Hungarian] didn't help much because Hungarian is not a Latinbased language.

Seven of the respondents who scored high in the Italian texts reflected not only on lexical but also on structural grammatical similarities, as the following excerpts show.

(35) P16. The sentence structure is similar to French.

(36) P17. French helped; there are many similarities between French and Italian, and the grammar is also similar.

(37) P18. Sentence structure was similar.

(38) P60. Word order helps.

(39) P104. Sentence structure helps.

Two references to phonological similarities were also made by students who showed a considerably high level of metalinguistic awareness. The following two comments illustrate participants 9 and 110's awareness of phonological similarities.

(40) The sounds of the words and the words helped a lot.(41) [...] similar pronunciation and spelling of words helped.

Although the two students did not give any examples from the texts to support their statements, nor did they specify which language they found similar to Italian in pronunciation, they did state that L3 French helped them the most. It can therefore be concluded that they most likely drew on their French knowledge to decode Italian pronunciation. This suggests an implicit phonological processing, during the silent reading, which helps to recognise words with familiar phonological forms.

5. Discussion

The present study investigates the possible links between metalinguistic awareness as demonstrated by the comprehension of an unfamiliar language system and L2 and L3 proficiency. It examines the strategies used by Hungarian-French bilinguals to decode texts in Italian as an unfamiliar language. Students' awareness of the typological similarities between their previously learned languages, mainly L2 English and L3 French, and the new language is also examined in order to elucidate the effect of perceived typological proximity on their decoding strategies. While the limited body of MLA research has shown its involvement in the comprehension of a new and unfamiliar language system, the data generated by the current study provides a clear understanding of learners' strategic processing of an unfamiliar language and their meta- and cross-linguistic reflections that support the decoding process.

The data analysis supports the positive relationship between MLA and L2 and L3 proficiency. Although the relationship between the two constructs is not robust, any increase in L2-L3 proficiency is accompanied by an increase in MLA. In fact, the relationship between French, the learners' main language of instruction in the French programme, and scores on the Italian reading comprehension test is more significant. These findings suggest that the development of metalinguistic awareness is influenced by language proficiency, which is in line with Renou's (2001) study showing the strong relationship between proficiency and MLA levels in adult learners of French. This is further confirmed by the multiple linear regression analysis, which reveals the contribution of language proficiency to learners' MLA performance. Although proficiency level does not appear to be the most important factor affecting MLA level, it still predicts the variation in learners' scores on the unfamiliar language test.

Statistical analysis of the qualitative data revealed that the respondents drew on their previously learned languages during the decoding process, particularly French and English. L1 Hungarian was predominantly inactive and had little to no obvious influence on the decoding of the unfamiliar language system. This can be explained by the typological distance between Hungarian and Italian as reported by several students. This confirms the results of Gibson and Hufeisen (2003) and Mieszkowska and Otwinowska-Kasztelanic (2015) who found that L1 might not be influential in learning a language beyond L2 if it is not perceived as similar or close enough to the target language. French was reported to be the most helpful language and the strongest source for crosslinguistic comparisons, aiding the decoding of the new language system. Learners' awareness of the typological distance between their known languages and Italian clearly shaped their "view of the appropriate language source" for crosslinguistic consultations (Mieszkowska & Otwinowska, 2015: 217). The closer the relationship between languages, the more crosslinguistic interaction (Mieszkowska & Otwinowska, 2015). Most of the students who performed poorly in the unfamiliar language test did not perceive any similarities between their previously learned languages and Italian. Qualitative data analysis shows that learners' metalinguistic reasoning and search for crosslinguistic equivalences between languages led to higher scores on the unknown language test, supporting the notion that bi- and multilingual education enhances metalinguistic awareness and thus the ability to decode an unknown language, which is consistent with the findings of Ter Kuile et al. (2011). On the other hand, the students who heavily relied on their English language knowledge to decode the text passages felt more confident in their English proficiency which influenced their choice of the main source for crosslinguistic reflections, consistent with findings by Mieszkowska and Otwinowska-Kasztelanic (2015).

Results from the retrospective questionnaire showed that participants with lower proficiency in L2-L3 tended to use fewer strategies and often failed to understand the reading texts. On the other hand, most participants with a higher L2-L3 proficiency showed a more developed meta- and cross-linguistic awareness, as they were more inclined to look for lexical, phonological, and structural similarities (cf. Smidfelt & Van De Weijer, 2019). Thus, these findings suggest that increased proficiency in Ln languages may promote learners' metalinguistic awareness. Therefore, the development of metalinguistic awareness, which is necessary to solve challenging language tasks, progresses in parallel with the development of Ln proficiency (Mieszkowska & Otwinowska-Kasztelanic, 2015). Based on the qualitative analysis, metalinguistic abilities and reliance on prior language knowledge acted as a catalyst in the decoding process of the novel language system, which converges with the findings of Spechtenhauser and Jessner (2024) who concluded that learners with high MLA could effectively use these abilities, along with cross-linguistic reasoning and prior language experience, to decode novel and unfamiliar languages.

The multilingual learners in this study showed an awareness of lexical similarities between their known languages, particularly French, and Italian. Their search for crosslinguistic equivalences depending on prior linguistic knowledge demonstrates their explicit awareness of the similarities between their languages and the novel language system. Identifying items similar in form and meaning to French indicates their metalinguistic reasoning and active engagement in comparative analysis between French and Italian. Two students even reported using their basic knowledge of Spanish to decode the texts passages, given the lexical similarities between these two Romance languages. This is in line with Berthele (2011) who found that typological proximity between languages is essential for understanding cognates in an unfamiliar language. In this vein, Muñoz (2020: 146) emphasises that "instruction designed to raise cross-linguistic awareness of cognates helps school learners recognise similarities between words [...] which can boost learners' vocabulary" and target language proficiency.

Furthermore, several students with high MLA scores showed awareness of grammatical similarities between their L2-L3 and Italian. Their comments reveal their awareness of grammatical structures which has long been documented in the literature, as grammaticality judgement tasks have often been used to assess metalinguistic awareness (e.g., Atar, 2018; Renou, 2001; Robinson, 1995). As both French and Italian are Romance languages, they share several grammatical features including the Subject-Verb-Object (SVO) word order, which facilitates the understanding of an unfamiliar language system from the same language family. On the other hand, while English is a Germanic language, it also follows an SVO sentence structure due to the Latin influences that have occurred in the Middle English period. Reflecting on the Italian word order, therefore, demonstrates learners' metalinguistic awareness and shows an understanding of prior language learning and knowledge experience. In both Smidfelt and Van De Weijer (2019) and Spechtenhauser and Jessner (2024), multilingual participants made explicit grammatical reflections on the similarities between the unknown language they were confronted with and their prior linguistic knowledge, which helped them decode a significant number of items and chunks. This increased awareness of grammatical structures suggests a high level of MLA. Additionally, the cognate facilitation effect which posits that cognates are recognized and processed faster than non-cognates, arguably as a result of crosslinguistic activation, might have had direct implications for recognizing the structural similarities between the languages involved (Sanahuja & Erdocia, 2024). This facilitatory effect is consistent with the Lexical Bottleneck Hypothesis (Hopp, 2014) which postulates that the cognitive cost associated with L2 lexical processing can affect syntactic processing. In this sense, it is suggested that cognates might alleviate the demands on lexical processing, allowing for more resources to be allocated for successful structure building (Sanahuja & Erdocia, 2024). Hence, the participants' recognition of cognates might have facilitated the structural processing of the new language.

Similarly, learners' reflections on the similarities in the sound system and pronunciation between Italian and French highlight their phonological awareness. An implicit phonological processing, occurring during the silent reading (Clifton, 2015), helped participants recognise words with familiar phonological forms. Thus, these explicit reflections on phonological similarities suggest the use of orthography-to-phonology mappings (Otwinowska & Szewczyk, 2017) from known languages, in this case French in this case, to phonemically decode the Italian words. As phonological awareness is fundamental to proficient decoding (Schuele & Boudreau, 2008), recognizing similarities in pronunciation between a known and an unfamiliar language further highlights the learners' use of phonemic awareness to decode the sound system of the new language, and, therefore, decode the meaning of the words in the text passages.

6. Conclusion

The results of the present study provide empirical evidence for the importance of metalinguistic abilities in the decoding of an unfamiliar language system. These results contribute to research on MLA by highlighting its significant effect, together with other emergent properties in the dynamic multilingual system such as crosslinguistic awareness, on the decoding strategies of novel and unfamiliar languages. The study also provides positive results regarding the role of typological proximity in Ln activation during the decoding process. Awareness of the linguistic distance between languages has influenced participants' choice of the source language for crosslinguistic consultation. However, future research could investigate the comprehension of another language that is typologically distant from the previously learned languages. It would also be interesting to investigate the decoding strategies used in the understanding of non-Indo-European languages. Future research could also benefit from interviews conducted *during* the decoding process in order to better investigate metalinguistic awareness as a process.

The study demonstrated that proficiency contributes to the development of metalinguistic skills. Most of the participants with a higher L2-L3 proficiency level showed a more developed meta- and cross-linguistic awareness, as they constantly searched for lexical, phonological, and structural similarities between their known languages and Italian, the new language system. The results provide further evidence that if an L1 is not perceived as close enough to the target language, it will not be activated and/or relied on when processing an unfamiliar language. It can therefore be concluded that students benefit from bi- and multilingual education to comprehend a novel language. The more languages they know and the more proficient they are, the better they can employ their linguistic knowledge in order to decode and learn additional languages. Learners' awareness at a meta- and cross-linguistic level of the connections and overlaps between their languages is fundamental to decoding and understanding a new and unfamiliar language system. Therefore, teaching should take this aspect into account, as promoting learners' meta- and cross-linguistic awareness through multilingual teaching strategies and approaches would lead to further language development. As the current study shows, in Hungarian educational contexts where a monolingual mindset prevails, students would benefit from cross-curricular multilingual teaching methods.

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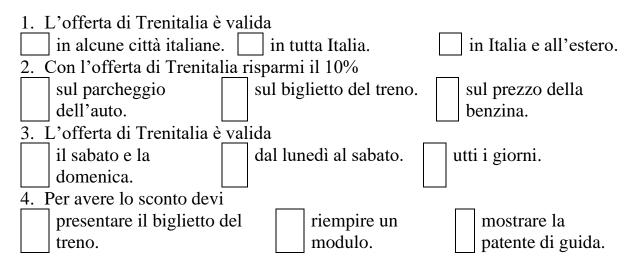
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Appendix: The Italian Reading Comprehension Test Read the texts then answer the questions by choosing the right option.

Text 1: Parcheggio automobile e treno

La società italiana delle ferrovie Trenitalia fa un'offerta ai viaggiatori: nelle città di Torino, Milano e Padova, in alcuni parcheggi vicini alle stazioni ferroviarie, c'è uno sconto del 10% sul costo del parcheggio. L'offerta è valida dal lunedì alla domenica 24 ore su 24. Puoi lasciare la tua automobile vicino alla stazione e puoi partire con il treno. Per avere lo sconto devi mostrare il biglietto del treno alla cassa del parcheggio.

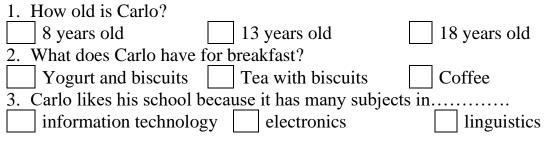


Text 2: La giornata di Carlo

Ciao, mi chiamo Carlo e ho diciotto anni. Oggi vorrei parlarvi della mia tipica giornata. Mi alzo sempre alle 7:00 e faccio una buona colazione con tè e biscotti. Dopo aver incontrato il mio amico Marco prendo alle 7:40 l'autobus che mi porta a scuola.

Mi piace molto la mia scuola perché ho molte materie che riguardano il mondo dell'informatica! Ogni giorno ho 6 ore di lezione, tranne il sabato in cui ne ho 5. Quando torno a casa studio e faccio i compiti, ma mi diverto anche giocando al computer e suonando la mia chitarra. Ceno alle 19:00 con la mia famiglia, composta da mia mamma, mio papà e i miei tre fratelli. Alle 22:30 circa vado a

letto a leggere alcuni libri prima di dormire.



4. What does Carlo play at home in the evening?
his guitar his violin his piano
5. When does Carlo usually have dinner with his family?
7:40 22.30 19:00
6. What's the gender of the noun "famiglia"?
feminine neutral masculine

Text 3: Mi chiamo Sofia

Mi chiamo Sofia. Ho 35 anni. Mio marito si chiama Alessandro e ha 36 anni. La mia famiglia è composta in tutto da cinque persone. Io e mio marito abbiamo tre figli.

Viviamo in un piccolo paese di campagna. I nostri tre figli si chiamano Andrea, Martina e Giacomo. Andrea frequenta l'asilo, Martina e Giacomo frequentano le scuole elementari. I miei tre figli amano giocare a tanti giochi diversi nel cortile.

I genitori di mio marito vivono lontano da qui, in città. I miei genitori invece abitano vicino a noi, nello stesso paese.

Vicino a noi abita mia sorella Giulia con la sua famiglia. I miei figli giocano spesso con Marta, la figlia di Giulia.

