Metaphor and L2 learning

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Metaphor is a fundamental mechanism of human cognition, and metaphorical linguistic expressions are pervasive in everyday conversations and written texts. The specificity and imageability of metaphors make them a perfect vehicle for conveying abstract or complex meanings in terms of more salient ones, and the lexicon of languages is rich in single words and multi-word expressions based on metaphor, such as idioms, phrasal verbs, idiomatic phrases, and collocations. Most speakers of a first language (L1) learn to understand metaphors and to make proper use of metaphorical expressions within their given linguistic community effortlessly, simply by being exposed to language in terms of real use, without engaging in conscious or intentional learning activities. For second language (L2) learners, conversely, metaphors represent a great challenge. On the one hand they are considered by some scholars as a sign of near-native mastery of a second language and an important learning goal. On the other hand, they hardly ever find a place in the language lesson where explicit teaching prioritises more frequent and rule-driven forms. One consequence of this is that these expressions are for the most part learned incidentally, and the second-language learner is faced with the difficult and exacting task of having to learn to use an enormous number of expressions. In this study, in order to investigate the mechanisms of comprehension and learning of metaphorical expressions in L2, a controlled experiment was carried out examining the influence of the L1 and of syntactic properties of L2 expressions on understanding and learning of metaphoric expressions.

Elisabetta Materassi

Metaphor and L2 Learning

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Content

List of tables

List of figures

12 Metaphor and L2 learning

Chapter 1. Introduction

1.1 Why Consider Metaphor in Second Language Learning?

Metaphor is a fundamental mechanism of human cognition, and metaphorical linguistic expressions are pervasive in everyday conversations and written texts. Through metaphor we can talk of abstract and complex concepts and understand them in terms of more concrete and salient ones. The concreteness and imageability of metaphors make them a suitable and perfect vehicle for conveying abstract or complex meanings, and the lexicon of languages is rich in single words and multi-word expressions based on metaphor, such as idioms, phrasal verbs, idiomatic phrases, and collocations.

As with many other linguistic devices, the use of both new and conventional metaphors is regulated by pragmatic factors, such as the type of situation and genre. The ability of the speaker to understand and use a given expression at the right moment in the proper context depends on an individual's linguistic and pragmatic competence and level of education.

Most speakers learn to understand and properly use metaphors within a given linguistic community simply by being exposed to language in real use, without engaging in conscious or intentional learning activities; for second language learners, conversely, metaphors represent a great challenge. A fundamental reason is that, according to the cognitive theory of metaphor (Lakoff & Johnson, 1980), which will be the theoretical framework of the present study, metaphors are first-of-all conventionalized associations at the conceptual level between elements of different domains of human experience. However, conceptual metaphors are not always universal and can vary between different languages. A second reason for the difficulty of metaphors for the second language learner is that the same conceptual metaphor can vary from language to language in the way it is conventionalized in the lexicon. The examples below, taken from written academic and popularizing Italian texts, show how differently metaphors can be lexically conventionalized in forms that sound perfectly natural and stylistically acceptable for native Italian users:

(1.1)   Amelia *si sofferma* sulla   relazione tra le   origine ebraiche e
         Amelia lingers   on the relation   between the origin Jewish   and
         'Amelia dwells upon the relationship between her Jewish origin and
          il profondo sentimento patriottico. (Calabrò, 2009: 6)

the deep   feeling   patriotic
her deep patriotic   feelings'

(1.2)   La *crisi*   della democrazia è *profonda* (De Michelis, 2010: 47)
The crisis   of the democracy is deep
'Democracy is in a deep crisis'.

(1.3)   Le parole diventano *armi*   nella *battaglia delle idee.* (De Michelis,
2010: 47)
The words   become   weapons in the battle   of the ideas
'Words become weapons in the war of ideas'.

(1.4)   Un Postmodernismo   ormai   *al tramonto?* (Cambi, 2013: 9)
A postmodernism   nearly *at sunset*?
'A nearly declining postmodernism'?

(1.5)   La Prima Repubblica è *travolta   dall' onda   anomala* dell'
autonomia   operaia. (Bocca, 2010: 165)
The First Republic   is overwhelmed by   the wave anomalous of the
autonomy   workers's
'The First Republic was overwhelmed by the anomalous wave of workers'
self-management'

Example (1.1) contains a polysemous verb; its figurative meaning is lexicalized and no longer perceived as a metaphor in the first language, while (1.2) is a frequent adjective-noun collocation. In example (1.3) words are described as arms in an ideological battle. In (1.4) the end of a cultural movement is expressed with the conventionalized verbal phrase 'essere al tramonto' and in (1.5) a political movement is metaphorically expressed in terms of a destructive anomalous wave. Such metaphorical expressions can be disambiguated in their context of use by second-language users, due to their general first-language metaphorical competence. On the other hand, at the productive level, the great variation in forms, and the mismatch between first and second language, can make the reproduction of the lexical forms very challenging. Because the use of metaphorical expressions is considered a sign of near-native mastery of a second language, the second language learner is in fact faced with the difficult and exacting task of having to learn to use an enormous number of expressions. In order to be able to adequately use a metaphorical expression, the second language learner should not only learn a lexical form but also be aware of the contextual and pragmatic constraints that govern its use. The ease with which second language learners will understand and re-use metaphorical expressions in adequate contexts is likely to depend on their motivation for learning a second-language vocabulary and, to a certain extent, on the lexical and cultural distance between the second language and their mother tongue. The experience of second-language

teachers is that metaphor use in L2 is strongly influenced by L1, with avoidance and interference at both the conceptual and lexical level as a consequence.

Despite of the ubiquity of metaphor in different types of discourses and texts, and its importance in everyday speech and written texts, metaphorical competence has remained quite a marginal issue in Second Language Acquisition (SLA) research and in L2 teaching practice. Littlemore and Low (2006a) observed that "the research base for figurative language is minimal compared with that for other areas of language acquisition" and that "in some areas, particularly connected with the issue of learning how to control figurative language in discourse, it is almost non-existent". As Nacey (2013: 46) observed, in the CERF (Common European Framework of Reference) document of 2001, in which experts from the Council of Europe provided a description of six levels of language proficiency specifying the learner's objectives, the term metaphor was mentioned only once as an explicit learner's goal to achieve lexical competence. In the description of the general objectives of lexical competence, the term 'metaphor' only occurred to better explain the notion of phrasal idioms, a subtype of fixed expression, as "frozen metaphor" and was exemplified by opaque idiomatic expressions such as "He kicked the bucket" (he died), "It's a long shot" (unlikely to succeed), and "He drove hell for leather" (very fast) (Council of Europe, 2001: 110). There was no other explicit mention of metaphor in the can-do statements in relation to the learning goals at any level of proficiency.

In the latest edition of Nation's widely used *Learning Vocabulary in Another Language*, for example, only a modest place was reserved for the learning of metaphorical expressions among other multi-word units in the category of "figuratives" (Nation, 2013: 490). MacArthur (2017: 413) notices that,

> since it is such an important part of everyday language use, one would expect that attention to metaphor would be an integral part of every language course designed for learners of a second or foreign language (S/FL). However, the simple truth is that it seldom, if ever, is.

After the publication of Low's (1988) article on metaphor in second-language teaching, Marcel Danesi was the first linguist to place productive metaphorical competence explicitly on the agenda of L2 research and pedagogy from a cognitive linguistic angle. Discussing current L2 pedagogical methodologies in L2 Italian, he argued that the "unnaturalness" and "literalness" of L2 learners' production in underusing metaphorical language, was a consequence of the fact that learners "never had the opportunity to access the metaphorical structures inherent in the target language and culture directly" (Danesi, 1994: 454). L2 learners' lack of "conceptual appropriateness" results from the fact that they think in terms of their own language while producing in their second language, manifesting "asymmetry between language

form and conceptual content" (Danesi, 1994: 454). Discussing the differences between Italian and English idioms and prepositions, he observed that the formal differences in words and expressions are the result of different ways of conceptualizing, and English learners' errors such as "Vivo qui *per* quindici anni" instead of "Vivo qui *da* quindici anni" (I have lived here for 15 years) should be avoidable by grasping the conceptual differences between "time in English" and "time in Italian" (Danesi, 2004: 457). Danesi believes that "metaphorical competence is as teachable as linguistic or communicative competence" (Danesi, 1994: 458); according to him, "conceptual fluency" should become an explicit goal of SLL research and pedagogy (Danesi, 1994: 454). To reach the same high degree of symmetry between language form and conceptual content that for native speakers remains "by and large unconscious" (Danesi, 1994: 454), L2 learners must rely on explicit knowledge, that is "to know, in large part, how that language 'reflects' or encodes concepts on the basis of metaphorical reasoning" (Danesi, 1994: 454). His suggestion for a curriculum is to structure learning units around conceptual domains such as, for example, time, weather, and love; and to teach the corresponding "grammar and communication patterns" reflecting those domains (Danesi, 1994: 459). An important task of second-language pedagogy and research is therefore to focus on differences across languages in terms of "conceptual domains", analyzing "to what extent […] the conceptual domains of the native and target cultures overlap and contrast" (Danesi, 1994: 461).

The role of metaphorical competence in all aspects of communicative competence for second language learning is discussed in detail by Littlemore and Low (2006). According to them it is surprising, considering the ubiquity of metaphor in everyday communication and the variety of its functions and forms, that for decades second-language pedagogy has assigned only a marginal role to metaphor and to figurative language in general, often in the form of lists of fixed expressions to be learned with no specific didactic methodology. The same marginal role has been assigned to metaphorical competence in language assessment, where only few proficiency tests are concerned with metaphor comprehension and production. Littlemore and Low argue that metaphorical competence, which involves both "knowledge of and ability to use metaphor", should find a place in a general model of communicative language ability because it is "involved in virtually every area of language that learners need to use" (Littlemore & Low, 2006: 269). They point out that in a coherent language competence model, metaphorical competence should appear in all components of its framework (i.e., illocutionary, textual, grammatical, strategic, and sociolinguistic competence) and at all stages of proficiency (Littlemore & Low, 2006: 274). In short, in order to become a successful user of a second language, an individual should have: the conceptual ability to understand one entity in terms of another apparently unrelated entity, inferring its meaning; the linguistic ability to understand conventionalized metaphors and other linguistic aspects, such as

phraseology and collocations; the textual ability to construct a range of metaphorical and non-metaphorical senses for expressions in different types of text, such as advertisements, headlines, jokes, and stories (see section 3.4.6).

As the purpose of my work is to investigate the mental processes involved in L2 metaphor comprehension and the factors that can influence learning of metaphorical language in L2, I will first provide an overview of those theoretical aspects of metaphorical meaning construction and comprehension that will be crucial to the present research (sections 1.2, 1.3, and 1.4). Special attention will be given to the cognitive linguistic view on 'conceptual metaphors' and 'image schemes' of Lakoff and Johnson (1980), which will be the theoretical framework for the present research. In section 1.4, I will consider some implications of the conceptual theory of metaphor for L2 understanding and learning of metaphorical expressions. Section 1.5 presents the aims as well as an overview of the chapters that follow in this thesis.

1.2 Theory of Conceptual Metaphor

With the publication in 1980 of their groundbreaking work *Metaphors We Live By*, Lakoff and Johnson (and Lakoff in several single-authored papers) challenged the traditional view of metaphor as a linguistic expression "where one or more words for a concept are used outside their normal conventional meaning to express a 'similar' concept" (Lakoff, 1979: 202). Lakoff and Johnson (1980) introduced the notions of 'conceptual metaphor' and 'conceptual domain'. In their view, metaphor is essentially a general cognitive mechanism and not merely a linguistic phenomenon working at the level of linguistic units, words, or sentences. Conceptual metaphors are cross-domain mappings in the conceptual system which are primary to individual linguistic expressions, have a central role in semantics, and are fundamental to reasoning. They form a "huge system of thousands of cross-domain mappings" that underpin "a great deal of the structure of language" and form an "indispensable part of our ordinary, conventional way of conceptualizing the world" (Lakoff, 1993: 204). Abstract concepts such as time, quantity, state, change, action, cause, purpose, means, modality, and category, are all understood metaphorically (Lakoff, 1990).

Linguistic expressions used in everyday language reflect the mechanism of conceptualization of a domain of experience in terms of another domain:

(1.6)   Your claims are *indefensible*

(1.7)   I *demolished* his argument

The expressions "*indefensible*" and "*demolished*" in examples (1.6) and (1.7) from Lakoff and Johnson (1980: 4) show how the conceptual domain 'argument' is conceptualized in culture and language in terms of the conceptual domain 'war' and

how the structure of the source domain (war in the examples) is mapped onto the target domain (argument). Lakoff and Johnson (1980) introduced the convention to express the conceptual mappings underlying individual linguistic expressions using a proposition in small capitals with the structure TARGET-DOMAIN IS SOURCE-DOMAIN or TARGET-DOMAIN AS SOURCE-DOMAIN. The linguistic metaphors "*indefensible*" and "*demolished*" are thus the surface expression of the underlying conceptual metaphor ARGUMENT IS WAR (Lakoff & Johnson, 1980: 4).

From a structural angle, a conceptual metaphor establishes a "set of correspondences" between elements of a source domain and elements of a target domain (Lakoff, 1987: 386). These correspondences can be established between entities in the source and target domain (*ontological* correspondences) or between properties of the source domain and the corresponding properties of the target domain *(epistemic* correspondences). The metaphor ANGER IS THE HEAT OF FLUID IN A CONTAINER, for example, produces expressions such as "He was filled with anger" or "I had reached the boiling point" (Lakoff, 1987: 383). The source domain is HEAT OF FLUID IN A CONTAINER and the target domain is ANGER. Our experiential knowledge of the properties of the source domain allows "metaphorical entailments", through which we "carry over" details of our knowledge from the source domain to the target domain. An expression such as "He was bursting with anger" is possible by virtue of the metaphorical entailment "intense anger produces pressure within the container" (Kövecses, 1986: 14; Lakoff, 1987: 385).

The basis of metaphorical processes is the combination of ontological correspondences between entities of the source domain, such as "the container is the body", "the heat of fluid is the anger", "pressure in the container is body heat", and epistemic correspondences between source and target, such as "the effect of intense fluid heat is container heat, internal pressure, and agitation", and "the effect of intense anger is body heat, internal pressure, and agitation" (Lakoff, 1987: 387).
Schemata, as "pervasive", "interwoven" and "superimposed" metaphorical patterns of understanding (Johnson, 1987: 126), allow inferences in metaphorical expressions like "Is that the *foundation* for your theory?", "Quantum theory needs more *support*", "You'll never *construct* a strong *theory* on those assumptions" (Johnson, 1987: 105). To be acceptable, expressions must be "part of" or "coherent with" the "metaphorical systems in our understanding" (Johnson, 1987: 107). In Lakoff's view, new metaphors are based on a system of thousands of conventional cross-domain mappings (Lakoff, 1979: 203). In *More Than Cool Reason* (1989), Lakoff and Turner emphasize that poetic metaphors are not exceptions to ordinary language use, but extensions of a conventionalized metaphorical system used in everyday thought and language. The possibility of creating new and poetic metaphors is further evidence for the existence of conventional metaphors without which every new extension of meaning would be impossible:

If those metaphors did not exist at all in our conceptual systems, then we could not understand novel, unconventional poetic language that makes use of them (Lakoff & Turner, 1989: 129).

The term 'image schema' was first coined by George Lakoff and Mark Johnson and appeared simultaneously in 1989 in *The Body in the Mind* (Johnson, 1987) and *Women, Fire and Dangerous Things* (1987) as a key concept in the explanation of meaning, imagination, and reasoning, and their emergence from bodily interactions with the environment. In the canonical definition by Johnson, an image schema is a "recurring dynamic pattern of our perceptual interactions and motor programs that gives coherence and structure to our experience" (Johnson, 1987: xiv).

'Experience' is to be understood in a very rich, broad sense as including basic perceptual, motor-program, emotional, historical, social, and linguistic dimensions. The idea is that our conceptualization of reality is never abstract: meaning is grounded in bodily experiences, "shaped by the patterns of our bodily movement, the contours of our spatial and temporal orientation, and the forms of our interaction with objects" (Johnson, 1987: xix). Movement and interaction involve recurring patterns without which our experience of the world would be chaotic. These "image schemata" function as "abstract structures of images", they are "gestalt structures" (Johnson, 1987: xix), consisting of parts that stand in relation to each other and are organized into "unified wholes, by means of which our experience manifests discernible order". These "nonpropositional" and "preconceptual" "metaphorical structures in our understanding are the basis for meaning relations and for inferential patterns in our reasoning" (Johnson, 1987: 112).

From the beginning, evidence for the identification of image schemas was mainly achieved through the cross-linguistic analysis of the natural domains of motion and spatial relations because "basic level and image-schematic concepts are directly understood in terms of physical experience" (Lakoff, 1987: 282). Schemas for CONTAINER, SOURCE-PATH-GOAL, LINK, PART-WHOLE, CENTER-PERIPHERY, UP-DOWN, and FRONT-BACK structure our experience of space (see Figure 1.1). Image schemas possess an "internal structure to constrain our understanding and reasoning" and "generate definite patterns of inference" (Johnson, 1987: 137). Schemas exist both as independent concepts and as abstract configurations through which we can structure more complex abstract configurations: "They are concepts that have directly understood structures of their own, and they are used metaphorically to structure other complex concepts" (Lakoff, 1987: 283). In his 'spatialization of form' hypothesis, Lakoff (1987: 283) assumes that basic forms of our way of thinking and reasoning have a conceptual structure based on image schemas and their metaphorical mappings.

CONTAINER	BALANCE	COMPULSION
BLOCKAGE	COUNTERFORCE	RESTRAINT REMOVAL
ENABLEMENT	ATTRACTION	MASS-COUNT
PATH	LINK	CENTER-PERIPHERY
CYCLE	NEAR-FAR	SCALE
PART-WHOLE	MERGING	SPLITTING
FULL-EMPTY	MATCHING	SUPERIMPOSITION
ITERATION	CONTACT	PROCESS
SURFACE	OBJECT	COLLECTION

Figure 1.1: *Inventory of Image Schemas Reported in Johnson (1987: 126)*

A crucial problem for metaphor theory is the identification of the internal structure, which constrains the metaphorical mapping onto a target domain. In the example of the PATH image schema, Johnson discovers a recurring image-schematic pattern with a definite internal structure: a source or starting point, a goal or end-point, and a sequence of contiguous locations connecting the source with the goal. The internal structure of the PATH schema is the basis of many metaphorical mappings from concrete, spatial domains, onto more abstract domains. According to that view, conceptual metaphors, such as PURPOSES ARE PHYSICAL GOALS and STATES ARE LOCATIONS, are based on the PATH schema (Johnson, 1987: 114).

Metaphors and image schemas are not arbitrary, but can be analyzed and explained, revealing a deep connection with our primary bodily experiences within the world. Lakoff (1987) and Kövecses (1986, 1990) showed that the system of metaphors for anger have their origin, across languages and cultures, in the physiology of anger itself. According to Grady and Johnson (1997), a system of hundreds of primary metaphors are learned in the first few years of life and are *coactive* in our experience. An example of coactivation of source and target domains is given by the experience of pouring a liquid into a glass or piling up objects and seeing the pile growing higher: verticality and quantity are both coactive in these every-day actions. This is the experiential grounding for the metaphor MORE IS UP (Lakoff, 1993; Johnson & Lakoff, 2002). Grounded experience is the result of human interaction with the environment:

> At the heart of embodied realism is our physical engagement with an environment in an ongoing series of interactions. There is a level of physical

interaction with the world by means of which we have evolved to function very successfully, and an important part of our conceptual system is attuned to such functioning (Lakoff & Johnson, 1999: 90).

Image schemas structure our experience independently of language, and they can apply to different kinds of every-day experiences. They have a simple internal structure with a small number of components (Johnson, 1987; Dodge & Lakoff, 2005). The basic SOURCE-PATH-GOAL image schema is a good example of a spatial image schema that can apply to a wide range of every-day experiences and be the basis for various linguistic expressions.

Following the general principle of the 'invariance hypothesis', formulated by Lakoff (1990), a broad range of regularities in both our conceptual and linguistic systems can be explained in terms of general metaphorical mappings and their constraints. The mapping from a source domain to a target domain is not arbitrary, but "tightly structured" and there are "ontological correspondences" according to which "entities" in a domain "correspond systematically" to entities in the target domain (Lakoff, 1990: 48). In the example LOVE IS A JOURNEY there are ontological correspondences that allow the conceptualization of love as a journey in expressions like "We're at a *crossroads*", or "We can't *turn back* now", in which "the lovers correspond to travelers", "the love relationship corresponds to the vehicle", and "the lovers' common goals correspond to their common destinations on a journey" (Lakoff, 1990: 48). This "set of conceptual correspondences" includes "epistemic correspondences". The mapping of the "knowledge structure" about journeys onto a corresponding love scenario (Lakoff, 1990) allows "inference patterns", through which we apply knowledge about one domain to another domain, such as knowing that in a relationship you can decide to persevere, trying to reach a common destination. The ontological and epistemic correspondences are already part of the conceptual system of a language, and this explains why novel extensions are "instantly comprehensible" to speakers (Lakoff, 1990: 50). Observing the systematic way in which mappings allow the same form of inference, Lakoff formulates his invariance hypothesis, according to which "Metaphorical mappings preserve the cognitive topology (that is, the image-schema structure) of the source domain" (Lakoff, 1990: 53).

In any metaphorical projection (e.g., THEORIES ARE BUILDINGS), only a part of the aspects or features of the source domain (buildings) is projected onto the target domain (theories), and not all aspects of a source domain map onto a target. Metaphors only map structure from the source domain that is compatible with the target domain. For example, classical categories are understood in terms of "bounded regions, or containers" (Lakoff, 1990: 52). In the conceptual metaphor CLASSICAL CATEGORIES ARE CONTAINERS, the topological properties of the containers are

preserved in the mapping so that something can be "put into" or "removed from" a category. The same happens, for example, with the conceptual metaphor LINEAR SCALES ARE PATHS. In the expression "John is *far* more intelligent than Bill", the metaphor maps the starting point of the path onto the bottom of the scale, mapping distance travelled onto quantity (Lakoff, 1990: 53).

The evidence for the existence of conceptual metaphors as modes of thought, not merely as figures of speech (Lakoff, 1990), was provided essentially, but not only, by linguistic expressions revealing "conventional" patterns of thought, and "fixed" parts of our conceptual system (Lakoff, 1993: 207), and was supported by a great body of empirical data showing "the systematicity in the linguistic correspondences" (Lakoff, 1990: 50). Evidence was provided also by studies on polysemy (Brugman, 1988; Lakoff, 1987) and semantic change (Sweetser, 1990). The research areas of polysemy and grammaticalization revealed that entire lexical fields of words not only have literal meanings in a concrete domain but are also systematically related to meanings in abstract domains. The study of prepositions, for example, revealed how 'up' and 'down', together with verbs such as 'rise' and 'fall', and adjectives such as 'high' and 'low', are used not only to speak about verticality but also to express quantity.

Since its formulation, the theory of metaphor has developed and deepened, and studies on metaphor based on what Lakoff (2003: 249) calls "deep analysis" revealed that "fundamental ideas – not just time, but events, causation, morality, the self, and so on – were structured almost entirely by elaborated systems of conceptual metaphor" (Lakoff, 2003: 249). Another important finding was that abstract reasoning uses the logic of sensory-motor experience (Lakoff, 2003: 247). Metaphorical understanding is the norm "as soon as one gets away from concrete physical experience and starts talking about abstractions or emotions" (Lakoff, 1993: 205). A metaphorical process, for example, makes possible our understanding of classical conceptual categories, which are understood metaphorically in terms of bounded regions or containers. On the other hand, the metaphorical conceptualization of the same abstract concept can happen in a variety of different ways, as shown in the following examples, taken from Lakoff and Turner (1989) and Lakoff (2003). Causation, for example, can be conceptualized in terms of a process of forced motion to a new location as in (1.8), as the giving and taking of objects in (1.9), as links in (1.10), and as motion along a path in (1.11).

(1.8)   Scientific developments have *propelled* us into the digital age

(1.9)   These vitamins will *give* you energy

(1.10)   Cancer has been *linked to* pesticide use

(1.11)   China is *on the road to* democracy having *taken the path of* capitalism

Michael Reddy's (1979) account of "The Conduit Metaphor" is the first limited but "thoroughly analyzed example" (Lakoff, 1979: 203) of conceptual domain study. Lakoff considers Reddy's analysis the seminal work on conceptual metaphor (Lakoff, 1979), in which he provides numerous examples of how communication is conceptualized in English. A large number of metaphorical expressions, such as "You still haven't *given me* any idea of what you mean" (Reddy, 1979: 166), "involve the figurative assertion that language transfers human thoughts and feelings" and that words are a "logical container, or conveyer" of thoughts, as in: "You have to *put* each *concept into words* very carefully" (Reddy, 1979:167). Also, an expression like "You'll *find* better ideas than that in the *library*", is derived from the conduit metaphor through a "chain of metonymies" (Reddy, 1979: 187).

Lakoff's idea of a "huge system of conceptual metaphors" and the notion of systematicity of domain mappings, which implies the existence of clusters of metaphors sharing common source and target domains by means of sets of fixed correspondences, stimulated at first an "essentially top-down approach" that "tended to emphasize the structure of domains" (Deignan, 2006: 121). Kövecses, for example, analyzed metaphors for emotions such as anger (Lakoff & Kövecses, 1983; Kövecses, 2000) by exploiting systematically related target domains and analyzing linguistic expressions. Reddy's (1979) analysis was the first of numerous studies on the domain of communication (e.g., Grady, 1997; Semino, 2005).

Conceptual Metaphor theory has spawned a large amount of theoretical discussion, usage-based research on metaphor in language (see Chapter 2), and psycholinguistic studies on the mechanisms of metaphor comprehension (see Chapter 3). Since the late 1980s, research in developmental and experimental psychology has supported cognitive-linguistic findings on the role of metaphors and image schemas in people's understanding of language (Gibbs & O' Brien, 1990; Nayak & Gibbs, 1990; Gibbs & Colston, 1995; Gibbs & Nascimento, 1996; Gibbs & Berg, 1999). Some experimental approaches were used in an attempt to provide evidence with which to answer questions about the role of conceptual metaphors in immediate idiom comprehension. One of the relevant questions is the possibility that conceptual metaphors may be accessed and activated during the online processing of idioms (Gibbs et al., 1997).

Gibbs and Wilson (2002) performed bodily priming experiments and found that embodied metaphors were processed faster. They concluded that processing metaphorical meaning is not a pure cognitive act, but "involves some imaginative understanding of the body's role in structuring abstract concepts" (Gibbs & Wilson, 2002: 532). Metaphorical conceptualization is not purely abstract but connected to embodied experience involving " the construction of embodied simulations related to the actions mentioned" (Gibbs & Wilson, 2002: 538).

Some important contributions to metaphor theory in the late 1990s opened the way to a neural theory of language (a project co-directed by George Lakoff and Jerome Feldman at the International Computer Science Institute at the University of California, Berkeley). Joseph Grady (1997) showed that complex metaphors arise from primary metaphors, "directly grounded in the everyday experience that links our sensory-motor experience to the domain of our subjective judgments" (Lakoff, 2003).[1] Johnson (1997) observed how children learn to use primary metaphors, such as KNOWING IS SEEING, following different stages from concrete to metaphorical use. Rogier (1996) provided evidence for built-in cognitive mechanisms, such as topographic maps of visual field, suggesting a biological basis for an image schema's theory.

In their experientialist view of meaning and metaphor, Lakoff and Johnson, rejecting the classical notions of representation and reference, arrived at a neurally grounded definition of image schemas:

> *Representation* is a term that we try carefully to avoid, since it calls up an idealized cognitive model of mind with disembodied internal idea-objects that can somehow correspond to states of affairs in the external world. According to our experientialist view, neither image schemas nor any other aspect of conceptual structure are "representations" in this sense. An image schema is a neural structure residing in the sensimotor system that allows us to make sense of what we experience (Johnson & Lakoff, 2002: 250).

In *The Neural Theory of Metaphor*, Lakoff (2008) reformulated the conceptual metaphor theory (Lakoff & Johnson, 1980) in the light of the new neuroscientific insights. Gallese and Lakoff (2005) discussed the embodied nature of conceptual knowledge, which is "mapped within our sensory-motor system" so that "imagining and doing use a shared neural substrate" (Gallese & Lakoff, 2005: 456). Language exploits the multi-modal mechanisms of the sensory-motor system, in which the different modalities such as vision, hearing, touch, and motor action are linked together by neural circuits across different brain regions (Gallese & Lakoff, 2005: 456). The capacity to think metaphorically arises from the embodied nature of thought and language.

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[1] This summary is based on Lakoff "Primary Metaphor and the Neural Theory" in Lakoff, 2003: 254–257.

1.3 Conceptual Metaphor Theory and Conventional Linguistic Expressions

As we saw in the previous section, in the conceptual view of metaphor (Lakoff & Johnson, 1980; Lakoff, 1979) the term 'metaphor' refers to a cognitive process, the "cross-domain mapping in the conceptual system" (Lakoff, 1979: 203) that allows us to conceptualize a domain of experience (target) in terms of a different domain of experience (source). Linguistic expressions are thus no more "the locus of metaphor" (Lakoff, 1979: 203) as in traditional theories, but merely the surface of metaphors as cognitive processes:

> The term "metaphorical expression" refers to a linguistic expression (a word, a phrase, a sentence) that is the surface realization of such a cross-domain mapping (this is what the word "metaphor" referred to in the old theory) (Lakoff, 1979: 203).

According to Lakoff and Turner (1989), linguistic expressions could not exist in the absence of an entrenched conceptual metaphor. The richness of conventional expressions is the consequence of the conventionalized metaphorical connections between domains of experience shared by the members of a cultural and linguistic community because, "modes of thought that are not themselves conventional cannot be expressed in conventional language" (Lakoff & Turner, 1989: 50).

In conceptual metaphor theory, the shift of attention was from language to thought. However, in the surge of studies drawing on that theory, different scholars focused their attention on the linguistic properties of metaphors. Taking a cognitive linguistic viewpoint, their analyses pointed to the relation of metaphor to fixed expressions (Moon, 1998), idiomatic phrases (Nunberg et al., 1994), collocation (Deignan, 1999b; Sullivan, 2007, 2013; Philip 2011), and idioms (Sullivan, 2007; Gibbs, 1992, Nayak & Gibbs, 1990, Gibbs & O'Brien, 1990). Moon (1998) estimated that about 33% of the occurrences in her corpus of fixed expressions were motivated by metaphor. Grady (2008) pointed to the tight relation between conceptual metaphors and their instantiation in conventional expressions, observing how metaphors often recur in syntactic sequences in which both the target and the source domain surface in language:

> One aspect of metaphors not usually commented on is that, within a given metaphorical expression, e.g., a phrase or sentence, the vehicle/source term often fits a grammatical slot where we might otherwise substitute a target term. I may refer to an 'affectionate person' or a 'warm person' (adjective preceding the noun it modifies); we can talk about 'grasping the

point of an article' rather than 'understanding the point' (transitive verb followed by direct object); we may read that treaty talks have 'collapsed' (metaphorical intransitive verb) or 'failed' (literal) (Grady, 2008: 356).

Also, Sullivan (2013) observed that in order to obtain a metaphorical interpretation, sequences of words have to occur in particular grammatical constructions:

> When *wealth* is modified by *spiritual*, the item wealth is understood as referring to spiritual properties, rather than to financial accumulation. That is, *wealth* is metaphorical when it occurs in *spiritual wealth.* However, words are not enough to convey metaphor. The mere juxtaposition of *spiritual* and *wealth* does not necessitate a metaphorical interpretation. The noun phrase *spiritual concerns about wealth* refers to unease about literal monetary wealth, even though the example involves the words *spiritual* and *wealth*. The items *spiritual* and *wealth* apparently have to occur in a particular grammatical relation, in which *spiritual* modifies *wealth*, to ensure that metaphor is communicated. It appears, then, that metaphorical language depends not only on the choice of words, but also on particular grammatical constructions (Sullivan, 2013: 2–3).

This tendency of metaphor to be fixed in conventionalized forms is relevant to L2 research. In the last decennia there has been a growing agreement that the knowledge of collocations, formulaic expressions, and multi-word units, is an important learning goal for attaining a native-like language performance. In spite of the increasing number of studies on L2 learning of fixed sequences, there is still little research on conventional expressions motivated by metaphor.

1.4 Implications of the Conceptual Metaphor Theory for Second Language Learning

According to conceptual metaphor theory the richness and frequency of metaphor-based expressions in a language "is one measure of the productivity of the metaphor" (Lakoff, 1987: 384). Classical examples of conceptual metaphors, such as LOVE IS A JOURNEY, or LOVE IS HEALTH present, in English, a great variety of conventional linguistic expressions, such as "not going anywhere", or "it's a healthy relationship" (Lakoff & Johnson, 1980:141). The same conceptual metaphor could be less productive in other languages – for cultural and linguistic reasons – and that could influence both individual understanding and use of linguistic expressions in L2, and even make translation into a second language difficult. The view of conceptual metaphor as a system of correspondences governing reasoning and behaviour, creating the possibility for the understanding of novel extensions, was initially based

essentially on evidence from linguistic and psychological studies carried out on the English language (but see Chapter 2). From an L2 point of view, following the lines of conceptual metaphor theory, the most obvious consideration is that conceptual metaphors and the complex of systematic correspondences across domains called metaphorical mappings can vary widely across languages. Moreover, even where cross-domain mappings are the same, they can be expressed in two languages with a variety of conventionalized linguistic expressions with similarities or mismatches as a consequence, as exemplified in section 2.6, depending on the linguistic and cultural distance between the languages.

In order to exemplify the complexity of conceptual and linguistic equivalence and mismatch in L1 and L2, we will consider some English examples of conventional metaphorical expressions from Lakoff et al. (1991: 124), relative to the conceptual metaphor WORDS ARE WEAPONS

(1.12)   She used some *sharp words*
(1.13)   That was pretty *cutting language*
(1.14)   It was a *barrage of insults*
(1.15)   He was *bombarded by insults*
(1.16)   He *hurled insults* at her

In all these examples some acts of speech are metaphorically conceptualized in terms of weapons. From a linguistic viewpoint, each conventionalized metaphorical expression contains a lexical element from the target domain WORDS (*words, language, insult*) and a lexical element from the source domain WEAPONS (*sharp, cutting, barrage, bombard, hurl*). The combinations of words are conventionally used by speakers and are accepted as correct language expressions, while other combinations sound less appropriate or unfamiliar depending on their degree of conventionality.

The conceptual metaphor WORDS ARE WEAPONS is quite productive in Italian and Dutch too, and the examples in English have in many cases an equivalent conventional metaphorical expression in these languages, as shown in Table 1.1. In examples (1.17) and (1.18) equivalence at the conceptual and lexical level is supposed to play a positive role in L2 learning of the metaphorical expressions between the languages in question, with a positive *transfer* from the L1 in comprehension and learning and less *interference* in recall (cf., Chapter 3).

Table 1.1

Conventional Metaphorical Expressions in En, It, Du, Relative to the Conceptual Metaphor WORDS ARE WEAPONS

	English	Dutch	Italian
(1.17)	*sharp words* to have a *sharp tongue*	*scherpe woorden* een *scherpe tong* hebben	*parole taglienti* avere una *lingua tagliente*
(1.18)	*cutting remark*	*snijdende opmerking*	osservazione *tagliente*
(1.19)	a *barrage of insults*	*?een spervuur van beledigingen*	*un fuoco di fila di insulti* a fire of line of insults
(1.20)	to be *bombarded by insults*	**met beledigingen beschoten worden*	essere *bombardato* di insulti
(1.21)	to *hurl insults* at someone	*?iemand beledigingen toewerpen*	*scagliare ingiurie* contro qualcuno
(1.22)	*cutting language*	**snijdende taal* cutting language	*linguaggio tagliente* language cutting
(1.23)	a *sharp reproof*	een *scherp* verwijt	* un rimprovero tagliente a reprove cutting un *aspro rimprovero* a sour reprove

As we can see in Table 1.1, the conventionalized expressions can be conceptually and literally equivalent in English and Italian. In Dutch the combination of words in examples (1.19), (1.20),   (1.21), and (1.22) sounds unfamiliar or

stylistically unacceptable, whilst, for example, *beledigingen naar het hoofd slingeren,* 'hurl insults to the head' is an accepted fixed expression. In (1.22) and (1.23) we can see that, while the underlying conceptual metaphor is WORDS ARE WEAPONS, the combination of words is not realized as a metaphorical conventional combination in Italian or Dutch. Whilst in (1.18) the metaphorical collocation *osservazione tagliente* is perfectly acceptable in Italian, the word *rimprovero* 'reproof' in (1.23) has a preference for the collocate *aspro* 'sour', realizing the same concept metaphorically, that of a negative, painful reproof, with another conceptual mapping.

In summary, in each language, metaphors, according to the pragmatic goal of the speaker, can be linguistically realized both in novel forms or in lexically conventionalized sequences such as phrases, collocations, and idioms, following what Sinclair called the idiomatic and combinatory principle (Sinclair, 1991; Erman & Warren, 2000). Even where the same conceptual metaphor is productive in two languages, the acceptance and preference for a certain conventionalized combination is not predictable for a L2 learner. Consequently, the knowledge and use of conventionalized expressions, such as collocations, idiomatic phrases, and idioms, is an indispensable goal for reaching a native-like knowledge of the L2.

In conceptual metaphor theory, conventional conceptual metaphors, and the expressions that instantiate them, are viewed as living as opposed to dead metaphors such as, for example, the word "pedigree" (Lakoff & Turner, 1989: 129), where the original metaphorical meaning no longer exists in the English speakers' minds even if the speaker or the listener may not always be consiously aware of the activation of metaphorical mappings between a source and a target domain while using a conventional metaphorical expression (Lakoff & Turner, 1989: 129).

In a recent contribution to the theory of metaphor, based on Lakoff and Johnson's conceptual metaphor view, Müller (2008: 1) invokes a more dynamic and gradable view of metaphoricity, suggesting that metaphoricity can be more active in one context and less active in another. In this thesis it is assumed that in a second language different factors can make metaphors more or less active. Even metaphorical expressions that are processed in a more automatic and unconscious way by the L1 speaker due to their conceptual and linguistic conventionality are very likely alive while they are being processed by the L2 learner. Due to the mismatch at the conceptual level, at the linguistic level, or at both the conceptual *and* the linguistic level, it is unlikely that they can be processed unconsciously, automatically, and reproduced with no effort as in the L1 (Lakoff, 1979: 245). As we will see in Chapter 3, second-language users can rely in their interpretation of metaphor from previous language experience in L1 with phenomena of transfer and interference as consequences. Furthermore, a cross-linguistic investigation of the understanding and learning of metaphors must also take into account other possible factors that can influence L2 comprehension and learning of metaphorical expressions. The

possibility to infer correctly what an unknown L2 linguistic expression means can also depend on the context of use, familiarity, and/or frequency of the individual words of a conventional expression, together with the level of transparency of the entire context in which a metaphorical expression is embedded.

1.5 Outline of This Thesis

The aim of this thesis is to investigate to what extent conceptual and linguistic equivalence or mismatch in L1 and L2 can influence understanding and learning of metaphorical conventional expressions in L2. The thesis is organized into five further chapters. Chapter 2 discusses earlier studies on metaphor use, introducing the question of metaphor identification. Another important issue introduced here is the question of the universality of conceptual metaphors, which has motivated much cross-linguistic and cross-cultural research. Chapter 3 provides an overview of relevant psycholinguistic models of memory for language and lexical representation, and of studies in second language acquisition and learning, both of which are important in order to understand the mechanisms of comprehension and learning of metaphor in L2, which is the topic of the present study and is concerned with issues such as linguistic transfer and the distinction between incidental and intentional learning. This chapter also discusses existing literature on the processing and learning of formulaic language, collocations, idioms, and metaphorical expressions in L1 and L2. In addition, it provides an overview of studies on metaphor in L2 production. Chapter 4 presents the research questions and the methodology of the study that was set up in order to answer the research questions concerning factors influencing understanding and learning of metaphorical expressions in L2. Chapter 5 reports the quantitative results of the experimental study. Together with the discussion of the results, Chapter 6 presents the main conclusions of the study.

Chapter 2. The Study of Metaphor use

2.1 Introduction

During the last three decades, the fundamental claims of the developers of conceptual metaphor theory (see section 1.1) have stimulated a rich and articulated field of theoretical and applied metaphor studies, becoming at the same time a "topic of debate and challenge" (Low, Todd, Deignan, & Cameron, 2010: vii). In the present chapter I will provide an overview of empirical non-experimental studies on metaphor use, focusing specifically on research aims, findings, and methodologies that can offer a framework for the present study. (Psycholinguistic studies will be reviewed in Chapter 3.) Despite differences in focus and methodology, a great deal of research during the last two decades shares an inductive, contextualized approach to the study of metaphor, and a commitment to analyze metaphorical language in real-life useage, collecting and analyzing linguistic data from authentic discourse, in specific domains of experience, and in specific genres. All these strands of research exploring authentic data in real-life communication are of great interest to L2 research in general. The findings emphasize the pervasiveness of metaphor in language and thought, and are crucial for the definition of a L2 metaphorical competence in accordance with the complexity and the variety of manifestations of metaphor in different types of communication. If metaphor is ubiquitous in language across different discourses and genres, and is used for a variety of purposes, both in highly conventional patterns as well as in creative ways, then metaphorical competence will be crucial at all levels of L2 proficiency, and particularly for advanced L2 learners who may wish or need to understand and communicate for academic or professional purposes "in ways that are faithful to their individual, social and cultural identities" (MacArthur, 2010: 159).

It is quite impossible to draw distinct boundaries between different strands of research in the subject of metaphor studies, because these disciplines tend to enjoy constant dialogue with each other and are always in constant debate with the framework of conceptual metaphor theory,[2] "testing its boundaries as an explanatory and predictive theory" (Low et al., 2010: vii). This chapter will therefore offer a simplified overview of the field, giving a prominent place to those trends that are relevant to the present investigation. In section 2.2, a discussion about a reliable

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[2] This richness and variety are also evident in the growing international success of the RaAM (Researching and Applying Metaphor) association, and by the number of interdisciplinary contributions to its conferences and seminars. See: http://www.raam.org.uk/Home.html

procedure for metaphor identification will be presented. Section 2.3 will focus on discourse and corpus studies on metaphor, and section 2.4 will present an overview of cross-linguistic studies on metaphor. After a discussion of some methodological problems concerning a cross-linguistic approach to metaphor research in section 2.5, I will present some concluding remarks in section 2.6.

2.2 The Question of Metaphor Identification

Since the late 1990s, scholars in the field of usage-based research have expressed concerns on various occasions about the absence of an explicit and reliable methodology for the extrapolation of conceptual metaphors from linguistic data, in critical opposition to metaphor theorists, who used decontextualized or constructed examples of metaphors. The new emphasis on the analysis of real discourse data as a means of discovering underlying conceptual mappings stimulated a methodological debate about the need for common and explicit criteria to explain "how stretches of discourse can be said to express particular conceptual metaphors as opposed to others" (Steen, 1999: 57). The discussion about a rigorous and explicit metaphor identification procedure "for extrapolating conceptual metaphors from linguistic data" (Semino, 2005: 42) has therefore been a central concern in applied metaphor research since the late 1990s (Steen, 1999). According to Steen, the goal of such a procedure was not to try to reconstruct or explain how metaphor understanding works in psychological or psycholinguistic terms, but instead to provide a solid basis for the purpose of linguistic research because "metaphor analysis is a task for the linguist who wishes to describe and explain the structure and function of language" (Steen, 1999: 59).[3]

The decision to recognize an expression as metaphorical, if based on the intuition of the analyst alone and on implicit criteria, could affect the validity and representativeness of the data, making findings difficult to compare and replicate. A group of metaphor scholars in various fields of language study collaborated for six years (Steen et al., 2010: 166) in order to develop a common methodological framework for metaphor identification in context. They published their Metaphor Identification Procedure (MIP) under the name Pragglejaz Group, derived from the

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[3] According to Steen (1999: 59–60): "However, such a procedure is also important for constructing the link between cognitive linguistics and psycholinguistics, in which precise descriptions of literal and nonliteral materials are needed for the development of well-controlled linguistic stimulus materials. Manipulating texts and expressions with a view to activating particular conceptual metaphors requires the same solid foundation in linguistic methodology".

initial letters of their first names (Pragglejaz Group, 2007). [4] According to this practical and explicit 'metaphor identification procedure', metaphorically used lexical units, in discursive context, can be recognized because essentially they always provoke a shift from one domain of experience to a second domain of experience. The shift can be verified by confronting the basic, literal meaning of a word with the contextual meaning. From the rigorous text analysis exemplified in the MIP document, which can serve as a sort of training manual for identifying metaphors in text, it appears that a word is not used metaphorically when its basic and contextual meanings are the same; the signal for metaphorical meaning is a shift, a gap, or a rupture in contextual and basic meaning. It is further found that all word categories, articles, and prepositions are worth analyzing for metaphorical possibilities.

The procedure consists of the following steps (Pragglejaz Group, 2007: 3):

1. Read the entire text–discourse to establish a general understanding of the meaning.
2. Determine the lexical units in the text–discourse.
3. a) For each lexical unit in the text, establish its meaning in context, that is, how it applies to an entity, relation, or attribute in the situation evoked by the text (contextual meaning). Take into account what comes before and after the lexical unit.
   b) For each lexical unit, determine whether it has a more basic contemporary meaning in other contexts than the one in the given context. For our purposes, basic meanings tend to be:
   - More concrete (what they evoke is easier to imagine, see, hear, feel, smell, and taste)
   - Related to bodily action
   - More precise (as opposed to vague)
   - Older

   Basic meanings are not necessarily the most frequent meanings of the lexical unit.
   c) If the lexical unit has a more basic current contemporary meaning in other contexts than the given context, decide whether the contextual meaning contrasts with the basic meaning but can be understood in comparison with it. If yes, mark the lexical unit as metaphorical.

When a group of researchers work on the same corpus project, as in the Amsterdam VU project "Metaphor in discourse: Linguistic forms, conceptual

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[4] The group consisted of Peter Crisp, Ray Gibbs, Alan Cienky, Graham Low, Gerard Steen, Lynne Cameron, Elena Semino, Joe Grady, Alice Deignan, and Zoltan Kövecses.

structures, cognitive representations", very detailed explicit criteria are necessary to guarantee systematicity in judgments about the identification of linguistic metaphors. To overcome difficulties encountered when implementing the MIP with large amounts of data, the research group produced a modified version of the MIP procedure, called the MIPVU (Steen et al., 2010).

2.3 Discourse Studies of Metaphor[5]

The term 'discourse-based studies of metaphor', as used here, is a general definition for a trend in studies that observe and analyze metaphor in "naturally occurring language use: real instances of writing or speech which are produced and interpreted in particular circumstances and for particular purposes" (Semino, 2008: 1). The aim of this field of metaphor research – according to the tradition of discourse analysis and critical discourse analysis – is to analyze metaphorical expressions not only as conceptual or linguistic phenomena, but also to explore the range of the specific functions, such as to "persuade, reason, evaluate, explain, theorize, offer new conceptualizations of reality" (Semino, 2008: 31), that they can have in communication. The notion of 'context' of metaphor is therefore not restricted here to the linguistic, co-textual, and textual dimensions, but assumes a wider, social and historical dimension. Studies in this area combine the use of corpus methodologies with a fine-grained stylistic analysis of occurrences, focusing especially on less conventionalized or consistently structured metaphorical uses, which imply context-specific, intentional, communicative choices.[6] Discourse research ranges from the systematic exploitation of single experiential domains to studies on specific genres of written or spoken discourse.

The shift towards a new, 'bottom up', discourse-based approach to metaphor during the last decade has stimulated critical adjustments of the claims of metaphor theorists, testing hypotheses about the systematicity of mappings across different domains, on the basis of an analysis of expressions in naturally occurring discourse, as, for example, Semino's (2006) study on the domain of 'speech activity'.

A number of studies have analyzed metaphor and metonymy in a range of specific domains of experience, such as illness (Semino, 2010), speaking and writing activity (Heywood & Semino, 2007), education (Cameron, 2003), economy and science (Boers & Demecheleer, 1995; Jäkel, 1997; Boers, 1999; Koller, 2004), politics

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[5] For this paragraph, I rely especially on E. Semino, *Metaphor un Discourse*, 2008.

[6] See Semino (2008: 31) for a discussion of the different linguistic functions in the sense of Halliday (1978).

(Semino & Masci, 1996; Charteris-Black, 2004; Musolff, 2004), religion (Charteris-Black, 2004), or in specific genres, such as spoken discourse (Cameron & Deignan, 2003), academic book review (Low, 2008), newspapers (Krennmayr, 2011), and business media (Koller, 2006). An 'emergentist' (Cameron, 2006) strand of studies has emphasized the need to study metaphor in interactive contexts, focusing on the dynamics that take place in social interaction in natural speech (Cameron, 2006, 2008; Cameron & Low, 2004).

All these studies have shown the diversity of conventional, creative, deliberate uses of metaphors. One of the main functions of metaphor, and of other figurative language, is to give expression to "ideas that simply cannot be easily or clearly expressed with literal speech" ('inexpressibility hypothesis'; Ortony, 1975; Gibbs, 1994) such as abstract reasoning, historical processes, cognitive and psychological processes, and abstract relations of time, space, movement, and/or change. This view is supported by the fact that in both metaphor and metonymy the vehicle element is mostly common, concrete, and easier to perceive and to visualize than the target element. Following the "compactness hypothesis" metaphors can convey succinctly "complex configurations of information" using few words (Gibbs, 1994: 125). Another important function is to "capture the vividness of our phenomenological experience", allowing the expression of mental states of the author, or what the author surmises to be the mental states of other persons (Gibbs, 1994: 125). The use of conventionalized metaphor in speech and writing can have the social function of reinforcing the sense of identity and common ground between members of a community (Gibbs, 1994). The need to express in a concrete, clear way, abstract reasoning and descriptions of complex processes, combined with this pragmatic motivation, can explain why metaphors are even more frequent in academic texts than in newspaper articles (Krenmeyr, 2011).

The persuasive function of metaphor and its role in the development of ideology in specific discourses (political manifestoes and speeches, sport and finance press reporting, and religious texts) is a central concern in corpus-based critical metaphor analysis (Charteris-Black, 2004). According to Charteris-Black, a proper theory of metaphor in discourse should integrate linguistic analysis with cognitive understanding and pragmatic criteria to explain "*why* a metaphor rather than some alternative mode of expression was chosen in a particular type of discourse" (Charteris-Black, 2004: xiii, italics in the original). While in cognitive theory the view of an unconscious use prevails, a pragmatic view of metaphor suggests that in specific communication contexts, speakers use metaphors intentionally and consciously "to persuade by combining the cognitive and linguistic resources at their disposal" (Charteris-Black, 2004: 11). A fundamental pragmatic view is then that "when employing a metaphor, the speaker invites the hearer to participate in the interpretative act". The interpretation entails "a joint activity of meaning creation that goes beyond

what is normally codified within the semantic system" (Charteris-Black, 2004: 11). An important research goal is therefore to "investigate the contexts in which metaphors occur, and the evidence that these contexts provide of speakers' intentions in using metaphors" (Charteris-Black, 2004: 13). Charteris-Black's corpus-based, fine-grained analysis of the keyword "crusade" used by the US government during the Bush administration, for example, which in its metaphorical form occurs in the construct "crusade against", collocates mainly with words like "corruption", "slavery", "communism", and "abortion", suggesting that conventionalized metaphors can have the same persuasive power as creative metaphors, conveying ideology in a hidden, but no less effective way. Semino & Masci (1996), when analyzing the mappings across the domains of football and politics in Silvio Berlusconi's political speeches, pointed out how Berlusconi's strategic metaphorical expressions appeal to shared, basic notions, to reach a large audience, moving at the same time in the direction of creating new suggestive and persuasive mappings.

Albeit with some slight delay in comparison with other areas of usage-based linguistic research, interest in corpus methodologies has also grown rapidly in the field of metaphor studies, "laying the methodological foundations for a strong emphasis on authentic data and the empirical verification of many of the fascinating theoretical claims in the field" (Stefanowitsch, 2006: 1). Corpus methodologies are more difficult to use for the detection of metaphors or metonymies compared with other kinds of grammatical, syntactical, or lexical phenomena, because "metaphorical mappings are not generally associated with particular word forms (or particular linguistic items in general)", and hence, "they cannot easily be retrieved automatically" (Stefanowitsch, 2006: 64). Yet, in recent years they have been successfully applied "to question and refine the claims made within Cognitive Metaphor Theory" (Semino, 2008: 196), which were made on the basis of insufficient linguistic evidence or intuitively derived examples.

The extraction of data from corpora, and the analysis of citations with concordance programs, allow metaphor researchers to apply procedures such as searching across a large quantity of textual material for metaphorical mappings, starting the search from a limited number of words in a specific domain, analyzing patterns of use, such as collocations and idiomatic constructions, and accessing information about the frequency of the metaphorical use of a certain word or construction (Deignan 1999a, 1999b, 2006; Semino, 2008; Cameron & Deignan, 2003).

Corpora like that of the Amsterdam VU project "Metaphor in discourse: Linguistic forms, conceptual structures, cognitive representations" (Steen et al., 2010), make it possible to search for metaphors in specific genres in order to compare patterns of use across different registers and to analyze data from different domains of discourse. For example, in her research on news texts, Krennmayr (2011) could

observe linguistic variation in metaphorical expressions across the four registers of the VU corpus – news texts, academic texts, fiction, and conversation – when looking for the distinguishing features of metaphorical language in news discourse.

Some studies have investigated metaphorical patterns, comparing and contrasting the use of metaphors in specific genres and text types,[7] such as political and religious speeches (Charteris-Black, 2004; Semino & Masci, 1996), business media discourse (Koller, 2006), and news articles (Krennmayr, 2011). Close analysis of data in corpus-based studies confirmed the pervasiveness of conceptual metaphorical mappings, but also suggested that they are not predictable (Deignan, 2006: 106) because lexical relations between metaphorical senses can be very complex for both grammatical and pragmatic reasons. Several studies have confirmed or refined the claims of cognitive theory with findings based on the observation of large amounts of data. According to Deignan (2005b), "while non-metaphorical senses may be psychologically primary and historically prior" (Deignan, 2005b: 94), metaphorical senses of some words are used more frequently than their non-metaphorical senses.

Another finding from direct observations of large amounts of data is that metaphors can be found in all parts of speech (verbs, nouns, adjectives, adverbs, and prepositions), while the construction of type A is B, such as in "that encyclopedia is a gold mine", very frequently used in psycholinguistic studies, are not representative of the diversity in real use (Cameron, 2003; Goatly, 1997; Deignan, 2006). Compared with literal meanings, which seem to be more freely combining, metaphors seem to appear in relatively fixed expressions (Deignan, 1999b, 2006).

Another interesting potential application of corpus methodologies for L2 research is the exploration of differences in frequency of conventionalized occurrences of the same conceptual metaphors, because "even when a metaphorical theme is shared by two linguistic cultures, it may be more popular in one culture than the other" (Boers, 2004: 220).[8]

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[7] There is general agreement in the field of usage-based studies on the assumption that metaphorical meaning can be more-or-less conventionalized, and that the degree of conventionalization and the way in which it takes place is related to specific genres and text types. For example, the "conventions for the referent of *mouse* will be different in the genre of computer hardware catalogues and fairy stories" (Goatly, 1997: 108).

[8] According to Lakoff (1987), not all domains are equally productive, and the number of metaphorical expressions in a certain source domain is the measure of its cultural salience (see also Kövecses, 1986:14). The domain-based cross-linguistic comparison of metaphors and metonymies (for example, speech and thought activities) can offer important insight into their cultural salience. Furthermore, data collection across two comparable corpora can be useful for the selection of items, offering a solid empirical basis for experimental purposes.

2.4 Metaphor Across Languages and Cultures

In this section I will give an overview of cross-linguistic studies of metaphor that focus on the questions of variation and universality in metaphor from a cross-linguistic perspective.

As shown in the previous sections, metaphor variation in naturally occurring language use is central to a number of studies across a range of registers, genres, topics, and types of communication in English. Although with limited, fragmentary, and sometimes contradictory results, increasing research efforts have been made during the last two decades to also explore variation in metaphor across languages and cultures.[9]

The question of whether conceptual metaphors should be considered universal or language-specific has been addressed over the last two decades by various cross-linguistic studies within the framework of conceptual metaphor theory. Scholars from different disciplinary fields of research have shown how across typologically different languages many analogies exist in the way we conceptualize abstract entities in terms of more concrete physical entities. A number of studies have emphasized how some metaphors are more central and universal than others because they are grounded in human physical experience. On the other hand, cultural differences can provide for diversification even across typologically not-too-distant languages. Studies centered on a fine-grained cross-linguistic comparison of linguistic metaphors and metonyms have revealed how even languages with a common cultural and historical background can present great differences in conventionalized figurative expressions. In general, we can distinguish between two different approaches, corresponding to a top-down and a bottom-up direction of analysis (Kövecses, 2011: 27). This section first presents studies that are mainly concerned with the top-down search for similarities in figurative expressions across culturally and typologically different languages as a

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[9] This increasing interest in the investigation of variation in metaphor from a cross-linguistic and cross-cultural perspective is evidenced by the number of papers and publications dedicated to this research area. "Researching and Applying Metaphor across Languages" was the theme of the third RAAM conference held in June 1999 at Tilburg University in The Netherlands. The general topic of cross-cultural variation in metaphor usage was the main focus of a special issue of the journal *Metaphor and Symbol* (vol. 18[4], 2003), while a special issue of the *Journal of Pragmatics* (vol. 36, 2004) was dedicated to cross-linguistic metaphor research. Both the cross-cultural and the within-culture dimensions of metaphor variation were addressed in a special issue on metaphor variation of the *European Journal of English Studies* (vol. 8, iii, 2004).

demonstration of the universality of "global cognitive structures such as conceptual metaphors" (Kövecses, 2011: 29) already attested in English by conceptual metaphor theoretical and empirical studies. Further, cross-linguistic studies are reported with a bottom-up approach, searching for similarities and mismatch in linguistic patterns across languages.

In a seminal case study of English and Indo-European sense-perception verbs, Sweetser (1990), taking a cognitive view on semantic change and polysemy, showed the pervasiveness of the "mind-as-body metaphor" across different languages. According to Sweetser,

> language is systematically grounded in human cognition, and cognitive linguistics seeks to show exactly how. The conceptual system that emerges from everyday human experience has been shown in recent research to be the basis for natural-language semantics in a wide range of areas (Sweetser, 1990: 1).

In her study, Sweetser shows how the conceptualization of the whole area of experience of the "internal self" and "internal sensations" in terms of "bodily external self" and physical experience is extremely common across cultures, if not universal. "Knowledge", for instance, is regularly connected with "sight" (Sweetser, 1990: 33; see also Lakoff & Johnson, 1980: 48), while "grasping" is connected with "understanding" (Sweetser, 1990: 45). However, the pervasiveness of such correspondences does not mean that the system is always internally consistent (Sweetser, 1990: 45), and there may well be large variations between cultures in the instantiation of less generic aspects, such as, for example, the precise bodily location supposed to be the seat of an emotion (Sweetser, 1990: 45).

Yu (1995) did cross-linguistic research analyzing metaphorical expressions of anger and happiness in English and Chinese with the aim of providing evidence for the universality of conceptual metaphors already identified in English (Lakoff & Johnson, 1980; Lakoff & Kövecses, 1987; Kövecses, 1991). This study revealed that in both languages, conceptual metaphors such as ANGER IS HEAT, HAPPY IS UP, HAPPINESS IS LIGHT are central to metonymic expressions that conceptualize those emotions by means of the related physiological effects, although on the surface there may be relevant differences; for example, in Chinese there are many more expressions referring to internal organs than in English. Yu explains this phenomenon from a cultural perspective, noting the primary importance of internal organs in the "five elements" theory of Chinese medicine (Yu, 1995: 83). In another comparative study on Chinese metaphors of thinking, Yu (2003) pointed out that, while at a conceptual level the metaphor THE MIND IS A BODY is central in both English and Chinese, at

the linguistic level, the expressions that instantiate the conceptual metaphor may vary considerably. While in both languages "thinking" is conceptualized as "moving" and "seeing", a fundamental difference between European and Chinese cultures is that for the Chinese the heart is the seat both of emotion and thought. That difference in categorization is reflected at a lexico-semantic level by the word *xin*,'heart', which also includes the English meaning of the word 'mind' (Yu, 2003: 161).

The theory of the embodied motivation of conceptual metaphor and metonymy was addressed also in psycholinguistic studies across languages. Gibbs et al. (2004) designed a research method to provide psycholinguistic evidence for the embodied nature of the conceptualization of desire in terms of 'bodily hunger' across languages and cultures comparing the reactions of American English and Brazilian Portuguese speakers. In both languages they found many linguistic expressions conveying the abstract idea of desire in terms of hunger. In a rating experiment to investigate the plausibility of linguistic expressions used by speakers, the researchers provided further evidence for the connections between embodiment and language use in both languages.

Other studies have addressed the question of universality of conceptual metaphors and metonyms, comparing linguistic expressions that are supposed to instantiate the same cross-domain conceptual mappings across typologically distant languages. The aim of Neumann's study (2001: 127) was to compare metaphorical expressions in two geographically, typologically, and etymologically distant languages, such as Japanese and German, to provide cross-linguistic evidence for conceptual metaphors that are attested in the cognitive literature mainly from a monolingual perspective. Neumann's comparative analysis, based on 106 similar expressions of thinking and feeling in German and Japanese, reveals the independent existence of conceptual metaphors in both languages, providing evidence for a universal and non-language-specific view of conceptual metaphor as an "independent cognitive force and a central word-formation mechanism that is so strong that similar metaphors can be accounted for in such totally unrelated languages as German and Japanese" (Neumann, 2001: 136).

Hamdi (2010) carried out a cross-linguistic analysis of conceptual metaphors for time in Arabic and English, drawing examples from dictionaries, newspapers, and literary prose. This comparative study confirmed the pervasiveness of metaphors such as TIME IS A MOVING ENTITY in the conceptualization and the expression of time in two clearly unrelated languages.

In a study of linguistic metaphors in two typologically distant languages, such as English and Turkish, Özçalişkan (2005: 208) observed how both languages encode motion in space to express a range of different abstract domains, such as time (e.g.,"moments slip by") and mental actions (e.g., "the idea sprang back into his mind"). According to Özçalişkan, linguistic differences are likely to have an effect

not only on the lexicon but also on its metaphorical extension and on the way we conceptualize motion.

Other cross-linguistic studies on figurative language have shown differences in the linguistic exploitation of single experiential domains because of their cultural salience (Barcelona & Soriano, 2004; Boers & Stengers, 2008). The fact, for instance, that English and Dutch in comparison with Spanish use more idioms of transport, and especially sailing (miss the boat), can be explained with reference to the salience of that particular experiential domain in both Dutch and English culture (Boers & Stengers, 2008). Further, the authors point out that a phonological motivation, especially alliteration (*de **g**eest **g**even,* the soul give, 'to die') and assonance, could explain the preference in a particular language for certain lexical selections. The fact that conceptual motivation can interact with linguistic factors and lexical mismatch in languages, might also be "explainable by typological reasons related to matters of word stress, inflection and word order" (Boers & Stengers, 2008: 75).

The existence of metaphor universals has been a focus of interest also for studies in cultural and linguistic anthropology. According to Kimmel (2004: 281), what makes source domains such as the human body, houses, landscape and animals very productive sources of metaphors and metonyms in many cultures is "their profound significance and experiential salience".

The question of the universality and variation of conceptual metaphor is central to most of Kövecses's work (2000a, 2000b, 2003a, 2003b, 2004, 2005). In a cross-cultural and cross-linguistic study of the various ways that anger is conceptualized in English, Chinese, Japanese, Hungarian, Zulu, and Wolof, Kövecses (2000b) discovered a number of common 'universal' aspects as well as culture-specific elements. All the analyzed languages present metonymical and metaphorical expressions revealing the existence of a common conceptualization of emotions of anger as the internal pressure of a liquid in a container. The similarity in linguistic expressions across typologically and culturally distant languages, such as in examples (2.1–2.4) reported by (Kövecses, 2000b: 165) is motivated by the universal physical experience of physiological processes such as the generation of body heat, internal pressure, and other physical aspects connected to anger:

(2.1) *Billy's hot-head* (English)
(2.2) *Wo qide lianshang huolalade* (Chinese)
       (My face was peppery-hot with anger)
(2.3) *Atama o hiyashita hoo ga ii* (Japanese)
       (head cool should)
(2.4) *Forro´ feju (*Hungarian)
       (hotheaded)

In his account of similarities in fundamental domains like that of emotion, Kövecses adheres substantially to Lakoff and Johnson's notion of 'embodied experience' (Lakoff & Johnson, 1999; Johnson & Lakoff, 2002):

> metaphorical concepts are often embodied, and hence cultural understandings based on them are also embodied. This embodiment makes meaningful not only language but also a wider range of cultural practices (Kövecses, 2005: xiv).

Kövecses points out, however, how evidence from various languages around the world suggests that not all conceptual metaphors are universal nor always motivated by primary bodily experience. A large number of metaphors may in fact be considered non-universal, being, in fact, language- and culture-specific:

> Love is conceptualized as a JOURNEY, UNITY, HUNTING, and so forth in many cultures, including English, Hungarian, and Chinese, but in certain dialects of Chinese LOVE IS FLYING A KITE (Yang, 2002); anger is understood as a fluid or gas in many cultures, but in Zulu anger is understood as OBJECTS IN THE HEART (Taylor and Mbense, 1998); life is commonly viewed as a JOURNEY or STRUGGLE, but in Hmong it is viewed as a STRING (Riddle, 2000) (Kövecses, 2005: 3).

In an attempt to find a unifying theory to account for both universality and variation, Kövecses makes a distinction between universal 'primary' conceptual metaphors, which result from primary experience such as AFFECTION IS WARMTH, CAUSES ARE FORCES, EVENTS ARE MOTIONS (Kövecses, 2005: 3) and 'complex' conceptual metaphors, which are not necessarily shared by all languages and cultures but result from the combination of primary ones (Kövecses, 2005: 4). An example of 'complex' metaphor is for Kövecses LOVE IS A JOURNEY, a conceptual metaphor already discussed by Lakoff and Johnson (1980: 44) in English.

Kövecses's explanation represents an attempt to adapt Lakoff and Johnson's conceptual metaphor theory (1980) for the purpose of cross-linguistic analysis, accounting for cross-linguistic variation of attested conceptual metaphors without critically addressing that theory.

Grady (1997a, 2005; Grady & Johnson, 1997) makes a distinction between 'primary' and 'complex' metaphors in cross-linguistic comparisons. Grady explains 'primary metaphors' in terms of analogy-based fundamental conceptual associations. In Grady's view,

> these patterns tend to be cross-linguistic because they are motivated by correlations which are so fundamental and inescapable that they do not vary from culture to culture – no cultural knowledge is required in order to associate temperature and feeling, or weight and difficulty, etc. (Grady, 2005: 1600).

A number of empirical studies have looked into linguistic expressions in use across languages, using corpus methodologies to observe variation in metaphor use. Searching for lexical items from the 'source' or 'target' domain (Stefanowitsch, 2006) in large corpora offers the advantage of a greater control of the context of linguistic expressions, compared with the traditional introspective practice of data collection. The researcher can search for target items, identify their figurative use with the help of specific software, classify them according to type, source, and genre, and analyze their register and function in meaningful contexts, thus deriving interpretations concerning function and meaning from authentic data in different languages.

Deignan and Potter (2004), using large digitalized corpora, compared a set of related linguistic metaphors across English and Italian as the source domain for parts of the body, looking for similarities and differences in patterns of use. Examining a large sample of concordance data related to a small set of linguistic terms, 'nose', 'mouth', 'eye' and 'heart' in English and *naso*, *bocca*, *occhio* and *cuore* in Italian, they selected non-literal meanings, finding similarities in the types of metaphors and metonymies used in both languages. They found that in both languages figurative expressions are frequent and tend to appear in expressions with some degree of fixedness, such as collocations and idioms (Deignan & Potter, 2004: 1236), while multi-word expressions that fall into the category of 'pure', i.e. opaque idioms, such as *avere il cuore sulle labbra ,* (lit. 'to have the heart on the lips') meaning 'show one's feelings' or *to put someone's nose out of joint,* meaning *'upset someone'* are rather infrequent. The authors observe how in both languages relatively few cases of clear-cut metaphors or metonymy were found, while cases of 'metonymy within metaphor'[10] and of 'metaphor from metonymy'[11] were more frequent, supporting the view of metaphor and metonymy as interacting with each other on a continuum (Goossens, 1990).

 Deignan and Potter's (2004) close cross-linguistic comparison of figurative expressions across the two languages reveals that a large number of expressions overlap. In some cases of shared mappings and similar expressions such as 'look beyond the end of one's nose' and (*non) vedere al di là del proprio naso* (do not see beyond one's nose) are probably motivated by bodily experience. For other expressions, for instance in a number of uses of 'heart' in English and *cuore* in Italian,

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[10] Following Goossens' (1990: 333) definition, this type of interaction between metaphor and metonymy occurs when "a metonymically used entity is embedded within a (complex) metaphorical expression", such as "bite one's tongue off".

[11] This is the case in the example "turn up one's nose at something", meaning "reject" (Deignan & Potter, 2004: 1243) The expression is a metonymy when it is used literally, but it can be used non-literally to refer to another form of rejection.

a cultural motivation is more probable. [12] A fine-grained linguistic comparison of expressions motivated by the same conceptual metaphors or metonymies revealed differences in frequency or variety of collocations, due to purely conventional constraints (Deignan & Potter, 2004: 1250). In light of their data, the researchers' conclusion is that while many metaphorical and metonymic figurative expressions are motivated by the same universal bodily experience, the linguistic realizations are not necessarily equivalent for linguistic and cultural reasons (Deignan & Potter, 2004: 1231).

Stefanowitsch's (2004) corpus-based research on linguistic expressions from the domain of HAPPINESS showed that even in linguistically and culturally close languages, such as English and German a fine-grained contrastive metaphorical pattern analysis can reveal cultural differences in the ways in which emotions are conceptualized. Stefanowitsch's study used a method of investigation based on an analysis of the "syntactic and semantic frames" (Stefanowitsch, 2004: 138) of about 4000 occurrences of 'happiness*', Glück*, 'joy' and *Freude* from two comparable corpora of news texts. For instance, the frequency of occurrence of combinations such as *Suche nach Glück*, *Glück suchen*, *buddeln nach Glück* (lit. search for luck, to seek one's fortune, digging for luck) in German suggests, according to Stefanowitsch's analysis, that *happiness* is conceptualized as a static entity or location, while a person attempting to attain it is conceptualized as searching for it or its location. In English by contrast, *happiness* is conceptualized more dynamically as a moving entity, collocates prevalently with *pursuit or pursue,* and a person attempting to attain happiness is seen as actively pursuing it (Stefanowitsch, 2004: 144).

Símo's (2011) corpus investigation into metaphors of *blood/vér* in American English and Hungarian revealed commonalities across the two languages in the metaphorical uses of *blood* in expressions such as *make my blood boil* and *for a vére* ('his blood is boiling'), conveying emotions, origin or attitude. Símo's study is very interesting from a methodological viewpoint because it observes cross-linguistic variation in data, using first a small, hand-searchable bilingual corpus, and examining frequencies, context and meaning of the selected items with the use of large American English and Hungarian corpora.

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[12] Deignan and Potter (2004) point out that shared cultural models traceable to medieval beliefs can inspire common similar expressions; they agree with Niemeier's (2000) claim that the metonymic use of "the heart" to stand for emotions is not a cultural universal.

2.5 Methodological Problems for Cross-Linguistic Metaphor Research

We have seen that in the last two decennia an increasing number of metaphor studies have investigated similarities and mismatch of linguistic expressions and conceptual mappings across languages and cultures from a cognitive linguistic angle. Their findings partly corroborated the view of the existence of universal, 'primary', 'image-schematic' metaphorical mappings rooted in primary bodily experience, and of a greater variation in culturally motivated figurative expressions. Nonetheless, at a closer look, the results of dozens of cross-linguistic studies on metaphor, metonymy. and idioms present as yet only a fragmentary picture, in which figurative expressions from a limited number of source and target domains across a limited number of languages and genres have been systematically analyzed. Moreover, from a methodological viewpoint, the lack of a consolidated methodology makes the results in this research area difficult to compare and to replicate. On the one hand, it is obvious that methodological issues that stimulated a fruitful debate within the mainstream of monolingual English studies, such as the issues of metaphor identification, the steps from linguistic to conceptual metaphor, the use of the dictionary, and the composition of corpora, apply also to cross-linguistic research. On the other hand, cross-linguistic metaphor and metonymy research still lacks an explicit methodological discussion about several problems that are specific to this research area. In this section, I will briefly summarize the methodological debate around a number of problematic and interrelated issues, after which I will make some provisional conclusive methodological remarks for the purpose of the selection of the metaphorical expressions for this study. I shall summarize the issue of a transparent metaphor identification procedure and offer an overview of the discussion about the criteria for assessing which conceptual mappings underlie linguistic data, and to establish conventionality of conceptual mappings. Finally, I will address the methodological issue of comparable dictionaries and corpora.

As we have already seen in section 2.1, the issue of identification – a transparent procedure for identifying linguistic metaphor – has been discussed for many years and is still under debate within the mainstream of metaphor research in English (Low, 1999; Pragglejaz Group, 2007; Krennmayr, 2008; Steen, 2007; Steen et al., 2010). The metaphor identification procedure (MIP) developed by the Pragglejaz Group (2007) and its extension in the procedure called MIPVU (Steen et al., 2010) are valid working instruments also for cross-linguistic research. The procedure, based on the detection of figurative uses of contextualized linguistic units, can be autonomously applied to items in two languages and, in order to minimize the reliance on the analyst's intuition, can be complemented with the use of two comparable monolingual dictionaries (Krennmayr, 2008). In the MIP methodology, based on the opposition of "literal" and "basic", "contextual" meaning can also be a valid research instrument to

detect metonymical expressions, although it was not specifically developed for this goal.

The issue of the consistency of linguistic data and their relation to conceptual mappings has long been central to methodological debates in the field of monolingual English metaphor research (Steen, 1999; Semino, Heywood, & Short, 2004; Krennmayr, 2013). Semino et al. (2004: 1271) have shown how even a rigorous methodological way from linguistic to conceptual metaphors, such as the 'five-steps' procedure proposed by Steen (1999: 57), relies on choices where the scholar's intuition plays an important role, and how different criteria of analysis can lead researchers to dramatically different conclusions. If we consider that every language presents internal variation and that, as Vanparys (1995:3) explains, "we employ various sometimes mutually inconsistent metaphors to conceptualize the same phenomenon", cross-linguistic researchers should use transparent procedures in analyzing and explaining how they identified source and target conceptual domains and how they extrapolated conceptual metaphors from linguistic metaphors (cf., Semino et al., 2004: 1272).

As Krennmayr (2013: 165) observes, "identifying a lexical unit as metaphorically used (or not), […] involves making decisions on a number of levels". An important decision concerns the choice of the level of generality of conceptual mappings, as pointed out by Ritchie (2003) in his criticism of the conceptual metaphor ARGUMENT IS WAR. Discussing the example "the argument fell apart", frequently cited in correspondence with the conceptual mapping ARGUMENTS ARE BUILDINGS, Krennmayr points out that, for a researcher, other alternative source domains could also be plausible candidates for establishing a conceptual mapping, such as BRIDGES or OBJECTS, corresponding to a lower and a higher level of abstraction:

> Thus the researcher must first make a choice between several potential source domain candidates, such as BUILDINGS or BRIDGES. Second, a decision on the level of abstraction needs to be made. Is the source domain formulated on a low level of abstraction or is it described at a higher level, by labeling it as OBJECT? This range of options poses a challenge to the adequate choice of source and target domain labels (Krennmayr, 2013: 165).

To reduce and constrain the reliance on intuition, in order to uncover the conceptual structure involved in the meaning of a word, Krennmayr (2013: 180) suggests a transparent procedure for the definition of cross-domain conceptual mappings based on the systematic use of the dictionary and of a lexical database such as WordNet to determine the concepts involved in a mapping. This question is extremely relevant in cross-linguistic research, because choosing a high level of

generality instead of a specific level of 'mapping' across domains can lead to different results in the classification of the data. This problem can be exemplified with an example from my Dutch-Italian database. If we consider Lakoff and Johnson's (1980) conceptual metaphor THEORIES ARE BUILDINGS, the metaphorical expressions in Dutch and in Italian in the examples below may appear to be an instantiation of two completely different conceptual mappings:

(2.5)   *zijn theorie is **waterdicht***

         'his theory is watertight'

(2.6)   *questa teoria **non sta in piedi***

         'this theory does not stand on its feet'

If conversely we assume that a THEORY is not necessarily a BUILDING but much more generically an (architectonic) STRUCTURE, it would be better better to analyze figurative expressions such as the one in example (2.5) in terms of experientially and culturally based variations of the same 'primary', image-schematic metaphor (cf., Grady, 2005) conveyed in Dutch by the 'secondary' image of a dyke and in Italian by the image of a pillar. This example shows how it is important for cross-linguistic researchers to use a transparent and coherent methodology to justify their choices, allowing comparison of data and replication.

In cross-linguistic research on metaphor and metonymy, it is a widely accepted practice to complement corpus research with the use of dictionaries and other sources in order to collect as much data as possible (Barcelona & Soriano, 2004; Charteris-Black, 2003; Boers, Demecheleer & Eyckmans, 2004b). Boers et al.'s (2004a: 377) methodology for idiom research, for instance, is based on a complementary search of figurative expressions derived from the same source domains in comparable dictionaries and corpora. One of the advantages of searching in comparable dictionaries is, for instance, the possibility to establish the relative salience and metaphorical productivity of one source domain across two languages. A comparison of English and Dutch idioms with the help of idiom dictionaries has revealed, for instance, that English is richer than Dutch in expressions deriving from card games and gambling (Boers et al., 2004: 377). Such a finding can easily be checked with the help of larger corpora, quantifying the frequency of expressions in order to "detect cross-cultural variation with regard to the relative salience of source domains" (2004: 377).

We have already seen, in the present subsection, that the use of monolingual and bilingual dictionaries can at several stages of the analysis complement the intuition of the researcher, forcing a more explicit formulation of their choices. This aspect makes the quality of linguistic research across languages largely depend on the availability of usage-based comparable monolingual and bilingual dictionaries and on the

existence of large comparable corpora. A method to resolve the problem of the availability of large comparable corpora consists of combining small and large corpora (Cameron & Deignan, 2003; see also Simó, 2011). Cameron and Deignan suggest creating first a small *ad hoc* corpus, that can be easily hand-searched for the target items, verifying the results in larger corpora. This methodology is also extremely useful for a comparison of the occurrence of figurative expressions and their frequency of use within a specific thematic field, genre, or register across languages.

2.6 Conceptual and Lexical Mismatch and the L2 Learner

Although much work is now being done to try to consolidate conceptual metaphor theory using evidence from various languages, this area of studies remains relatively limited compared with the ever-growing contributions drawn from examples taken from monolingual English corpora. One of the problems for cross-linguistic studies in other languages is that of the lack of a consolidated methodology for the identification of correspondences across languages at a conceptual level starting from language-specific diverging forms. Methodological debates on issues such as that of literal metaphor and metonymy identification, the steps from literal to conceptual metaphors, the use of dictionaries to confer more validity and transparency on the intuitions of the researcher, and the lack of large comparable corpora across different languages, explain why most studies are still based on data that are collected following different criteria, often introspectively, and limited to only a few domains in two languages.

Important contributions have attested the independent existence and universality of some fundamental conceptual metaphors in different cultures, but the great majority of experiential domains remain unexplored or unsystematically exploited. That lack of uniformity is equally true for studies across typologically similar languages, where corpus-based studies have systematically and exhaustively exploited very limited areas of specific domains across languages and have begun limiting the search to only a small amount of lexical items, with the aim of looking for differences and similarities in cross-domain mappings (Deignan & Potter, 2004; Stefanowitsch, 2006). In addition, such contributions have presented attempts to find a solution to the pressing methodological problems that affect this area of study, first and foremost, the difficulty of quantifying results in order to make them comparable, in other words, finding standard criteria for measuring the importance of a specific metaphor in two languages (Stefanowitsch, 2006: 138).

We have seen in this chapter that although a number of 'primary' conceptual mappings may be universal, at the lexico-semantic level, metaphorical and metonymic mappings across and within domains are not coherently exploited and not uniformly

conventionalized within each single language, with inevitable cross-linguistic mismatch as a consequence. Although metaphors are pervasive in both Italian and Dutch, for instance, as general conceptual mechanisms, extensive cross-linguistic variation can be expected in different conceptual domains across the two languages. From a L2-learning perspective, the question of universality and variation is not irrelevant because cross-linguistic mismatch or similarities at a linguistic and a conceptual level can inhibit or facilitate comprehension and retention of linguistic forms in L2.

Taking the viewpoint of the L2 learner, it is important to consider the issue of how conceptual and linguistic mismatch between L1 and L2 can impact processing and learning of L2 metaphorical expressions. An example of this conceptual mismatch across languages is the conceptual metaphor LOVE IS A JOURNEY, which, according to Lakoff & Johnson (1980: 45) is a quite productive conceptual metaphor in American English, motivating expressions that sound acceptable to or plausible for English speakers, but sound strange in Italian, such as the expressions in examples (2.7) to (2.9):

(2.7)   We're *at a crossroads*

    Siamo a un bivio

(2.8)   We'll just have to *go our separate ways*

    Ora abbiamo solo da separare le nostre strade

(2.9)   We're *stuck*

    Siamo bloccati

Although it is possible for an Italian speaker to understand the conceptual relation between LOVE and JOURNEY and to understand the meaning of English expressions based on this conceptual cross-domain mapping, the Italian translation of an equivalent expression of the sentences given in examples (2.7), (2.8), and (2.9) (Lakoff & Johnson, 1980: 44) sounds rather unnatural in Italian in a love situation. Moreover, the metaphorical expressions can be used in a variety of other existential or relational circumstances and are not exclusively used in the domain of LOVE.

On the other hand, metaphorical expressions in a learners' L2 can match with an equivalent conventional expression in L1 at both the conceptual and the linguistic level. Examples (2.10) and (2.11) illustrate cases where Italian metaphorical expressions are matched, both conceptually and in terms of linguistic (lexical-grammatical) form, by Dutch metaphorical expressions.

(2.10)	*battaglia*	*delle*	*idee*	*ideeënstrijd*
	battle	of the	ideas	ideasbattle
(2.11)	*venire alla*		*luce*	*aan het licht komen*
	come to the		light	to the light come

The only difference between the expressions consists of the word order within nominal (2.10) and verbal (2.11) collocations, which are constrained by the syntax of the two languages. It is likely that these types of expressions are easier to comprehend and learn for a second language learner because of their high level of 'transferability' i.e., the facilitating role that the L1 plays in comprehension.

Conversely, it is also possible that L2 conventional expressions have no equivalent linguistic expressions in L1, revealing both a mismatch at the conceptual level and a low level of transferability from the L1. The phrases in examples (2.12) and (2.13) illustrate cases where the Italian metaphorical expressions differ both conceptually and linguistically from their Dutch translation equivalents. While *essere in alto mare* is not a metaphor of freedom or progress in Italian, but is associated with the unpleasant condition of being still far from your final goal, there is no metaphor associated with the Dutch collocation *op volle zee*, which literally means 'on the open sea/on the high seas'. In example (2.13), the Italian expression *mettere le mani avanti* is used to express that somebody is taking (mostly verbally) a cautious position, so as to prevent himself or herself from getting involved in a risky situation. For this phrase there is no equivalent conceptual metaphor in Dutch that would make this expression comprehensible from the context for an L2 learner. On the other hand, it is not difficult to imagine a similar situation in Dutch and provide a description, a translation, or even find a figurative expression from a totally different conceptual domain.

(2.12)	*essere in alto mare*	op volle zee
	to be in high sea	on full sea
	'to still have a long way to go'	'on the open sea'
(2.13)	*mettere le mani avanti*	voorzichtig spreken, nog even de
		boot afhouden
	to put the hands forward	cautiously speak, still just
		the boat withhold
	'to act/ to speak cautiously'	'to act/ to speak cautiously'

Examples (2.14) and (2.15) illustrate cases where the Italian expressions match their Dutch translation conceptually but not in terms of conventionalized linguistic

form. For example, the metaphor of a winding road (2.14) may express the lack of straightforwardness and transparency in a bureaucratic or political procedure in Italian. But there is not a conventionalized collocation in Dutch that can match the Italian expression. Concerning (2.15), in both languages knowledge is conceptualized as a solid and precious material good. In Italian you can accumulate it, and in Dutch you construct it as if it were a building.

(2.14)   *percorsi tortuosi*   *kronkelpaden*

          paths   tortuous   meandering paths

          'devious ways'   'paths with many bends'

(2.15)   *conoscenze accumulate*   *opgebouwde kennis*

          knowledges accumulated   built-up knowledge

          'acquired knowledge'   'acquired knowledge'

For the Dutch L1 learner of L2 Italian, Italian metaphorical expressions as found in examples (2.14) and (2.15) could appear at a first encounter as novel, creative metaphorical expressions; these expressions could be cognitively more demanding as a result of their low transferability, with slower syntactic and semantic processing as a consequence, making them more difficult to learn.

In this study I will set up an experiment concerning the factors that enhance or constrain processing and learning of figurative language (see Chapter 4), focusing on different types of conventional metaphorical expressions. For this purpose, I shall first, in Chapter 3, review and discuss literature on comprehension of figurative language from a psycholinguistic point of view, and subsequently on processing and learning of vocabulary by bilinguals and L2 learners.

Chapter 3. Second Language Learning and Metaphor

3.1 Introduction

As we saw in Chapters 1 and 2, the number of investigations of metaphor theory and of studies on metaphor in real use has increased immensely over the last decades. Most of these studies concerned English as a first language. In contrast, there have been relatively few studies looking at comprehension, learning, and production of metaphors in L2 learning. Nonetheless, even here interest has been increasing more recently (see Hoang, 2014; Nacey, 2017).

This chapter intends to give an overview of research relevant to L2 learning and metaphor. As mentioned in Chapter 1, the aim of the present study is to investigate factors influencing the comprehension and learning of metaphor in L2 learning. Therefore, the research to be reported on in this chapter will not focus on new theoretical insights or give a complete overview of all issues relevant to L2 learning and metaphor, but will only present and discuss results pertinent to the study to be reported on in Chapters 4 and 5. Section 3.2 addresses general aspects, such as representation and memory of linguistic knowledge. The focus is on issues such as long-term memory and the organization of L1 and L2 words in the mental lexicon. Section 3.3 discusses comprehension of lexical units, multi-word units, idioms, and metaphors in L1 and L2, describing factors influencing comprehension, such as transfer. Section 3.4 considers usage-based and cognitive models of L2 learning and discusses studies on vocabulary learning in SLL, specifically, the learning of words, idioms, and metaphors. The notions of incidental and intentional learning will also be introduced here. Finally, section 3.5 presents the rationale of the study concerning the factors that influence comprehension and learning of metaphor in SLL, which will be reported on in Chapter 4.

3.2 Representation and Memory of Linguistic Knowledge

Psycholinguistic and neurolinguistic research over the last 20 years has provided new insights into how linguistic experience is intertwined with all other kinds of perceptual human experience and how different kinds of information are organized in

the human brain. Recent neurolinguistic research, conducted with neuroimaging techniques, supports the view that language learning is related to other aspects of cognition and rooted in brain systems that also accomplish other cognitive functions. Cognitive-neuroscience studies have shown how concepts and words are represented and linked in long-term memory. It is also now largely accepted that words are "represented and processed by distributed but discrete neuron webs with distinct cortical topographies" (Pulvermüller, 2002: 64). The units of semantic knowledge that we traditionally call 'concepts', consist of nerve cells and connections "systematically linked to words, their meaningful parts, or constructions composed of several words" (Kiefer & Pulvermüller, 2012: 806). Conceptual neural circuits representing word meanings are directly connected to neural circuits representing acoustic or visual word representations (Kiefer & Pulvermüller, 2012). Such a distributed neural view of conceptual and lexical representation can account not only for the representation of single words and simple concepts, but also for lexically or conceptually more complex constructions in more than one language.

Questions such as how precisely semantic information is organized in memory, how word meanings are stored in and retrieved from memory, and how this information is made available in context, have elicited considerable debate and are still important issues also within applied linguistics and psycholinguistics. For this reason, this section will first briefly outline psycholinguistic findings about some aspects relevant to L2 learning research, such as linguistic memory (sections 3.2.1 and 3.2.2) and the representation of lexical knowledge in bilinguals (section 3.2.3). Finally, section 3.2.4 will introduce the question of the psychological representation of units of meaning more complex than single words, such as multi-word units and metaphorical expressions.

3.2.1 Procedural and Declarative Memory: Introduction

In recent years, research has progressed considerably in the study of memory mechanisms that support explicit and implicit learning modalities. Especially the two long-term memory systems 'declarative memory' and 'procedural memory' are considered to play a crucial role in first and second language acquisition, with many different structures of the brain involved in learning and processing (Ullman, 2001, 2004, 2014).

The declarative memory brain system is involved in the learning, representation, and processing of information about facts (semantic knowledge), and of information about events (episodic knowledge). This is a very flexible memory system, which plays a crucial role in lexical knowledge, integrating information of various modalities. The hippocampus, and other medial temporal lobe structures involved in the declarative memory system, are fundamental for learning, linking together and consolidating nonlinguistic information such as single events and facts, and linguistic

knowledge that involves associative memory, such as the pairings of sound and meaning of words. Declarative knowledge can be stored very rapidly with a single exposure or stimulus, and is at least partly explicit, i.e., it is available to conscious awareness (Morgan-Short & Ullman, 2012: 282).

The procedural memory system underlies implicit (unconscious) learning of motoric and cognitive competence. It is the memory that underlies all those internalized procedures, such as rules, skills, and habits, which contribute to the automatic processing of a task. Knowledge in procedural memory is learned gradually, through repeated exposure and practice.

3.2.2 Procedural and Declarative Memory in L2 Acquisition

Declarative memory is not very strong in young children; it continues to develop with age, can be trained and reinforced over the years, and is always involved in explicit knowledge. Lexical knowledge depends largely on declarative memory in both L1 and L2. Declarative memory underlies what is conventionally called the 'mental lexicon': the system of connections between words, their conceptual meaning, and their phonological and grammatical forms.

The procedural memory system in L1 and L2 language use and acquisition is expected to play a major role in grammar, syntax, morphology, and phonology. It underlies grammatical structure-building, the process of "real-time sequential and hierarchical combination" of words into more complex morphosyntactic structures (Morgan-Short & Ullman, 2012: 284). Once a sequence has reached a certain frequency of use, it is likely to be stored again in declarative memory (Morgan-Short & Ullman 2012: 284),

> just as we can memorize lyrics, poems, and speeches, presumably in declarative memory, so complex structures can also be stored in declarative memory, for example as chunks […]

In adult L2 learning, the ability of the procedural memory system to learn or compute aspects of grammar decreases, with a major role of declarative/lexical memory in L2 acquisition of grammatical forms and other linguistic structures. According to Ullman (2001: 109) "the processing of linguistic forms that are computed grammatically by procedural memory in L1 is expected to be dependent to a greater extent upon declarative memory in L2". Moreover, adult learners possess the ability to learn rules explicitly in declarative memory and to use these rules to construct linguistic forms. The measure of this shift is relative and depends largely on language practice.

As metaphorical expressions are fixed or semi-fixed lexical constructions whose lexical representations are associated with perceptually salient concepts, images, and

actions, they are very likely to be stored as complex neural circuits in declarative memory with rich connections between L1 and L2 lexical representations. The strength of their conceptual association is likely to vary according to frequency of use and level of L2 knowledge.

3.2.3 The Representation of Lexical Knowledge in Bilinguals

The organization of the bilingual mind and the relation in the bilingual memory between concepts and words in L1 and L2 were central to various hypotheses and psycholinguistic experimental studies in the last decades. While recent brain-imaging research has provided evidence that both L1 and L2 storage and processing make use of the same brain areas, in early bilingual psycholinguistic research, a relevant assumption has been that the two languages have separate lexical stores. According to influential models of the last decennia, the bilingual linguistic memory consisted of two distinct and hierarchically combined systems: a conceptual system, containing concepts, and specific lexical systems for the two languages, containing word forms. Models of bilingual linguistic memory differed in the way the L1 and L2 word forms were related to concepts and in the way L1 and L2 words were connected to each other. For instance, in the influential revised hierarchical model (Kroll & Stewart, 1994), the conceptual level of representation is shared by the two languages. The model did not make any explicit claim about the existence of two separate lexical stores for L1 and L2 but posited that equivalent words in L1 and L2 were connected to each other. An assumption of this model was that the links between words in the first language and their concepts are direct and strong. In L2, on the other hand, the connections between word forms and word meanings in the early stages of language acquisition are mediated by the L1, with strong L1-L2 word-word connections. As soon as the level of L2 language knowledge increases, the connections of L2 words and concepts become more direct and stronger. The revised hierarchical model has recently been criticized on the basis of evidence from psycholinguistic and neurolinguistic research. Brysbaert and Duyck (2010: 368) pointed out that there is too little evidence in favour of language selective access in word recognition, whilst enough evidence supports parallel activation of L1 and L2 words. According to these authors, evidence suggests that L1 lexical representations influence word recognition in L2 and vice versa, and that connections between L2 words and their meanings are stronger than proposed by the revised hierarchical model.

De Groot's distributed conceptual feature model represents a significant attempt to understand how L1 and L2 relate to each other and to concepts at the level of single words (De Groot, 1992b, 1993; Kroll & De Groot, 1997; Van Hell & De Groot, 1998) based on the assumption of a single memory system for L1 and L2. De Groot's model, shown in Figure 3.1, makes a distinction between a conceptual and a lexical level of representation for single words. The concept corresponding to a word in L1 and L2

consists of a number of conceptual features, rendered as 'nodes'. L1 and L2 translation equivalents, such as "casa" and "house" or "amor" and "love", share, at a conceptual level, a certain   number of these conceptual nodes, but not necessarily all. An important assumption of De Groot's model is that concepts corresponding to concrete words in L1 and L2, such as "casa" and "house", share a greater number of conceptual nodes than abstract words, such as "amor" and "love", which only have some common nodes.
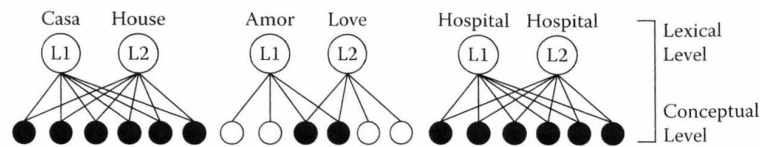
Figure 3.1

De Groot's Distributed Conceptual Feature Model of Bilingual Memory for Concrete Words, Abstract Words and Cognates; From De Groot (1992b), Adapted by Heredia (2008: 58)

Other nodes, represented as white circles in Figure 3.1, characterize exclusively the meaning of "amor" in Spanish, but not that of "love" in English, and vice versa. This model explains differences in processing times between concrete and abstract words already found in L1 psycholinguistic studies (e.g., Schwanenflugel et al., 1992) and is referred to as the 'concreteness effect'. It is consistent with Paivio's (1986) dual coding theory, according to which concrete words are more readily available to memory because they have more sensory referents compared with abstract words. De Groot's model accounts also for the cognitive status of cognates such as "hospital" in Spanish and "hospital" in English, which share the same lexical representation and the same semantics. Studies show that cognates are usually acquired faster in a L2 and are recognized faster in experimental studies (Dijkstra & Van Heuven, 2002).

De Groot's model gives an idealized and simplified idea of word representations in the bilingual mental lexicon, and as such, can be very useful for a better understanding of the mismatch between word meanings in L1 and L2 at both the lexical and the conceptual level. Moreover, it can easily be extended to analyze the representation of larger units of words, such as collocations or pragmatically relevant lexical bundles and idioms. On the basis of this model, it is possible to observe to what extent conventionalized metaphorical multi-word expressions in two languages share 'nodes' at both the lexical and the conceptual level. Metaphorical lexical units that have more commonalities at the conceptual and lexical level are likely to have a higher

potential for activating the corresponding L1 lexical and semantic representation, which could result in a higher level of transfer from the L1.

3.2.4 The Representation of Larger Units of Meaning

Metaphorical conventional expressions are at the intersection of fixed sequences such as collocations and idioms. With both they share a complex syntactic structure, and with idioms they share the 'arbitrary' association of a lexical form with a figurative meaning. For this reason, evidence from studies about representation of multi-word sequences, such as collocations, phrasal verbs, and idioms, is also of interest for a better understanding of conventional metaphors.

As we saw in the preceding paragraphs, models of memory consider the word as the fundamental unit of meaning. A controversial issue in applied and psycholinguistic studies has been whether meaningful multi-word sequences, such as collocations, phrasal verbs, idioms, and so forth, are also represented in long-term memory. The question of whether they should be considered psycholinguistically real (Schmitt, 2004) and stored as units in long-term memory, or composed online during comprehension and production, was addressed by various studies (Ellis, Frey & Jalkanen, 2009; Durrant & Doherty, 2010; Schmitt, Grandage & Adolphs, 2004; Conklin & Schmitt, 2008). Schmitt et al. (2004) tested the hypothesis that frequently recurrent formulaic units are recalled from long-term memory because of their entrenchment in the users' mind. The results of a study conducted with L1 and L2 participants showed that only a limited number of conventionalized sequences were recalled effortlessly and accurately by both L1 and L2 participants. Ellis, Frey and Jalkanen (2009) conducted a lexical decision experiment considering the speed of word recognition as a measure of access to the mental lexicon of participants using frequently recurring adverb-adjective collocations ('absolutely diabolical') and verb-object collocations ('end war'). The results showed that high-frequency collocations were processed faster than less frequent ones (Ellis et al., 2009: 99). The findings of these studies suggest that the recurrent combination of words leaves a trace in long-term memory in L1 and L2, although recall is easy only for high-frequency combinations. In an eye-tracking study, Siyanova-Chanturia, Conklin and van Heuven (2011) found that both L1 speakers and L2 learners processed multi-word sequences faster than control phrases. Similarly, Wolter & Yamashita (2018) showed a processing advantage of collocations suggesting that they are stored and processed as units in long-term memory. These studies thus contradicted Wray's (2002) influential assumption, according to which, L2 learners tend to focus on individual words in their L2 and are less sensitive to the co-occurrence of words, storing "the words separately, without any information about the fact that they went together" (Wray, 2002: 209).

One of the central questions in the debate about conceptual metaphor theory from a psycholinguistic viewpoint was whether the conventional cross-domain mappings called 'conceptual metaphors', could be represented in long-term memory

as abstract structures (or schemas) and guide comprehension. Despite a growing number of psycholinguistic studies about metaphor and idioms and computational studies involving a neural theory of language (Feldman, 2006), it is still controversial how conceptual metaphors are represented in long-term memory. The influential 'career of the metaphor' view (Bowdle & Gentner, 2005) considers the representation in memory of conceptual metaphors to be the result of a process. In the first stage of their 'career', metaphorical connections between source and target elements are not represented in a stable way in long-term memory, and a metaphor is understood as a comparison, while through repeated use, metaphor undergoes a process of conventionalization and abstraction (see further section 3.3.2.2)

More recently, the question of the psychological reality of conceptual metaphors has been studied using experimental methodologies, such as event-related potentials (Lai et al., 2009; Lai & Curran, 2013). Synaptic potentials were used to measure the cognitive effort derived from conceptual mappings, contrasting novel and conventional metaphor processing. The results supported the idea that conceptual mappings are at work in metaphor processing and were also consistent with Bowdle and Gentner's (2005) view that metaphorical language is initially more demanding than literal language. The comprehension of novel metaphorical mappings also proved to be more demanding than understanding conventional metaphors. Using the Event-Related Potential (ERP) method Lai and Curran (2013) investigated the possible differences between novel and conventional mappings, finding partial support for the neural theory of metaphor (Lakoff, 2008). A central tenet of this theory is that conventional mappings are stored in long-term memory as fixed representations, while novel mappings are not represented in memory. In their priming experiment, Lai and Curran (2013) found that novel metaphors could also be primed by pre-existing mappings. The researchers suggested that mappings should be regarded not as permanently stored representations, but as flexible and frequent "patterns of activation" (Lai & Curran, 2013: 494).

Although most psycholinguistic metaphor-processing studies focus on conventionalized mappings between conceptual domains, it is important to keep in mind that the diachronic process that makes conventional metaphors memorable and entrenched in long-term memory is likely to be strengthened by the conventionalization of their lexical form. The more a conceptual metaphor has reached a high level of conventionalization, the more any fixed expressions and idioms based on that metaphor will find their way into the user's long-term memory, and their use will contribute to the activation of metaphorical meaning.

3.3 Comprehension of Words, Multi-Word Units, Idioms, and Metaphors

Word meaning and the mechanisms underlying comprehension at the word and sentence level have been another much debated issue. Generally, linguists, both applied and psycholinguists, tended to explain the phenomena they observed within the bounds of the theoretical framework they used. Traditional models of semantics and semantic memory assumed that the meaning of a word contained a fixed set of semantic features that were always present, regardless of the context of use. More recently, psycholinguists and cognitive linguists have argued in favour of more dynamic views, in which context and frequency of use play a determining role in the representation and activation of word meanings. Sentence comprehension is viewed as an elaborate process involving the construction of particularized mental representations. This conceptual representation can be very rich and detailed, more so than the meaning of the single components (words) in the sentence would predict (Andersen & Ortony, 1975). Cognitive approaches assume that words do not have fixed, but rather 'typical meanings' (Rosch, 1978). Moreover, in the process of comprehension, lexical meanings retrieved from long-term memory are integrated with information from different sources such as knowledge of the world, personal experience, and the situation at hand. The selection of information from long-term memory in the process of comprehension is guided and constrained by the context.

3.3.1 Comprehension of Single Words by L1 and L2 Learners

Understanding a word means interpreting it adequately in its context of occurrence, accessing pre-stored information in semantic memory (Tabossi, 1991: 1). The role of contextual information in lexical access, "the process by which a presented word makes contact with its representation in long-term memory" (Simpson, 2002: 140), has been a fundamental issue in psycholinguistic research since the 1980s. Research on word comprehension has provided evidence that contextual information can influence the activation of meaning (Barsalou, 1982; Schwanenflugel & Shoben, 1985; Tabossi, 1988). According to the interactive model (e.g., Marslen-Wilson & Tyler, 1987) of sentence comprehension, the different sources of information (see section 3.3.) can interact with each other at each stage of language processing. This model assumes that any kind of information can help constrain the processing of other types of information at any moment of sentence processing, and that the previous context can play a role in guiding the selection of word meanings so that only appropriate meanings can reach a sufficient level of activation; it also assumes, however, that all meanings of a word are activated and that the selection of the

appropriate meaning in a context occurs only after all word meanings have been activated. A mechanism of 'suppression' plays a role in lexical access, to minimize the interference due to simultaneous activation of contextually "irrelevant, or inappropriate information" (Gernsbacher & Faust, 1991: 260).

3.3.2 Comprehension of Idioms and Metaphors by L1 Users

The question of how multi-word combinations are stored in memory, processed, and retrieved as pairings of meaning and form, which was introduced in section 3.2.4, is also relevant to the study of metaphor in L1 and L2 because of the strong tendency of metaphor to be fixed in conventionalized multi-word units, ranging from nominal or verbal collocations such as 'highly dangerous' or 'to fall into error' to truly idiomatic expressions such as 'to kill two birds with one stone'. Because of the paucity of studies about idioms and metaphor comprehension in L2, in the following subsections, I will first briefly review studies about comprehension of idioms and metaphor in L1. In fact, psycholinguistic mechanisms that regulate comprehension, such as activation of literal meaning, together with access to pre-stored information, are fundamentally similar in L1 and L2. Also, factors enhancing comprehension, such as transparency and familiarity of the expressions, are at work in both L1 and L2 idiom and metaphor comprehension (for L2, see section 3.3.3).

3.3.2.1. Studies on Idiom Comprehension in L1

Idioms are metaphorically motivated pairings of meaning and form. They represent a large and multifarious category within which they can vary in degree of syntactic fixedness, decomposability, and semantic transparency (Cacciari & Glucksberg, 1991). Some idioms are totally opaque, in the sense that their meaning cannot be compositionally derived from the meanings of the component parts as in the phrase 'kick the bucket', where the conventional meaning of 'to die' cannot be derived from a literal reading of the individual words. The meaning of opaque idioms must be deliberately learned, like that of most less frequent or uncommon words in a first or foreign language, because there is no way in which one can infer the intended meaning from the linguistic form, even in the context of the sentence. Other idioms can be at least in part transparent and inferred through semantic and syntactic analysis of the component parts, such as the Dutch *water naar de zee dragen* (lit: water to the sea carry, 'carrying coals to Newcastle'), in which the figurative meaning (perform a needless activity) can be inferred through or while computing its component parts.

For many years, psychological models of language comprehension were not concerned with figurative language, and research on sentence and word comprehension was dominated by the traditional linguistic view that figurative and idiomatic language deviates from the norm. Since the late 1970s, a growing consensus about the relevance of metaphor, idiom, and other forms of figurative language, in

language usage and in linguistic representation, has stimulated psycholinguistic debate and a proliferation of experimental studies addressing aspects of the processing mechanisms of figurative language from different perspectives. Some psychology studies (Gibbs & O'Brien, 1990; Gibbs & Nayak, 1991; Nayak & Gibbs, 1990) considered idioms to be conventionalized metaphors and metonymies from the perspective of conceptual metaphor theory, and focused on the process of metaphorical comprehension as opposed to literal understanding, trying to unravel how people get access to figurative meaning during comprehension. Psycholinguistic studies such as Swinney and Cutler (1979), Cacciari and Tabossi (1988), and Titone and Connine (1999), addressed the question of whether meaning access and idiom processing occurred with or without the computation of its component words.

The related issue of the syntactic and semantic analyzability of idioms was central to a longstanding psycholinguistic debate among competing views. According to the influential 'lexical representation hypothesis' (Swinney & Cutler, 1979: 525), idiomatic meanings are stored and retrieved in the lexicon as long words. In this model, the computation of both literal and idiomatic meaning is simultaneously initiated as soon as the first word of the string occurs, and proceeds in parallel; the recovery of idiomatic meaning, however, is faster than the computation of literal meaning. According to the direct access view (Gibbs, 1980, 1985), the activation of idiomatic meaning occurs as soon as the idiomatic form is encountered and does not run parallel with the computation of its literal meaning.

These models were challenged by the proponents of the 'compositional view' of idiom comprehension (Cacciari & Tabossi, 1988; Cacciari & Glucksberg, 1991), who rejected the idea that idioms are "frozen forms whose meanings are represented in the mental lexicon as one word" (Keysar & Bly, 1999: 1560). Cacciari and Glucksberg (1991: 219) observed that a general model of idiom representation must account for the fact that many idioms undergo syntactic operations such as tense making ('he kicked the bucket') or passive constructions, or are lexically productive, allowing for variants in which a word is substituted without losing its idiomatic meaning. Hence, they argued that idioms are compositionally analyzable.

In their configuration model, Cacciari and Tabossi (1988) proposed that idiomatic meaning is not stored as a unitary meaning, but as a configuration of lexical nodes corresponding to the meanings of the single component words and their connections. When an idiom is encountered, it is processed both literally and as an idiomatic unit, by virtue of the strong connection between the component words, although the activation of the unitary meaning emerges only after a sufficient part of the string has been processed. This point of activation is called the 'idiomatic key'. Titone and Connine (1999: 1134) also suggest that literal meaning is activated during idiom comprehension, and that access of the meaning of the literal words is a non-optional process. At the same time, a separate idiom representation can be accessed

quite quickly during comprehension before a literal analysis of the phrase has been completed. The availability of idiomatic meaning with faster processing times is influenced by factors such as familiarity. Their data support the view that the literal meaning of an idiomatic string is processed in parallel but is not stopped when the idiomatic meaning is accessed (Titone & Connine, 1999: 1135). Titone and Connine (1999) agree with Cacciari and Tabossi (1988) that the strength of connections between the component words of an idiom string may be determinant for the ease of access.

3.3.2.2 Studies on Metaphor Comprehension in L1

In traditional linguistic theories, metaphor and idioms were considered violations of the standard syntactic, semantic, and pragmatic rules governing language and comprehension. Also, Searle's (1979) influential view on metaphor processing, commonly referred to as the standard pragmatic model, was based on the priority of literal meaning in language use and comprehension; it considered figurative expressions to be false statements that violated Grice's (1975) conversational maxims of communication. Based on this assumption, Searle suggested a sequential model of figurative language understanding; this was called the 'indirect view' of metaphor comprehension, according to which we always first try a literal interpretation given the context of the utterance, and only after a failed attempt do we switch over to a metaphorical reinterpretation of the target sentence. Under this view, metaphorical interpretation is never an immediate, automatic process, but an alternative modality of interpretation with two fundamental predictions: it always follows an attempt of literal interpretation, and it necessarily requires additional processing time.

The indirect view has been criticized from different viewpoints. On the one hand, by psycholinguists who objected to the literal/figurative opposition and, on the other, by scholars who tried to unravel the specific, non-literal mechanisms of figurative language understanding. The debate gave rise to a great amount of research on this specific psycholinguistic topic, with many models of metaphor comprehension being produced as a result.

A number of cognitive linguists and psycholinguists have expressed their doubts about the assumption that different processing mechanisms are employed for figurative and literal language. A clear position was taken by Rumelhart, who argued that "the distinction between literal and metaphorical language is rarely, if ever, reflected in a qualitative change in the psychological processes involved in the processing of that language" (Rumelhart 1979: 78). Rumelhart argued that evidence from studies of first language acquisition suggests that the ability to extend the use of old words to new objects or situations is already crucial in the first stages of language acquisition and is part of the cognitive equipment of young children from the very start, who learn, through repeated experience in comprehension and production

processes, that some expressions are "nonconventional (and probably) nonliteral language" (Rumelhart, 1979: 80).

Additionally, evidence from early psycholinguistic studies on metaphorical sentence comprehension contradicted the predictions of Searle's indirect model of figurative language understanding, showing that given sufficient context (Ortony, Schallert, Reynolds & Antos,1978; Inhoff, Lima, & Carroll, 1984) metaphorical sentences are processed as quickly as literal sentences. Ortony et al. (1978), found that the comprehension of metaphorical sentences took no longer when the prior context was long enough to activate the right metaphorical interpretation 'schemata'. Only in the short-context condition were longer reading times observed for metaphorical target sentences. Inhoff et al. (1984) confirmed the importance of a conceptually supportive context in the comprehension of metaphorical language. In their experiment, they found that if the relation between prior context and target metaphorical sentence was transparent, even a short context could enhance rapid comprehension, even when the target was expressed metaphorically. Also, Gildea and Glucksberg (1983) found that given sufficient context, the activation of metaphorical meaning could be immediate and faster than an activation via literal interpretation. It can be generated non-optionally, and automatically "in the sense that comprehension is initiated by appropriate linguistic and semantic inputs without subject control" (Glucksberg & Gildea, 1983: 577).

Some models of metaphor comprehension tried to unravel the psychological processes of metaphor comprehension. The 'structure-mapping model' of metaphor understanding, developed by Gentner and colleagues (Gentner, 1987, 1988; Gentner & Wolff, 1997; Gentner & Bowdle, 2008) is based on the assumption that metaphorical statements, such as 'encyclopedias are gold mines' or 'my job is a jail' convey primarily relational commonalities. The structure-mapping theory, also called 'structural alignment model' (Gentner & Wolff, 1997) assumes that, regardless of the intrinsic similarity of base and vehicle, the base and the target share a system of relations. Metaphor interpretation begins first with a process of structural alignment of the two representations, in which elements of the source (or base) and of the target domains are linked on the basis of relational commonalities. Only after this initial symmetrical process, in which shared properties are mapped bidirectionally, are inferences projected in a directional way from the base to the target. It is important to consider that this model of metaphor comprehension is based essentially on a perceived structural analogy between entities and not only on isolated distinct attributes.

With the 'career of metaphor' hypothesis Gentner and colleagues (Gentner, Bowdle, Wolff & Boronat, 2001; Bowdle & Gentner, 2005) proposed a unified theoretical framework to solve the longstanding debate concerning the mental processes involved in metaphorical domain mapping, introducing a relevant

distinction between the comprehension of new metaphorical mappings and conventionalized ones. The central claim of the career of metaphor hypothesis, an extension of Gentner's (1987, 1988) structure-mapping model, is that novel and conventionalized metaphors are processed differently. While novel metaphors, in other words, metaphors with a new vehicle, are understood by comparison, as soon as a metaphor becomes conventionalized, the modality of processing switches from comparative processing to categorization. This kind of processing is faster because, through categorization, the processing involves a higher level of abstraction with fewer elements to be matched. In the beginning of its 'career' a novel figurative statement can be seen as a species of analogy and is processed as a comparison in which the vehicle concept is structurally 'aligned' (Gentner et al., 2001; Gentner & Bowdle, 2008) with the target concept. A limited number of links between conceptual systems in the target and base domains are established through alignment. The links emphasize relational correspondences. Metaphor, thus, undergoes a process of conventionalization and abstraction through repeated use. This 'shift' does not involve any change in the process of alignment itself, but changes the representation of the source term, which becomes more abstract. This difference becomes clear in the following examples drawn from Gentner and Bowdle (2008: 115–116):

(3.1)   Children are *snowflakes*

(3.2)   Accolades are *snowflakes*

(3.3)   The World Wide Web is a *gold mine*

(3.4)   That encyclopedia is a *gold mine*

(3.5)   This shopping mall is a *gold mine*

A new, metaphorically used term, such as 'snowflakes', when paired with different targets in different contexts, as in examples (3.1) and (3.2), can lead to completely different metaphorical inferences. While in example (3.1) the inference that may be drawn is, for instance, that every child is unique, in (3.2) the conveyed meaning is that accolades are ephemeral. In examples (3.3), (3.4), and (3.5), conversely, the conventional metaphorical expression can be applied to different contexts maintaining the abstract and conventional meaning of "something that is source of something valuable" (Dedre & Bowdle, 2008: 116). An important consequence of the career of metaphor is thus that "when a term reaches a certain level of conventionality such that its associated abstract schema becomes sufficiently accessible, the term can function as a category name" (Gentner & Bowdle, 2008: 116), i.e., the metaphorical meaning can be accessed directly. This model thus predicts that conventional metaphors can be processed faster because the comparison occurs

between a conventional base, for instance "gold mine", which evoques immediately "stable metaphorical categories", and a range of targets (e.g., "encyclopedia", "Internet") (Bowdle & Gentner, 2005: 116). This prediction is compatible with Lakoff and Johnson's (1980) conceptual metaphor theory.

3.3.3 Comprehension of Figurative Language by L2 Learners

Compared with the richness of psycholinguistic studies on idiom and metaphor processing in L1, only a few studies have addressed the question of L2 processing of figurative language (but see: Bortfeld, 2001, 2003; Liontas, 2002; Cieślicka, 2006a, 2006b). More recently, however, a number of psycholinguistic studies on L2 figurative-language processing have appeared (Heredia & Cieślicka, 2015), revealing a change of tendency (see Cieślicka, 2015, for an overview).

Cieślicka (2006a) conducted an experiment on L2 idiom processing with 43 advanced Polish learners of English using a cross-modal priming technique in order to measure activation of literal and figurative meanings during comprehension. The 40 idioms used were previously controlled for familiarity and selected on the basis of their level of decomposability. The results showed a strong activation of literal idiom constituent meanings, compatible with L1 compositional models of idiom processing (Cacciari & Tabossi, 1988; Cacciari & Glucksberg, 1991; Titone & Connine, 1994). Both literal and figurative meanings of idioms were simultaneously activated in L2 idiom processing. In addition, computation of literal meanings was continued even after the figurative interpretation had been completed. Cieślicka interpreted the results within the framework of Giora's (1997, 2003) 'graded salience hypothesis', according to which something salient is accessed first in comprehension. In Cieślika's view, literal meanings are more salient and retrieved faster from long-term memory during L2 idiom comprehension than figurative meanings. She argues that the computation of literal meanings of an L2 idiom's constituent words is not optional but obligatory "even if these idioms are embedded in a figurative context and their idiomatic interpretation is well-known to L2 learners" (Cieslicka, 2006a: 115).

Titone, Columbus, Whitford, Mercier, and Libben (2015) conducted a comprehension experiment with English-French bilingual university students in which participants had to read sentences containing idioms and judge the meaningfulness of the sentence. Some of the target idiomatic expressions had already been encountered by participants during university courses. The aim of the study was to examine whether, in the early stage of L2 idiom processing, comprehension was influenced by the same factors, such as familiarity, semantic analyzability, and literal plausibility, as had been observed in earlier L1 idiom processing studies (Titone & Connine, 1994; Libben & Titone, 2008). The target idiomatic expressions were also controlled in order to study the effect of L1 and L2 cross-language similarity in comprehension. The results revealed that the same processes and factors played a role

in L2 that had been observed earlier in L1 studies. During comprehension, participants used information recovered from long-term memory and at the same time analyzed the individual word meanings. Comprehension was especially facilitated by the familiarity of the expressions, and by their similarity in L1-L2, both factors for which the direct retrieval from long-term memory is required.

3.4. Metaphor in Language Acquisition

In order to gain insight into the cognitive models of language acquisition that constitute the framework of the present study, in this section emergentist and usage-based views on language acquisition and learning will be first briefly discussed (section 3.4.1). In section 3.4.2 we will look at differences between L1 and L2 acquisition from the perspective of usage-based and cognitive insights. Section 3.4.3 will focus on the acquisition of vocabulary in L1 and L2, particularly on the acquisition of single words, multiple word units, idioms and metaphors. This section will also discuss findings about second language acquisition studies on idioms and metaphors, which suggest that language transfer from L1 to L2 is at work. Finally, section 3.4.4 will present the research questions of the study presented in Chapters 4 and 5.

3.4.1 Emergentist and Usage-Based Views on Language Acquisition

From a cognitive perspective there is no innate language-specific device, and "language development is no longer seen as a process of acquiring abstract rules, but as the emergence of language abilities in real time" (Evans, 2009: 128). Cognitive approaches to language learning focus on the commonalities between language and other cognitive functions, viewing linguistic acquisition as the result of the development of a complex network of interconnections between neurons through earlier linguistic experience. The human brain is equipped from an early stage of development to respond to the input patterns it receives, and the emergence of language representations is facilitated by the plasticity of the neural system. While proponents of 'Universal Grammar' believe that language acquisition is possible up to a critical period, because older learners of L2 can acquire L2 only with difficulty, adherents of cognitive linguistics tend to focus on the commonalities between mechanisms of L1 and L2 learning (MacWhinney, 2008: 242), which are seen as not being separate from other social and cognitive abilities.

In opposition to innatist and generativist views on language and acquisition, two important tenets of emergentist and usage-based views on language and linguistic competence are that language structure emerges from language use, and that cognitive representations are affected by frequency (Bybee & Hopper, 2001: 1). Regularities in

language are emergent phenomena and language competence is the result of language usage, which shapes the mental representations of the grammar and lexicon of the user/speaker through frequent form-function/meaning associations in real communication. Frequency of use plays a role in the retention of information about language structures and in the internalization of grammar, viewed, in continuity with lexicon, as the cognitive organization of individual experiences with language (Bybee, 2008: 216). According to Bybee (2008: 217):

> As users of language experience tokens of language use, they categorize them at varying degrees of abstractness. This categorization process creates a vast network of phonological, semantic and pragmatic associations that range over what has traditionally been designated as lexicon and grammar.

Tomasello (2003: 5–6) emphasizes this continuity of grammatical and lexical structures in linguistic competence:

> In the usage-based approach, competence with a natural language consists of the mastery of all its items and structures, and these constitute a much more complex and diverse set of linguistic representations than the "core grammar" of formal approaches. They include the highly canonical (core), the highly idiosyncratic (periphery), and many things in between. Thus, fluent speakers of English control not only highly abstract syntactic constructions (past-tense *–ed*, the passive construction), but also concrete expressions based on individual words or phrases, such as ritualized greetings, idioms, metaphors, and noncanonical phrasal collocations (*I wouldn't put it past him; He's getting to me these days; Hang in there; That won't go down well with the boss; She put me up to it)*.

In a continuum from lexicon to grammar, the units of linguistic analysis are identified as constructions, "stored pairings of form and function that range over units at the level of the word up to and including complex sentences" (Bybee, 2008: 216). In this view, simple words, idiomatic and metaphorical conventionalized phrases, and sentences constitute constructions:

1. simple lexical words: *table, decide, pretty*
2. grammatical morphemes and the items they appear with: VERB + Past tense; *the* + NOUN
3. idioms with fixed lexical content: *go great guns*
4. idioms that are partially filled: *jog* [someone's] *memory*

5.   constructions with some fixed material: *he made his way through the crowd*
6.   fully abstract constructions: *they gave him an award* (Bybee, 2008: 217)

This usage-based view of language, in which lexicon and grammar are inseparable, can account for linguistic phenomena, such as formulaic language, figurative language, idioms, and metaphor, which are not rule-based and which exhibit a large cross-linguistic variability.

3.4.2 Differences Between L1 and L2 Acquisition From a Usage-Based Perspective

First- and second language acquisition differ in a number of significant aspects. Summarizing the main differences between L1 and L2 learning, MacWhinney (2008: 341) highlights three main differences concerning cognitive, functional, and social factors. The first difference is that infants learn their first language while engaged in the endeavour of learning how the world works, while adult learners of a second language already know a lot about the world and about society when they learn a second language. The second important difference concerns brain plasticity. While children can rely on a very malleable brain, the adult brain is already committed to many other tasks and is already tuned to all aspects of the first language, from phonetics to lexicon and pragmatic rules. A final important difference is that most infants are totally concentrated on the task of learning a new language and can count on the support of their caregivers for intense communicative interaction, while "second language learners are often heavily involved in social and business commitments in their first language that distract them from interactions in the new language" (MacWhinney, 2008: 341).

Differences between infant and adult acquisition of new words are also to be found in the way perceptual information is coded in language. The fact that the learning of the first language occurs together with the discovery of the world and of the social environment of the child makes word knowledge more grounded in embodied experience and perceptual information: new words are directly associated with emotions, perceptions, and images, whilst it is not clear if in second language acquisition the L1 to L2 language-to-language mappings prevail over the L2 mapping with perceptual experience.

Another important difference concerns the acquisition of grammatical competence. While most children acquire a native-like competence of functional morphology in a natural setting through implicit learning mechanisms, "adults almost invariably fail to acquire nativelike competence in a second language from naturalistic exposure", according to Ellis (2008: 283). On the other hand, evidence suggests that adults have better abilities and refined strategies to learn L2 grammar and vocabulary

explicitly and intentionally, and to learn faster, at least in the beginning, and that this can be used to engage in activities in which attention to language form and awareness are required.

A problematic issue that constantly emerged in debates in various fields of SLA, is the way and the measure in which the L1 of a L2 learner influences the acquisition of the second language. As Slobin (1993: 242) argued, L2 adult learners have to deal with interference phenomena due to the influence of prior language experience:

> For the child, the construction of the grammar and the construction of semantic/pragmatic concepts go hand-in-hand. For the adult, construction of the grammar often requires a revision of semantic/pragmatic concepts, along with what may well be a more difficult task of perceptual identification of the relevant morphological elements.

Language 'transfer' or 'cross-linguistic influence' are the most frequently used terms in the SLA literature to refer to a number of behaviours in which performance in the L2 is influenced by the L1 or other languages. In its simplest definition, transfer is,

> the influence resulting from the similarities and differences between the target language and any other language that has been previously, (and perhaps imperfectly) acquired (Odlin 1989: 27).

The transfer phenomena that can be observed concern different linguistic levels, ranging from orthography, phonetics, phonology, syntax, semantics, lexicon, and morphology, to rhetoric and pragmatics. Because of their high frequency of occurrence, some transfer phenomena such as phonetic, phonological, or morphological errors, have a more evident impact on L2 performance. But negative transfer from the L1 can also occur in other forms than overt errors, with avoidance, hypercorrection, and simplification behaviour (Odlin, 2003: 436).

The concept of transfer is rooted in the behaviourist tradition, in which language learning was seen as the learning of a set of new behaviours (VanPatten & Williams, 2014: 17). Learner difficulty in the learning of a language or of a particular target structure was supposed to depend heavily on the difference between the first and the second language. If two languages were similar, a *positive* transfer could be expected while where languages were different, the prediction was that a *negative* transfer would occur with more errors and poorer learning results. Emergentist and usage-based views on language learning, on the other hand, tend to explain transfer phenomena in the light of cognitive and neurolinguistic factors. During the first few years of life, our system becomes more and more tuned to the linguistic cues of the L1, disregarding other cues that are not relevant. Transfer phenomena are a

consequence of this consolidation of L1 language representation in various domains of language acquisition:

> One result of this process is that the initial state for L2 acquisition is no longer a plastic system; it is one that is already tuned and committed to the L1. Our later experience is shaded by prior associations; it is perceived through the memories of what has gone before. Since the optimal representations for the L2 do not match those of the L1, SLA is impacted by various types of L1 interference (Ellis & Wulff, 2015: 82).

Transfer phenomena in L2 performance are also observable in the learning of idiomatic expressions and in the production of metaphors in written texts. When we look at conventionalized metaphors such as collocations and idiomatic expressions, we have to take into account Bybee's prediction that a negative transfer is likely to occur in cases where similar constructions differ in the details:

> To the extent that the constructions in the second language are similar to those of the first language, the L1 constructions can serve as the basis for the L2 constructions, with only the particular lexical or morphological material changed. However, since even similar constructions across languages are likely to differ in detail, the acquisition of the L2 pattern in all its detail is hindered by the L1 pattern (Bybee, 2008: 23).

Transfer phenomena can also be observed in various studies about vocabulary learning, idiom learning, and metaphor learning; this will be reported on in the following sections.

3.4.3 L2 Instruction of Lexical Units: Difference Between Incidental and Intentional Learning

The learning process described above can come about in natural or institutionalized settings, during 'reading for meaning' a newspaper article or listening to the radio in a second language, or during an academic language course. This implies different learning modalities according to the level of consciousness and deliberateness of our learning. In second language acquisition, this difference is defined in the opposition between *incidental* and *intentional* learning. The term 'incidental learning' refers to "the acquisition of a word or expressions without the conscious intention to commit the element to memory", in opposition to the term 'intentional learning', which refers to "a deliberate attempt to commit factual information to memory, often including the use of rehearsal techniques" (Hulstijn, 2013: 1). The two terms are used mainly in empirical research on vocabulary learning, and only seldom in the literature on

grammar learning (Hulstijn, 2003: 357). In the experimental literature, it refers to the well-established   practice to begin an experimental treatment without telling participants that they will be tested after a 'task'. Hulstijn (2003: 361) points out that,

> both incidental and intentional learning require some attention and noticing. On the other hand, however, attention is deliberately directed to committing new information to memory in the case of intentional learning, whereas the involvement of attention is not deliberately geared toward an articulated learning goal in the case of incidental learning.

Processing of language through reading or listening is a cognitive activity through which we also unconsciously store linguistic information even when we do not have the intention to do this. This is important also for the learning of matters such as metaphors, which are only marginally present in language courses for L2 learners. In fact, only the extensive reading of various types of texts can provide the opportunity for reading and processing less frequent words or conventional expressions in real language use in L2. According to several studies (see Hulstijn, 2013, for an overview), there is evidence that when we read a text focusing our attention on meaning, we learn *incidentally* new grammatical or lexical forms.

3.4.4 Acquisition of Single Words in L2

The acquisition of L2 vocabulary is an extremely complex process, in which the learner, engaging in comprehension and production tasks in natural or institutional situations, constructs links between new and old knowledge in a process of constant restructuring and refinement. As Schmitt (2000: 23) observes, for the L2 learner, the learning of new words does not proceed in a linear manner. It happens, rather, in a "state of flux, with both learning and forgetting occurring until the word is mastered and 'fixed' in memory". As in first language acquisition, we learn new words in L2 by engaging repeatedly in meaningful comprehension and production tasks in natural or institutionalized contexts. In this dynamic and non-linear process, the learning of each new word implies the matching of a phonetic and graphic form with knowledge relative to the grammatical behaviour of the word (such as plurality), its function and position in an utterance, and its conventional meaning, together with information concerning its use in discourse. The connections between meaning and form also have to be created between words and their multiple meanings (polysemy) and their different uses (connotation). A word is considered to be learned when its meaning is stored in long-term memory together with the different kinds of information on different linguistic levels: phonetic, grammatical, syntactic, semantic, and pragmatic.

Psycholinguistic and applied studies on language acquisition have provided evidence for the fact that acquisition of new words in L1 is facilitated by the appearance of words in stable syntactic frames (MacWinney, 1998) and that, as we

will see in the next paragraph, associative learning mechanisms such as 'chunking' operate both in L1 and L2 learning of lexis, collocations, and idioms (Ellis, 2001, 2003).

3.4.5 Acquisition of Multi-Word Units in L2

An issue studied more recently in the field of SLL and psycholinguistics concerns the case of multi-word strings, often referred to as collocations or formulaic sequences (Wray, 2000, 2002; Schmitt, 2004; Schmitt & Carter, 2004; Wray, 2008). These fixed or semi-fixed prefabricated sequences reflect what Sinclair (1991: 110) called the 'idiom principle' of language:

> The principle of idiom is that a language user has available to him or her a large number of semi-preconstructed phrases that constitute single choices, even though they might appear to be analyzable into segments. To some extent, this may reflect the recurrence of similar situations in human affairs; it may illustrate a natural tendency to economy of effort.

Erman and Warren (2000) observed that idioms and other multi-word combinations are not marginal phenomena in language, calculating that they constituted about half (52.3%) of the written texts, and even more (58.6%) of the spoken English texts they analyzed. Other corpus-based studies comparing written and spoken texts in English have also suggested that collocations are probably more frequent in spoken than in written language (Biber et al., 1999).

Frequent patterns of co-occurrence result from morphological and syntactic constraints in language and are motivated by semantics. As Moon (1998: 26) observes, "Collocations are the surface lexical evidence that words do not combine randomly but follow rules, principles, and real-word motivations". While collocations are largely motivated by semantics, the preference of a word, the 'node', for its frequently co-occurring words, called 'collocates', is arbitrary with respect to other potential collocates. At the same time, the word-combination is constrained by grammatical rules with internal dependencies such as adjective-noun and verb-object.

Some studies have looked at the factors that affect learning of collocations by L2 learners. Conklin and Schmitt (2008) provided evidence for the fact that L2 learners are able to memorize – from their first exposure to a stretch of words – information about which words appear together. The associations become more stable through repeated exposure. This finding is in line with Ellis's (2001) assumption that in L2 learning the same psychological associative mechanism of 'chunking' is at work that guides language acquisition in L1.

Peters (2016) explored the role of different factors in the initial stage of the learning of collocations with a group of students of English whose L1 was Dutch. The study focused especially on the role of congruency between L1 and L2 collocations

and on the type of collocate-node relationship. The participants were presented with a list containing congruent and incongruent collocations, i.e., having or not having a literal equivalent in the L1 of the participants. The structures were of two different types: adjective-noun collocations ('gross misconduct') and verb-noun collocations ('to throw a party'). The reading task was followed by a recall and a recognition task. The study showed that incongruent collocations were more difficult to recall compared with congruent collocations in the form-recall test. The analysis of errors in the recall test showed a tendency to rely on L1 collocations in order to accomplish the task. In the subsequent form-recognition task, congruency was shown to play no role. Adjective-noun collocations were better recalled and recognized than verb-noun collocations. Peters points out that this could be due to the fact that the data also showed a strong association between knowledge of L2 vocabulary and the ability to learn new collocations.

Existent literature on the learning of formulaic language and collocations does not allow us to conclude whether for L2 learners different types of fixed constructions, such as nominal or verbal collocations, are more or less difficult to process and learn. It is possible that nominal collocations, because they are formally less complex than verbal collocations, could be better retained, as the results of Peters (2016) and Laufer (2011) suggest. On the other hand, verbal collocations based on metaphor or metonymy that refer to an action or a prototypical scene, are likely to be more imageable and memorable than nominal collocations because of their semantic content. This will be explored in the experimental study performed for this thesis (Chapter 4).

3.4.6 Instructed L2 Learning of Figurative Language: Idioms and Metaphor

Since the early studies on metaphor and L2 (Danesi, 1988), various scholars have looked at metaphorical awareness as a means to enhance learning of figurative language by L2 learners. A related question was whether awareness should be enhanced through explicit instruction and specific activities. Littlemore and Low (2006: 212) observed that the learning of figurative language may occur as a result of explicit instruction as well as incidentally "when the teacher was in fact trying to teach something completely different, or as the result of more general exposure to the target language", so that the boundaries between intentional and incidental or implicit learning can be "somewhat blurred". Yet, in their view, *noticing* and other awareness-raising activities should have a prominent role in language teaching:

> On the other hand, if learners want to improve their ability to deal with metaphor
> in the target language, they will need, at some point, to increase their awareness
> of how they process metaphorical expressions when they encounter them, and

before they can actively process a particular expression as metaphorical, they need to notice the incongruity that signals it as such (Littlemore & Low, 2006: 53).

The role of the teacher is to help learners develop "sophisticated *noticing* skills" that will enable them to autonomously understand figurative language on the condition that they can have exposure to large amounts of the target language (Littlemore & Low, 2006: 78).[13] Below, I will briefly review a number of studies, based on deliberate learning activities in the classroom, that have addressed the question of which learning strategies and activities would enhance L2 learning of figurative language.

Studies Based on Learning Activities in the Classroom [14]

Some small-scale studies based on learning activities in the classroom have provided evidence for the usefulness of explicit and deliberate learning activities of conventional language expressions. The rationale behind the use of awareness-raising activities in the language learning class is that metaphors and idioms in language are not unsystematic phenomena, but are motivated by conceptual metaphors that remain mostly unconscious to the common learner (Danesi, 1994: 454; Boers, 2004: 211). In order to enhance comprehension and learning in L2, the learners have to be first engaged in tasks that enhance their awareness of the conceptual mechanisms behind conventional figurative expressions. Several studies (Deignan et al., 1997; Boers, 2000b) have provided evidence for the positive role of awareness in enhancing vocabulary memorization and retention of conventional figurative expressions such as idioms (Boers, 2001; Boers et al., 2004b; Boers, Eyckmans & Stengers, 2007), polysemous words (Beréndi et al., 2008), and specialized vocabulary (Boers, 2000a). These studies have confirmed the effectiveness of techniques such as guessing activities (Berendi et al., 2008), etymological elaboration (Boers, 2001; Boers et al. 2004b), and pictorial elucidation (Boers et al., 2008). In different controlled experiments with groups of intermediate learners, Boers (2000a, 2000b, 2001) provided empirical evidence for the beneficial effect on memorization and retention in activities in which students were made aware of the non-arbitrary nature of figurative expressions, drawing their attention to the source domain that motivates

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[13] For a recent attempt to construct and validate a test battery, measuring various components of metaphorical competence, see O'Reilly and Marsden (2021).

[14] For a bibliography of papers on L2 learners' metaphorical knowledge in relation to L2 pedagogy, see Boers and Webb (2018).

those expressions. In one of the experiments (Boers 2000b), a better ability of the experimental group to reproduce expressions of anger such as "I was boiling with anger", "he has a ferocious temper" (Boers 2000b: 556), was achieved by presenting them with a categorization based on metaphorical themes identified by Kövecses (1986): ANGER IS A HOT FLUID IN A CONTAINER, ANGER IS FIRE, ANGRY PEOPLE ARE DANGEROUS ANIMALS). In another experiment, the experimental group was made aware of the conceptual mappings underlying unfamiliar economic expressions, such as "to steer the company in the right direction" "flourishing companies" or "rooting out fraud" (Boers, 2000a:145), through a technique of explicit 'etymological elaboration' (Boers et al., 2004a, 2004b; Boers et al., 2007), which entails a more active effort in making inferences about their etymological meaning. In all these experiments the experimental group performed better than the control group, although in one experiment, based on etymological elaboration through a problem-solving task, it was not clear "whether this benefit [was] solely due to the strategy of raising metaphorical awareness itself, or to the fact that this strategy presumably takes more cognitive effort, or both" (Boers, 2000a: 143; see also Boers et al., 2004a: 378). One limitation of some of these studies is that they were conducted with sets of coherent clusters of idiomatic expressions, all related by the same conceptual mapping with subsequent recall tests. Moreover, is is not clear whether the enhanced awareness will affect long-term retention or produce some transfer effect (Boers 2004: 217).

A relevant question that emerged in L2 learning studies was whether awareness could also enhance metaphor production and accuracy. In earlier studies, it was observed that a typical problem in learners' spoken and written production consisted not in the way they used conventional expressions but in their 'under-use' (Laufer, 2000). In a study on the use of English idioms by L2 learners whose native language was Hebrew, Laufer (2000) observed avoidance of use of different kinds of idiomatic expressions after an experimental learning session. The results suggested that learners especially avoided expressions in L2 that did not correspond to an idiomatic expression in their L1, and likewise expressions that had a correspondent expression in L1 that presented a slightly formal difference. The results also suggested that in both cases, avoidance was caused by influence of the L1 because learners were more aware of the risk of making mistakes the higher the difference was between L1 and L2 at a cognitive or at a lexical level. Charteris-Black (2002) pointed out that activities raising awareness about the conceptual aspects of metaphors do not necessarily lead to acceptable metaphorical expressions, arguing that "where linguistic forms are quite different, activation of an equivalent first language conceptual basis does not always lead to the correct linguistic form" (2002: 125). Also According to Boers and Lindstromberg (2008c: 329), awareness-enhancing activities on the semantic motivation of linguistic expressions did "not necessarily help recollection of either

the precise form of words or the lexical composition of phrases" and learners' attempts to generate figurative expressions themselves may not result in "standard, conventional" language. The question of whether a more explicit focus on the linguistic form of conventional expressions can enhance accuracy will be addressed in the experimental study of the present thesis and will be discussed in Chapter 4.

3.4.7 Production of Metaphors in L2 Speaking or Writing

A number of studies have investigated the written production of metaphors by learners at various levels of second-language proficiency. Nacey (2013) looked at metaphors identified in the learner language, comparing the use of metaphor in two sets of texts, one written by advanced Norwegian L2 learners of English, and one by L1 A-level students in the U.K. In both groups of L2 learners, metaphorically used words which reflected ubiquitous and conventional metaphors were predominant, with only 5% of creative metaphors in the Norwegian group and 3% in the L1 group (Nacey, 2013:152). A consistent number of errors concerned the wrong use of conventional forms, but these were considered by the author, who intentionally avoided an overly normative view, to be 'creative' uses.

Littlemore et al. (2014) examined the production of metaphors by L2 learners of English whose mother languages were German or Greek. The corpus was composed of texts written for the Cambridge ESOL exam at various CEFR levels of language proficiency (Council of Europe, 2001). The aim of this study was to observe whether an increase in proficiency is associated with a higher density of the number of metaphors, the production of clusters, as well as with variation in the use of metaphors classified as closed-class, such as prepositions, and open-class metaphors such as nouns and verbs. They found that while early learners mostly use metaphors classified in the study as closed-class metaphors (i.e., prepositions), as levels progress there is a significant increase in the number of metaphors, the density of clusters and, above all, a greater variety of open-class metaphors. Furthermore, as the level increases, there is also an increase in the functions that the metaphor performs within the discourse such as persuasion and irony. The results thus showed that metaphor use increased across the CEFR levels of proficiency, serving different functions. Rate of errors concerning metaphors were higher than general rates of errors, with different errors in metaphor use due to L1 influence, particularly in level B2. These errors included: (a) the incorrect choice of metaphorically used words (e.g. "the government has to *force* the production of bicycles"); and (b) grammatically incorrect use of metaphorically correct words ("merely causing *depressions*"), incorrect use of conventional/phraseological forms ("he started *as nobody"*, instead of "a nobody") (Littlemore et al., 2013: 141).

In an other study about production of metaphors in L2 learners' texts Hoang and Boers (2018) observe that one of the limitations of metaphor studies based on corpora of learners' texts is the fact that texts are not homogeneous enough from the viewpoint of the topic and of the purpose (descriptive, narrative, argumentative) so that it is impossible to control the assigned task. In fact, they argue that it is quite probable that the increase in functions, clusters and density in learners' texts is to be connected with the argumentative and abstract nature of the topics covered at advanced levels of language learning. Hoang and Boers, therefore, took these aspects into account, assigning the same task to Vietnamese university students enrolled at four different levels of English proficiency. The aim of their study was to investigate not only whether the use of metaphor increases at different levels but also whether there is a positive association between the use of grammatically correct metaphors and the quality of the learners' writing according to independent assessors. Students participating in the experiment must all write on the same topic producing a 250-word essay on an argument in 50 minutes. The corpus was made up of 257 texts selected on the basis of the length. They found, in line with Littlemore et al. (2014), a higher number of metaphorically used words in essays written by advanced L2 learners than in essays of less proficient learners. The researchers found that the association between the quality of EFL learners' writing and metaphorical language was particularly high when the metaphorically used words were also grammatically correct. Especially the difference in the use of conventional multi-word units was strikingly different between the group of high and low proficient L2 writers. The results of the study suggest that metaphorical multi-word expressions are an important indicator of learners' writing proficiency and are likely to influence the perceived quality of the L2 learners' production.

Crosslinguistic Influence as a Cause of L2 Errors

Several studies already reviewed in the present chapter have shown that L1 can influence production of metaphorical expressions in L2, with avoidance or formal errors as a consequence. Another important aspect of the influence of L1 on L2 in learning metaphors is the transfer effect of metaphorical competence from L1 to L2. In order to compare metaphorical competence in L1 and L2, Littlemore (2010) carried out an experiment in which native French university students of English were tested on different dimensions of metaphorical competence: (a) their ability to find meaning in metaphor; (b) the speed in finding meaning; (c) the ability to find multiple interpretations; and (d) metaphor production. The results of the study showed a correlation between the level of metaphorical competence in L1 and metaphorical competence in L2, suggesting that metaphorical competence reflects the same cognitive skill and processes in both languages.

MacArthur (2010) also points out that "transfer effects are evident in all aspects of language production and comprehension – and metaphor is no exception" (2010:167) in an article that analyzed the type of errors occurring in the writings of Spanish advanced students of English concerning the use of metaphors. For example, an error such as "My sister was really annoying me talking about my boyfriend, but I tried to *hold back my nerves*" derives from a Spanish metonymic expression in which *nervios* ('nerves') is used to refer to 'anger' (MacArthur, 2010: 16). MacArthur further points out that "awareness of metaphor in the L1 will need to go hand in hand with developing metaphorical competence in the L2" (2010: 168), in accordance with Littlemore (2010).

Production errors were also addressed in a corpus-based study on the use of abstract language by Italian university students in English (Philip, 2010). The article focused on English L2 writing tasks, analyzing "errors of a more abstract, conceptual nature all too often relegated to the rag-bag category of 'language interference'" in terms of "conceptual mismatches between L1 and L2" (Philip, 2010: 64).[15] Philip shows that L2 errors mainly "reveal a tendency to prefer familiar word combinations", as in the following example, in which an advanced student produced a word-for-word calquing in English of the Italian equivalent expression for 'brain drain' (*fuga di cervelli*): "the incredible '*escape of the brains*' and the difficulties in which the scientific research is left" (Philip, 2010: 64). Cross-linguistic comparison thus demonstrate that conceptual schemas are linguistically determined and language-specific, because "concepts do not exist independently of language" (Philip, 2010: 73). Philips's analysis makes clear that most errors are due to phraseological or collocational incongruity; they "illustrate how conceptual knowledge formed in the mother tongue can interfere with the acquisition of foreign language conceptualizations, highlighting the importance of phraseology in fixing conceptual meaning" (Philip, 2010: 63).

The problem of correctness in the use of metaphorical multi-word units in L2 as a result of the influence of L1 will be addressed in the experimental study described in Chapters 4 and 5.

3.5 Rationale of the Present Study

As we saw in section 3.3.3, metaphor comprehension in L1 is well-studied and relatively well understood, compared with the paucity of studies that have addressed the figurative/non-figurative comprehension from a L2 angle. However, there is no

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[15] Philip's investigation was conducted on a corpus of 80,000 words, compiled from advanced C1 students' homework assignments between 2003 and 2005.

reason to assume that metaphor processing in L1 and L2 concern fundamentally different processes, and L1 studies on metaphor are useful because they can lead to a series of predictions about metaphor processing and learning in L2. Results from L2 idiom processing studies suggest that the same mechanisms regulate L1 and L2 figurative language comprehension. Cieślicka (2006), for instance, suggests a strong involvement of literal reading during the processing of L2 figurative language.

A question that is less clear from the studies mentioned in the present chapter is whether L2 expressions that are literally similar to the L1 are understood more quickly and are better acquired than is the case with dissimilar expressions. Also, L2 metaphor studies on written production suggest that transfer from L1 can be a problem for the second language learner, in line with Bybee's prediction that "the acquisition of the L2 pattern in all its detail is hindered by the L1 pattern" (Bybee, 2008: 232).

Because it is not clear what the role is that different factors such as literal and conceptual similarity in L1 and L2 play in comprehension and learning of conventional metaphorical expressions, an experiment was set up to test two main hypotheses about L2 processing and learning of metaphorical expressions. An important assumption for this study is that not all L2 metaphorical expressions are equally difficult to understand and learn, and that conceptual and formal equivalence of expressions in L1 and L2 may play a facilitating role, with some expressions easier to understand and remember than others. First, in order to investigate the effect of 'transferability', the present study focuses on three different types of Italian conventional metaphorical expressions, categorized on the basis of their conceptual and lexical similarity to Dutch expressions. Expressions such as (3.6) are supposed to be highly transferable from the perspective of a Dutch learner because of a conceptual and lexical equivalence with the Dutch expression. Expressions like (3.7) are likely to be less transferable because of a lexical mismatch, while expressions like (3.8) are the least transferable because they lack an equivalent expression in Dutch.

	ITALIAN	DUTCH
(3.6)	*bagaglio culturale* luggage cultural	*culturele bagage* cultural luggage
(3.7)	*dibattito acceso* debate glowing	*verhit debat* heated debate
(3.8)	*hanno dato un colpo di spugna*	*ze hebben een sponsslag gegeven they have given a stroke of sponge

Second, because syntactic properties of multi-word conventional expressions could play a role as well in comprehension and learning, the expressions were also selected on the basis of their syntactic configuration, focusing on nominal and verbal metaphorical collocations. Examples (3.6) and (3.7) are nominal expressions. It is unclear if verbal expressions such as (3.8) and (3.9) below might be more difficult to understand and to learn because of their different and more complex syntactic configuration.

(3.9)   *ha inseguito   un sogno*
               *hij is een droom achterna gelopen
               he has pursued a dream

The first aim of the study is to unravel how two factors, (i) transferability, and (ii) collocation type (nominal versus verbal), may enhance or inhibit comprehension and learning of conventional metaphorical expressions in L2 Italian. The second aim is to ascertain the ease or difficulty of learning metaphorical expressions in 'incidental' vs. 'intentional' learning conditions. The research questions of this thesis will be introduced in Chapter 4, together with a description of the experimental study that was set up in order to try to answer these questions.

Chapter 4. Methodology

This chapter will first introduce the research questions (section 4.1) of this dissertation and then describe the experimental study that was set up with the aim to gain a better understanding of the factors that play a role in comprehension and learning of metaphorical expressions. In section 4.2 the participants are described, followed by a description of materials and tasks (section 4.3). The procedure is described in section 4.4 together with the formulation of the hypotheses. The analyses are dealt with in section 4.5.

4.1 Research Questions

As we saw in section 3.5, the first aim of this study is to unravel the role that the factors transferability and collocation type play in comprehension and learning of metaphorical expressions. In the experiment, the independent variable transferability results from the combination of conceptual and formal properties, and comprises three levels, namely (i) highly transferable expressions (i.e., both conceptually and lexically transferable); (ii) moderately transferable expressions, (i.e., conceptually transferable but lexically different); and (iii) low-transferable expressions (conceptually and linguistically nontransferable). I will refer to these three transferability levels with the labels high, mid, and low. The factor collocation type comprises two levels, consisting of nominal and verbal collocations. This leads to the first and second research question:

Research question 1

Does the level of transferability enhance comprehension and learning of L2 metaphorical expressions?

Research question 2

Does syntactic configuration influence comprehension and learning of L2 metaphorical expressions?

A second aim of this study is to ascertain to which extent intentional learning enhances learning of metaphorical expressions compared with incidental learning. This leads to the third main research question:

Research question 3
Are intentionally learned metaphorical expressions better retained compared with incidentally learned expressions?

These research questions concern the five main tasks of the experiment described in sections 4.3 and 4.4:
    a) Comprehension task (incidental learning task)
    b) Fill-in-the-gap test I (after incidental learning)
    c) Multiple-choice test I (after incidental learning)
    d) Fill-in-the-gap test II (after intentional learning)
    e) Multiple-choice test II (after intentional learning)

The hypotheses relative to the three main research questions with respect to the performances in the different tasks will be formulated in sections 4.3 and 4.4.

4.2 Participants

The participants were advanced Dutch learners of Italian. Italian native speakers served as a comparison group. A total of 34 L1 speakers of Italian, studying at (or having graduated from) various Italian institutions of higher education, and 33 advanced L2 learners of Italian studying at (or having graduated from) Dutch universities or other institutions, participated in the study. Both the Italian and the Dutch participants were selected because of their high level of literacy. The Italian group was composed of 17 female and 17 male participants. The age range of Italian participants was 19–57 with a mean (*SD*) age of 26 (10) years. The Dutch group was composed of 24 female and 9 male participants. The age range of Dutch participants was 20–76 with a mean (*SD*) age of 34 (14) years (Table 4.1). All informants participated voluntarily in the study and received a book token for 20 euros (Dutch) or 15 euros (Italians) as a thank-you gift. The participants were previously informed about the aim and the content of the study and gave their written informed consent to the anonymous treatment of their data through a consent procedure approved by the ethics committee of the Faculty of Humanities of the University of Amsterdam.

Table 4.1
Age and Gender of the Participants

Native language	N	Gender f/m	Age range years	Age mean (*SD*), years
Dutch	33	24/9	20–76	34 (14)
Italian	34	17/17	19–57	26 (10)

4.3 Materials and Tasks

The target expressions were selected so that they represented three different levels of transferability, i.e., the potential degree of cross-language meaning activation, and two different types of syntactic configuration, namely nominal and verbal collocations (see section 3.5).

Two Levels of Syntactic Configuration, Three Levels of Transferability

More than 110 Italian conventional metaphorical expressions were collected from natural texts in a corpus of academic and popularizing authentic texts (Conedit). The selected expressions were all nominal or verbal collocations of the types described in section 3.5 (see also Table 4.2). The expressions were checked for meaning and frequency of use with the help of the online Italian monolingual Dictionaries *Sabatini-Coletti* and *Devoto-Oli* and with the searchable 2,5 billion-words online corpus *Italian Web* 2010 (itTenTen, Sketch Engine). Metaphoricity was assessed following the MIP procedure for metaphor analysis (see section 2.2).

All expressions were first checked for the existence of Dutch lexical and conceptual equivalent expressions using the Dutch-Italian bilingual dictionary *Van Dale/Zanichelli* (2001), the *Grande Dizionario Elettronico Lo Cascio* and the online corpus *Italian Web* 2010 (itTenTen, Sketch Engine). As a first step, the expressions with a lexically and conceptually equivalent metaphorical expression in Dutch were selected and categorized as 'high-transferable' (see examples in Table 4.2). Next, expressions having a similar metaphorical meaning, but not exactly the same lexical form, were selected and classified as 'moderately transferable'. Then, expressions with no lexical and no conceptual equivalent in Dutch were categorized as 'low-transferable'.

Subsequently, the selected Italian metaphorical expressions and their categorization in three levels of transferability based on the existence of conceptually or lexically equivalent expressions were checked by two independent native Dutch raters.

In summary, the result of this first selection and categorization was three groups containing a balanced number of verbal and nominal collocations, corresponding to three different levels of transferability*:*

- High transferability: the metaphorical N or V collocation exists also in Dutch and is conceptually and lexically similar (conceptual + linguistic link in L1 and L2)

- Moderate transferability: the metaphor is conceptually conventional in Italian and Dutch, but no lexically equivalent conventional N or V collocation exists in Dutch
- Low transferability: the Italian metaphorical N or V collocation has no equivalent in Dutch (no conceptual link is possible between the L2 sequence of words and L1)

Table 4.2

Examples of Levels of Transferability and Syntactic Configuration Used in This Study

Nominal expressions	
High transferability	**Dopo la crisi dei partiti politici i giornali sono diventati il luogo in cui si combattono le** *battaglie delle idee*. After the crisis of-the parties political the newspapers have become the place in which are fought the battles of ideas. 'After the crisis of political parties, newspapers have become the place where ideological battles are fought.'
Moderate transferability	**Il progetto di recupero dei dati del vecchio catalogo generale della biblioteca ha seguito** *percorsi tortuosi*. The project of recovery of -the data of-the old catalogue general of-the library has followed paths tortuous ' The data recovery project of the library's old general catalogue followed intricate paths.'
Low transferability	**Le ricerche sull' origine di questa rara malattia vanno avanti da alcuni anni, ma gli scienziati sono ancora** *in alto mare*. The investigations about-the origin of this rare disease go onwards since some years but the scientists are still in high sea. ' Research on the causes of this rare disease have been going for years, but scientists still have a long way to go.'
Verbal expressions	

High transferability	**Grazie allo studio innovativo di un gruppo di ricercatori, la verità sulla morte del sovrano mediceo** *è venuta alla luce.* Thanks to-the study innovative of a group of researchers the truth about-the death of-the sovereign Medicean is come to-the light. 'The truth on the death of the Medici sovereign came to light thanks to the innovative study of a group of researchers.'
Moderate transferability	**Per chi studia e fa ricerca, gli strumenti digitali sono cruciali per memorizzare e organizzare le** *conoscenze accumulate.* For those-who study and do research the tools digital are crucial for to-memorize and organize the knowledges accumulated. 'For students and researchers, digital tools are fundamental in order to store and organize the acquired knowledge.'
Low transferability	**Era consapevole del rischio di suscitare delle aspettative sbagliate e nel suo discorso ha** *messo le mani avanti.* He-was aware of-the risk of to-rouse of-the expectations erroneous and in-the his talk he-has put the hands forward 'He was aware of the danger of rousing false expectations and in his talk he spoke cautiously.'

Once a balanced number of metaphorical nominal and verbal collocations had been selected for each level of transferability, sentences were adapted or new contexts were provided for experimental purposes, according to the following three criteria:

a) The target items should always be in the last place in the Italian sentences (see examples in Table 4.2) in order to measure reaction times and accuracy in processing the metaphorical expressions while reading for meaning in a realistic context.

b) The prior context should be not too cognitively demanding, and at the same time informative enough to guide the comprehension of the target expression.

c) All sentences should be written in an academic style and should sound as natural and plausible as possible in the context of a larger academic or popularizing text at a lexical, syntactical and pragmatic level.

The filler sentences also satisfied the same criteria: they were grammatically correct, written in an academic style, but the combination of the first part of the sentence and the final words (that were not metaphorical) produced a semantic or pragmatic incongruity, as shown in example (4.1):

(4.1) *Il modo di comunicare proprio della tecnica fotografica è un linguaggio*
the way of communicate typical of the technique photographic is a language
che fa appello al senso dell' humor.
that appeals to the sense of the humour.

In order to check the semantic-pragmatic adequacy of the sentences containing the target expressions, as opposed to the filler sentences, the selected 142 stimulus sentences were subsequently checked by 10 independent raters.

Rating and selection of experimental sentences

A total of 142 stimulus sentences (98 pragmatically correct [plausible] and 44 pragmatically nonsense fillers [non-plausible]) were rated by 5 academic native Italians and 5 Dutch speakers of Italian at an academic level. Participants were asked to rate the semantic-pragmatic plausibility of the propositions contained in the sentences on a 5-point-scale. The instruction was presented in Dutch and Italian, depending on the mother language of raters:

Ik leg een flink aantal zinnen in het Italiaans aan je voor ter beoordeling. De vraag bij elke zin is of je de zin in semantisch-pragmatisch opzicht plausibel vindt. Je kunt je oordeel aangeven op een vijfpuntschaal, lopend van 1= "helemaal niet plausibel" tot 5= "heel plausibel".

1 (helemaal niet plausibel) betekent: "Deze zin heb ik nog nooit gehoord of gelezen en ik acht de kans dat ik hem in gewoon taalverkeer zou tegenkomen uiterst klein".

5 (heel plausibel) betekent: "Ik kan me heel goed voorstellen dat iemand dit zegt of schrijft".

Een voorbeeld van (wat ik denk dat) een plausibele zin is:

Il critico da allora non ha mai cambiato posizione.

Een voorbeeld van (wat ik denk dat) een niet plausibele zin is:

Dall'alto di questa terrazza si riesce bene a scorgere il suo bilinguismo.

Wel bedankt voor je medewerking.

On the basis of the judgment of these 10 raters it was possible to select 6 sets of 10 items for the 6 different experimental conditions and 30 fillers. Table 4.2 provides an overview of the stimulus sentences containing the target expressions. Appendix A shows the complete list of the 60 sentences and 30 fillers.

Short Overview of the tasks

In the study, a series of tasks were administered to the participants during individual sessions. The tasks are briefly introduced here and are described in detail later in section 4.4.

(1) Incidental learning task, also referred to as 'comprehension task ('plausibility-judgement'). In order to answer research questions 1 and 2, which addressed the processing of the metaphors, a comprehension task was administered. Participants had to evaluate the semantic plausibility of the meaning of 90 sentences, 60 sentences with a metaphorical expression, and 30 filler sentences without a metaphorical expression. By doing this comprehension test, the participants were exposed to the metaphorical expressions, which offered the opportunity for incidental learning to take place.

(2) Productive knowledge test, also referred to as 'recall task' or as 'fill-in-the-gap task'. This test assessed participants' recall of the 60 metaphorical expressions that had been presented in the comprehension task and thus measured to what extent participants had incidentally learned the expressions while performing the comprehension task.

(3) Receptive knowledge test, also referred to as 'recognition task' or as 'multiple-choice task'. This test assessed participants' recognition of the 60 expressions that had been presented in the comprehension task and thus also measured to what extent participants had incidentally learned the expressions while performing the comprehension task.

(4) Intentional learning task. The Dutch participants were requested to intentionally learn the same 60 metaphorical expressions.

(5) Second productive knowledge test, also referred to as 'recall task' or as 'fill-in-the-gap task'. This test assessed participants' recall of the 60 metaphorical expressions and thus measured to what extent participants had intentionally learned the expressions while performing the intentional learning task.

(6) Second receptive knowledge test, also referred to as 'recognition task' or as 'multiple-choice task'. This test assessed participants' recognition of the 60 metaphorical expressions and thus measured to what extent participants had intentionally learned the expressions while performing the intentional learning task.

(7) Global proficiency measure, also referred to as 'cloze test'. This task functioned as a global Italian proficiency test for the Dutch participants.

The Dutch participants were involved in all 7 tasks; the Italian participants were only involved in task 1, and tests 2, and 3.

Implementation of Incidental and Intentional Learning

The study consisted of an experimental and a non-experimental part. Tasks 1 to 6, in which the Italian metaphorical expressions are involved, form the experiment proper. The assessment of L2 proficiency (task 7) forms the non-experimental part of the study. For the experimental part, a two-phase structure was adopted. These two phases pertain to the difference made in psychology between incidental and intentional learning (see section 3.4.3). The critical difference between the two types of learning lies in the instructions (McLaughlin, 1965). In the case of intentional learning, participants are being explicitly told to 'learn' something and they are told that they will be tested on their knowledge after the learning session. In the case of incidental learning, participants are asked to perform a task, the so-called 'orienting task', but they are not told that they will be tested afterwards on their knowledge of some information contained in the orienting task. The idea behind incidental learning is that people can 'pick up' information, even though they have no 'intention' to commit that information to memory (see section 3.4.3).

In the current study, the comprehension task (task 1) functioned as the orienting task for incidental learning. The Dutch and Italian participants were asked to read the sentences and judge whether the meaning of the sentence as a whole referred to a plausible or non-plausible state of affairs. They were not informed about the presence of (various types of) metaphorical expressions in 60 of the 90 sentences, and they were not told in advance that they would later be tested on their knowledge of these expressions. Thus, the comprehension task directed their attention to the meaning of the sentence as a whole and not specifically to the fact that the final part of the sentence contained (in 60 of the 90 sentences) one of six different types of metaphorical expressions. The following fill-in-the-gap and multiple-choice tests (tasks 2 and 3), which came unannounced, tested to what extent participants could remember the metaphorical expressions that had occurred in the sentences of the preceding plausibility-judgment task. The fill-in-the-gap and multiple-choice tests are called 'retention' tests, assessing participants' (productive) 'recall' of the *form* of the metaphorical expressions (fill-in-the-gap) and their (receptive) 'recognition' of the *meaning* of the expressions (multiple-choice).

In the second phase of the experiment the Dutch participants performed an intentional learning task followed by a second productive knowledge test (task 5) and a second receptive knowledge test (task 6). Participants were instructed to learn the

form-meaning relationships of the same 60 metaphorical expressions that had been the targets in phase 1 and they were told that the fill-in-the-gap and multiple-choice test would be administered again afterwards. Thus, while the recall and recognition tests 2 and 3 assessed retention of metaphorical expressions incidentally learned, recall and recognition tests 5 and 6 assessed retention of the same metaphorical expressions intentionally learned.

In the literature on incidental and intentional learning, a distinction is made between the learning of familiar and unfamiliar information. The Italian participants were assumed to know (be familiar with) all 60 metaphorical expressions when they began performing the comprehension task. For them, the retention tests (tasks 2 and 3) only assessed to what extent they could remember them (recall them in the first retention task and recognize them in the second retention task). In the psychology of learning, this 'remembering' is regarded as evidence of 'learning'. Thus, in the case of the Italian participants, the incidental learning experiment concerned the memory of familiar expressions of their language. The Dutch participants, with advanced knowledge of Italian, may or may not have been familiar with all or some of the 60 metaphorical expressions presented in task 1. If a given Dutch participant was not familiar, for example, with the expression *percorsi tortuosi* (see Table 4.2) the retention tests assessed incidental learning (recall and recognition) of a new, unfamiliar L2 metaphorical expression. If, however, a participant knew this expression beforehand, the retention tests assessed knowledge of familiar L2 metaphorical expressions. In studies of incidental L2 vocabulary learning, it is crucial for the researchers to be certain that participants are not familiar with the lexical learning targets. However, administering a pre-test, assessing pre-knowledge of the learning targets, runs the risk of drawing participants' attention to the targets, jeopardizing the incidental nature of the learning experiment (Hulstijn, 2003). For this reason, it was impossible in the current study to administer a pre-test (before the plausibility-judgment task), assessing participants' knowledge of the 60 metaphorical expressions. There was therefore no opportunity to obtain experimental control of advance familiarity with the metaphorical expressions in the case of the Dutch participants. In conclusion, while the incidental-learning part of the experiment pertained to the incidental learning (evidenced by recall and recognition) of familiar expressions in the case of the Italian participants, it pertained to the incidental learning of either familiar or unfamiliar expressions in the case of the Dutch participants. (Note, however, that the research questions and hypotheses, presented below, pertain to the *differential* effects of transferability and syntactic configuration in the processing and learning of metaphorical expressions, *irrespective* of the familiarity of the target expression).

4.4 Procedure

Testing took place in Amsterdam, Rome, and Florence in individual sessions. For the Italian participants, the session (comprehension task 1, followed by retention tests 2 and 3) took about one hour. For the Dutch participants, the session took approximately 2.5 hours: participation in the experimental tasks (tasks 1 to 6) lasted around 1 hour 40 minutes and subsequent paper-and-pencil language proficiency test lasted 30 minutes.

The comprehension task, the recall tests, and the recognition tests were computer administered individually. The software for the experiment was developed using E-prime 2.0 (Psychology Software Tools, Inc.) and was installed on a Sony™ personal computer (laptop) with an Intel® Core™ i5 processor running Windows 8 Intel® Core™ i5. The same computer was used in Amsterdam, Rome, and Florence. Two identical versions of each E-prime experiment were created with instruction screens in Italian and Dutch.

Detailed description of each task, along with the accompanying hypotheses (where applicable)

4.4.1 Comprehension Task

In order to answer to research questions 1 and 2, a comprehension task was applied, in which Italian and Dutch informants had to judge the semantic and pragmatic plausibility of the meaning of 90 sentences:

- 60 plausible sentences containing a target metaphorical expression
- 30 non-metaphorical non-plausible sentences (fillers)

This processing experiment was constructed as a task in which participants had to judge the semantic plausibility of the sentences in order to discourage automatic processing without cognitive involvement, obtaining at the same time an estimate of comprehension of the target expressions at the sentence level. Participants performed the task autonomously, following the instructions written on the display. Instructions were written in Dutch for the Dutch participants and in Italian for the Italian participants. A welcome screen announced that the first task was a judgment task in which the participants had to decide as quickly as possible whether a number of (90) sentences were plausible or not, by pressing a green (plausible) or red (not plausible) button on the keyboard without sacrificing accuracy (see Appendix D).

The judgment task began with an explanation of the procedure and the presentation of examples of 'plausible 'and 'implausible' sentences. Participants

could become familiar with the software, by performing two trials, receiving feedback immediately on their responses to the stimulus sentences in these trials.

Each sentence appeared on the screen in two parts. The first part appeared automatically on the screen, while the final part of the sentences, containing the target expressions, appeared only after the participant had pressed any key of the keyboard (self-paced presentation).

Participants were asked to judge as soon as possible, after the second part of the sentence had appeared, whether the whole sentence had a plausible meaning, pushing a green or red button for 'plausible' or 'not plausible', respectively. For this purpose the 'm' key on the keyboard had a green label, corresponding to 'plausible', while the 'z' key had a red label, corresponding to 'not plausible'. See Appendix D for the complete text of the instruction for the comprehension test (plausibility-judgment task).

After the two familiarizing trials, the 90 stimulus sentences appeared in a different random order for each participant. The first part of the first sentence appeared as soon as the participant pressed the space bar. The first part of the other sentences appeared automatically as soon as the judgment decision of the preceding sentence had been executed. The software recorded reaction times from the moment that the second part of the sentence appeared on the screen to the moment that the green or red button was pressed. The following hypotheses were formulated with respect to performance in the comprehension task:

> **H1** Dutch participants will produce more correct responses (accuracy) and faster responses (speed) at higher levels of transferability.

> **H2** Dutch participants will process nominal collocations more correctly and faster than verbal collocations.

> **H3** Italian participants will be more accurate and faster than Dutch participants. No effect of transferability or syntactical configuration is expected.

4.4.2 Productive Knowledge Test I (fill-in-the-gap)

After the comprehension tasks, two further tasks were administered: a fill-in-the-gap test and a multiple-choice (MC) test. The tests were unexpected in the sense that participants, before they performed the comprehension task, had not been informed of the fact that two tests would be administered afterwards, testing recall (fill-in-the-gap) and recognition (multiple-choice) of the metaphorical expressions of the stimulus sentences of the comprehension task. In the fill-in-the-gap test, the 60 plausible sentences of the first task were represented in a different random order for each participant. The fill-in-the-gap test aimed at assessing participants' productive

knowledge (recall) of the metaphorical target structures after incidental processing. Although recognition tasks are supposed to be easier to perform than reproductive tasks, the fill-in-the-gap test was administered before the recognition test, in order to avoid a too strong implicit learning effect of the receptive test on the productive test.

The Italian participants performed a computer-administered fill-in-the-gap test in which the entire target expression, consisting of 2, 3, or 4 words had to be reproduced in the same context in which it had been first encountered in the comprehension task. Participants were shown the sentence on screen, containing a gap at the end (the place of the metaphorical expression), and were asked to type-in the words they thought were missing. After the comprehension task, the Dutch participants performed a facilitated (cued) version of the fill-in-the-gap task, where a cue was left in the target multi-word expression. (After the intentional learning task, they were given no cues in the fill-in-the-gap test, as described in section 4.4.4.) (See Appendix D for the instructions and the sentences of the cued and non-cued fill-in-the-gap tests.) The fill-in-the-gap test consisted of 60 items, the same 60 sentences that had been used in the comprehension test, with the target element in sentence-final position. Three hypotheses were formulated:

H4 Dutch participants will produce more correct responses (accuracy) at higher levels of transferability.

H5 Dutch participants will produce more correct responses on the items with nominal collocations than on the items with verbal collocations.

H6 The Italian participants will perform more accurately than Dutch participants. No effect of transferability or syntactical configuration is expected.

4.4.3 Receptive Knowledge Task I (Multiple Choice)

After the fill-in-the-gap test, Italian and Dutch participants performed a MC test in which they had to recognize the correct expression from a list of three expressions, offered as response alternatives: two distractors, and the correct response. The MC test consisted of 60 items, the same 60 sentences that had been used in the comprehension test, presented in random order. The MC test was computer-administered, so that both response accuracy and response speed were registered by the E-Prime software. The Italian participants performed the MC test only once. The Dutch participants performed the MC twice, before and after the intentional learning task.

See Appendix D for the instructions and sentences of the MC test. The following hypotheses were formulated:

H7 Dutch participants will produce more correct responses (accuracy) and faster responses (speed) at higher levels of transferability.

H8 Dutch participants will produce more correct and faster responses on the items with nominal collocations than on the items with verbal collocations.

H9 The Italian participants will perform better (accuracy and speed) than the Dutch participants. No effect of transferability or syntactical configuration is expected.

4.4.4 Intentional Learning Task

After the first receptive knowledge test, the 33 Dutch participants took part in a learning task that had not been announced earlier. The aim of the learning task was to make it possible to investigate the learnability of the target expressions measuring the influence of the independent variables 'transferability' and 'collocation type'. During the learning session, all 60 expressions were presented twice in random order in the same plausible-context sentences of the comprehension task. The target expressions were highlighted using a colour that was different from the preceding context. In the instruction screen (see Appendix D) participants were asked to learn the 60 expressions as well as possible. The participants could self-pace the presentation of the sentences but had only 20 minutes to learn all the target expressions. They were therefore advised to dedicate no more than 10 seconds to each single expression. In contrast with the procedure adopted for the comprehension task, participants were informed that after the learning session they would be tested on their retention of the target expressions.

4.4.5 Productive Knowledge Task II (Fill-in-the-gap)

After the intentional learning task, the same productive and receptive recall tests were administered that had been administered after the comprehension task session. This time, participants performed the same non-cued version of the fill-in-the-gap task that was administered to Italian participants. In this version, the entire target expressions, consisting of 2, 3, or 4 words had to be reproduced in the same context in which they were first encountered. It was expected that transferability and collocation type would affect intentional learning. The following hypotheses were formulated:

H10 Dutch participants will produce more correct responses at higher levels of transferability.

H11 Dutch participants will produce more correct responses on the items with nominal collocations than on the items with verbal collocations.

4.4.6. Receptive Knowledge Task II (Multiple Choice)

After the second productive knowledge test, participants took the same multiple-choice test that they had taken before. Both response accuracy and response speed were registered by the software (E Prime). The following hypotheses were formulated:

H12 Dutch participants will produce more correct responses (accuracy) and faster responses (speed) at higher levels of transferability.

H13 Dutch participants will produce more correct and faster responses on the items with nominal collocations than on the items with verbal collocations

4.4.7 Comparison Between Incidental and Intentional Learning

With respect to the differences in incidental and intentional learning of metaphorical expressions (in the group of Dutch participants) the hypothesis was:

H14 Intentionally learned metaphorical expressions will be more accurately recalled (fill-in-the-gap) and recognized (multiple-choice) compared with incidentally learned expressions.

4.4.8 Global Measures of L2 Proficiency

In order to obtain a rough estimation of their knowledge of Italian as an L2, Dutch participants also performed a paper-and-pencil language test in the form of a cloze test. The test was designed for this experiment and consisted of five short newspaper texts. The first one had been selected to be more easy than the rest, and the other texts had increasing levels of difficulty with a total of 100 gaps to be filled. The five sections had respectively, 19, 20, 20, 21, and 20 word gaps. The gaps occurred after (approximately) every eight words. Only fully semantic words (nouns, adjectives, verbs) were removed; therefore, the gaps occurred after seven or nine words. Appendix E provides the entire cloze test. The cloze test was first administered in a pilot to 33 Italian native speakers but, because the length of the session could have discouraged Italian participants of the main experiment, it was not performed with the test group.

4.5 Coding of Responses and Analyses

In the comprehension task, in which participants judged the plausibility of the stimulus sentences, the E-prime software recorded response speed in milliseconds (ms), i.e., from the moment that participants pushed the button for self-pacing the second part of the sentence to the moment that they pressed the green (plausible) or

red (not plausible) button on the keyboard. The time needed to read the first part of the sentence was also recorded in ms. Accuracy of the responses was recorded by the software as '1' for correct and '0' for incorrect responses. For the fill-in-the-gap task, the literal answers (the words that participants had typed) were recorded by the software and were scored manually afterwards by the author of this thesis: answers containing only correct words were scored with 1 = correct and answers containing one or more incorrect words were scored as 0 = incorrect. The answers in the multiple choice task were coded by the software, with 1 = correct and 0 = incorrect.

As will be reported in Chapter 5, the responses for each task were analyzed using analyses of variance (ANOVA) (see section 5.1) and with several regression models with mixed effects (see section 5.2). ANOVA was used to compare performance of the Italian and Dutch participants, and to compare Dutch participants' performances on the first and second administration of the fill-in-the-gap task and the multiple-choice task. Linear regression models with mixed effects were used to examine the effects of transferability and collocation type in the responses of the Dutch participants.

Chapter 5. Results

In this chapter, the results of my experimental study are reported. The chapter consists of two parts. In the first part (section 5.1) I will report how the native speakers of Italian (L1ers) and the Dutch learners of Italian (L2ers) performed in all tasks. In the second part (section 5.2) I present the results of statistical analyses testing the two hypotheses (pertaining to the role of collocation type and transferability in the performance of the L2ers), which form the essence of the study.

5.1 Validity of the Experimental Design

In this section, I report the performance of native speakers (L1ers) and non-native speakers (L2ers) in all tasks. I examined their performance with two goals in mind: (i) to assess whether the experimental tasks functioned as planned; (ii) to assess whether the tasks did not pose obstacles for the L1ers, as expected.

Some participants failed to perform one or two tasks. Of the 34 native speakers of Italian who performed the plausibility task, two participants failed the following multiple-choice (MC) task and one failed the fill-in-the-gap task. All 33 Dutch participants performed the plausibility task, the MC tasks and the fill-in-the-gap tasks. Two Dutch participants failed the cloze task, which served as a control variable.

Tables 5.1 through 5.8 provide descriptive statistics, with values for the mean (*M*), standard deviation (*SD*) and 95% Confidence Interval (CI). The 95% CI, which is expressed as the lower and upper limit, separated by a hyphen, provides the boundaries within which one would expect that the 'true' population mean will fall (Field, 2009: 43). Thus, the mean should be interpreted while taking the CI into account.

5.1.1 Plausibility Task

In the plausibility task, participants expressed their opinion about the question of whether the stimulus sentences expressed a plausible or implausible proposition, by pressing one of two keys on the keyboard. There were 90 items: 30 filler items, which required an 'implausible' response, and 60 items comprising metaphorical collocations, which required a 'plausible' response.

Response Speed

It should be remembered that for each stimulus sentence, the final element contained the target expression (the metaphorical expression in the 60 experimental items and the non-metaphorical expression in the 30 filler items). Each stimulus

sentence was presented first without the final element. After participants had read this incomplete carrier sentence, they pressed the space bar on the computer keyboard to continue. Upon this action, the target element was shown as well, so that participants could see the entire sentence and make their plausibility judgement. The software program registered both the speed with which the pre-target carrier sentence was read (latency from stimulus onset) and the speed with which the plausibility judgement was made (idem). All speed measures were recorded in milliseconds. However, given the fact that latencies were seldom shorter than 3 seconds, their values are reported not in milliseconds but in seconds (with tenths of seconds).

The reading times of the carrier sentences (without the final expressions) are given in Table 5.1. The figures in this table (and all following tables) pertain to the responses for the 60 experimental items, thus excluding responses for the 30 filler items. As expected, the L1ers performed this part of the task much faster than the L2ers (no overlap of 95% CI ranges). An Analysis of Variance (ANOVA) was performed with Language (L1 Italian vs. L1 Dutch) as the between-subject independent variable, showing a large effect size (.34) for this difference in response speed (η^2_p = .34; F[1,65] = 34.158; p < .001). Furthermore, a visual inspection of the mean response times do not appear to show an effect of collocation type (nominal vs. verbal) or of transferability (high, mid, low). This is a reassuring observation because collocation type and transferability did not play a role in the pre-target part of the stimulus sentences.

Table 5.1

Response Times (in Seconds) of the Pre-Target Carrier Sentences in the six Conditions of the Plausibility Task, for Native Italian Participants (L1ers) and Dutch Non-Native Participants (L2ers)

	L1ers (*n* = 34)			L2ers (*n* = 33)		
	M	*SD*	95% CI	*M*	*SD*	95% CI
Nominal collocations						
Transferability						
High	4.6	1.1	4.2–5.0	7.3	2.0	6.6–8.0

Mid	5.4	1.6	4.9–6.0	8.5	3.4	7.2–9.7
Low	4.9	1.2	4.5–5.4	7.7	2.5	6.8–8.6
Verbal collocations						
High	5.6	1.3	5.1–6.0	8.8	3.0	7.7–9.9
Mid	5.3	1.4	4.8–5.8	8.4	2.8	7.4–9.4
Low	5.1	1.7	4.5–5.7	7.3	2.4	6.4–8.2
All conditions	5.2	1.3	4.7–5.6	8.0	2.4	7.1–8.9

Table 5.2 shows the response times of the plausibility decisions with respect to the final part of the stimulus sentences, containing the metaphorical expression.

Table 5.2

Decision Times (in Seconds) of the Metaphorical Targets in the six Conditions of the Plausibility Task, for Native Italian Participants (L1ers) and Dutch Non-Native Participants (L2ers)

	L1ers ($n = 34$)			L2ers ($n = 33$)		
	M	*SD*	95% CI	*M*	*SD*	95% CI
Nominal collocations						
Transferability						
High	3.4	2.0	2.7–4.1	7.1	2.9	6.0–8.1
Mid	3.0	2.0	2.3–3.7	6.6	2.6	5.7–7.5
Low	3.3	2.3	2.4–4.1	7.2	2.9	6.1–8.2
Verbal collocations						
High	3.9	2.9	2.9–4.9	6.2	2.4	5.3–7.0
Mid	3.1	1.8	2.4–3.7	6.6	2.6	5.7–7.6
Low	3.2	3.0	2.2–4.3	6.9	2.9	5.9–7.9

All conditions	3.3	2.2	2.5–4.1	6.7	2.4	5.9–7.6

As expected, the L1ers decided much more quickly on the plausibility of the sentences than the L2ers, in fact twice as fast, on average (no overlap of 95% CI ranges). An ANOVA with language (L1 Italian vs L1 Dutch) as the independent variable produced a large effect size of .36 (η^2_p = .36; F[1,65] = 36.808; p < .001).

Filler Items

As for the 60 experimental responses, L1ers were twice as fast as L2ers in making a plausibility decision on the filler sentences. The mean decision time across all 30 filler items (i.e., correct and incorrect responses together) was 4.0 s (SD = 1.8) in the L1ers and 8.1 s (SD = 3.2) in the L2ers.

Correlations of the Speed Measures

The speed with which participants read the pre-target carrier sentences was moderately associated with the speed with which they judged the plausibility of the entire sentence (r = .54; p < .01; n= 67; 60 items). A high correlation was not expected because of the possibility of a trade-off between the time taken to read the carrier sentence and the time taken to make and execute the plausibility judgement. The speed with which participants judged the plausibility of the 60 experimental items (requiring a 'plausible' response) was strongly associated with the speed with which they judged the plausibility of the 30 filler items (requiring an 'implausible' response) (r = .90; p < .001; n = 67). A high correlation was indeed expected because participants had no knowledge of the various types of items comprising the plausibility task. The high correlation supports the conclusion that the task worked as designed and implemented.

Response Accuracy

Table 5.3 provides the average accuracy scores in the plausibility task with respect to the 60 target items. Accuracy in this case means that participants had accurately responded by pressing the 'plausible' key.

Table 5.3

Accuracy Scores (in %) in the six Conditions of the Plausibility Task, for Native Italian Participants (L1ers) and Dutch Non-Native Participants (L2ers)

	L1ers (*n* = 34)			L2ers (*n* = 33)		
	M	*SD*	95% CI	*M*	*SD*	95% CI
Nominal collocations						
Transferability						
High	91	13	86–95	74	20	67–81
Mid	94	10	90–97	78	15	72–83
Low*	89	14	84–94	65	20	58–72
Verbal collocations						
High	91	14	86–96	84	18	78–91
Mid	92	11	86–96	75	20	68–82
Low	91	13	87–96	63	18	57–69
All conditions	91	10	88–95	73	14	68–78

* Item 33 turned out to be a somewhat infelicitous item with respect to the semantic plausibility of the proposition.
Of the 34 L1ers, 21 deemed this sentence implausible; of the 33 L2ers, 12 deemed it implausible. The means in the
low-transferability nominal collocations condition in Table 5.3 are therefore based on nine items, i.e., with the responses of item 33 omitted. The mean accuracy scores in this condition, with item 33 included, are 84% (L1ers) and 65% (unchanged, L2ers).
A visual inspection of the mean accuracy scores of the L1ers, shows performance towards ceiling in all six conditions. Across conditions, the 95% CI values of the L1ers

and L2ers did not overlap. An ANOVA with language (L1 Italian vs L1 Dutch) as the independent variable showed that the difference in overall accuracy between 91% (L1ers) and 73% (L2ers) was reliable ($\eta^2_p = .37$; $F[1,65] = 38.190$; $p < .001$). This is a reassuring finding because I had anticipated that the items would pose no difficulty for L1ers with a high-school educational background.

Filler Items

The 30 filler items contained sentences expressing implausible propositions. On average, L1ers and L2ers correctly identified (respectively) 24.4 ($SD = 3.7$; 95% CI = 23–26) and 21.0 ($SD = 5.0$; 95% CI = 19–23) stimulus sentences as implausible. Thus, it is reassuring to observe that most L2ers were capable of correctly identifying most filler items as implausible (average 70%). Not surprisingly, however, the Italian participants were somewhat better at doing so (81%).

Correlations

Accuracy of performance in the 60 target items was positively associated with accuracy on the 30 filler items ($r = .34$; $p < .01$; $n = 67$).

5.1.2 Fill-in-the gap tasks

Table 5.4 shows the performance in the fill-in-the-gap tasks. The L1ers performed the task only once (in the non-cued version). The L2ers performed the task twice, first in the cued version (before the intentional-learning task) and later in the non-cued version (after the intentional-learning task). The fill-in-the-gap task administered immediately after the plausibility task was designed to come as a surprise to participants (unannounced recall test of incidental information processing). Responses in the fill-in-the-gap task were coded as correct only when all words of the metaphorical expression (that had appeared in the plausibility task) had been reproduced correctly. Given the fact that most items allowed for filling-in other correct expressions (other than the target expressions), producing semantically good Italian sentences, and given the fact that the fill-in-the-gap task came as a surprise to L1ers and L2ers alike (i.e., the first fill-in-the-gap task in the case of the L2ers), one should not be surprised to observe overall word-by-word recall accuracy of a modest 50% (L1ers), 42% (L2ers, cued), and 63% (L2ers non-cued) with rather high SD values. Appendix F provides the correct scores of the L1ers and L2ers (first and second test) for each of the 60 test items.

Table 5.4

Accuracy Scores in % in the six Conditions of the First and Second Fill-in-the-gap Task, for Italian (n = 33) and Dutch Non-Native Participants (n = 33)

Administration	After incidental processing (Comprehension task)						After intentional learning task		
Answer cues	Absent			Present			Absent		
Participants	L1ers			L2ers			L2ers		
	M	SD	95% CI	M	SD	95% CI	M	SD	95% CI
Nominal coll.									
Transferability									
High	44	23	35–52	32	25	23–41	57	32	45–68
Mid	49	22	42–57	50	25	41–59	65	28	55–75
Low	60	24	51–68	43	28	32–53	66	27	57–76
Verbal coll.									
High	46	22	38–54	45	24	37–54	65	29	54–75
Mid	49	20	42–56	45	28	35–55	63	29	52–73
Low	52	20	44–58	37	28	27–47	65	32	54–77
All conditions	50	18	43–56	42	24	34–50	63	27	54–73

Note. In the cued test, 87 words had to be supplied; in the non-cued test, 157 words had to be supplied (see Table 5.13 for details). The cued test was, thus, 'easier' than the non-cued test, meaning that, say, 50% in the non-cued test can be regarded as a higher performance than 50% in the cued test.

5.1.3 Multiple-Choice Tests

The multiple-choice (MC) tests, performed after the fill-in-the-gap tests, aimed at assessing participants' receptive knowledge of the metaphorical target structures that had figured in the plausibility task. MC tests are also referred to as recognition tests because the participant has to recognize the correct expression from a list of three expressions, offered as response alternatives: two distractors, and the correct response. The Italian participants performed the MC test once. The Dutch participants

performed the MC twice, before and after the intentional-learning task. The MC test consisted of 60 items; the same 60 sentences that had been used in the plausibility task. The MC test was computer-administered, so that both response accuracy and response speed were registered by the software.

As has been described in Chapter 4 (Methodology), for all tasks, 10 items had been constructed for each of the six (collocation type × transferability) conditions. However, miscommunication among the researchers caused a misassignment of stimulus sentences with conditions in the MC task. As a result, highly transferable nominal collocations comprised 9 items instead of 10.

First MC Test

Table 5.5 presents the accuracy scores of the first MC test. As expected, the L1ers performed towards ceiling ($M = 96\%$). Across conditions, no overlap of 95% CI ranges of the L1ers and the L2ers was observed. An ANOVA with language as the independent variable (L1 Italian vs. L1 Dutch) showed a large effect size (.23) for the overall accuracy difference between L1ers (96%) and L2ers (90%) ($\eta^2_p = .23$; $F[1,63] = 18.457$; $p < .001$).

Table 5.5

Accuracy Scores (in %) in the six Conditions of the First Multiple-Choice Task, for Native Italian Participants (L1ers) and Dutch Non-Native Participants (L2ers)

	L1ers ($n = 32$)			L2ers ($n = 33$)		
	M	*SD*	95% CI	*M*	*SD*	95% CI
Nominal collocations						
Transferability						
High	98	4	97–100	85	13	81–90
Mid	92	10	88–95	88	11	84–92
Low	94	8	91–97	88	11	84–92
Verbal collocations						
High	98	5	96–99	97	6	95–99
Mid	99	3	98–100	92	8	90–95

Low	98	5	96–100	92	10	88–95
All conditions	96	3	95–97	90	7	88–93

Table 5.6 shows descriptive statistics of performance speed. As expected, L1ers performed much faster than L2ers, in fact twice as fast on average. Across conditions, no overlap of the 95% CI ranges of the L1ers and L2ers was observed. An ANOVA with language as the independent variable (L1 Italian vs. L1 Dutch) showed that this difference in speed was reliable, with an effect size of .23 ($\eta^2_p = .23$; $F[1,63] = 19.559$; $p < .001$).

Table 5.6

Decision Times (in Seconds) in the six Conditions of the First Multiple-Choice Task, for Native Italian Participants (L1ers) and Dutch Non-Native Participants (L2ers)

	L1ers ($n = 32$)			L2ers ($n = 33$)		
	M	*SD*	95% CI	*M*	*SD*	95% CI
Nominal collocations						
Transferability						
High	5.6	2.2	4.8–6.4	9.5	4.1	8.0–11.0
Mid	5.5	3.3	4.3–6.7	8.2	3.4	6.9–9.4
Low	5.7	2.6	4.7–6.7	8.7	3.3	7.5–9.9
Verbal collocations						
High	5.4	2.0	4.7–6.2	8.0	2.8	7.0–9.0
Mid	5.2	2.1	4.4–6.0	7.8	2.7	6.8–8.8
Low	4.9	1.8	4.2–5.6	8.4	3.9	6.9–9.8
All conditions	5.4	2.2	4.6–6.2	8.4	3.1	7.3–9.6

First and Second MC Test Compared

As expected, the L2ers performed the MC test much better (at ceiling, in fact) when it was administered the second time, after the intentional-learning task (Table 5.7). The association between MC test 1 and MC test 2 was moderately strong ($r =$

.71; $p < .001$; $n = 33$). No overlap of the 95% CI ranges in the first and second MC test was observed. A repeated-measures ANOVA with time (first administration of the MC test, before intentional learning, vs. second administration, after intentional learning) as the independent within-subject variable showed that the improvement in overall accuracy from the first MC test (90%) to the second MC Test (97%) reflected a reliable effect of intentional learning ($\eta^2_p = .62$; $F[1,64] = 51.443$; $p < .001$).

Table 5.7

Accuracy Scores (in %) in the six Conditions of the First and Second Multiple-Choice Task, for Dutch Non-Native Participants (n = 33)

	First MC			Second MC		
	M	*SD*	95% CI	*M*	*SD*	95% CI
Nominal collocations						
Transferability						
High	85	13	81–90	96	8	93–99
Mid	88	11	84–92	95	9	92–98
Low	88	11	84–92	98	6	97–100
Verbal collocations						
High	97	6	95–99	98	5	97–100
Mid	92	8	89–95	96	8	93–99
Low	92	10	88–95	98	5	96–100
All conditions	90	7	88–93	97	5	95–99

Performance in the MC tests was generally high, and no items were found that only a minority of participants answered correctly. In MC test 1, the lowest correct score among L2ers was 55% (item 18). In MC test 2, the lowest correct score was

73% (item 55). The Cronbach's alpha reliability values were .77 (MC test 1, L2ers), and .82 (MC test 2, L2ers).

Table 5.8 shows the decision times of the Dutch participants while performing the MC test before and after the intentional-learning task. A repeated-measures ANOVA with time (first administration of the MC test, before intentional learning, vs. second administration, after intentional learning) as the independent within-subject variable showed that the improvement in overall response speed from the first MC test (8.4 s) to the second MC Test (4.3 s) reflected a highly reliable effect of intentional learning ($\eta^2_p = .82$; $F[1,64] = 144.280$; $p < .001$).

Table 5.8

Decision Times (in Seconds) in the six Conditions of the First and Second Multiple-Choice Task, for Dutch Non-Native Participants (n = 33)

	First MC			Second MC		
	M	*SD*	95% CI	*M*	*SD*	95% CI
Nominal collocations						
Transferability						
High	9.5	4.1	8.0–11.0	4.6	2.7	3.6–5.6
Mid	8.2	3.4	6.9–9.4	3.9	2.1	3.2–4.7
Low	8.7	3.3	7.5–9.9	4.4	2.5	3.5–5.3
Verbal collocations						
High	8.0	2.8	7.0–9.0	4.4	2.2	3.7–5.2
Mid	7.8	2.7	6.8–8.8	4.5	2.4	3.6–5.4
Low	8.4	3.9	6.9–9.8	4.1	2.3	3.2–4.9
All conditions	8.4	3.1	7.3–9.5	4.3	2.2	3.5–5.1

5.1.4 Cloze task

The cloze task (100 items) was administered to obtain a rough estimation of L2 proficiency in the Dutch participant group. The cloze task was performed by 31 of the

33 L2ers. The cloze task turned out to serve its purpose of discriminating among the L2ers very well: the Cronbach's alpha reliability coefficient was .93 ($M = 60$; $SD = 15$; min = 24; max = 86). Three items (items 5, 22, and 51) were answered correctly by all 31 subjects. Corrected item-total correlations were positive, except for three items, with correlations of -.04 (item 45), -.11 (item 47), and -.32 (item 81). The cloze task consisted of five sections (texts), with, respectively, 19, 20, 20, 21, and 20 word gaps. The first one had been designed to be easiest. Average correct scores were, respectively, 81%, 59%, 58%, 50%, and 54%.

5.1.5 Associations Between Tasks

For the Italian participants, no significant associations were obtained between the following three measures: accuracy in the 60 target items in the plausibility task, accuracy in the MC task, and accuracy in (non-cued) fill-in-the-gap task. This lack of association was expected because the L1ers' performance was expected to be at ceiling in the plausibility and MC tasks.

For the Dutch participants, various significant associations were obtained between several measures (Table 5.9). The highest correlations were found between identical or similar tasks: performance in the first and second MC task ($r = .71$; $p < .001$; $n = 33$) and performance in the first and second fill-in-the-gap task ($r = .87$; $p < .001$; $n = 33$). Performance across MC and fill-in-the-gap tasks was weakly associated, with r values ranging from .50 to .67. Performance in the cloze task was significantly (albeit modestly) associated only with performance in the two fill-in-the-gap tasks (cloze with first gap task: $r = .66$; $p < .001$; $n = 31$; cloze with second gap task: $r = .54$; $p < .01$; $n = 31$) but not with performance in the plausibility or MC tests. In the regression models (reported in section 5.2), cloze performance was included as a control variable. Performance in the plausibility task was weakly associated with performance in the first and second MC test.

Table 5.9

Correlations of Accuracy Scores Between Tasks in the Dutch Participant Group*

		MC 1	MC 2	Gap 1	Gap 2	Cloze
Plausibility	Pearson's r	.45	.35	.34	.22	.31
	Sig. (2-tailed)	.009	.043	.052	.215	.087
	N	33	33	33	33	31
MC 1	Pearson's r		.71	.67	.50	.27

	Sig. (2-tailed)	.000	.000	.003	.148
	N	33	33	33	31
MC 2	Pearson's r		.55	.67	.17
	Sig. (2-tailed)		.001	.000	.347
	N		33	33	31
Gap 1	Pearson's r			.87	.66
	Sig. (2-tailed)			.000	.000
	N			33	31
Gap 2	Pearson's r				.54
	Sig. (2-tailed)				.002
	N				31

*Performance was computed on the basis of 100 responses in the cloze test and 60 responses in the plausibility, MC, and gap tests.

5.1.6 Interim Conclusions Concerning Task Validity, Performance of the L1ers, and Intentional Learning

With respect to task validity, I conclude that all tasks functioned as planned. As anticipated, the plausibility task posed no obstacles for L1ers, but was fairly difficult for the L2ers in terms of response accuracy as well as response speed.

The fill-in-the-gap task, administered immediately after the plausibility test, had been designed as a (productive) recall test of incidental information processing. L1ers and L2ers alike were surprised by this recall task, and therefore their performance had not been expected to be high. Nonetheless, I had expected that the L1ers would perform better than the L2ers. This expectation was supported by the findings.

The multiple-choice test, administered immediately after the first fill-in-the-gap task, had been designed as a (receptive) recognition test of incidental information processing. L1ers and L2ers alike were (again) surprised by this recognition task. This task involved selecting, from three expressions, the expression that was identical to the expression that had been presented in the plausibility task. We had expected that this task would be easier for L1ers than for L2ers, with respect to both response accuracy and response speed. These expectations were supported by the findings.

With respect to the effect of the intentional-learning task, performed by the L2ers, the expectation was that this task would boost L2ers' performance. Reliable intentional-learning effects were indeed observed: from the first to the second multiple-choice test, response accuracy increased and response speed decreased substantially. A direct comparison between performance in the first and the second

fill-in-the-gap task was not possible because response cues were given in the first test but not given in the second test. Yet, performance improved from 42% correct in the easier cued version to 63% correct in the more difficult non-cued version. This increase was evidently the result of intentional learning.

The cloze task proved to be reliable, exhibiting the required potential for serving as a control variable in the regression models. This will be reported in section 5.2.

In summary, the design of the experiment had been successful in terms of task validity, performance of the L1ers, and the effect of intentional learning. In the following section we turn to the question of whether collocation type and transferability of the task items had affected performance of the L2ers.

5.2 Effects of Collocation Type and Transferability in Performance of the L2ers

This part of Chapter 5 presents the results of several generalized mixed effect models and linear regression models with mixed effects, with which I aimed to test the hypotheses presented in Chapter 4, concerning effects of Collocation Type and Transferability in the performance of the Dutch participants (L2ers). To briefly recap, these hypotheses concerned the main aim and essence of the experimental study. I had expected that Collocation Type (nominal > verbal) and Transferability (high > mid > low) would affect behavior of the L2ers in the plausibility task, the two fill-in-the-gap tasks, and the two multiple-choice tasks.

All analyses reported in this section were carried out in R (R Core Team, 2015) using the lme4 package (Bates, Maechler, Bolker & Walker, 2015) where needed. The aim was to keep the model as fully specified as possible by including random intercepts for participants and items, as well as all within-participant and within-item factors as random slopes for participant and item (Barr, Levy, Scheepers & Tily, 2013). The maximal random effect structures are reported, justified by the data (Jaeger, 2009). To solve other issues of non-convergence, the number of possible iterations was increased to 100,000 (Powell, 2009). Wald confidence intervals were calculated (Agresti & Coull, 1998).

For all accuracy measures, generalized logistic regression models were conducted which took the responses on the task (1 for a target answer, 0 for non-target answer) as a dependent variable. For all decision time measures, linear regression models were conducted, which took the log values of this decision time as the dependent variable. Because decision times (the dependent variable) are always skewed towards one side, their distribution had to be normalized in this manner.

For every model, Collocation Type was a within-participants fixed effect, Transferability a within-participants fixed effect and Cloze a between-participants

control variable. Participant was a between-participants random effect, and item was a within-participants random effect. Collocation Type and Transferability were included as random slopes for participant, because they were within-participant fixed effects. Their interaction was not included as a random slope, because none of the models would then converge when this interaction was included. Cloze was included as a random slope for item, because it was a within-item fixed effect.

Furthermore, orthogonal sum-to-zero contrast coding (Baguley, 2012) was applied to the binary fixed effect 'Collocation Type' (contrast: nominal vs verbal), (2) and to the ternary fixed effect 'Transferability' (contrasts: high vs low, and high/low vs moderate). The continuous variable 'Cloze' was also centered (Babyak, 2009).

5.2.1 Plausibility Task Performance accuracy

For ease of reference, the columns from Table 5.3 pertaining to performance of the L2ers are reproduced here as Table 5.10.

Table 5.10

Accuracy Scores (in %) in the six Conditions of the Plausibility Task, for Dutch Non-Native Participants (L2ers)

	L2ers ($n = 33$)		
	M	*SD*	95% CI
Nominal collocations			
Transferability			
High	74	20	67–81
Mid	78	15	72–83
Low	65	20	58–72
Verbal collocations			
High	84	18	78–91
Mid	75	20	68–82
Low	63	18	57–69
All conditions	73	14	68–78

Results.

The first model looked at accuracy on the plausibility task, and showed only one significant fixed effect, an effect of Transferability (High versus Low): ($OR = 0.937$; 95% CI = [0.386, 1.488]; $z = 3.336$; $p < .001$). With respect to performance in the two Mid Transferability conditions, Table 5.10 shows that the 95%CI values of the Mid Transferability conditions are closer to the 95%CI values of the High Transferability conditions than to the 95%CI values of the Low Transferability conditions. (In fact, in the case of Nominal Collocations, the Mid values are even higher than the High values.) However, the regression model did not prove this difference to be significant ($OR = 0.271$; 95% CI = [-0.161, 0.704; $z = 1.230$; $p = .21$). No significant fixed effect of Collocation Type was found nor a significant interaction between Collocation Type and Transferability. Performance on the Cloze test did not affect the Collocation Type or Transferability outcomes. In conclusion, the Collocation Type hypothesis was not supported and the Transferability hypothesis was supported only with respect to the difference between High and Low Transferability items.

Response speed

For ease of reference, the columns in Table 5.2 pertaining to performance of the L2ers are reproduced here as Table 5.11.

Table 5.11

Decision Times (in Seconds) of the Metaphorical Targets in the six Conditions of the Plausibility Task, for Dutch Non-Native Participants (L2ers)

	L2ers ($n = 33$)		
	M	*SD*	95% CI
Nominal collocations			
Transferability			
High	7.1	2.9	6.0–8.1
Mid	6.6	2.6	5.7–7.5
Low	7.2	2.9	6.1–8.2
Verbal collocations			
High	6.2	2.4	5.3–7.0
Mid	6.6	2.6	5.7–7.6
Low	6.9	2.9	5.9–7.9

| All conditions | 6.7 | 2.4 | 5.9–7.6 |

Results

The linear regression model did not produce significant effects of Collocation Type, Transferability, or Cloze performance. However, one three-way interaction was found between Collocation Type, Transferability and Cloze (β = 0.014; 95% CI = [0.004…0.025]; t = 2.76). This means that the difference between nominal and verbal collocations is somewhat larger in the case of High-Transferability items (in comparison to Low-Transferability items) for participants with higher scores on the Cloze test than for participants with lower scores on the Cloze test. All other two-way and three-way interactions were insignificant. I decided not to attribute importance to the one significant three-way interaction because it is too remotely related to my hypotheses.

A similar linear mixed model was also carried out on the (log-transformed) reading times of the pre-target carrier sentences (see Table 5.1). Obviously, no effects of Collocation Type or Transferability had been predicted because the metaphorical expressions whose plausibility had to be judged did not yet figure in the carrier sentences. This model produced a significant effect only of Cloze test performance (β = -0.007; 95% CI = [0.0129…- 0.0026]; t = -2.98; CI = [0.004…0.025]), meaning that a higher score on the Cloze test was associated with faster decision times in reading the carrier sentences of the Plausibility task.

5.2.2 Fill-in-the gap Tasks

For ease of reference, the columns from Table 5.4 pertaining to performance of the L2ers are reproduced here as Table 5.12. An item analysis did not show that the number of very difficult items or very easy items differed substantially by condition (see Appendix F for details).

Table 5.12

Accuracy Scores in % in the six Conditions of the First and Second fill-in-the-gap Task, for Dutch Non-Native Participants (n = 33)

Administration	After incidental processing (Comprehension task)				After intentional learning task			
Answer cues	Present					Absent		
	Gaps	*M*	*SD*	95% CI	Gaps	*M*	*SD*	95% CI
Nominal coll.								
Transferability								
High	10	32	25	23–41	23	57	32	45–68
Mid	12	50	25	41–59	24	65	28	55–75
Low	15	43	28	32–53	27	66	27	57–76
Verbal coll.								
High	16	45	24	37–54	28	65	29	54–75
Mid	17	45	28	35–55	28	63	29	52–73
Low	17	37	28	27–47	28	65	32	54–77
All conditions	87	42	24	34–50	157	63	27	54–73

Note. In the cued test 87 words had to be supplied; in the non-cued test 157 words had to be supplied.

Results

The generalized mixed effect models of the first fill-in-the-gap task showed no significant fixed effects of Collocation Type or Transferability. However, a significant effect was obtained for Cloze performance (*OR* = 0.063, 95% CI = [0.0367, 0.0893], *z* = 4.703, *p* < .0001). Note that both the fill-in-the-gap task and the cloze task require a productive gap filling behavior. This may explain the effect of the Cloze task. Mean values in the two Mid Transferability conditions of the first fill-in-the-gap task (50% and 45% correct) are higher than the mean values in the two High Transferability and

the two Low Transferability conditions (43% and 37% correct). The regression model showed a trend towards statistical significance of this pattern ($z = 1.744$, $p = .08$).

The model of the second fill-in-the-gap task showed no significant effects of Collocation Type or Transferability. However, again, a significant effect was obtained for Cloze performance ($OR = 0.069$, 95% CI = [0.0331, 0.1051], $z = 3.759$, $p < .0001$).

In sum, in the two gap-filling tasks no evidence was observed for the hypothesized effects of Collocation Type (Nominal > Verbal) or Transferability (High > Mid > Low). Recall that the regression models were run on responses that were completely correct (all words of a metaphorical expression had to be correct for the response to be coded as correct). We will return to this point in Chapter 6.

5.2.3 Mutiple-Choice Tasks

For ease of reference, Table 5.7 is reproduced here as Table 5.13.

Table 5.13

Accuracy Scores (in %) in the six Conditions of the First and Second Multiple-Choice Task, for Dutch Non-Native Participants (n = 33)

	First MC			Second MC		
	M	*SD*	95% CI	*M*	*SD*	95% CI
Nominal collocations						
Transferability						
High	85	13	81–90	96	8	93–99
Mid	88	11	84–92	95	9	92–98
Low	88	11	84–92	98	6	97–100
Verbal collocations						
High	97	6	95–99	98	5	97–100
Mid	92	8	89–95	96	8	93–99
Low	92	10	88–95	98	5	96–100
All conditions	90	7	88–93	97	5	95–99

Results

A visual inspection of the *M* values (first MC test) shows that performance in the nominal collocations (85%, 88%, and 88%) was lower than performance in items with verbal collocations (97%, 92%, and 92%). The regression model proved this difference to be significant. A significant fixed effect of Collocation Type was observed (*OR* = 1.213; 95% CI = 0.4465–1.9813; *z* = 3.100; *p* < .001). No other significant main effects or interaction effects were obtained. Thus, while it had been hypothesized that performance in items with nominal collocations would be higher than performance in the items with verbal collocations, a significant effect of the opposite was observed.

Mean accuracy scores for performance in the second MC test (after participants had intentionally learned the 60 metaphorical expressions) were at ceiling, ranging between 95% and 98%. For this reason, no generalized linear regression model could be run. Apparently, collocation type and transferability of the metaphorical expression did not play a differential role in the success of the intentional learning task.

Response Speed in the MC tasks

Two linear mixed effect models were run, for the first and second MC tests separately, with the (log-transformed) response times as the dependent variable. (Descriptive statistics where shown in Table 5.8.) No significant effects were observed in the model of the first MC. However, the *t* value of the control variable Cloze test performance (*t* = -1.86) approached the critical value of 2.0, suggesting that participants with high cloze test scores showed a trend towards responding more quickly in this MC test. The linear model of the response times in the second MC test showed no significant effects of Collocation Type or Transferability, but the role of control variable Cloze test performance was more prominent in this model, with *t* = 2.20.

5.2.4 Summary of the Findings With Respect to the Effects of Collocation Type and Transferability

The findings reported in section 5.2 did not provide evidence for the hypothesis that it would be easier to process and learn nominal collocations than verbal collocations. In fact, one regression model (accuracy scores in the first Multiple-Choice test) showed an opposite effect (verbal > nominal collocations).

The findings provide some evidence that it would be easier to process high-transferability expressions than mid-transferability expressions and mid-transferability expressions than low-transferability expressions when the plausibility of the sentence has to be judged. In the Plausibility task, participants deemed a

sentence with a high-transferability expression significantly more often plausible than a sentence with a low-transferability expression.

The linear regression models of the response times in the Plausibility task produced a significant three-way effect of Collocation Type, Transferability, and Cloze. We do not attribute importance to this finding, because it is not related to our hypotheses.

In the first fill-in-the-gap task, mean values in the two Mid Transferability conditions were higher than the mean values in the two High Transferability and the two Low Transferability conditions. The regression model showed a trend towards statistical significance of this pattern. The Mid > Low finding might therefore be interpreted as support of the Transferability hypothesis but the Mid>High clearly not. I conclude that no empirical support was obtained for the hypothesis that transferability would affect recall of expressions in a surprise recall test of incidental learning.

Similarly, in performance on the first multiple-choice task, which served as a surprise recognition test of incidental learning, no effects of Collocation Type or Transferability were observed.

Performance in the second fill-in-the-gap and the second multiple-choice task was at ceiling. Apparently, the effect of intentional learning left no room for effects of Collocation Type and Transferability to emerge. The next chapter provides a discussion of the findings.

Chapter 6. Discussion and Conclusions

6.1 Introduction

Within the framework of conceptual metaphor theory (Lakoff & Johnson, 1980), the purpose of this study was to obtain a better understanding of some factors that might influence comprehension and learning of conventional metaphorical expressions in L2.

The main research questions of the study concerned: (a) the role of conceptual and linguistic transferability of L2 metaphorical expressions in comprehending and learning such expressions; (b) the role of one syntactic property (collocation type) of L2 metaphorical expressions in comprehending and learning such expressions; and (c) the effect of an incidental or intentional learning modality in the retention of L2 metaphorical expressions. The findings with respect to tranferability, collocation type, and intentional learning will be summarized and discussed in, respectively, sections 6.2, 6.3, and 6.4.

An experimental study was conducted, in which 33 non-native speakers of Italian (L1 Dutch) and 34 native speakers of Italian (L1 Italian) participated. All participants had a high level of education, meaning that they could be assumed to be familiar with a fair number of metaphorical expressions in their first languages. A series of comprehension and learning tasks was administered to the participants, in individual sessions. For these tasks, 60 Italian multi-word conventional metaphorical expressions were selected and divided in three main categories based on their level of transferability: expressions that were equivalent at both the conceptual and the lexical level in L1 and L2 were classified as 'highly transferable' expressions; expressions that were similar at the conceptual level but linguistically different in L1 and L2 were classified as 'moderately transferable'; and expressions that had no conceptual and linguistic equivalent in L1 were classified as 'low transferable'. The expressions were classified also according to the two syntactic frames of nominal and verbal collocations, the second main variable of the experiment. All expressions were presented in the context of meaningful sentences written in formal standard Italian.

The first task of the experiment was a comprehension task in which participants had to judge the plausibility of 90 sentences, 60 of which were sentences containing metaphorical expressions and 30 of which were filler sentences. This task was followed by a recall task (fill-in-the-gap) and a recognition task (multiple choice). These two tasks were unannounced because they were designed to measure the possible incidental-learning effect of the comprehension task. The third part of the experiment consisted of an intentional learning session followed by a recognition and a recall task. These tasks aimed to assess the effect of intentional learning on recall and recognition of the same metaphorical expressions.

6.2   Transferability in Understanding and Learning of Metaphorical/Figurative Expressions

The first aim of the study was to ascertain the effect of conceptual and lexical transferability from L1 on the processing and learning of conventional metaphorical expressions. The main transferability hypothesis was that L1 transfer could enhance comprehension and learning of L2 expressions. This was partially supported by the results of the comprehension task, which showed a higher level of accuracy in the comprehension of high- and mid-transferable expressions than in the comprehension of low-transferable expressions (section 5.2.1). As expected, the accuracy in the comprehension task of conceptually similar expressions (high- and mid-transferable expressions) was higher than in the low-transferable expressions. According to the transferability hypothesis, I expected a lower response accuracy for those expressions that were classified as low-transferable. These results are in line with recognition studies on L2 collocations (Wolter & Gyllstad, 2011, 2013; Yamashita & Jiang, 2010), which found evidence that L2 collocations that had an equivalent form in L1 were processed faster than non-equivalent collocations. This sensitivity to L1 during comprehension in L2 suggests a high degree of activation of L1/L2-equivalent sequences. Interestingly, the data show that sentences containing conceptually but not lexically similar expressions (moderately transferable expressions) were more often correctly judged as congruent than sentences containing low-transferable expressions. Furthermore, the accuracy scores of the moderately transferable expressions were very close to those of the high-transferable expressions (see Table 5.1). The data suggest that L2 participants were able to make sense of the expressions in the context of the sentence even when the L2 lexical form was not identical in L1. The fact that this was not the case for the low condition, in which the lexical form did not activate already stored information, suggests that in comprehension of high and mid-transferable expressions, the activation of literal meaning strongly facilitated comprehension. This is in line with Giora's graded salience hypothesis (1997, 2003), according to which salient meanings are more easily accessible, and with Cieślicka's (2006) literal-salience model of L2 idiom comprehension, according to which understanding L2 idioms relies on the computation of the literal meanings of their constituent words. On the other side, it is possible that, together with literal high or moderate equivalence, the fact that both high- and moderately transferable expressions were conceptually similar in Italian and Dutch could have enhanced comprehension. The findings do not allow to formulate strong conclusions, and the hypothesis that conceptual metaphors entrenched in L1 can facilitate the comprehension of conceptually related L2 expressions is only partially supported by priming psycholinguistic studies on L1 metaphors (Lai et al., 2009; Lay & Curran,

2013). Further research is necessary in order to investigate a possible role of conceptual metaphor transfer from L1 to L2.

The transferability hypothesis was not supported by participants' performance in the incidental learning tasks. Performance in the first fill-in-the gap test was generally low at all transferability levels (42% correct, Table 5.4) showing that the recall of the expressions that had been presented in the comprehension task was difficult also for those expressions that were lexically identical (*highly transferable*) or similar (*moderately transferable*) in L1 and L2. The fact that performance of the Italian participants was also rather modest (50%, Table 5.4) suggests an extremely high level of competition between items at the moment that both the L1 and the L2 participants tried to retrieve them from memory. Several studies on L2 idiom comprehension and production (see Cieślicka, 2015, for an overview) showed that linguistically equivalent idioms in L1 and L2 were easier to understand but more difficult to recall in productive tasks. This interference is likely due to the automatic and simultaneous activation of words' meanings in L1 and L2, with a suppression effect as a consequence.

In the first fill-in-the-gap task, Dutch participants performed better in recalling moderately transferable than high-transferable nominal collocations, while the average scores of high and mid-transferable verbal collocations were equal. Across the two collocation types, mid-transferable collocations were better recalled than low- and high-transferable collocations. The analysis showed also a moderate trend towards statistical significance of this pattern.

In order to get a better insight in the factors that may have influenced these results, I conducted a fine-grained analysis of the data, observing errors and words that were better recalled in the first fill-in-the-gap task. The scores of the Dutch participants in the first fill-in-the-gap task, reported in Table 5.4, are based on a binary scoring of the responses. A response was coded as correct only when all gaps were filled in with the original words, in the correct form and spelling. Later, I also coded the responses in a more lenient manner. First, slight deviations of form or spelling (for example *appiatta**m**ento* instead of *appiatt**i**mento*) were coded as correct. Second, if more than one word had to be filled in (in the verbal collocations; see Appendix B), each gapped word earned one point. Third, if an acceptable synonym had been filled in (e.g., *campo* for the original *terreno*), this was coded as correct. Table 6.1 provides the results of this additional coding, with correct percentages summed up over all participants, averaging the two High-, Mid-, and Low-Transferability conditions (i.e., across the nominal and verbal collocations).

Table 6.1

Percentages of Correct Answers, Lenient Coding in the First Recall Test

Levels of Transferability	Correct/Semantically Acceptable Responses (%)
High	47.4
Mid	48,3
Low	39,4

The results show that the percentages of correct answers of the high and moderately transferable expressions were very close to each other, and that both were higher than the percentage of correct low-transferable answers.

A closer observation shows that, not surprisingly, the target words that were best recalled were all perceptually salient, as indicated in Table 6.2:

Table 6.2

Best Recalled Target Words in the First Recall Test

Number of correct Recalls (on 33)	Single Words	Transferability
31	mano	mid (dare una mano)
30	mani	low (mani in mano)
30	luce	high
28	mani	low
26	punto	mid
24	macchina	mid
24	terremoto	mid

An examination of the words worst recalled shows that they were present in all levels of transferability, as the examples in Table 6.3:

Table 6.3:

Target Words That Obtained the Lowest Number of Correct Answers in the First Recall Test

Good Answers (on 33)	Single Words	Transferability
5	appiattimento	high
6	marcia	low
7	tortuosi	mid
8	ancora	low
11	ginocchio	mid

The factors that are likely to have influenced the recall of words like those shown in Table 6.3 were morphological complexity (*appiattimento*, *tortuosi*, *ginocchio*) and lower frequency (*marcia, ancora*).

The discrepancy between the results of the comprehension task and the recall test suggests that while L1 facilitates processing of metaphorical expressions in comprehension when the expression is embedded in a plausible context, later recall of the correct L2 lexical form may have been influenced by several factors, such as competition, concreteness, imageability and morphosyntactic complexity of the items. All these factors should be considered in the design of future empirical research on metaphorical collocations.

In the recognition test that was performed immediately after the recall test, L1 participants performed at ceiling (96% correct, Table 5.5). Also, performances of Dutch participants were rather high in the first multiple-choice task. In this task, no effect of transferability could be observed, and verbal collocations were better recognized than nominal collocations, against our hypothesis. In this task, response speed of Dutch participants was positively associated with the cloze test performance, suggesting that learners' level of proficiency facilitated recognition of the right expressions. As we will see in section 6.4, incidental learning effects that were already observable in the first MC test were boosted by the effect of intentional learning in the second MC test.

The fact that in the recognition test that was performed immediately after the recall test L2 participants were better in recognizing the correct expressions (90% correct, Table 5.5) than in recalling them (24% correct, Table 5.4) suggests that the previous encounter with the expressions in the sentential context had left a lexical trace in their memory. This trace was apparently strong enough to reject the two competing

distractors. The correlation of Cloze test performance and reaction speed (section 5.2.3) shows that performance in the recognition task was enhanced by L2 proficiency.

6.3 Syntactic Configuration in Processing and Learning of Metaphorical Expressions

The possible influence of syntactic constructions on processing and learning of metaphorical expressions in L2 was never explicitly investigated in previous metaphor research, but was observed, in passing, in some studies. For example, in a priming experiment, Ellis (2009) found that frequent verb-argument collocations had a processing advantage on other items; in a learning experiment, Peters (2016) found that noun-adjective collocations were better retained than verb-noun collocations. In the present study no significant differences in processing or learning of nominal or verbal metaphorical collocations were observed. It must be said that the way in which our fill-in-the-gap test data were analyzed, counting only the entire correct expressions as units and not the single component words (section 4.5), might have neutralized possible differences between the two conditions, not allowing for a more fine-grained examination of the recall responses of the nominal and verbal collocations. For instance, an Italian nominal collocation can be formed by noun + preposition + article + noun, such as in 'battaglia delle idee' (battle of the ideas). The metaphorical head of the expression is connected with the second noun by a preposition + article and it is possible that a Dutch learner remembers the first semantically and perceptually salient word *battaglia* better than the more abstract word *idee* or the non-salient word *delle*. Moreover, L2 prepositions in multi-word units are a frequent source of errors. In contrast, nominal collocations are syntactically more fixed and less linguistically variable than verbal collocations that have to fit in the sentence with the correct verbal morphology, potentially generating more grammatical errors. This means that a single error, such as an interference with a L1 preposition was enough to render an entire response invalid. A coding, based on single words responses, would have given a more detailed result.

6.4 Incidental and Intentional Learning of Metaphorical Expressions

After the plausibility judgement task, the (unexpected) recall task showed a poor performance by the Dutch informants (24% correct overall, Table 5.4). This result is

likely to be due to multiple factors. First, during the processing of the complete sentence for meaning, the main focus of the attention, in order to give a correct answer about its plausibility, was on the overall conceptual meaning of the sentence and not on the linguistic form of the metaphorical expressions that conveyed its meaning. This is what happens when advanced learners incidentally encounter metaphorical expressions. In addition, the low recall performance was probably also due to the obvious difficulty of remembering a large number of different expressions in sentences, extrapolated from different situational contexts, with a high level of competition between items. This competition effect is supported by the modest performance of the Italian participants (50% correct overall, Table 5.4), who performed nevertheless, as expected, better than the Dutch group.

As previously mentioned, the performance in the first recognition test (90% correct overall, Table 5.5) was more encouraging than performance in the recall test, suggesting that a certain amount of incidental learning had taken place. Note, however, that, as was mentioned in section 4.3, the design of this study, not comprising a pretest (assessing participants' knowledge of the 60 target expressions), precluded the observation of evidence of genuine incidental learning, i.e., ruling out the effect of pre-knowledge. In principle, correct responses in the first recall and recognition tasks might have been based on either existing pre-knowledge or on incidental learning during performance of the plausibility task. Because I did not want to orient participants' attention to the existence of the target expressions by administering a pretest, I had to accept the fact that correct responses in the first recall and recognition tasks might be given on the basis of familiarity with the expressions before participatation in this study rather than through incidental learning. Thus, this study should not be seen as a proper study of incidental learning (exclusively), but rather as a study of the roles of transferability and collocation type in performance of tasks assessing knowledge, either recently gained (through the plausibility tasks) or acquired earlier. The main finding is that no such effects of transferability or collocation type were found, even though there was sufficient room for finding such effects (24% and 90% overall accuracy in the first recall and recognition tasks, respectively).

Intentional Learning

In general, after the intentional learning task, performance in both the fill-in-the-gap and the multiple-choice task showed a significant and reliable effect of intentional learning, with a general increase in accuracy, and a decrease in response speed times, in comparison with performance in these tasks administered the first time (Tables 5.4, 5.7 and 5.8). Although the economy of the study did not allow the administering of a delayed post test to establish a long-term learning effect, the data are very reassuring as regards the learnability of the expressions as a whole: 63% accuracy in the second

recall task (Table 5.4) and 97% accuracy in the second recognition task (Table 5.7). Additionally, the data from the second (non-cued) fill-in-the-gap test confirm an increased memorization of the correct sequences of words, and at the same time, the correct conceptual association of a metaphorical expression with the right sentential context. I had expected that learning 60 expressions in just 15 minutes would constitute too tall an order for all expressions to be learned. I had therefore expected that a low-transferable expression would be recalled and recognized less well than mid- and high-transferable expressions. It turned out, however, that this was not the case (Table 5.4). On average, participants recalled 63% of the metaphorical expressions, regardless of their transferability.

The results of the intentional learning tests showed, in both the second fill-in-the-gap task and the MC task, no significant effect of transferability or collocation type. However, in the fill-in-the-gap task a significant association with the L2 linguistic competence of the cloze test was observed

The cloze test, which was included as a control variable in the regression model to obtain a rough estimation of participants' L2 proficiency, was positively associated with both fill-in-the-gap tasks. This is likely due to the fact that the fill-in-the-gap task was the only real productive task of the experiment, and both tasks measured the same ability to put the right word forms in a meaningful context, together with their grammatical and syntactic properties.

6.5 Strengths, Limitations, and Suggestions for Future Research

The design of the experiment was successful in terms of task validity, performance of the L1 participants, and the effect of intentional learning (section 5.1.6). The assumption that L1 transfer plays a role in comprehension was confirmed by the results of the comprehension task, which showed a significant difference in performance between high- and low-transferable expressions. The assumption that transferability was gradable, based on conceptual or formal similarity, was also confirmed by the performance of what we classified as high-, moderately, and low-transferable items. In fact, the levels of performance in comprehension with high- and moderately transferable expressions were both higher than those with expressions that did not show any lexical and conceptual similarity with the learners' L1. However, it was also evident from the subsequent tasks that transferability no longer played a role in recall and recognition. Psycholinguistic factors, such as competition between items, and items' properties, such as imageability may have affected recall. This multiplicity of factors should be taken into account in the design of further research. The task of recalling incidentally learned collocations and producing a large number of expressions in this study was very demanding, also for native speakers. This may be due to the high competition between items in production, combined with the high

number of items. A suggestion for further research could be to randomly assign a more limited number of items to each participant with a repeated exposure to items in different sentences in order to measure the effect of frequency.

The design of the present study showed that intentional learning activities were effective in enhancing learning of expressions with different levels of transferability, neutralizing every effect of L1 transfer. However, the design did not include a measurement of the learning effects of intentional learning after a certain period of time. A suggestion for further research is to study the effect of intentional learning training for a longer period of time with both receptive and productive tasks. Although the present study was not intended explicitly as a contribution to second language instruction, the results lead to some implications and recommendations for L2 learning. First, comprehension activities in which attentional resources are directed to meaning do not automatically lead to the learning of linguistic forms. Therefore, it would be better if they were followed by activities in which explicit attention for the linguistic properties is required.

Although the pragmatics of metaphors in use is a very relevant aspect of second language learning, production of metaphors in real communicative tasks was only indirectly addressed in the present study, which focused on comprehension and recall of L2 metaphorical expressions in the initial stage of learning, which is a necessary pre-condition for a pragmatically successful productive use of metaphor in L2. Nevertheless, it would have been interesting to measure the retention and production of metaphors with a task that also involved the productive use of metaphorical expressions in specific situations, although the direct treatment of this issue would have required a completely different design. A longitudinal research design, involving differentiated learning and productive tasks, might lead to a better understanding of long-term memory mechanisms involved in L2 metaphor representation, learning, and use in L2.

6.6 Conclusions

In the present study, the hypothesis concerning the role of L1 transfer in comprehension and learning of metaphorical expressions in L2 was only partially supported by the results of the comprehension and learning experiment conducted with L2 Dutch learners of Italian. L1 transfer could only be observed in the comprehension task but not in the recall task. The study could not provide support for the hypotheses that verbal and nominal metaphorical collocations were substantially differently processed and learned by L2 learners. It must be said that this was the first time that this hypothesis was experimentally measured. Although the study of incidental and intentional learning of metaphors was not the main aim of the study,

the design of the experiment allowed to observe a great increment in performances of L2 learners after intentional learning of the expressions. Metaphorical expressions are extremely effective and powerful in spoken and in written language. They are useful in order to speak about abstract concepts and perform various functions in language. The learning of L2 conventional expressions is important in order to achieve a high or native-like level of proficiency. On the other hand, metaphorical conventional expressions are not the only way to express, with precision, abstract or complex concepts. They represent a deliberate 'idiomatic choice' that the speaker uses in order to fulfil a certain pragmatic goal, but a metaphorical expression can easily be replaced with a literal equivalent. This makes metaphorical expressions somehow elusive for the L2 learner who attempts to widen his or her vocabulary through reading and listening activities, relegating them to a marginal position in the curricula, so that they are mostly learned incidentally (if at all) in the course of reading and listening activities. As they are an important pragmatic device and an indicator of the ease with which an L2 speaker expresses herself or himself, it is worthwhile to include them explicitly in the L2 curricula. Incidental learning should therefore be reinforced with explicit instruction and intentional learning activities, which, in the present study, were shown to be efficient and effective. Because a great number of conventional metaphorical expressions are constituted by fixed or semi-fixed sequences of words that can be very similar or very different from the – mostly unconsciously acquired – L1 ones, instructed learning activities should aim at enhancing metaphorical awareness as well as 'collocational awareness' in L1 and L2. Further research is necessary in order to gain a better understanding of the complexity of factors that may enhance and reinforce comprehension and learning of figurative expressions in L2. Although in the present study the results only partially supported my hypotheses, the study was designed as a methodologically valid attempt to shed light on the fascinating mechanisms of comprehension and learning of metaphors in a second language.

Author contributions

Chapters 1,2,3, 4 and 6 were written by the author of the dissertation.

The statistical analyses in Chapter 5 were conducted by Jan Hulstijn (ANOVA) and Sybren Spit (generalized mixed effect models and regression analyses). Jan Hulstijn provided also the description of the results.

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Appendix A1: Target Expressions (with Glosses and English Translation)

60 target expressions

High-Transferable Nominal Collocations

1   battaglie delle idee

          battles   of the ideas

          'battle of ideas'

2   appiattimento culturale

          flattening   cultural

          'cultural levelling'

3   appoggio morale

          support   moral

          'moral support'

4   bagaglio culturale

          baggage cultural

          'cultural baggage'

5   corrente letteraria

          current literary

          'literary movement'

6   nocciolo della questione

          pit   of the question

          'key question'

7   conoscenze frammentarie

knowledge fragmentary

'fragmented knowledge'

8   pregiudizi radicati

prejudices rooted

'deeply ingrained prejudices'

9   terreno di ricerca

field   of research

'field of research'

10   barriere linguistiche

barriers linguistic

'linguistic barriers'

Mid-Transferable Nominal Collocations

11   porte   del   successo

doors of the success

'door to success'

12   percorsi tortuosi

paths   tortuous

'tortuous paths'

13   soglia dei 40 anni.

threshold of the 40 years

'the 40-year point'

14   chiave di lettura

key   of reading

'key to understanding'

15   terreno ideale

ground ideal

'ideal ground'

16   macchina della giustizia

machine   of the justice

'machinery of justice'

17   punto fermo

point firm

'key point'

18   pozzo di scienza

well of science

'fount of wisdom'

19   terremoto   politico

earthquake political

'political earthquake'

20   dibattito acceso

debate lighted

'heated debate'

L o w - T r a n s f e r a b l e   N o m i n a l   C o l l o c a t i o n s

21   cambiamenti di facciata

changes   of façade

'cosmetic changes'

22 colpo di spugna

hit   of sponge

'wipe out'

23 cavallo di battaglia

horse   of battle

'workhorse'

24 linee interpretative

lines interpretative

'interpretation guidelines'

25 traguardo   della   laurea

finish line   of the degree

'graduate'

26 avvocato in erba

lawyer   in grass

'budding lawyer'

27 passaggio obbligato

passage   obligatory

'necessary step'

28 mani in mano

hands in hand

'sit on your hands and do nothing'

29 ancora di salvezza

anchor of salvation

'solid anchor'

30   arco della vita

arc of the life

'lifetime'

H i g h - t r a n s f e r a b l e   v e r b a l   c o l l o c a t i o n s

31   tornare   sui   propri   passi

return   on   his own steps

'retrace one's steps'

32   aprire gli occhi

open   the eyes

'open one's eyes'

33   cadere in disgrazia

fall   in disgrace

'fall from grace'

34   una fase si chiude

a phase   closes

'the end of a phase'

35   difendere   la   propria posizione

defend   the own   position

'defend one's position'

36   il mondo va avanti

the world goes forward

'the world goes on'

37   trasmettere conoscenze

transfer knowledge

'transfer knowledge'

38   ricostruire la   storia

reconstruct history

'reconstruct history'

39   seguire la corrente

follow the stream

'go with the flow'

40   venire alla luce

come   to the light

'come to light'

Mid-Transferable Verbal Collocations

41   inseguire un sogno

pursue   a   dream

'pursue a dream'

42   entrare in g u e r r a

enter   in war

'go to war'

43   far cadere il   discorso

let fall   the speech

'drop the subject'

44   accumulare conoscenze

accumulate knowledge

'acquire knowledge'

45   affrontare alla   radice

face   at the root

'tackle the root cause'

46   mettere alla   porta

put   at the door

'show the door'

47   mettere con le spalle   al   muro

put   with the shoulders to the wall

'put one's back to the wall'

48   mettere in ginocchio

put   in knee

'bring to one's knees'

49   dare   una mano

give   a   hand

'give a hand'

50   gettare le   fondamenta

throw   the foundations

'lay the foundations'

Low-Transferable Verbal Collocations

51   sfiorare il tema

skimm the theme

'touch on the subject'

52 sospendere il   giudizio

suspend   the judgement

'suspend judgement'

53 in cattive acque

in bad   waters

'in troubled waters/in dire straits/'

54 uscire dal   tunnel

come out of the tunnel

'emerge from the abyss'

55 avere una marcia in più

have a   gear   in more

'go up a gear'

56 strappare applausi

wrench   applauses

'receive applause'

57 rompere i   ponti

break   the bridges

'burn one's bridges'

58 essere in alto mare

be   in high see

'be at sea'

59   mettere le mani   avanti

         put   one's hands forward

         'demure'

60   andare in porto

         go   in harbour

         'bring (it) to a good end'

Appendix A2 Sentences and Fillers of the Comprehension Task

High-Transferable Nominal Collocations

1	Dopo la crisi dei partiti politici i giornali sono diventati il luogo in cui si combattono	le battaglie delle idee.
2	Valorizzare il multilinguismo in Europa è importante, anche per evitare il rischio di	un appiattimento culturale.
3	Molti partecipano all' iniziativa con donazioni o anche semplicemente con il loro	appoggio morale.
4	Le letture che il giovane poeta fece in quel periodo di malattia, si rivelarono in seguito un prezioso	bagaglio culturale.
5	Aderì al Futurismo e iniziò a collaborare a 'Lacerba', la storica rivista di quella	corrente letteraria.
6	Nonostante la chiarezza della sua esposizione, il suo discorso non riesce a cogliere il	nocciolo della questione.
7	Sui popoli che abitavano la Sicilia prima dell'arrivo dei Greci le fonti classiche ci forniscono solo poche	conoscenze frammentarie.
8	Per inserire nel programma un tema come quello dei matrimoni tra omosessuali, l'insegnante dovette lottare contro	pregiudizi radicati.
9	Fu in quegli anni che l'artista si distaccò dal linguaggio figurativo classico, avviandosi su un diverso	terreno di ricerca.
10	Tutte le opere della mostra, che ospita lavori di artisti italiani e stranieri, sono ispirate al superamento	delle barriere linguistiche.

Mid-Transferable Nominal Collocations

11	Fu l'incontro con il regista Visconti, per il quale interpretò il Gattopardo, che aprì definitivamente all'attrice	le porte del successo.
12	Il progetto di recupero dei dati del vecchio catalogo generale della biblioteca ha seguito	percorsi tortuosi.
13	Il problema più grave riguarda l'occupazione giovanile: molti riescono a trovare un lavoro fisso solo	alla soglia dei 40 anni.
14	Il sociologo Riccardo Rossi affronta in questo libro il tema della crisi della famiglia e ne offre una nuova	chiave di lettura.
15	L'estremismo religioso sembra aver trovato negli ambienti giovanili delle aree suburbane	un terreno ideale.
16	Grazie alle dichiarazioni di un nuovo testimone, il caso è stato riaperto e si è rimessa in moto	la macchina della giustizia.
17	Dopo la separazione e il trasferimento, quel lavoro ha rappresentato nella sua vita l'unico	punto fermo.
18	È informatissimo su tutto e capisce profondamente argomenti di discipline diverse: è un vero	pozzo di scienza.
19	Negli ultimi decenni i Paesi Bassi si sono dimostrati capaci di resistere ad ogni	terremoto politico.
20	Le teorie sull'origine delle lingue provocarono nel Seicento	un dibattito acceso.

Low-Transferable Nominal Collocations

| 21 | Il nuovo consiglio di facoltà ha promesso importanti trasformazioni, ma per ora ha introdotto solo | cambiamenti di facciata. |
| 22 | La vigilanza attiva del comitato dei cittadini ha impedito che anche questo processo contro la camorra finisse con | un colpo di spugna. |

23	I presenti si aspettavano una conferenza istruttiva e interessante, ma il professore ha riproposto il suo solito	cavallo di battaglia.
24	I due curatori, nelle note alla riedizione critica del Principe di Machiavelli, seguono a volte due diverse	linee interpretative.
25	Le statistiche mostrano che rispetto ai colleghi maschi, le donne italiane sono le prime a raggiungere	il traguardo della laurea.
26	Suo marito è un giudice molto affermato, la figlia studia giurisprudenza e anche il figlio minore è	un avvocato in erba.
27	Per chi studia il pianoforte al conservatorio le sonate di Beethoven costituiscono	un passaggio obbligato.
28	Era consapevole che la possibilità di riuscire nella sua impresa era minima, e tuttavia decise di non restare	con le mani in mano.
29	Per i profughi di tutto il mondo l'Alto Commissario per i rifugiati delle Nazioni Unite rappresenta un'	ancora di salvezza.
30	Il neurofisiologo spiegò che il numero di neuroni di cui disponiamo è enormemente più grande di quelli che perdiamo lungo	l'arco della vita.

High-Transferable Verbal Collocations

31	Dopo anni di politica repressiva contro il consumo di droghe leggere il governo è dovuto	tornare sui propri passi.
32	Ha avuto per molto tempo una fiducia illimitata nel suo socio in affari, ma ultimamente ha	aperto gli occhi.
33	L'ex-ministro Carlo Matteini ha avuto un ruolo di primo piano nel Partito Socialista, ma dopo Tangentopoli è	caduto in disgrazia.

34	Dopo che il suo progetto di ricerca è stato respinto, ha avuto la certezza che nella sua vita	una fase si è chiusa.
35	Nella sua conferenza stampa ha respinto con decisione ogni critica alla sua proposta e ha	difeso la sua posizione.
36	L'educazione permanente è oggi più che mai fondamentale: la tecnologia cambia rapidamente,	il mondo va avanti.
37	Lo scopo primario dell' università è di formare alla ricerca e non più solo quello di	trasmettere conoscenze.
38	Questo è uno dei primi insediamenti della zona dei quali è stato possibile	ricostruire la storia.
39	Dopo l'entrata in guerra al fianco della Germania, molti rinunciarono alla critica aperta e preferirono	seguire la corrente.
40	Grazie allo studio innovativo di un gruppo di ricercatori, la verità sulla morte del sovrano mediceo è	venuta alla luce.

Mid-Transferable Verbal Collocations

41	Si rese conto che non aveva il denaro per comperare la casa dei suoi antenati: per anni aveva solo	inseguito un sogno.
42	Il film narra le vicende di tre giovani soldati a partire dai giorni successivi	all'entrata in guerra.
43	Durante la conferenza stampa tutti si aspettavano una presa di posizione di Scalfari, ma lui ha preferito	far cadere il discorso.
44	Per chi studia e fa ricerca, gli strumenti digitali sono cruciali per memorizzare e organizzare le	conoscenze accumulate
45	Per risolvere la questione dell'abbandono scolastico non servono soluzioni provvisorie, il problema va	affrontato alla radice.

46	Con il passaggio di proprietà e l'arrivo del nuovo direttore del personale, molti impiegati sono stati	messi alla porta.
47	Durante i negoziati i delegati dei paesi poveri sono stati	messi con le spalle al muro.
48	Dopo mesi di sciopero ad oltranza da parte dei minatori il governo è stato	messo in ginocchio.
49	Nelle settimane che seguirono l'alluvione di Firenze arrivarono molti volontari stranieri	per dare una mano.
50	Lo scienziato sviluppò nei decenni successivi la teoria della quale il suo maestro aveva	gettato le fondamenta.

Low-Transferable Verbal Collocations

51	Chi si aspettava un film scottante sui rapporti tra Stato e mafia è rimasto deluso perché la regista ha solo	sfiorato il tema.
52	Dopo pagine di analisi serrata e di accurate informazioni storiche, l'autore lascia al lettore la riflessione e	sospende il giudizio.
53	L'azienda della famiglia di Pirandello in quegli anni di crisi economica venne a	trovarsi in cattive acque.
54	In passato aveva avuto problemi di alcolismo, ma grazie alla sua passione per lo sport è riuscito ad	uscire dal tunnel.
55	Il nuovo direttore artistico ha dimostrato in varie circostanze di conoscere il suo mestiere e di	avere una marcia in più.
56	È una regista straordinaria: anche con questa opera così controversa è riuscita a	strappare applausi.
57	Da documenti ritrovati di recente, risulta che in quegli anni con quel gruppo di poeti la scrittrice aveva già	rotto i ponti.

58	Le ricerche sull'origine di questa rara malattia vanno avanti da alcuni anni, ma gli scienziati ancora	sono in alto mare.
59	Era consapevole del rischio di suscitare delle aspettative sbagliate e nel suo discorso ha	messo le mani avanti.
60	A causa di divergenze nella gestione finanziaria, il progetto di fusione delle due compagnie aeree non è	andato in porto.

Filler Sentences

61	Fu soprattutto con il fiorentino G.B. Lully che avvenne un profondo mutamento nello stile	dei quartieri esotici.
62	La sua tesi di dottorato esamina i problemi dell'equilibrio europeo e della nascita	di strumenti meccanici.
63	Palmanova è un tipico esempio di città-fortezza che tuttavia non fu mai coinvolta	in conflitti scolastici.
64	I ragazzi erano appena tornati da una passeggiata, quando qualcuno ha fatto	un bilancio originale.
65	In un precedente articolo sul disegno infantile l'autore ha spiegato come le capacità grafiche si evolvono in rapporto allo	sviluppo degli edifici.
66	L'influsso della psicanalisi si avverte, oltre che nell'ambito della psicologia, nelle scienze sociali e	nell'insoddisfazione popolare.
67	Gli Arabi applicarono anche in Sicilia gli ordinamenti civili e militari che valevano per i territori	confiscati alla mafia.
68	Le scimmie abitano generalmente nei boschi e - se la loro statura e pesantezza non glielo impedisce - abitano	in grotte sotterranee.
69	Il modo di comunicare proprio della tecnica fotografica è un linguaggio che fa appello al	senso dell'humor.

70	Il linguaggio della canzone non è uno specchio fedele dell' italiano parlato standard: le esigenze artistiche portano spesso	a rime svantaggiate.
71	Balzac visse per molti anni in una modesta casupola sulla Senna nel paese di Passy, che ora è uno dei più eleganti	quartieri elementari di Parigi.
72	Il 'teatro di regia' è un tipo particolare di spettacolo in cui è il regista che decide il significato del testo senza lasciare al pubblico	libertà di acquisto.
73	La caccia oggi è necessaria al sostentamento solo in pochissime culture e nel resto del mondo viene praticata	senza un vero documentario.
74	È scientificamente provato che correre favorisce la memoria e la nascita di nuovi	meccanismi di produzione.
75	La psicologia sperimentale ha circa un secolo di vita e rimane un importante strumento per lo studio	degli ultimi paragrafi.
76	Con nichilismo s'intende non solo un'impostazione filosofica ma soprattutto un sintomo diffuso che attraversa tutta	la catena produttiva
77	La corrispondenza di questo periodo tra Galinei e Sagredo dimostra che tra i due è venuto a mancare	il criterio decisivo.
78	Tutte le lettere di Marino hanno un carattere autobiografico e ci aiutano a	definire la sua insistenza.
79	A partire da quel momento le opere dello scultore vennero regolarmente esposte al	traffico ferroviario.
80	La città contemporanea nei suoi imprevedibili percorsi è ormai un enorme	territorio di misericordia.
81	Le lettere che il poeta scrisse in quel momento travagliato della sua esistenza non sono mai state	completamente bruciate.

82	Il sintomo che ricorre più frequentemente in queste forme di malattia è una forte avversione	per i diritti d'autore.
83	È tipico delle dittature fasciste l'esaltazione delle masse e l'uso di una comunicazione	apparentemente impossibile.
84	È una persona dotata di grande senso di osservazione e di una straordinaria	cultura patetica.
85	L'antico nucleo medioevale di Serre si sviluppava intorno al castello, di cui non rimane nessuna	traccia miracolosa.
86	Non esistono documenti che ci permettono di sapere quanti fossero gli abitanti dell'Europa durante il Medioevo e nei	secoli del Mediterraneo.
87	La novità del pittore senese Duccio sta nella grandissima attenzione alla qualità dei colori che si può osservare	nella bottega originaria.
88	La chimica fu la prima scienza, dopo la fisica, a fare uso del metodo	sperimentale sul ghiaccio.
89	I poeti Veristi si ispiravano essenzialmente alla vita delle persone comuni, nei loro costumi e nelle loro	tradizioni di meditazione.
90	La neuroestetica è una disciplina che cerca di spiegare cosa avviene durante l'esperienza estetica	nel nostro portafoglio.

Appendix B: Sentences, Fill-in-the-gap Task

V

T r i a l   S e n t e n c e s

trial 1	L'articolo difende le ricerche mediche condotte su cavie animali, dato che proprio negli ultimi anni ci hanno aperto ___ ___ .	nuove	strade
trial 2	Per tutta la mattina sui giornali le notizie sull'accordo di ___ si sono ___ .	pace	inseguite

6 0   S e n t e n c e s

1	Dopo la crisi dei partiti politici i giornali sono diventati il luogo in cui si combattono le ___ ___ ___ .	battaglie	delle	idee
2	Valorizzare il multilinguismo in Europa è importante, anche per evitare il rischio di un ___ ___ .	appiattimento	culturale	
3	Molti partecipano all' iniziativa con donazioni o anche semplicemente con il loro ___ ___ .	appoggio	morale	
4	Le letture che il giovane poeta fece in quel periodo di malattia si rivelarono in seguito un prezioso ___ ___ .	bagaglio	culturale	
5	Aderì al Futurismo e iniziò a collaborare a 'Lacerba', la storica rivista di quella ___ ___ .	corrente	letteraria	
6	Nonostante la chiarezza della sua esposizione, il suo discorso non riesce a cogliere il ___ ___ ___ .	nocciolo	della	questione

7	Sui popoli che abitavano la Sicilia prima dell'arrivo dei Greci le fonti classiche ci forniscono solo poche ___ ___ .	conoscenze	frammentarie	
8	Per inserire nel programma un tema come quello dei matrimoni tra omosessuali, l'insegnante dovette lottare contro ___ ___ .	pregiudizi	radicati	
9	Fu in quegli anni che l'artista si distaccò dal linguaggio figurativo classico, avviandosi su un diverso ___ ___ ___ .	terreno	di	ricerca
10	Tutte le opere della mostra, che ospita lavori di artisti italiani e stranieri, sono ispirate al superamento delle ___ ___ .	barriere	linguistiche	
11	Fu l'incontro con il regista Visconti, per il quale interpretò il Gattopardo, che aprì definitivamente all' attrice le ___ ___ ___ .	porte	del	successo
12	Il progetto di recupero dei dati del vecchio catalogo generale della biblioteca ha seguito ___ ___.	percorsi	tortuosi	
13	Il problema più grave riguarda l'occupazione giovanile: molti riescono a trovare un lavoro fisso solo alla ___ ___ 40 anni.	soglia	dei	
14	Il sociologo Riccardo Rossi affronta in questo libro il tema della crisi della famiglia e ne offre una nuova ___ ___ ___ .	chiave	di	lettura
15	L'estremismo religioso sembra aver trovato negli ambienti giovanili delle aree suburbane un ___ ___ .	terreno	ideale	

16	Grazie alle dichiarazioni di un nuovo testimone, il caso è stato riaperto e si è rimessa in moto la ___ ___ ___ .	macchina	della	giustizia
17	Dopo la separazione e il trasferimento, quel lavoro ha rappresentato nella sua vita l' unico ___ ___ .	punto	fermo	
18	È informatissimo su tutto e capisce profondamente argomenti di discipline diverse: è un vero ___ ___ ___ .	pozzo	di	scienza
19	Negli ultimi decenni i Paesi Bassi si sono dimostrati capaci di resistere ad ogni ___ ___ .	terremoto	politico	
20	Le teorie sull'origine delle lingue provocarono nel Seicento un ___ ___ .	dibattito	acceso	
21	Il nuovo consiglio di facoltà ha promesso importanti trasformazioni, ma per ora ha introdotto solo ___ ___ ___ .	cambiamenti	di	facciata
22	La vigilanza attiva del comitato dei cittadini ha impedito che anche questo processo contro la camorra finisse con un ___ ___ ___ .	colpo	di	spugna
23	I presenti si aspettavano una conferenza istruttiva e interessante, ma il professore ha riproposto il suo solito ___ ___ ___ .	cavallo	di	battaglia
24	I due curatori, nelle note alla riedizione critica del Principe di Machiavelli, seguono a volte due diverse ___ ___ .	linee	interpretative	
25	Le statistiche mostrano che rispetto ai colleghi maschi, le donne italiane sono le	traguardo	della	laurea

prime a raggiungere il ___

___ ___ .

26	Suo marito è un giudice molto affermato, la figlia studia giurisprudenza e anche il figlio minore è un avvocato ___ ___ .	in	erba	
27	Per chi studia il pianoforte al conservatorio le sonate di Beethoven costituiscono un ___ ___ .	passaggio	obbligato	
28	Era consapevole che la possibilità di riuscire nella sua impresa era minima, e tuttavia decise di non restare con le ___ ___ ___ .	mani	in	mano
29	Per i profughi di tutto il mondo l'Alto Commissario per i rifugiati delle Nazioni Unite rappresenta un' ___ ___ ___ .	ancora	di	salvezza
30	Il neurofisiologo spiegò che il numero di neuroni di cui disponiamo è enormemente più grande di quelli che perdiamo lungo l' ___ ___ ___ .	arco	della	vita
31	Dopo anni di politica repressiva contro il consumo di droghe leggere il governo è dovuto tornare ___ ___ ___ .	sui	propri	passi
32	Ha avuto per molto tempo una fiducia illimitata nel suo socio in affari, ma ultimamente ha ___ ___ ___ .	aperto	gli	occhi
33	L'ex-ministro Carlo Matteini ha avuto un ruolo di primo piano nel Partito Socialista, ma dopo Tangentopoli è ___ ___ ___ .	caduto	in	disgrazia

34	Dopo che il suo progetto di ricerca è stato respinto, ha avuto la certezza che nella sua vita una ___ si è ___ .	fase	chiusa	
35	Nella sua conferenza stampa ha respinto con decisione ogni critica alla sua proposta e ha ___ la sua ___ .	difeso	posizione	
36	L'educazione permanente è oggi più che mai fondamentale: la tecnologia cambia rapidamente, il ___ ___ ___ .	mondo	va	avanti
37	Lo scopo primario dell'università è di formare alla ricerca e non più solo quello di ___ ___ .	trasmettere	conoscenze	
38	Questo è uno dei primi insediamenti della zona dei quali è stato possibile ___ ___ ___ .	ricostruire	la	storia
39	Dopo l'entrata in guerra al fianco della Germania, molti rinunciarono alla critica aperta e preferirono ___ ___ ___ .	seguire	la	corrente
40	Grazie allo studio innovativo di questo gruppo di ricercatori, la verità sulla morte del sovrano mediceo è ___ ___ ___ .	venuta	alla	luce
41	Si rese conto che non aveva il denaro per comperare la casa dei suoi antenati: per anni aveva solo ___ ___ ___ .	inseguito	un	sogno
42	Il film narra le vicende di tre giovani soldati a partire dai giorni successivi all' ___ ___ ___ .	entrata	in	guerra
43	Durante la conferenza stampa tutti si aspettavano una presa di posizione di	cadere	il	discorso

Scalfari, ma lui ha preferito far ___ ___ ___ .

44	Per chi studia e fa ricerca, gli strumenti digitali sono cruciali per memorizzare e organizzare le ___ ___ .	conoscenze	accumulate	
45	Per risolvere la questione dell'abbandono scolastico non servono soluzioni provvisorie, il problema va ___ ___ ___ .	affrontato	alla	radice
46	Con il passaggio di proprietà e l'arrivo del nuovo direttore del personale, molti impiegati sono stati messi ___ ___ .	alla	porta	
47	Durante i negoziati i delegati dei paesi poveri sono stati messi con le ___ ___ ___ .	spalle	al	muro
48	Dopo mesi di sciopero ad oltranza da parte dei minatori il governo è stato ___ ___ ___ .	messo	in	ginocchio
49	Nelle settimane che seguirono l'alluvione di Firenze arrivarono molti volontari stranieri per ___ ___ ___ .	dare	una	mano
50	Lo scienziato sviluppò nei decenni successivi la teoria della quale il suo maestro aveva ___ ___ ___ .	gettato	le	fondamenta
51	Chi si aspettava un film scottante sui rapporti tra Stato e mafia è rimasto deluso perché la regista ha solo ___ ___ ___ .	sfiorato	il	tema
52	Dopo pagine di analisi serrata e di accurate informazioni storiche,	sospende	il	giudizio

l'autore lascia al lettore la riflessione e ___ ___ ___ .

53	L'azienda della famiglia di Pirandello in quegli anni di crisi economica venne a trovarsi in ___ ___ .	cattive	acque	
54	In passato aveva avuto problemi di alcolismo, ma grazie alla sua passione per lo sport è riuscito ad ___ ___ ___ .	uscire	dal	tunnel
55	Il nuovo direttore artistico ha dimostrato in varie circostanze di conoscere il suo mestiere e di avere una ___ ___ ___ .	marcia	in	più
56	È una regista straordinaria: anche con questa opera così controversa è riuscita a ___ ___ .	strappare	applausi	
57	Da documenti ritrovati di recente, risulta che in quegli anni con quel gruppo di poeti la scrittrice aveva già ___ ___ ___ .	rotto	i	ponti
58	Le ricerche sull'origine di questa rara malattia vanno avanti da alcuni anni, ma gli scienziati sono ancora ___ ___ ___ .	in	alto	mare
59	Era consapevole del rischio di suscitare delle aspettative sbagliate e nel suo discorso ha messo ___ ___ ___ .	le	mani	avanti
60	A causa di divergenze nella gestione finanziaria, il progetto di fusione delle due compagnie aeree non è ___ ___ ___ .	andato	in	porto

Appendix C: Items, Multiple-Choice Task

1	Dopo la crisi dei partiti politici i giornali sono diventati il luogo in cui si combattono	le battaglie di pensieri	le battaglie delle idee	gli scontri del pensiero
2	Valorizzare il multilinguismo in Europa è importante, anche per evitare il rischio di	un calo di cultura	un appiattimento culturale	una miseria culturale
3	Molti partecipano all' iniziativa con donazioni o anche semplicemente con il loro	senso morale	appoggio morale	valore morale
4	Le letture che il giovane poeta fece in quel periodo di malattia si rivelarono in seguito un prezioso	sforzo culturale	peso culturale	bagaglio culturale
5	Aderì al Futurismo e iniziò a collaborare a 'Lacerba', la storica rivista di quella	corrente letteraria	collana letteraria	ondata letteraria
6	Nonostante la chiarezza della sua esposizione, il suo discorso non riesce a cogliere	il nocciolo della questione	il frutto della questione	Il nocciolo dell' argomento
7	Sui popoli che abitavano la Sicilia prima dell'arrivo dei Greci le fonti classiche ci forniscono solo poche	conoscenze frammentarie	idee frammentate	conoscenze isolate
8	Per inserire nel programma un tema come quello dei matrimoni tra omosessuali, l'insegnante dovette lottare contro	giudizi radicali	pregiudizi radicati	pregiudizi profondi
9	Fu in quegli anni che l'artista si distaccò dal linguaggio figurativo classico, avviandosi su un diverso	sentiero di indagini	terreno di ricerca	sentiero di ricerche
10	Tutte le opere della mostra, che ospita lavori di artisti italiani e stranieri, sono ispirate al superamento delle	barriere delle lingue	barriere linguistiche	difese linguistiche

11	Fu l'incontro con il regista Visconti, per il quale interpretò il Gattopardo, che aprì definitivamente all'attrice	la storia del successo	le porte del successo	l'inizio del successo
12	Il progetto di recupero dei dati del vecchio catalogo generale della biblioteca ha seguito	viottoli isolati	percorsi tortuosi	percorsi isolati
13	Il problema più grave riguarda l'occupazione giovanile: molti riescono a trovare un lavoro fisso solo	dopo 40 anni	prima di 40 anni	alla soglia dei 40 anni
14	Il sociologo Riccardo Rossi affronta in questo libro il tema della crisi della famiglia e ne offre una nuova	chiave sociale	chiave di orientamento	chiave di lettura
15	L'estremismo religioso sembra aver trovato negli ambienti giovanili delle aree suburbane	un ambiente perfetto	un territorio ideale	un terreno ideale
16	Grazie alle dichiarazioni di un nuovo testimone, il caso è stato riaperto e si è rimessa in moto	la macchina giuridica	un meccanismo giuridico	la macchina della giustizia
17	Dopo la separazione e il trasferimento, quel lavoro ha rappresentato nella sua vita l'unico	punto fermo	passo fermo	punto sicuro
18	È informatissimo su tutto e capisce profondamente argomenti di discipline diverse: è un vero	pozzo di conoscenze	mare di scienza	pozzo di scienza
19	Negli ultimi decenni i Paesi Bassi si sono dimostrati capaci di resistere ad ogni	terremoto politico	valanga politica	alluvione politica
20	Le teorie sull'origine delle lingue provocarono nel Seicento	una discussione calda	un dibattito acceso	un dibattito caldo
21	Il nuovo consiglio di facoltà ha promesso importanti trasformazioni, ma per ora ha introdotto solo	trucchi di facciata	cambiamenti di facciata	cambiamenti alla superficie

22	La vigilanza attiva del comitato dei cittadini ha impedito che anche questo processo contro la camorra finisse	con un colpo di bacchetta	con un colpo di spugna	con una botta di spugna
23	I presenti si aspettavano una conferenza istruttiva e interessante, ma il professore ha riproposto il suo solito	cavallo da corsa	cavallo di battaglia	cavallo da gioco
24	I due curatori, nelle note alla riedizione critica del Principe di Machiavelli, seguono a volte due diverse	strade d'interpretazione	vie interpretative	linee interpretative
25	Le statistiche mostrano che rispetto ai colleghi maschi, le donne italiane sono le prime a raggiungere	il traguardo della laurea	la fine della laurea	il tragitto della laurea
26	Suo marito è un giudice molto affermato, la figlia studia giurisprudenza e anche il figlio minore è un avvocato	in verde	in erba	in pianta
27	Per chi studia il pianoforte al conservatorio le sonate di Beethoven costituiscono	un passaggio musicale	un passaggio obbligato	una passo obbligatorio
28	Era consapevole che la possibilità di riuscire nella sua impresa era minima, e tuttavia decise di non restare	con le mani in alto	con le mani in mano	con la testa in mano
29	Per i profughi di tutto il mondo l'Alto Commissario per i rifugiati delle Nazioni Unite rappresenta	un' ancora di salvezza	uno scoglio di salvezza	una isola di salvezza
30	Il neurofisiologo spiegò che il numero di neuroni di cui disponiamo è enormemente più grande di quelli che perdiamo	nei primi anni di vita	lungo l'arco della vita	alla fine della vita
31	Dopo anni di politica repressiva contro il	andare indietro	tornare all'inizio	tornare sui propri passi

consumo di droghe leggere
il governo è dovuto

32	Ha avuto per molto tempo una fiducia illimitata nel suo socio in affari, ma ultimamente ha	aperto la testa	aperto gli occhi	aperto i pensieri
33	L'ex-ministro Carlo Matteini ha avuto un ruolo di primo piano nel Partito Socialista, ma dopo Tangentopoli è	caduto per terra	caduto in disgrazia	finito in disgrazia
34	Dopo che il suo progetto di ricerca è stato respinto, ha avuto la certezza che nella sua vita	una fase si è chiusa	un cerchio è finito	una fascia si è chiusa
35	Nella sua conferenza stampa ha respinto con decisione ogni critica alla sua proposta e ha	distinto la sua posizione	difeso l'impostazione	difeso la sua posizione
36	L'educazione permanente è oggi più che mai fondamentale: la tecnologia cambia rapidamente e	il mondo cammina	il mondo va avanti	la terra gira
37	Lo scopo primario dell' università è di formare alla ricerca e non più solo quello di	permettere conoscenze	trasmettere conoscenze	fare la conoscenza
38	Questo è uno dei primi insediamenti della zona dei quali è stato possibile	costruire delle storie	ricostruire la storia	costruire un racconto
39	Dopo l'entrata in guerra al fianco della Germania, molti rinunciarono alla critica aperta e preferirono	seguire il momento	seguire il vento	seguire la corrente
40	Grazie allo studio innovativo di un gruppo di ricercatori, la verità sulla morte del sovrano mediceo è	venuta alla luce.	arrivata alla luce	venuta al sole
41	Si rese conto che non aveva il denaro per comperare la casa dei suoi antenati: per anni aveva solo	fatto un sogno	inseguito un sogno	inseguito un progetto

42	Il film narra le vicende di tre giovani soldati a partire dai giorni successivi	all'entrata in guerra	alla caduta in guerra	alla discesa in guerra
43	Durante la conferenza stampa tutti si aspettavano una presa di posizione di Scalfari, ma lui ha preferito	far svanire il discorso	far cadere il discorso	sciogliere il discorso
44	Per chi studia e fa ricerca, gli strumenti digitali sono cruciali per memorizzare e organizzare	le indicazioni disperse	le conoscenze disperse	Le conoscenze accumulate
45	Per risolvere la questione dell'abbandono scolastico non servono soluzioni provvisorie, il problema va	colpito alla radice	colpito alla base	affrontato alla radice
46	Con il passaggio di proprietà e l'arrivo del nuovo direttore del personale, molti impiegati sono stati	messi alla porta	messi al portone	mandati alla porta
47	Durante i negoziati i delegati dei paesi poveri sono stati messi	con la schiena al muro	con le spalle al muro	con la schiena alla porta
48	Dopo mesi di sciopero ad oltranza da parte dei minatori il governo è stato	messo in ginocchio	messo in piedi	messo ai piedi
49	Nelle settimane che seguirono l'alluvione di Firenze arrivarono molti volontari stranieri	per prendere la mano	per dare una mano	per dare una manica
50	Lo scienziato sviluppò nei decenni successivi la teoria della quale il suo maestro aveva	gettato il fondo	costruito il fondo	gettato le fondamenta
51	Chi si aspettava un film scottante sui rapporti tra Stato e mafia è rimasto deluso perché la regista ha solo	sfiorato il tema	avvicinato il tema	passato il tema
52	Dopo pagine di analisi serrata e di accurate informazioni storiche, l'autore lascia al lettore la riflessione e	sospende il giudizio	smette di giudicare	appende un giudizio

53	L'azienda della famiglia di Pirandello in quegli anni di crisi economica venne a trovarsi	in zone oscure	in cattive acque	in acque lontane
54	In passato aveva avuto problemi di alcolismo, ma grazie alla sua passione per lo sport è riuscito	a tornare alla luce	ad uscire dal tunnel	ad uscire di strada
55	Il nuovo direttore artistico ha dimostrato in varie circostanze di conoscere il suo mestiere e di avere	una ruota in più	una bella marcia	una marcia in più
56	È una regista straordinaria: anche con questa opera così controversa è riuscita a	contare gli applausi	prendere gli applausi	strappare applausi
57	Da documenti ritrovati di recente, risulta che in quegli anni con quel gruppo di poeti la scrittrice aveva già	rotto i ponti	rotto gli argini	rotto i contatti
58	Le ricerche sull'origine di questa rara malattia vanno avanti da alcuni anni, ma gli scienziati sono ancora	in cima al monte	in alta montagna	in alto mare
59	Era consapevole del rischio di suscitare delle aspettative sbagliate e nel suo discorso ha	messo le mani avanti	messo le braccia avanti	messo le mani in alto
60	A causa di divergenze nella gestione finanziaria, il progetto di fusione delle due compagnie aeree non è	andato in porto	andato in mare	finito in mare

Appendix D: Instruction Screens E-Prime Experiment (in Dutch and English)

Dutch instructions

1e scherm instructie

Dank je wel voor je medewerking aan dit onderzoek. In het komende uur ga je een aantal taken uitvoeren, die met het begrijpen van Italiaanse zinnen te maken hebben.

In de eerste taak krijg je een aantal zinnen ter beoordeling te zien. Elke zin is in tweeën geknipt. Eerst zie je de eerste helft van de zin en automatisch wordt daarna ook het tweede deel zichtbaar, zodat je de hele zin ziet. Zodra je de zin gelezen en begrepen hebt, druk je op de groene of de rode knop.

Druk op de groene knop als je denkt "Ik kan me heel goed voorstellen dat iemand dit zegt of schrijft in normale spreek- of schrijfsituaties".

Druk op de rode knop als je denkt "Ik kan me niet voorstellen dat iemand dit zegt of schrijft in normale spreek- of schrijfsituaties".

Druk op de spatiebalk om verder te gaan.

2[e] scherm instructie

Je krijgt nu eerst twee voorbeelden.

Voorbeeld 1

Dall'alto di questa terrazza si riesce bene a scorgere il suo bilinguismo.

[Het voorbeeld blijft op het scherm staan en dan verschijnt:]

Het is erg onwaarschijnlijk dat iemand dit zou zeggen of schrijven. Daarom moet je bij zo'n soort zin op de rode knop drukken.

Voorbeeld 2

Il critico da allora non ha mai cambiato posizione.

[Het voorbeeld blijft op het scherm staan en dan verschijnt:]

Het is best denkbaar dat iemand dit zou zeggen of schrijven. Daarom moet je bij zo'n soort zin op de groene knop drukken.

3ᵉ scherm instructie De computer registreert de snelheid waarmee je op de groene of rode knop drukt als de hele zin op het scherm staat. Je moet dus zo snel als je kunt op één van de twee knoppen drukken. Maar pas op: druk niet op de knop als de betekenis van de zin nog niet tot je doorgedrongen is. Met andere woorden: doe deze taak zo snel mogelijk maar laat de snelheid van je reactie niet ten koste gaan van je accuratesse.
4ᵉ scherm instructie Bepaal of de betekenis van de zin goed voorstelbaar is of niet. Druk dan zo snel mogelijk op de groene of rode knop. Dat is alles. Je zal nu een aantal oefenzinnenzinnen ter beoordeling krijgen. Je krijgt meteen te weten, of je oordeel correct is. Heb je nog vragen? Stel die dan aan de proefleider voor het begin van de échte beoordelingsstaak.
Scherm 5 t/m 14 OEFENZINNEN + antwoord Ogni tentativo di risolvere il problema del lavoro minorile si scontra nelle comunità locali con un muro di indifferenza. **goed** Le affermazioni di Pasolini in occasione della sua ultima intervista televisiva provocarono una tempesta di critiche.   **goed** Con il rapido sviluppo dei mezzi di comunicazione la tendenza alla globalizzazione sta diventando sempre più insolita.   **niet goed** Oltre ai politici, anche studiosi di economia e di sociologia parteciparono alla discussione dello sceneggiato radiofonico. **niet goed** Gli studi linguistici di Bice Mortara Garavelli   sono sempre stati dotati di un robusto quadro teorico. **goed**
Scherm 15 Nu begint de beoordelingstaak Let op: Het is niet zo dat er evenveel voorstelbare als niet-voorstelbare zinnen zijn. Wat de verhouding tussen wel- en niet-voorstelbare zinnen is, verklappen we echter niet. Druk op de spatiebalk om te beginnen.
Scherm 16 t/m 105 [90 zinnen] (zie Appendix A2)

Scherm 106

Dit was de laatste taak van deel 1.
Na een korte pauze gaan we verder met deel 2.

Scherm 107

Daarnet heb je een heleboel zinnen gezien. Natuurlijk kun je die niet allemaal onthouden. Maar sommige wel. Je krijgt nu de zinnen met een of meer open plekken (___). Maak elke zin compleet zoals je denkt dat je hem al eerder gezien hebt.
Let op:
- Vul op elke open plek slechts één woord in.
- Accenten of een apostrof zijn niet nodig.
- Als je een antwoord niet weet kun je verder gaan door op de "Enter"-toets te drukken.
- In een invulvenster kun je alleen met de "Backspace"-toets corrigeren.
- Druk op enter na elk woord dat je invult. Hierna kun je het antwoord niet meer wijzigen.

Veel plezier!

Druk op de spatiebalk om verder te gaan.

Scherm 108

We doen eerst een paar voorbeelden.

Scherm 109

Voorbeeld 1.

*Per tutta la mattina sui giornali le notizie sull'accordo di pace **si sono**………………….*

Scherm 110

Goede antwoord

*Per tutta la mattina sui giornali le notizie sull'accordo di pace **si sono inseguite**.*

Scherm 111

Voorbeeld 2.

L'articolo difende le ricerche mediche condotte su cavie animali, dato che proprio negli ultimi anni ci hanno aperto ....

Scherm 112

Goede antwoord

L'articolo difende le ricerche mediche condotte su cavie animali, dato che proprio negli ultimi anni ci hanno aperto **nuove strade**.

Alles duidelijk? Dan gaan we nu beginnen.

Scherm 113
Dit was het laatste voorbeeld.
U krijgt nu nogmaals de twee voorbeelden om te oefenen, waarbij u de antwoorden nu zelf moet invullen.

Druk op de spatiebalk om te beginnen.

Scherm 114: Instructie voor de eerste recognition-taak

Ik ga nu opnieuw testen of je de uitdrukkingen die je in de beoordeel-taak gezien hebt, nog weet.

Deze test gaat als een meerkeuze-taak (multiple choice). Eén van de drie mogelijkheden is het juiste antwoord; de andere zijn fout. Klik met de muis het antwoord aan dat volgens jou het goede is.

We doen eerst een voorbeeld.

Scherm 115: voorbeeld

Voorbeeld 1.

All'inizio non si guardavano neanche, ma alla fine hanno

rotto il ghiaccio

rotto il bicchiere

spezzato la lancia

Scherm 116: correcte antwoord voorbeeld 1 recognition task

All'inizio non si guardavano neanche, ma alla fine hanno

rotto il ghiaccio X

rotto il bicchiere

spezzato la lancia

Scherm 117: voorbeeld 2 recognition task

Le civiltà vanno avanti e seguono il loro

inarrestabile cammino

incredibile colore

incessante rumore

Scherm 118: goede antwoord voorbeeld 2 recognition task

Le civiltà vanno avanti e seguono il loro

inarrestabile cammino X

incredibile colore

incessante rumore

Alles duidelijk? Dan gaan we nu beginnen

Scherm 119: Instructie voor de intentional-learning-taak

Ik wil je nu vragen om de uitdrukkingen die je eerder gezien hebt te leren. Daarna word je overhoord.

Je krijgt telkens één zin te zien. De uitdrukking die je moet leren staat *schuingedrukt*. Probeer de uitdrukkingen in te prenten. Het zijn er nogal veel. Daarom krijg je ze twee keer te zien. Door op de spatiebalk te drukken ga je van de ene zin naar de volgende zin. Je bepaalt zelf de snelheid waarmee je dit doet. Maar sta niet te lang stil bij elke zin want dan kom je tijd tekort. Je krijgt 60 zinnen te zien, twee keer; de tweede keer in een andere volgorde. Daarvoor heb je 15 minuten de tijd. Onder in het scherm zie je een klokje, Kijk daar om te zien hoeveel tijd je nog hebt.

Na afloop van deze leertaak krijg je weer de testtaken die je eerder al gedaan hebt: de invultest en daarna de meerkeuzetest. Doe je best!

Schermen 120- 240 [120 zinnen komen op scherm in random order: self-paced reading]

Scherm 241 = Herhaling eerste test (recall task)

Nu begint de eerste test. Je ziet telkens één zin met een open plek. Maak de zin compleet door de open plek te vullen met één of meer woorden. Het gaat om uitdrukkingen die je daarnet al gezien hebt.

Schermen 242- 302 (60 zinnen met gaten worden getoont) (zie Appendix B)

Scherm 303 Instructie herhaling tweede test (recognition task) (zie Appendix C)

Nu begint de tweede test. Je krijgt weer een meerkeuze-taak (multiple choice). Eén van de drie mogelijkheden is het juiste antwoord; de andere zijn fout. Klik met de muis het antwoord aan dat volgens jou het goede is.

304- 364 [60 zinnen worden getoond]

Scherm 365

Dit was de laatste taak. Hartelijk dank voor je medewerking!

English instructions

1st screen instructions

Thank you for participating in this study. Over the next hour you will carry out a number of tasks relating to your comprehension of Italian sentences.

In the first task, you will see and assess some sentences. Each sentence has been split in two. You will see the first half of the sentence first, after which the second half automatically pops up, so you can see the whole sentence. Please press the green or the red button as soon as you have read and understood the sentence.

Please press the green button if you think "I can imagine someone saying or writing this in an ordinary situation".

Please press the red button if you think "I cannot imagine anyone saying or writing this in an ordinary situation".

Press spacebar to continue

2nd screen instructions

You will now be shown two examples.

Example 1

Dall'alto di questa terrazza si riesce bene a scorgere il suo bilinguismo.

[The example remains on the screen and then the following appears:]

It is highly unlikely that someone would say or write this. Therefore please press the red button for a sentence like this.

Example 2

Il critico da allora non ha mai cambiato posizione.

[The example remains on the screen and then the following appears:]

It is conceivable that someone would say or write this. Therefore please press the green button for a sentence like this.

3rd screen instructions

The computer registers the speed at which you press the green or the red button once the whole sentence is visible on your screen. You therefore have to press one of the buttons as quickly as possible. But please note: do not press a button if you have not yet grasped the meaning of the sentence. In other words: perform this task as quickly as possible but the speed at which you respond should not come at the expense of accuracy.

4th screen instructions

Determine whether the meaning of the sentence is likely or not and then press the green or red button as quickly as you can. That's it.

You will now see some practice sentences to assess. You will immediately see whether your assessment is correct. Please ask the instructor if you have any questions before the real assessment begins.

Screens 5 to 14 PRACTICE SENTENCES + answer

First sentence

Ogni tentativo di risolvere il problema del lavoro minorile si scontra nelle comunità locali con un muro di indifferenza. **right answer**
Second sentence

Le affermazioni di Pasolini in occasione della sua ultima intervista televisiva provocarono una tempesta di critiche. **right answer**

Third sentence

Con il rapido sviluppo dei mezzi di comunicazione la tendenza alla globalizzazione sta diventando sempre più insolita. **wrong answer**

Fourth sentence

Oltre ai politici, anche studiosi di economia e di sociologia parteciparono alla discussione dello sceneggiato radiofonico. **wrong answer**

Fifth sentence

Gli studi linguistici di Bice Mortara Garavelli   sono sempre stati dotati di un robusto quadro teorico. **right answer**

Screen 15

Now the assessment begins.

Note that there are not as many plausible sentences as implausible. However, we will not reveal the relationship between plausible and not plausible sentences.

Press spacebar to get started.

Screens 16 to 105 [90 sentences] (see Appendix A2)

Screen 106

This was the last task of part 1.
After a short break we continue with part 2

Screen 107

You have just seen a whole series of sentences. Of course you can't remember all of them. But you can certainly recall some of them. In this task you will see a series of sentences with one or more empty spaces. (___). Please complete the sentences by filling in the empty spaces with the same words that you think you have read before.
Look out:
- Accents or an apostrophe are not necessary.
- If you don't know an answer you can continue by pressing the 'Enter' key.
- In a text field you can only correct with the 'Backspace' key.
- Press 'Enter' after you write a word. After this you can no longer change your answer.

Press spacebar to continue.

Screen 108

First, a couple of examples.

Screen 109

Example 1.
Per tutta la mattina sui giornali le notizie sull'accordo di pace **si sono**……………….
Screen 110 Right answer *Per tutta la mattina sui giornali le notizie sull'accordo di pace* **si sono inseguite**.
Screen 111 *Example 2.* *L'articolo difende le ricerche mediche condotte su cavie animali, dato che proprio negli ultimi anni ci hanno aperto ....*
Screen 112 Right answer: L'articolo difende le ricerche mediche condotte su cavie animali, dato che proprio negli ultimi anni ci hanno aperto **nuove strade**.
Screen 113 This was the last example. Now you will see again the two trial sentences and this time you have to try to complete them yourself. Press spacebar to get started.
Screen 114: instructions for the first recognition task I will now test, again, whether you remember the expressions you saw in the assessment task. This is a multiple-choice task. One of the three answers is the right one; the other two are wrong. Use your mouse to click on the answer you think is right. Let's start with an example
Screen 115: example Example 1. All'inizio non si guardavano neanche, ma alla fine hanno rotto il ghiaccio rotto il bicchiere

spezzato la lancia

Screen 116: right answer for example 1 of the recognition task

All'inizio non si guardavano neanche, ma alla fine hanno

rotto il ghiaccio X

rotto il bicchiere

spezzato la lancia

Screen 117: voorbeeld 2 recognition task

Le civiltà vanno avanti e seguono il loro

inarrestabile cammino

incredibile colore

incessante rumore

Screen 118: right answer for example 2 of the recognition task

Le civiltà vanno avanti e seguono il loro

inarrestabile cammino X

incredibile colore

incessante rumore

Is this clear? Then let's get started.

Screen 119: instructions for the intentional-learning task

I will now ask you to learn the expressions you saw earlier. After that I will test you.

Each time, you will see a single sentence. The expression you have to learn is in *italics*. Try to memorize the expressions. There are quite a few and they will therefore be shown twice. By pressing on the spacebar you can move from one sentence to the next. You determine the pace at which you proceed. But don't spend too long on each sentence as you will run out of time. You will be shown 60 sentences, twice; the second time in a different order. You will have 15 minutes to do this. There is a clock at the bottom of your screen which will show you how much time you have left.

At the end of this learning task you will be given the tests you did earlier: the completion test and the multiple-choice test. Good luck!

Screens 120 to 240 [120 sentences appear on screen in random order: self-paced reading]

Screen 241 = Repeat of the first task [recall task]

The first test starts now. You will see a series of sentences each with two or more empty spaces. Please complete the sentences by filling in the empty spaces with one word. They are expressions you saw earlier.

Screens 242 to 302 [60 sentences with empty spaces are shown] (see Appendix B)

Screen 303 Instructions for the repeat of the second task [recognition task] (see Appendix C)

The second task starts now. Once again, you are being given a multiple-choice task. One of the three answers is the right one; the other two are wrong. Use your mouse to click on the answer you think is right.

304- 364 [60 sentences are shown]

Scherm 365

This was the final task. Thank you for participating!

Appendix E: Cloze Test

Ti sottopongo cinque brevi frammenti di articoli. Completa gli spazi vuoti con parole (ad es. aggettivi, verbi, sostantivi, avverbi) appropriate al contesto. In molti casi sono possibili più soluzioni. Se non trovi una parola puoi lasciare lo spazio vuoto e andare avanti. Per questo test hai 30 minuti di tempo.

1

Quella di Elena, 12 anni, e il suo pappagallino Bo è una storia di amicizia nata un anno e mezzo fa. Bo è uno di quei piccoli pappagalli variopinti che   vengono ....1 dal nido quando sono ancora piccoli e ....2 dal padrone con pazienza. In questo modo l'...........................3 non ha paura dell'uomo con il quale .... 4 un rapporto di fiducia fin da piccolo.

 Tre ....5 fa Bo è scappato e Elena lo sta ....6 disperatamente. Per trovarlo ha riempito le strade del ....7 dove vive di manifestini che ha ....8 lei stessa con l'aiuto dei compagni di ....9.

Nel manifesto è descritto l'uccellino "coda .... 10, testa gialla, collo bianco e corpo verde .... 11" con un appello accorato: «per favore se lo ....12 chiamatemi. Bisogna trovarlo al più presto possibile ». Non è la ....13 volta che Bo scappa. Lo scorso ....14 è stato via 3 settimane, quella ....15 la ragazzina era disperata. «Non ha ....16 dell'uomo, quindi è facile prenderlo – dice la ....17 di Elena. L'ultima volta che era ....18 lo aveva preso un signore; quando ce lo ha …………………19 era dispiaciuto. Lo avrebbe tenuto volentieri.

2

Il 21 gennaio 2015, la vita del giovane neozelandese Samuel Forrest, sposato diciotto mesi prima con un'armena, è cambiata per sempre. In un ospedale di Ervan, la capitale armena, si è trovato tra le …………………1 il suo primo figlio. «Il medico e l'………………………2 si sono tolti la mascherina e mi hanno ……………….3 di seguirli. Siamo entrati in una ………………………..4: Leo era nella culla. Prima che lo potessi …………………………..5, mi hanno detto: "Suo figlio ha un …………………….…………6: è Down. Non deve tenerlo. Questi sono i …………………….…………7 per rinunciare alla paternità". Sono rimasto …………………………8 per qualche secondo, poi sono andato dal………………9 e ho pensato: "È bellissimo".Ma quando sono …………………………..…10 in camera di mia moglie con Leo, lei è stata ………………………11: «O me, o lui». La donna aveva   già   ……………12   di   affidarlo   all'orfonotrofio,   seguendo   i …………………………13   dell'ospedale.   "Quando   le   ho   detto   che

…………….………....14 tenere Leo, non mi ha più voluto …………….…….……….15 e una settimana dopo ha presentato ………………….....16 di divorzio".Samuel a quel punto ha deciso di ……….………………17 il suo lavoro di consulente all' ………………………….18 e di tornare a Auckland. E …………….……………19 ad una colletta virtuale su "GoFundMe" è ……….……………..20 a trovare denaro per il trasferimento.

3

Pisolino sì, pisolino no: questo è ora il vero il dilemma. Fino a poco tempo fa la comunità …………………………1 concordava sul fatto che il riposino ………………………..………2 fosse un toccasana per il cervello dei più …………………….3, ma ora questa convinzione inizia a …………...……...4

A pochi giorni dalla pubblicazione dello …………………5 di una università francese, secondo il quale un…………………6 di 30 minuti sarebbe in grado di…………………….7 un'intera notte passata in bianco, una………………8 ricerca ne contraddice seccamente le conclusioni, in …..………….. 9 per quanto riguarda i bambini. In ………………10, secondo un gruppo di ricercatori di una ………………11 australiana, i genitori non dovrebbero incoraggiare i ………………..12 a dormire il pomeriggio, poiché dopo il ………………..13 anno di vita il riposino pomeridiano può ………………..14 la qualità del sonno notturno.

Dai ………………15 è emerso che il pisolino …………….16 sarebbe innocuo e farebbe bene solo ai ……………17 piccolissimi. Infatti, dopo i primi mesi di ………………18, dormire il pomeriggio potrebbe influire …………….19 sulla qualità del sonno notturno e, di ………………20, sulla salute.

4

"Morandi merita un museo nel cuore di Bologna": questo affermava nel 1983 l'autorevole critico d'arte Cesare Brandi in un articolo sul "Corriere della Sera", sostenendo la necessità di un istituto per conservare e promuovere l'arte di Morandi nel ……………...1 della città che ha fatto da …………….......2 alla sua vita e che tanta ……………………3 ha avuto per lo sviluppo della sua ……………..4

Esattamente dieci anni dopo, nel 1993, il ……………….................5 auspicato da Brandi si è aperto proprio nel ………….................6 di Bologna, in quel Palazzo d'Accursio che rappresenta ancor ………………7 il luogo per eccellenza dell'identità cittadina.

Fin dall'……………8, tuttavia, il Museo Morandi non ha avuto......................9 facile: per ragioni non sempre immediatamente comprensibili, ...10 influenti dell'intellighentia locale lo hanno sempre 11

Anno dopo anno ha dimostrato con un ....12 numero di iniziative di giocare un ....13 non secondario nella vita culturale ed .... 14 della città, proponendo in tutto il mondo l'...........................15 morandiana e affermandosi come importante tassello in un ....16 di rapporti internazionali.

Tutto ciò dava molto ....17 e a poco a poco le ....18 si sono addensate sul museo. Gli avversari hanno .... 19 forza, secondo la dissennata tendenza italiana a ……………...20 da parte persone e iniziative valide, per ....21 intrecci d'interessi e sudditanze di potere.

5

La familiarità con la lettura si crea soprattutto nei primi mesi di vita. Esporre precocemente i bambini alla lettura può ....1 una strategia educativa e fornire significative ....2 per lo sviluppo affettivo e cognitivo. Recenti ricerche 3   dimostrano come leggere con continuità ad alta ....4 ai bambini, ancor prima che vadano a .... 5, abbia una positiva influenza sia dal ....6 di vista relazionale che cognitivo. Infatti è una ....7 di relazione tra il bambino e le ....8 significative che hanno la funzione di «presentare» il ....9 al bambino. Inoltre, si sviluppano più precocemente la ....10 del linguaggio, la capacità di lettura, le ....11 organizzative ed espressive del pensiero.

Inoltre si ....12 e si rafforza l'abitudine a ....13 che il bambino conserverà verosimilmente nelle ....14 successive. Solo chi è «educato a leggere» ....15 il bisogno di farlo per il ....16 della vita, mantenendo aggiornate, efficienti e .... 17 le proprie conoscenze, in un processo di «auto-....................18 permanente», indispensabile per interpretare una realtà complessa in ....19 mutamento. Il successo scolastico è dunque anche ....20 al tipo di rapporto che il bambino instaura, fin dai primi anni di vita, con la parola ascoltata dalla voce dell'adulto.

Appendix F: Fill-in-the-gap Items Scores (max. = 33) by Condition and Test Administration (L1ers, L2ers first, L2ers second)

	L1ers	L2ers	L2ers			
Cues	Absent	Present	Absent			
Gaps	157	87	157			
Nominal collocations						
Transferability						
High						
1	14	14	21	battaglie	delle	idee
2	15	5	16	appiattimento	culturale	
3	13	11	17	appoggio	morale	
4	21	12	20	bagaglio	culturale	
5	19	13	22	corrente	letteraria	
6	15	17	17	nocciolo	della	questione
7	2	10	15	conoscenze	frammentarie	
8	20	4	19	pregiudizi	radicati	
9	4	2	15	terreno	di	ricerca
10	21	18	25	barriere	linguistiche	
Mid						
11	22	18	18	porte	del	successo
12	10	7	16	percorsi	tortuosi	
13	27	16	15	soglia	dei	
14	8	17	20	chiave	di	lettura
15	3	16	22	terreno	ideale	
16	24	24	23	macchina	della	giustizia
17	21	26	26	punto	fermo	

18	22	9	21	pozzo	di	scienza
19	15	22	30	terremoto	politico	
20	11	10	23	dibattito	acceso	
Low						
21	15	15	15	cambiamenti	di	facciata
22	14	7	19	colpo	di	spugna
23	26	14	23	cavallo	di	battaglia
24	5	14	24	linee	interpretative	
25	22	10	20	traguardo	della	laurea
26	25	16	29	in	erba	
27	13	11	10	passaggio	obbligato	
28	33	28	30	mani	in	mano
29	21	6	19	ancora	di	salvezza
30	24	20	30	arco	della	vita
Verbal Collocations						
Transferability						
High						
31	30	12	19	sui	propri	passi
32	17	21	27	aperto	gli	occhi
33	15	12	26	caduto	in	disgrazia
34	10	9	22	fase	chiusa	
35	14	5	17	difeso	posizione	
36	18	19	30	mondo	va	avanti
37	10	11	19	trasmettere	conoscenze	

38	13	14	18	ricostruire	la	storia
39	13	16	21	seguire	la	corrente
40	13	31	15	venuta	alla	luce
Mid						
41	21	12	22	inseguito	un	sogno
42	13	16	20	entrata	in	guerra
43	16	7	18	cadere	il	discorso
44	2	14	19	conoscenze	accumulate	
45	13	18	12	affrontato	alla	radice
46	21	16	25	alla	porta	
47	28	17	23	spalle	al	muro
48	13	7	20	messo	in	ginocchio
49	23	31	30	dare	una	mano
50	12	11	18	gettato	le	fondamenta
Low						
51	17	22	21	sfiorato	il	tema
52	9	9	18	sospende	il	giudizio
53	9	7	19	cattive	acque	
54	22	19	26	uscire	dal	tunnel
55	8	8	23	marcia	in	più
56	15	14	22	strappare	applausi	
57	14	11	22	rotto	i	ponti
58	29	12	25	in	alto	mare

59	22	10	21	le	mani	avanti
60	25	9	19	andato	in	porto

Metaphor and L2 Learning

Summary

The primary objective of this study was to investigate the mechanisms of comprehension and the learning of metaphorical expressions in a second language (L2). Metaphor is a fundamental mechanism of human cognition, and metaphorical linguistic expressions are pervasive in everyday conversations and written texts. The specificity and imageability of metaphors make them a perfect vehicle for conveying abstract or complex meanings in terms of more salient ones, and the lexicon of languages is rich in single words and multi-word expressions based on metaphor, such as idioms, phrasal verbs, idiomatic phrases, and collocations. Most speakers of a first language (L1) learn to understand metaphors and to make proper use of metaphorical expressions within their given linguistic community effortlessly, simply by being exposed to language in terms of real use, without engaging in conscious or intentional learning activities. For second language learners, conversely, metaphors represent a great challenge. On the one hand they are considered by some scholars as a sign of near-native mastery of a second language and an important learning goal to be included in a coherent language competence model. On the other hand, they hardly ever find a place in the language lesson where explicit teaching prioritises more frequent and rule-driven forms. One consequence of this is that these expressions are for the most part learned incidentally, and the second-language learner is faced with the difficult and exacting task of having to learn to use an enormous number of expressions. In order to investigate the mechanisms of comprehension and the learning of metaphorical expressions in L2, a controlled experiment was carried out examining the influence of the L1 and of syntactic properties of L2 expressions on understanding and learning. A secondary goal of the empirical study was to compare learning results of both so-called incidental and intentional learning of metaphorical expressions.

Chapter 1 presents the cognitive theory of metaphor (Lakoff & Johnson, 1980), which is the theoretical framework for this study, and considers its implications for L2 learning. According to this theory, metaphors are first of all conventionalised associations, at the conceptual level, between elements of different domains of human experience. The domains of TIME and SPACE, for example, are often metaphorically

linked and time is normally spoken about in different languages in terms of movement in space with expressions like 'in the course of time' or 'time flies'. The distinction between a conceptual and a lexical level is useful in order to better understand the mechanisms that enhance or inhibit comprehension and the learning of metaphorical expressions in L2. The hypothesis that the equivalence between L1 and L2 at both levels is likely to result in a better understanding and learning is central in the empirical experiment described in chapter 4.

Chapter 2 discusses earlier studies on metaphor in use, introducing the question of metaphor identification. Another important issue introduced here is the question of the universality of conceptual metaphors, which has motivated much cross-linguistic and cross-cultural research.
Previous cross-linguistic studies revealed that some conceptual metaphors, especially those that are based on primary bodily experiences, tend to be universal. However, at the level of linguistic expression there is a great diversity between languages. Although expressions which are motivated by the same conceptual domains, and which are semantically related to them, can frequently show linguistic similarities in languages that are not linguistically and culturally distant, in many other cases conventionalised sequences of words are not predictable for the language learner, even if the conceptual metaphor is the same.

Chapter 3 provides an overview of relevant psycholinguistic models of memory for language and lexical representation, and of studies in L2 acquisition and learning. This chapter introduces issues such as linguistic transfer and the distinction between incidental and intentional learning which is central in the empirical study. The chapter also discusses existing literature on the processing and learning of formulaic language, collocations, idioms, and metaphorical expressions in L1 and L2. In addition, it provides an overview of studies on metaphor in L2 production. One important finding observed in productive studies on metaphor in L2 is that L2 learners find it difficult to produce the exact lexical forms of metaphorical expressions leading to an avoidance of use or errors due to the interference of the L1.

Chapter 4 describes the experimental study, the main aim of which was to observe if there are differences in the understanding and learning of different metaphorical expressions in L2 based on the degree of 'transferability', i.e. the facilitating role that the mother tongue can exert on the understanding and learning of such expressions in L2. Another aim of the experiment was to observe possible differences in the understanding and learning of two different types of multi-word expressions, i.e. nominal or verbal collocations. The study also observed the extent to which intentional learning enhances the learning of metaphorical expressions compared with

incidental learning. The main research questions of the empirical study concerned: (a) the role of the conceptual and linguistic transferability of L2 metaphorical expressions in comprehending and learning such expressions; (b) the role of one syntactic property (collocation type) of L2 metaphorical expressions in comprehending and learning such expressions; and (c) the effect of an incidental or intentional learning modality on retaining L2 metaphorical expressions.

The experiment consisted of five main tasks in which a total of 34 L1 Italian speakers and 33 advanced L2 learners of Italian from Dutch universities and institutions took part. In all tasks, carried out individually using a computer, participants had to understand, recall and recognise 60 Italian metaphorical expressions in the context of meaningful sentences. The 60 expressions were selected and rated according to three levels of transferability from L1 (high, moderate and low transferability) and two different syntactic types (nominal and verbal collocations).

The first task of the experiment was a comprehension task in which participants had to judge the plausibility of 90 sentences, 60 of which were sentences containing metaphorical expressions and 30 of which were filler sentences. This task was followed by a recall task (fill-in-the-gap) and a recognition task (multiple choice). These two tasks were unannounced because they were designed to measure the possible incidental-learning effect of the comprehension task. For the L2 participants, the experiment continued with an intentional-learning session followed by a recognition and a recall task. These tasks aimed to assess the effect of intentional learning on the recall and recognition of the same metaphorical expressions.

Chapter 5 presents the results of the experiment. The design of the experiment was successful in terms of task validity and the effect of intentional learning. The assumption that L1 transfer plays a role in comprehension was confirmed by the results of the comprehension task, which showed a significant difference in performance between expressions with high and low transferability. The assumption that transferability was gradable, based on conceptual or formal similarity, was partially confirmed by the performance on items that we classified as high, moderate, and low in terms of transferability. In fact, the levels of performance in comprehending high and moderately transferable expressions were both higher than those for expressions that did not have any lexical or conceptual similarity to the learner's L1. However, it was also evident from the subsequent tasks that transferability no longer played a role in recall and recognition. The task of incidental learning and producing a large number of expressions in this study turned out to be very demanding, even for native speakers. This may be due to the high competition between items in production, combined with the high number of items. The design of the study showed that intentional learning activities were effective in enhancing the

learning of expressions with different levels of transferability, neutralising every effect of L1 transfer.

Chapter 6 presents the conclusions of the study, the focus of which was on the comprehension and learning of conventional expressions, considered as a necessary pre-condition for a pragmatically successful, productive use of metaphor in L2. Although the study was not intended explicitly as a contribution to second language instruction, the results do lead to some implications and recommendations for L2. Firstly, comprehension activities in which attentional resources are directed to meaning do not automatically lead to the learning of linguistic forms. Therefore it would be better to have them followed by activities in which there is explicit attention paid to the linguistic properties. The findings about incidental and intentional learning evidenced the importance of an explicit treatment of metaphors in language-teaching programmes, with a focus on form and activities that raise metaphorical awareness.

Metaforen en tweede-taalverwerving

Samenvatting

Het primaire doel van dit onderzoek was het bestuderen van hoe metaforen in een tweede taal worden begrepen en geleerd. Metaforen zijn en fundamentele cognitieve mechanisme en metaforisch e uitdrukkingen komen overal voor in gesproken en geschreven taalgebruik. Omdat metaforen beelden oproepen, zijn ze een ideaal middel om over complexe en abstracte begrippen te spreken in termen van meer concrete verschijnselen. Talen zijn rijk aan conventionele metaforische uitdrukkingen bestaande uit enkele woorden of vaste woordcombinaties, zoals idiomatische uitdrukkingen en metaforische collocaties. De meeste moedertaalsprekers leren moeiteloos metaforische uitdrukkingen te begrijpen en te gebruiken, gewoon door het feit, dat ze aan de taal van een bepaalde gemeenschap van sprekers zijn blootgesteld, zonder dat ze elke intentionele leeractiviteit hoeven te ondernemen. Voor de leerders van een tweede taal, daarentegen, zijn metaforen een grote uitdaging. Aan de ene kant wordt het gebruik van metaforische uitdrukkingen gezien als een kenmerk van een hoog niveau van taalbeheersing en daarom een relevant leerdoel binnen een coherent model van taalcompetentie. Aan de andere kant spelen ze vaak een marginale rol in taallessen, waar de focus meer wordt gelegd op regelmaat in taal en prioriteiten worden gesteld op basis van frequentie. Een gevolg hiervan is dat deze uitdrukkingen meestal incidenteel worden geleerd en dat de leerder van een tweede taal alleen voor de moeilijke en veeleisende taak staat, om een enorm aantal uitdrukkingen te begrijpen en te leren gebruiken.

Om de mechanismen van het begrijpen en leren van metaforen in een tweede taal te onderzoeken werd in deze studie een gecontroleerd experiment opgezet. Daarbij worden in het bijzonder de invloed van de eerste taal en van de syntactische kenmerken van conventionele uitdrukkingen geobserveerd.

Hoofdstuk1 introduceert de Conceptual Metaphor Theory van George Lakoff en Mark Johnson, die het theoretische raamwerk van dit proefschrift vormt, en bespreekt de implicaties daarvan voor tweede-taalverwerving.

Volgens deze theorie, zijn metaforen conventionele associaties op een conceptueel niveau van twee verschillende gebieden van menselijke ervaringen. Een voorbeeld zijn de domeinen van TIJD en RUIMTE, die vaak metaforisch met elkaar in relatie worden gebracht. In verschillende talen wordt er systematisch over tijd gesproken als beweging in de ruimte, met uitdrukkingen als 'in the course of time' (in de loop van de tijd) of 'time flies' (de tijd vliegt). Het verschil tussen conceptueel niveau en linguïstisch niveau is nuttig om beter de mechanismen die het begrijpen en het leren van metaforische uitdrukkingen in een tweede taal bevorderen of in de weg staan.

Centraal in het empirische onderzoek besproken in hoofdstuk 4 is de hypothese dat als een metafoor in twee verschillende talen zowel op het conceptueel als op het linguïstisch niveau gelijkwaardig is, hoe groter het positieve effect (transfer) van de eerste taal op het begrijpen en leren van metaforische uitdrukkingen zal zijn.

Hoofdstuk 2 bespreekt voorafgaande studies over metaforen in natuurlijk taalgebruik en introduceert de methodologische kwestie van de identificatie van metaforen in gesproken en geschreven teksten. Een andere belangrijke vraag die talloze vergelijkende studie heeft laten ontstaan, is die van de universaliteit van conceptuele metaforen. Veel studies hebben laten zien hoe veel conceptuele metaforen, vooral als ze op primaire fysieke ervaringen zijn gebaseerd, een universeel karakter hebben, hoewel op het niveau van linguïstische uitdrukkingen grote verschillen tussen de talen te merken zijn. Zelfs daar, waar twee talen dezelfde metaforen op conceptueel niveau hebben, blijven meestal de linguïstische uitdrukkingen onvoorspelbaar voor de leerder van een tweede taal.

Hoofdstuk 3 biedt een overzicht van relevante psycholinguistische modellen over het geheugen en het mentale lexicon en van studies over taalverwerving. Dit hoofdstuk introduceert relevante begrippen zoals die van language transfer en het verschil tussen incidenteel en intentioneel leren, die centraal in de empirisch studie zijn. Dit hoofdstuk bespreekt ook bestaande literatuur over het begrijpen en het leren van vaste taaluitdrukkingen zoals collocaties en idiomen. Verder, geeft dit hoofdstuk een overzicht van de bestaande studies over het gebruik van metaforen in productieve vaardigheden in een tweede taal. Een belangrijk feit dat in studies over productie van metaforen in een tweede taal kon worden geobserveerd, is dat taalleerders het moeilijk vinden om de exacte lexicale vormen te memoriseren en te produceren. Dit heeft als gevolg een vermijdingsgedrag ten opzichte van vaste talige expressies of het produceren van taalfouten, die door de interferentie van de eerste taal veroorzaakt zijn.

Hoofdstuk 4 bespreekt de experimentele studie die is opgezet om mogelijke verschillen te observeren in het begrijpen en leren van metaforische uitdrukkingen in het Italiaans door Nederlandse leerders van Italiaans als tweede taal. De geselecteerde uitdrukkingen varieerden per niveau (hoog, middel of laag), van transferability, de positieve invloed van de moedertaal, en op basis van hun syntactische kenmerken (nominale of verbale collocaties). De studie observeerde ook in welke maat het leren van metaforische uitdrukkingen positief was beïnvloed door intentioneel leren in vergelijking met incidenteel leren. De belangrijkste onderzoeksvragen betreffen: (a) de rol van 'transferability' op conceptueel en linguïstisch niveau 'bij het begrijpen en leren van metaforische uitdrukkingen in een tweede taal, (b) de rol van de syntactische kenmerken van de metaforische uitdrukkingen op begrijpen en leren en (c) het effect van incidenteel of intentioneel leren op het onthouden van de metaforische uitdrukkingen. Het experiment bestond uit vijf hoofdtaken waaraan 34 Italiaanse moedertaalsprekers en 33 geavanceerde leerders van Italiaans bij Nederlandse

universiteiten en culturele instellingen deelnamen. In alle taken, die individueel zijn uitgevoerd, moesten deelnemers begrijpen, onthouden en herkennen 60 Italiaanse metaforische uitdrukkingen die binnen de context van een zin waren geplaatst. In de eerste taak, moesten de deelnemers 90 zinnen (waarvan 60 zinnen met een metaforische uitdrukking en 30 afleiders) beoordelen op plausibiliteit. Deze taak werd gevolgd door een test waarbij de deelnemers de uitdrukkingen moesten reproduceren en herkennen. De test was niet aangekondigd, omdat een secundaire doel daarvan was het meten van een mogelijke incidentele leereffect tijdens de eerste taak. Het experiment bestond verder in een sessie waar de deelnemers de uitdrukkingen intentioneel moesten leren, gevolgd door een test. Deze tweede test wilde het effect meten van intentioneel leren op het herkennen en onthouden van de metaforische uitdrukkingen.

Hoofdstuk 5 presenteert de resultaten van het experiment. De hypothese dat transfer van de eerste taal een rol speelt in het begrijpen van metaforische uitdrukkingen werd bevestigd door de resultaten van de eerste taak. De resultaten lieten een groot verschil zien tussen het begrijpen van high transferable metaforische uitdrukkingen en 'low transferable' metaforische uitdrukkingen. Toch was het ook evident bij de volgende taak dat transferability geen rol meer speelde in het onthouden en oproepen van de lexicale vorm van de uitdrukkingen. Dit was waarschijnlijk te wijten ook aan de hoge competitie tussen items bij het reproduceren van de exacte lexicale vorm van de uitdrukkingen, gecombineerd met het hoge aantal items. Het ontwerp van het experiment liet zien dat intentionele leeractiviteiten effectief waren in het leren van uitdrukkingen van verschillende niveaus van transferability. De moedertaal bleek na intentioneel leren bijna geen invloed meer te hebben op de resultaten.

Hoofdstuk 6 presenteert de conclusie van de studie, waarvan de focus gericht was op het begrijpen en het leren van conventionele uitdrukkingen. Uitgangspunt van de studie was dat het leren van conventionele uitdrukkingen een belangrijke voorwaarde is voor een succesvol gebruik daarvan in reële communicatieve situaties. Hoewel de studie niet expliciet bedoeld was als een bijdrage tot taalonderwijs, leiden de resultaten tot implicaties en aanbevelingen voor de taallessen. De activiteiten waar de aandacht is gericht naar de inhoud leiden niet automatisch tot het productief leren van de linguïstische vorm en dienen te worden gevolgd door activiteiten waar de aandacht expliciet word gericht naar de linguïstische vorm van conventionele uitdrukkingen. De resultaten lieten zien hoe intentioneel leren bevorderlijk is voor het onthouden van de linguïstische vorm van metaforische uitdrukkingen. Dit suggereert dat een expliciete behandeling van metaforische uitdrukkingen in de taales een belangrijk onderdeel van elk curriculum zou moeten zijn.

Curriculum Vitae

Elisabetta Emma Mina Materassi was born in Florence in 1957. She studied German Language and Culture at the University of Florence and Lecce, during which time she also studied at the University of Bonn for half a year. She graduated cum laude from the University of Lecce with a thesis on the literary work of Uwe Johnson. She taught Italian as a second language in Florence for a number of years and has been living in the Netherlands since 1992. She obtained her certificates for teaching Italian as a foreign language from the University of Siena in 1997 (cum laude) and from the University of Amsterdam in 1999 (Graduate school of teaching and learning). Since 1999 she has been working as an Italian Language and Culture lecturer at the University of Amsterdam, where she is currently teaching Italian language and culture, sociolinguistics and history of the Italian language. In 2012 she started her PhD project "Metaphor and L2" under the supervision of Prof. Olga Fischer and Prof. Jan Hulstijn. She has been combining her research work with her work as a lecturer since 2015.