Published online in *Review of Cognitive Linguistics* (16/12/2024)
https://doi.org/10.1075/rcl.00212.chr

Investigating metaphor comprehension strategies of young Second Language students of Greek

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ABSTRACT

This study investigates the metaphor comprehension strategies used by elementary school students with Greek as an L2 when they encounter a Greek metaphorical expression. Using open metaphor comprehension tasks, as well as stimulated recall interviews, the present study aims to describe students' cognitive processes in relation to the bodily, conceptual and socio-experiential motivation that triggers their emergence (Kimmel, 2006; Zlatev, 2006). The results demonstrate that a variety of strategies are used by the participants with metaphorical extension of the literal meanings dominating on the others. In the same conditions, mental imagery, as well as universality of metaphors interact in a variety of respects and define not only the strategy that is used, but also the extent to which the linguistic metaphors are comprehended in a non-directive context.

Keywords

metaphor, comprehension strategies, L2, Greek, elementary school, high/low imageability

1. INTRODUCTION

According to Nacey (2017, p. 3), the measure of metaphor comprehension is "the most obvious way of gaining insight into learner's metaphorical competence". This endeavor becomes rather complex on the grounds that, even to this day, little is known about the exact mechanisms accompanying metaphor comprehension, although it is well-known that metaphor comprehension depends on the strategy used by the learner to infer the meaning of the expressions (Littlemore, 2004, 2008; Azuma, 2009, 2012). Especially in the field of L2 acquisition, there is a lack of fully developed theoretical models (Türker, 2016; Antoniou, 2017), despite the plethora of studies focusing on metaphor comprehension strategies both in English-as-a-foreign-language (Piquer-Píriz , 2005; Littlemore, 2008, Ferreira, 2008; Azuma, 2009, 2012; Chen & Lai, 2013; Tsitoura, 2022), and other languages as L2s (Antoniou, 2017; García Caballero, 2017; De Cock & Suñer, 2018; Mayo Martín, 2018; Martin-Gascón, 2023a).

A considerable amount of literature has been published in the field of metaphorical competence. Danesi (1993), Littlemore (2008) and Littlemore & Low (2006) approaching it from a cognitive perspective, define it as the ability to perceive and create metaphorical associations between two different concepts. Considering various previous works which complement one another (Low, 1988; Danesi, 1994; Littlemore, 2001b; Philip, 2006[1]), Nacey (2017) concretizes the definition of metaphorical competence into the ability to understand and produce metaphors. A more recent and holistic definition of metaphorical competence however, which associates it with language skills in a metalinguistic level as well, is proposed by O'Reilly & Marsden (2021, p. 26) who define it as "the comprehension, awareness and retention of metaphor in speaking, writing, reading and/or listening". Recent studies concerning L2 acquisition, stress the difficulties in comprehension caused by metaphors (Littlemore et al., 2011; García Caballero, 2017; Nacey, 2017, 2019; De Cock & Suñer, 2018; Zhang, 2019; Mayo Martín, 2018; Suárez-

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Danesi (1994) refers to metaphorical competence as the ability to encode and decode metaphorically structured concepts. Low (1988) stresses the importance of the practical skills and knowledge required for the development of this ability. Philip (2006) approaches the matter in terms of awareness of the conventional phraseological patterns and their cross-linguistic differences. Littlemore (2001b, p. 459) views metaphorical competence rather holistically, defining it simply as "the ability to acquire, interpret and produce metaphor".

Campos et al., 2020; Castellano-Risco & Piquer-Píriz, 2020; O'Reilly & Marsden, 2021; Martín-Gascón, 2023a, b). For instance, cultural and conceptual distance between languages, low imageability of a metaphorical expression, limited exposure to the target language, lack of awareness of conceptual similarities between languages, as well as the fact that often metaphors are not rooted in physical experience seem to be some strong challenges associated with comprehending metaphors in L2 (García Caballero, 2017; De Cock & Suñer, 2018; Mayo Martín, 2018; Suárez-Campos et al., 2020).

Previous studies have not explored metaphor comprehension in Greek as a second language, except Antoniou's (2017) experimental research on Russian and Arabic-speaking adult learners of Greek. In this study, we are aiming to delineate the strategies which are consciously used by L2 learners at the age of 9 and 12 when they encounter a linguistic metaphor in Greek. The remaining part of the paper has been divided into four sections. Section 2 provides a brief description of the literature review. Section 3 is concerned with the methodology used for this study, as well as the presentation of our findings. In section 4, we proceed to the discussion of our findings and what they reveal about the topic, in relation to previous studies. Section 5 includes the conclusion of our study, along with its limitations and directions for further research.

2. LITERATURE REVIEW

It is beyond doubt that the role of metaphor comprehension strategies is critical not only for the comprehension of figurative speech, but also for the comprehension of L2 as a whole. This becomes more evident, if we consider that figurative language can be used by L2 learners both as an interaction strategy and as a resource for meaning inference (Danesi, 1988 in Suárez-Campos et al., 2020). Nonetheless, several lines of evidence suggest that figurative language is one of the most challenging areas in foreign language learning, as L2 learners find it rather troublesome (Leung & Crisp, 2011; Krawczyk, 2017; Chen, 2019). This brings us to the crucial issue of the development of metaphorical awareness as a learning strategy (Boers, 2000), i.e., the development of "the ability to recognize the non-arbitrary relationship between the form of a metaphorical expression and its meaning, as

well as the acceptance of cultural and linguistic differences in metaphorical expressions" (Boers et al., 2004).

MacArthur (2010) also stresses the significance of including metaphorical awareness to the experience of learning English in an instructed L2 setting and insists on approaching metaphor by foregrounding it and fostering young learners' awareness of how metaphor pervades language. Concerning Greek as an L2, inspired by previous research in EFL (Boers, 2000; Skoufaki, 2008; MacArthur, 2010), Thomou (2016, 2020) develops teaching material, which raises metaphor awareness in two ways: by grouping and presenting figurative idioms to learners along metaphorical themes and by recognizing the metaphorical themes behind many figurative expressions. In the same vein, Thomou & Koutoulaki (2022) and Thomou & Christodoulakis (2024) utilize the experiential motivation of metaphorical expressions as a metalinguistic strategy for the enhancement of metaphor awareness of young learners.

Concerning metaphor comprehension strategies on an experimental research level, one of the earliest experimental studies is that of Littlemore (2008), in which two main categories of strategies are found to be used by the learners:

1. context-based strategies
2. figurative extension strategies

Regarding the second category, Littlemore (2008) investigated the various factors (imageability of the literal senses of the words, contextual clues and learners' cognitive style) affecting students' ability to use figurative extension strategies. According to the results, high imageability encourages the use of metaphorical extension strategies. However, it does not necessarily lead to correct metaphor interpretation. The reason for that, according to Littlemore (2008), might be the additional cognitive effort that needs to be given by the learner when they proceed to achieve the metaphorical extensions which are motivated by mental imagery. When the learner attempts to make the leap from the literal to the metaphorical, they are "forced" to think in concepts, rather than words, so the cognitive effort that needs to be engaged is significantly larger.

Reviewing these data, it is suggested that a well-developed conceptual fluency is essential for bridging the comprehension gap caused by the abstractness of the words and

the variations in cognitive styles regarding thinking in pictures or words. What is more, the use of contextual clues, although less frequent, proved to be more efficient for correct interpretation of the metaphorical expressions, meaning that surrounding context is able to replace the additional cognitive effort as the learner focuses on lexical clues and does not have to approach the expression conceptually. This explains the fact that metaphorical expressions accompanied by surrounding context are regarded as easier to be interpreted by the learners than those given without context. What is more, this interesting interaction between the cognitive nature of conceptual fluency and surrounding context reminds us of MacArthur's (2016) argument about metaphor, which –according to her- must be examined as "a discourse phenomenon and not just a cognitive realization or a simple linguistic instantiation of underlying conventional metaphorical thinking".

Azuma (2009) follows a more detailed and conceptually oriented classification of strategies. In a research study involving 56 native speakers of English and 34 Japanese EFL students, she investigated the strategies' impact on students when they encounter English figurative expressions (both metaphors and metonymies) of English and Japanese origin. Azuma (2009, p. 186) managed to extract three major categories of strategies:

1. the use of conceptual schemas which are related to cultural knowledge regarding learners' L1, i.e., looking for similar expressions in L1
2. image associations, i.e., the employment of mental images
3. logical/analogical reasoning, involving use of context and connotation as analogical associations of the expressions

Azuma's noteworthy finding was that resorting to conceptual schemas based on L1 knowledge were the most frequently employed strategy. Additionally, participants resorted to guessing the correct metaphor interpretation when neither L1 knowledge nor literal meanings were helpful.

A recent, seminal study regarding Greek as a second language is the work of Antoniou (2017), who attempted to shed light on the factors affecting analogical reasoning. Antoniou focused on how the metaphorical inferential processes are affected by context and L1 both in terms of the existence or non-existence of an equivalent linguistic metaphor and the typological distance from L2. Having the factor of typological distance in mind,

Antoniou selected two different language groups of bilingual adult learners, namely Russian native speakers and Arabic native speakers. In her experimental study, involving 57 adults (30 Russian native speakers and 27 Arabic native speakers) in the same level of language proficiency (level B2), she constructed two open metaphor comprehension tasks, one without context and one with short, directive context. Antoniou found that resorting to the directive context and the use of L1 were the most commonly used strategies among her participants. Directive context was found to strongly support metaphor comprehension, rendering metaphor expressions semantically transparent, balancing the semantic opaqueness caused by their cultural background. The same applies to the effect of L1 on metaphor comprehension as well.

Piquer-Píriz (2005, 2008, 2011, 2020) points out the significance of the use of context and the use of "knowledge of the world[2]" or the use of "domain knowledge" as metaphor comprehension strategies employed by young EFL Spanish learners. These strategies reflect children's embodied and social experience on the words and images they use to produce and justify their interpretations, as can be seen in the case where they referred to "*el cabeza del pelotón de la vuelta ciclista o de una carrera*" ("the leader of the group of cyclists or the leader in a race") to justify why the first car in a line is the *head* (Piquer-Píriz, 2011, p. 83). It has also been stressed that age is a pivotal factor affecting metaphor comprehension (MacArthur & Piquer-Píriz, 2007; Piquer-Píriz, 2008, 2020; Özçalışkan, 2011). In particular, they mention that the reliance on embodied experience for the interpretation of metaphorical expressions is a rather preferable strategy in young children (5-7 years old), who identified the figurative use of *head* with the top or highest part of an entity. However, eleven-year-old children identified the figurative use of *head* with the central, most important thing of a structure. Thus, it becomes clear that the predominance of certain schemas (e.g. *the human body*) seems more salient at age 5 than 11, due to fact that children's domain knowledge becomes more elaborated as they grow

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According to Winner (1988), Vosniadou (1989) and Cameron (1996), "knowledge of the world" or "domain knowledge" –which is a term that reflects the various kinds of knowledge each child brings into the classroom (bodily and social)- is a crucial factor for the understanding of a figurative meaning.

older, allowing them to match various new attributes of a specific concept with different entities. (MacArthur & Piquer-Píriz, 2007, p. 131; Piquer-Píriz, 2008).

Another recent experimental study regarding metaphor comprehension strategies is that of Tsitoura (2022). Following the steps of previous empirical studies which demonstrate that the application of Cognitive Linguistics tenets can have a positive influence on instructed L2 acquisition (Littlemore & MacArthur, 2007; MacArthur & Piquer-Píriz, 2007; MacArthur & Littlemore, 2008; MacArthur, 2017), Tsitoura conducted a research study involving thirty-two EFL learners attending the second grade of junior high school (13 years old). Her aim was to examine whether a cognitive linguistic-based intervention can foster EFL learners' metaphor awareness in a way that they use this type of awareness as a strategy to successfully interpret metaphors. The results demonstrated – among other findings- that metaphor awareness can operate as a valuable metaphor comprehension strategy for L2 learners, which is suggested by the better performances of the experimental group, who interpreted the metaphorical expressions with greater convenience.

The most recent systematic study is that of Martín-Gascón (2023b), which offers one of the most comprehensive empirical analyses of the connection between metaphor comprehension and metaphorical awareness. In this study, 36 US students from a US-based college in New York who studied Spanish as a foreign language in an intermediate level were asked to interpret metaphors which involved establishing connections between the source-domain of CLOTHES with the target-domain of EMOTIONS. The participants in this experiment which was adapted from Littlemore's (2001a) test designed to measure fluency of metaphor interpretation, seemed to perform rather poorly on the part of metaphor interpretation. This difficulty, according to Martín-Gascón (2023b) is attributed to the lack of metaphorical awareness which makes the metaphorical mappings between the domains incorrect or even non-existent. Hence, students were not aware of the existence of those expressions' (emotion metaphors) figurative nature.

In summary, this section has shown that there are differentiations not only in the nature but also in the use, as well as in the categorization of the comprehension strategies concerning metaphor in L2. The reason for this differentiation could be the different

methodologies followed by the researchers or perhaps the fact that "human cognition is structured holistically, therefore it is hard to distinguish among types of understanding", as Azuma (2009, p. 183) states. It is beyond doubt that the experimental interest in metaphor comprehension strategies grows bigger over the years and the need for more experimental studies becomes more urgent than ever before, especially in languages that have not been systematically investigated so far. This plurality of studies confirming the complexity of the issue of metaphor understanding combined with the aforesaid urgent need for further research in less popular languages and related to younger learners, urged us to conduct the present study.

3. THE STUDY

The current study uses qualitative analysis in order to gain insight into the metaphor comprehension strategies employed by the young GSL learners. The research questions are the following:

1) *How does a bilingual elementary school student at an intermediate level comprehend a metaphorical expression in Greek when they know its literal meaning?*
2) *Which strategies do the participants employ when they encounter a metaphorical expression in Greek?*
3) *How does the rate of imageability (high or low) of the metaphorical expressions affect children's metaphor comprehension and choice of strategies?*

3.1 METHOD

3.1.1. Participants

The whole research procedure expanded from March 11th to April 5th 2022. Twelve pupils (6 females, 6 males), 9-12 years old, from the same school unit of Primary Education in the region of Rethymno, Crete (Greece) participated in the study. Their first languages were Albanian, Syrian Arabic, Egyptian Arabic, Russian, Hindi and Punjabi. It is worth mentioning that these L1s were intentionally chosen to belong to different language

families and our purpose was to examine how various L1s affect children's choice of metaphor comprehension strategies. The parents of all children received a statement signed by the researcher regarding the protection of their children's personal rights and offered their oral consent. The research obtained approval by the headmaster of the school unit where it was conducted.

In order to ensure that all the children were at an intermediate level (B1) in Greek, we distributed a language test designed for learners who learn Greek as an L2 by the Centre of Greek Language for the classification in B1 level following the Common European Framework of Reference for Languages (Council of Europe, 2018). The children's scores ensured that they were at the required language level. Following the language test, a lexical test was conducted in order to examine whether the participants knew the literal meaning of the words contained in the metaphorical expressions they were about to interpret during data collection and to ensure they did not know their figurative meaning. The reason this lexical test was conducted was to ensure the authenticity of the children's strategies which would have been restricted to mere mnemonic recall of the correct figurative meanings of the expressions should they already knew the figurative meanings. All the children together watched a PowerPoint presentation which included a written form and a picture (pictorial elucidation) of the words that operated as source-domains, indicating their literal meaning so as to reinforce their retention. All the metaphorical expressions were then presented orally to the pupils in order to examine if they had heard about them or knew their figurative meanings. As it was expected, none of the students knew the figurative meanings, although, as they specifically stated: "we think we have heard about these expressions, perhaps we have come across them in school books or on TV at some point in the past".

3.1.2. Data collection

For the purpose of data collection, the following research materials were designed:

1. Two open metaphor comprehension tasks
2. Stimulated recall interviews

Concerning the open metaphor comprehension tasks, they were intentionally designed in such a way in order to elicit the cognitive processes and authentic strategies the pupils employ, in conjunction with their existing, bodily and socially meaningful experience. Moreover, it is hypothesized that the pupils' strategies would have probably not been authentic, should the metaphor comprehension tasks were closed, e.g. multiple choice questions, as their responses would have been guided by the given possible answers. Contrariwise, an open task provides the participants with the opportunity to write down their unique interpretation, thus aiding the researcher(s) to detect the reasoning behind their response and delineate their cognitive strategies. Each task included 12 Greek linguistic metaphors given within non-directive context and the children were asked to write down the possible meaning of each linguistic metaphor, i.e. to paraphrase each metaphorical expression. However, the main difference between the two tasks was that the first one consisted of metaphorical expressions with high imageability (table 1) in order to provoke mental images to the participants, whereas the second one consisted of expressions with low imageability (table 2), so as to examine the effect of mental imagery on the choice of strategies and metaphor comprehension. The high and low imageability of our metaphorical expressions were determined by the degree of word concreteness, i.e., how concrete is the meaning of the word that operates as the source-domain, following Littlemore's (2008) claim that the more literal the meaning of the word is, the more possible it is to provoke a mental image, as well as Hupka's (1989) statement that only the lexemes which are feasibly elucidated by pictures are considered highly imageable.

All the expressions were handed over to the participants in printed form and bold font so that they would immediately notice them. The context surrounding each expression was non-directive and did not contribute to the correct metaphorical meaning. It is essential to note that, in spite of the students being unaware of the figurative meanings of the metaphorical expressions, their selection was based on their conventionality in Greek language, their presence in the schoolbooks and the fact that they are formed with basic vocabulary,suitable for level B1. Both the structure of the two tasks and the aforementioned criteria for the selection of the metaphorical expressions were inspired by a previous research study in the field of L1 acquisition, which was conducted by Thomou (2011).

Thomou investigated the comprehension of Greek metaphorical expressions by fifth and sixth grade students in the mixed classroom using open metaphor comprehension tasks which included conventional Greek metaphorical expressions drawn from schoolbooks.

Task 1 (high imageability)		
Metaphorical expressions (in Greek)	**Metaphorical expressions (literal meanings)**	**Figurative meanings**
rihno to ganti	to throw the glove	to challenge someone, to demand an answer or an explanation
sfazo me to vamvaki	to slay with the cotton	to strictly judge or harm someone in an elegant manner, without exhibiting hostility
vazo kapion/kati ston gipso	to put somebody/something in a plaster cast	to keep an eagle eye on someone or have them in detention
grothia sto stomahi	a punch in the stomach	a disturbing, unpleasant feeling caused by an unpleasant or regrettable situation
an ton piasis apo ti miti, tha skasi	if you grab their nose, they will explode	to be extremely angry
ta kanume plakakia	to make them into floor tiles	to match my interests with someone else's interests for a common purpose
ta tsougrizume	to clink them together	to have a fight, quarrel with someone
varao kanoni	to hit the cannon	to go bankrupt (to go belly-up)
rihno agira	to drop the anchor	to settle in somewhere permanently
anevazo ton pihi	to raise the slat	to pursue high standards

ine na kanis ton stavro su	to (feel the need to) make the sign of the cross	to feel very surprised or to puzzle over something
eho mesi dahtilidi	to have a ring-waist	to have a very thin waist, i.e. to be very thin

Table 1: Metaphorical expressions of task 1(high imageability), accompanied by their figurative meanings in Greek

Task 2 (low imageability)		
Metaphorical expressions (in Greek)	**Metaphorical expressions (literal meanings)**	**Figurative meanings**
ti kapno fumaris?	what kind of tobacco do you smoke?	what kind of person are you?
ginete anasta o Kirios	it is as if the Lord was risen	a state of extreme commotion
perno to vaptisma	to be baptized	to have my very first significant experience
hrisono to hapi	to golden the pill	to sweeten the deal/to sugar-coat something
i Maria ine fokia	Mary is a seal	Mary is very crotchety/shouts a lot
vgazo kati sto sfiri	to put something out in the hammer	to sell something out/to put something in auction
i taverna afti ine farmakio	this tavern is a pharmacy	this tavern is too expensive
tou trizo ta dontia	to shake their teeth	to talk very strictly to someone/to threaten someone in order to scare them
afino fesi	to leave a fez (=Turkish felt hat)	to pass a debt that remains undischarged to someone else
eho trikimia mesa mu	to have a storm inside me	to feel very frustrated, upset and confused

mu aneveni i piesi	my blood pressure rises	to feel irritated/very annoyed
to fisao to hrima	to blow the money	to be wealthy

Table 2: Metaphorical expressions of task 2 (low imageability) accompanied by their figurative meanings

Regarding the stimulated recall interviews, they took place after a 5-minute break following the completion of the tasks. The design of the stimulated recall interviews was drawn from the aforementioned research of Antoniou (2017) in the field of metaphor acquisition. Their aim was to further investigate and delineate the pupils' way of thinking, as well as the strategies and the rest of the knowledge resources they used in order to figure out the metaphorical meanings. During the procedure, each participant was shown their answers to the comprehension tasks in order for them to recall their thoughts and the strategies they used during the completion of the tasks. Consequently, the correct metaphorical meaning was reported to the participants and they were asked, in plain words, whether each metaphorical expression existed in their L1 or any other language included in their language repertoire, either as a morphologically and semantically identical linguistic metaphor, or as a different linguistic metaphor arising from the same conceptual metaphor.

3.1.3. Analysis of the metaphor comprehension strategies

Prior to presenting the results of our experimental research, it is crucial to clarify the exact metaphor comprehension strategies we extracted from our data and what the use of each strategy means. The information regarding the strategies our participants used during the completion of the two open tasks was taken mostly from the interviews. For the delineation, as well as the categorization of the strategies, we were based both on the existing literature regarding metaphor comprehension strategies (Piquer-Píriz , 2005, 2011; Littlemore & Low, 2006; Littlemore, 2008; Littlemore et al., 2011; Azuma, 2009, 2012; Littlemore et al., 2016; Antoniou, 2017) and our research data. Looking into the two aforementioned parameters, we proceeded to the following categorization (table 3):

Metaphor comprehension strategies	
Values	Explanation of the values
MELM	Metaphorical extension of the literal meaning (**MELM**)
L1	Use of mother tongue
L2	Use of second language (Greek)
Ly	Use of another language included in the participant's language repertoire
C	Use of non-directive context
OS	Other strategies (intuitive knowledge, belief that certain metaphorical expression is universal or linguistically/culturally-specific)

Table 3: Codification of metaphor comprehension strategies

The strategy of metaphorical extension (MELM) concerns the activation of the knowledge resources regarding the source-domain of the metaphorical expression, such as conceptual traits of the source-domain, general and experiential knowledge etc. (Littlemore & Low, 2006; Antoniou, 2017). An example of the use of this strategy is the interpretation "to agree or make up with someone" in the metaphorical expression: *to make them into floor tiles.* In this case, the participant managed to make the mental leap from the literal to the figurative. To be more precise, during the interview, they stated that: "the way the floor tiles are all together, close to one another and with the same structure is like many people who agree on something and are happy together".

Regarding the use of L1, the participants recalled and made use of literal and metaphorical expressions which are semantically, phonologically or morphologically relevant to the Greek metaphorical expressions included in our tasks. This became clear when a participant managed to write down the correct meaning of the metaphor: *to shake their teeth*, due to the fact that they have the same metaphor in their language (namely Albanian).

The use of L2 i.e., Greek, refers to the mnemonic recall of previous L2 knowledge, thus the precedence of linguistic structure (verbal stimuli) over the mental image (non-verbal stimuli). According to the data of our research, the different types of L2 knowledge that were deployed by the participants were the lexical/grammatical background of the expression, the association to another expression in L2 due to lexical, syntactical,

morphological or phonological proximity, the mnemonic recall of the metaphorical expression's literal meaning without metaphorical extension and the mnemonic recall of a partially correct meaning. For instance, one of the participants misinterpreted the metaphor: *to make them into floor tiles*, by responding "it means that they had a quarrel, a fight with each other". Despite the fact that this participant achieved metaphorical extension, as they managed to map the concrete concept: *floor tiles* to the abstract concept: *quarrel/fight*, the use of this strategy was not conscious. The strategy that was consciously used was the use of L2, as the participant interpreted that metaphor according to other metaphors in Greek which have the same linguistic structure. To further elaborate on this, the metaphor *to make them into floor tiles* translates as *ta kaname plakakia* in Greek, where "ta" is the pronoun (them), "kaname" is the verb (made) and "plakakia" is the object (floor tiles). During the interview, the participant stated that they answered according to other expressions in Greek that are grammatically and syntactically similar to *ta kaname plakakia*, such as *ta kaname thalassa* (lit. meaning: "we made them like the sea", fig. meaning: "we made a terrible mess").

The motivation behind the use of an Ly was mainly the necessity for expressing the metaphorical meaning of a language-equivalent word or phrase that acted as source-domain of the metaphorical expression. For instance, one of the participants, during the interview, explained the meaning of the word *fesi* (*literal meaning; Turkish fez*) by using the English word *payment* as a mediator, in order to show that he knows its figurative meaning, i.e., a debt that remains undischarged.

The use of non-directive context (C) refers to the use of the immediate context, i.e., rest of the words forming the sentences in which the metaphorical expressions were incorporated. Despite the fact that the context did not contribute to the extraction of the correct metaphorical meaning as it was intentionally non-directive, we could not ignore its use.

The rest of the strategies used by the participants contain a) the intuitive knowledge, that is, the intuitive extraction of a meaning without being able to explain their reasoning and b) the belief that the meaning of a certain metaphorical expression in their L1 was

linguistically/culturally-specific, so they did not make use of it, as they believed that they would not fit in the L2.

3.2 RESULTS

The first set of analyses examined the extent to which our participants comprehended the linguistic metaphors appearing in the two tasks. As shown in table 5 below, the mean scores were 2.37 for task 1 and 2.18 for task 2, on a scale from 0 (no response at all) to 4 (correct metaphorical meaning) (table 4). This scale of evaluation was adapted from the aforementioned research of Antoniou (2017)[3].

Score	Score explanation
0	No response
1	Literal meaning
2	Metaphorical meaning that is incorrect
3	Metaphorical meaning that is partially related to the correct one
4	Correct metaphorical meaning

Table 4: Scale of evaluation of metaphor comprehension

Task 1 (high imageability)	Task 2 (low imageability)
Average mean score	Average mean score
2.37	2.18

Table 5: Average mean scores of metaphor comprehension per task

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Antoniou (2017) created a five-scale evaluation inspired by previous relevant studies (Littlemore, 2008; Wesche & Paribakht, 2010; Azuma, 2012) in an attempt to "fully depict the data in an objective and precise way while in the same time achieving a more economic description" (Antoniou, 2017, p. 114).

It is not hard to grasp, even from the beginning of our qualitative analysis that our bilingual pupils found it quite challenging and difficult to interpret the metaphorical expressions, thus contributing to previous findings regarding difficulty in the perception of metaphor (Danesi, 1993; Littlemore et al., 2011; Nacey, 2017; Martín-Gascón, 2023b). This finding is further supported by the fact that 20.14% of the pupils' responses showed no perception at all of the figurative use of the words operating as source-domains.

There were also significant differences concerning comprehension per linguistic metaphor. In tables 6 and 7 we can see the mean scores per metaphorical expression. What stands out in the specified tables is the considerable divergence regarding metaphor understanding for each expression separately. It can be seen from the data in tables 6 and 7 that the minimum mean scores of the children's responses were rather low (1.83 in task 1, 1.75 in task 2), while the maximum mean scores were also far from excellent (2.92 in task 1, 3.17 in task 2). Furthermore, as shown in the aforementioned tables, 3 out of the 12 metaphorical expressions in task 1 were accompanied by a mean score below 2.00, which is the score highlighting the realization that the expression was metaphorical (see table 4). In task 2, things are worse: 6 out of the 12 expressions were accompanied by mean scores below 2.00. As a result, 9 out of the 24 total metaphorical expressions received a mean score below 2.00, namely, 37.5% of the linguistic metaphors were not even perceived as metaphors.

Task 1 (high imageability)	
Metaphorical expressions	**Mean scores**
to throw the glove	**1.83**
to slay with the cotton	**1.92**
to put somebody/something in a plaster cast	**1.92**
a punch in the stomach	2.16
If you grab their nose, they will explode	2.41
to make them into floor tiles	2.42
to clink them together	2.42

to hit the cannon	2.50
to drop the anchor	2.50
to raise the slat	2.66
to (feel the need to) make the sign of the cross	2.83
to have a ring-waist	2.92

Table 6: Metaphorical expressions of task 1 and their mean scores

Task 2 (low imageability)	
Metaphorical expressions	**Mean scores**
what kind of tobacco do you smoke?	**1.75**
it is like the Lord is risen	**1.75**
to be baptized	**1.83**
to golden the pill	**1.83**
Mary is a seal	**1.92**
to put somebody/something out in the hammer	**1.92**
this tavern is a pharmacy	2.17
to shake their teeth	2.25
to leave a fez (=Turkish felt hat)	2.30
to have a storm inside me	2.50
my blood pressure rises	2.67
to blow the money	3.17

Table 7: Metaphorical expressions of task 2 and their mean scores

The next set of analyses examined the exact way our participants cognitively dealt with the metaphorical expressions, i.e., the metaphor comprehension strategies they used, alone or in combination. In order to answer our research question, we proceeded to calculate the frequency of use (number of times each strategy was used), as well as the percentage of appearance of each strategy both in task 1 and in task 2 (table 8).

Task 1		**Task 2**	
Strategies	Percentage %	Strategies	Percentage %
MELM	30.28	MELM	23.70
L2	22.53	MELM + L2	20.00
MELM + L2	16.90	L2	17.04
L2 + C	9.15	MELM + C	10.37
MELM + C	4.93	MELM + L1	8.89
L2 + Ly	3.52	L2 + C	8.15
MELM + OS	2.82	MELM + Ly	2.22
C	1.41	MELM + OS	1.48
MELM + L1	1.41	L1 + L2	1.48
L2 + OS	1.41	L2 + Ly	1.48
MELM + L2 + C	1.41	L2 + OS	1.48
Ly	0.70	MELM + Ly + C	1.48
OS	0.70	MELM + L2 + C	1.48
MELM + Ly	0.70	Ly + C	0.74
C + OS	0.70	-	-
MELM + Ly +C	0.70	-	-
L2 +Ly +C	0.70	-	-
Total	99.97	Total	100
Missing values: 1	100	-	-

Caption

MELM = Metaphorical extension of the literal meaning

L1 = Use of mother tongue

L2 = Use of second language (Greek)

Ly = Use of another language included in the participant's language repertoire

C = Use of context

OS = Other strategies

Table 8: Percentage of use of the strategies in task 1 and task 2

As can be seen from table 8, the primarily used strategy by the participants both in task 1 and in task 2 was that of metaphorical extension of the literal meaning (MELM). More precisely, the aforementioned strategy was reported being used -both in single use and in combination with other strategies- in 59.15% of the total 142 cases regarding task 1, whereas the corresponding percentage regarding task 2 was 69.11%. Table 8 also illustrates the frequent use of L2, namely 55.63% in task 1 and 50.73% in task 2. Of particular interest however, seems to be the use of L1, which increased from 1.40% of the responses in task 1 to an impressive 10.37% in task 2. Moreover, the use of context (C), although non-directive, proved to be rather preferable, especially in task 2, where its use was reported in 22.22% of the total 135 cases. The corresponding percentage in task 1 was 19.01%. Closer inspection of table 8 shows that in task 1, all the strategies except the use of L1 were reported being used alone in 55.63% of the total 142 cases. However, regarding task 2, the results reveal a remarkable finding; only two of the strategies were singly used, namely MELM and the use of L2 in a total percentage of 40.74%. That is to say, a combination of strategies was used in 44.37% of the 142 total cases in task 1, whilst in task 2 this percentage rises to 59.26%.

What is also worth stressing is the finding regarding the single and combinatorial use of MELM in the two tasks. Whereas in task 1 the single use of MELM (30.28%) has almost the same frequency as the combinatorial (28.83%), the balance is considerably shifted in task 2, where the single use of MELM (23.70%) is almost half as frequent as the combinatorial (45.57%).

Regarding the differences or similarities in metaphor comprehension between expressions with high imageability and expressions with low imageability, we already saw from table 5 that the average mean score in task 1, namely the one consisting of metaphorical expressions with high imageability was higher (2.37) than the average mean score of task2 (2.18). Thus, even from the start, we are in a position to claim that high imageability proved beneficial for our participants. This claim is further accompanied by the fact that 50% of the metaphors in task 2 (6 out of 12) were accompanied by mean scores below 2.00 (were not perceived as metaphors), whereas the corresponding percentage concerning task was 25% (3 out of 12). Additionally, 92% of the participants (11 out of 12)

reported during the stimulated recall interviews that task 1 was easier for them, as they were able to form mental images of the metaphorical expressions. All points considered, task 1 was undoubtedly proved easier as high imageability generally facilitated pupils make the metaphorical extension and reach a figurative meaning.

4. DISCUSSION

As presented above, there is considerable lack of qualitatively-based research focusing on metaphor comprehension strategies in Greek as a second language, particularly concerning bilingual children. The present study is an attempt to bridge this gap in the literature and delineate the cognitive processes of an L2 elementary school student when they encounter a linguistic metaphor in Greek. Overall, the results primarily indicate that metaphor comprehension is undoubtedly a strong challenge for bilingual children at an intermediate language level. Additionally, it becomes apparent that the level of metaphor comprehension significantly varies per metaphorical expression, while metaphorical extension, although highly frequent, only sometimes proves successful, that is, leads to incorrect metaphor interpretation.

Metaphorical expressions with high imageability were generally considered to be easier by the participants to comprehend, confirming the findings by Boers et al. (2009), who showed that pictorial elucidation stimulates semantic elaboration and is therefore beneficial for the comprehension of meaning. Apart from the rather unexpectedly frequent use of MELM, the use of L2, as well as the use of non-directive context were proved quite preferable among the participants. The plethora of strategies used by the children, notably in task 2 where the combination, as well as the variety of them was much higher than task 1 suggest that metaphor comprehension is a pluralistic issue which requires significant cognitive effort and the employment of every existing knowledge source.

Before delving into metaphor comprehension strategies, it is imperative to acknowledge that our findings concerning children's difficulty in metaphor interpretation confirm those of previous research in the field of metaphor acquisition in L2 (Danesi, 1993; Littlemore, 2001a; Littlemore et al., 2011; Hoang, 2014; Antoniou, 2017; García Caballero, 2017; De Cock & Suñer, 2018; Mayo Martín, 2018; Martin-Gascón, 2023b). However,

despite the fact that our participants' weakness in the realization and perception of metaphor as a major impairment in metaphor comprehension is in accord with Danesi's (1993) research, it does not seem to be the case in Antoniou's (2017) research, where the literal responses of the participants constituted only 0.64% of the total responses. Their young age renders metaphor comprehension more challenging than in the case of adults, whose experiential intake is far more enriched. This finding also resonates the work of MacArthur & Piquer-Píriz (2007) regarding the aforementioned greater ability of an adult compared to a young child when it comes to the understanding of relational connections between diverse domains.

Regarding metaphor comprehension strategies per se, of particular interest seems to be the fact that MELM was the dominant strategy, despite the difficulty of the participants to interpret the metaphorical expressions, as well as to perceive the expressions as figurative (1 out of 5 responses were literal). The extensive use of MELM confirms the findings of Piquer-Píriz (2005), who stresses that the young participants in her study were generally able to make semantic extensions and reason figuratively. One possible explanation for this finding could be the bodily basis of several metaphorical expressions, e.g. *my blood pressure rises* or *if you grab their nose, they will explode*, which is in line with Piquer-Píriz's (2005, 2008, 2011, 2020) claim regarding the reliance on embodied and social experience on the part of the children. Moreover, the extensive use of MELM despite the absence of directive context, confirms the findings of previous research stressing that the importance of context is minimal when it comes to achieve metaphorical extension or infer a metaphorical meaning (Ferreira, 2008; García Caballero, 2017; De Cock & Suñer, 2018; Mayo Martín, 2018).

In the current study, the relation between the rate of imageability and choice of a strategy showed that metaphorical expressions with low imageability encourage the use of L2, the use of L1, as well as the use of C in favor of metaphor reasoning, which is consistent with previous research (Littlemore, 2004). In other words, 32.59% of the strategies used in task 2 were either the use of L1 or the use of C, or the combination of them. The corresponding percentage for task 1 was 20.42%. Therefore, in task 2 there was a significantly larger reliance on verbal strategies, hence a conscious process of the lexical

structure of the metaphorical expressions in order to make the leap from the literal to the metaphorical. Hence, we could argue that high imageability (task 1) encourages the single use of MELM, as mental image formation is known to facilitate and encourage metaphorical extension (Littlemore, 2008), whereas low imageability (task 2) calls the participants to adopt other strategies, such as the use of L1, L2 and context in order for them to balance the absence of mental image and achieve metaphorical extension. Due to the fact that the strategy of MELM did not gain good results, our participants deployed as many knowledge sources available as they could, e.g. lexical-grammatical knowledge in order to reach a final interpretation. Contrariwise, high imageability encourages the use of MELM, especially if we consider that forming a mental image is a sub-strategy integrated in MELM (Antoniou, 2017).

However, it is imperative to note that high imageability does not necessarily facilitate the construction of meaning, confirming Littlemore's (2008) claim regarding imageability and unsuccessful use of metaphorical extension strategies. This is exemplified in linguistic metaphors, such as *if you grab their nose, they will explode!* Albeit the expression is highly pictorial, high imageability did not facilitate metaphor comprehension as much as we expected, if we take into account the mean score of the participants (2.41). One possible explanation for this could be that the children sidelined the universal bodily basis of the linguistic metaphor in favor of the mental images it evoked, hence were led to more literal interpretations.

According to Littlemore (2008, p. 203), mental imagery may enhance metaphorical competence by facilitating the psychological processes of associative fluency and analogical reasoning, although this applies only to the cases where mental imagery leads to metaphorical extension and, as we saw, mental imagery does not always works that way. Thus, mental imagery may not only facilitate metaphor comprehension, but also complicate it, confirming previous research regarding the ambiguous role of pictures in the facilitation of metaphor comprehension (Boers et al., 2009; Altakhaineh & Shahzad, 2020). This ambiguous nature of mental imagery creates the notion of *deceptive imageability*, which unlike the common influence of high imageability on the choice of metaphorical extension

strategies, leads to literal interpretations as it urges learners to focus on the lexical clues of the metaphorical expressions.

This phenomenon is particularly evident in metaphors that lack relevance to participants' social experience, such as *to hit the cannon* (mean score: 2.50). According to Babiniotis (2019, p. 959), the figurative meaning of this metaphorical expression is: “to go bankrupt/to not be able to pay off a debt” and is mostly used to describe the situation in which a firm or a person reaches a financial dead-end. Evidently, this metaphor is not directly associated to a child’s experience. This comes in line with previous research regarding the “knowledge of the world” or “domain knowledge” and its important role in understanding or misunderstanding of figurative meanings (Winner, 1988; Vosniadou, 1989; Cameron, 1996; Piquer-Píriz, 2005, 2008, 2020). It may be the case therefore that a mental image needs to be directly associated to the social experience of the young learner in order to lead to metaphorical extension and comprehension of metaphors.

Finally, it is crucial to acknowledge some limitations of our study along with future directions for future studies. The lack of piloting of our tasks, as well as the limited number of our participants, are two rather critical parameters which would have added to the reliability of our findings, should they had been taken into account. A final limitation could be the fact that the participants were informed that the expressions in the tasks were metaphorical, thus they suspected that they had to give an interpretation which was different than the corresponding literal meaning. Given these observations, a more systematic experimental study on metaphor comprehension strategies would complete the findings and enrich them in terms of a technique’s effectiveness. Such studies should consider additional parameters, such as cognitive development across the age spectrum, including children and adolescents up to 18 years old.

5. CONCLUSION

The present study aimed to investigate metaphor comprehension in Greek as an L2, focusing on the metaphor comprehension strategies employed and the influence of mental imagery on strategy selection. The primary finding was the prevalence of MELM as a dominant strategy, although it did not consistently lead to successful interpretation. This

was followed by the use of L2, with context also playing a significant role despite being non-directive in both tasks. Mental imagery played a significant yet sometimes ambiguous role, facilitating comprehension in some cases while limiting it in others and influencing strategy choice based on metaphorical expressions' imageability and bodily- metonymic motivation.

In conclusion, this study -above all- states that metaphor comprehension is an extremely multidimensional and pluralistic issue. Our goal was not only to illuminate the various aspects of metaphor understanding, but also to promote and encourage further research on the subject. It becomes evident that further work needs to be done in order to concretize the holistically constructed human cognition by delineating metaphor comprehension and the plethora of strategies which are employed in order to achieve it. Taken together, the findings of this study highlight the need to include explicit training for the development of metaphorical competence in L2 classes of GSL students up to 12 years old, in order to foster L2 fluency and ability to interpret figurative language, aiming towards a more effective communicative competence.

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