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Approaching motion in the ESL classroom

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Dedication

For Laura

Declaration

This dissertation is the result of my own work and includes nothing, which is the outcome of work done in collaboration except where specifically indicated in the text. It has not been previously submitted, in part or whole, to any university of institution for any degree, diploma, or other qualification.

In accordance with the Institute of Education guidelines, this thesis does not exceed 90,000 words.

Signed: Anthony Attwood

Date: 12.01.17

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Abstract

The patterns used to express how a figure moves from one place to another may vary from language to language. These patterns are acquired early in childhood and are often resistant to restructuring (Slobin, 1996). As a result making the switch from L1 motion event patterns to a typologically different L2 pattern tends to be particularly difficult for language learners. Despite the evident challenges for learners, this area has been relatively neglected in language teaching, and there is virtually no research into how motion event construal can be taught. Taking a cognitive semantic approach, based on the theoretical framework for the typology of satellite-framed and verb-framed languages developed by Talmy (1985, 1991, 2000) and Slobin (1987, 1996, 2004, 2005, 2006), this is the first study to compare the effectiveness of two instructional approaches in the teaching of L2 motion events with a focus on entering and exiting. Fifty-nine learners of L2 English were quasi-randomly assigned to two groups: an input-based group and an input/output-based group. Pre-, post- and delayed post- tests were administered to assess learning and retention of the *Manner verb+ Path satellite* combination typical of English motion expressions. The measures included self-paced reading tests and picture-based written production tasks that were designed to draw on both implicit and explicit knowledge of motion event construal in English. The results showed significant positive effects for both groups. As a result of the insight gained, practical recommendations have been made for teachers approaching the domain of L2 English motion in the ESL classroom.

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List of Abbreviations and Acronyms

ANOVA: Analysis of a Variance

CBI: Comprehension-based instruction

CEFR: Common European Framework of Reference for Languages

CLI*:* Cross-linguistic influence

CTH: Conceptual Transfer Hypothesis

CV: Communicative Value

DPT: Delayed-post test

EI: Explicit Instruction

ESL: English as a second language

FDH: Fundamental Difference Hypothesis

FLA: First Language acquisition

FMC: Form-meaning connection

FNP: First Noun Principle

GJT: Grammaticality judgement test

IE: Input Enhancement

IP: Input Processing

IPT: Immediate post-test

L1: First language

L2: Second Language

LAD: Language Acquisition Device

LLK: Learned linguistic knowledge

MOI: Meaning-based output instruction

NH: Noticing Hypothesis

P: Principle

PBI: Production-based instruction

PI: Processing Instruction

S-framed: Satellite-framed

SD: standard deviation

SI: Structured Input

SLA: Second Language Acquisition

SPR: Self-paced reading

SPRT: Self-paced reading task

RT: Response time

SPSS: Statistical Package for the Social Sciences

TFSH: Thinking-for-Speaking Hypothesis

TI: Traditional Instruction

TTIE: Typographical/Textual Input Enhancement

UG: Universal Grammar

V-framed: Verb-framed

1 Introduction

The expression of motion events represents a substantial challenge for language learners particularly when the L2 differs typologically from the learner's L1 (e.g., Antonijevic & Berthaud, 2009; Cadierno & Ruiz, 2006). Motion events are situations involving movement of a figure from one place to another along a particular path (Talmy, 1985). Importantly for this study, the patterns used to map semantic notions such as Figure, Path and Manner onto language (verbs, noun phrases, prepositional phrases, etc.) may vary from language to language. Talmy's (1985, 1991, 2000) typology describes languages in terms of two main patterns: satellite-framed (S-framed) and verb-framed (V-framed). In languages which tend to use the S-framed pattern (e.g. English, German, and Swedish) Motion and Manner may be conflated in the verb, and a separate expression, which is called a satellite can be used to express the Path, *e.g. out* in *John goes out every Tuesday evening)* (Talmy, 2000). By contrast, in predominantly V-framed languages (e.g., Spanish, Japanese, and Korean) Motion and Path are typically conflated in the verb, and Manner is expressed in a separate expression. In other words, an S-framed language such as English can use a motion verb like *go* to express general movement away from a starting point and a *satellite*, such as *out*, to express the specific trajectory or *path*. Of particular relevance to this study are the satellites, *into* and *out of* which are used to express the crossing of a boundary (Aske, 1989; Slobin & Hoiting, 1994). A boundary-crossing expression is one that refers to the crossing of a conceptual boundary e.g. *go into/out of a house*. By contrast, a non boundary-crossing expression would be one that moves along a path or arrives at a particular point without traversing the conceptual boundary e.g. *run along a road/ to the shop*. Cross-typological comparisons have drawn attention to the linguistic limitations imposed by boundary-crossing motion events for speakers of a V-framed language (e.g. Aske, 1989; Slobin & Hoiting, 1994; Slobin, 2004). For example, in Spanish, which tends to use verb-framed constructions, a Path verb (e.g. *entrar* "go in") is typically used to describe the crossing of a boundary, while in English other alternatives are available, such as the combination of a manner-of-motion verb and a satellite (*into/ out of)*. Manner of motion refers to giving additional information regarding the kind of movement that takes place. In English, where S-framed constructions are the dominant pattern, the motion verb *go* can be replaced by a manner-of-motion verb such as *run,* as in *John ran across the room twice,* which tells us more about how the action is performed i.e., on two legs (or more), or whether the movement was performed slowly or quickly. In V-framed languages, information regarding the specific nature of the movement can be added as a subordinate element after the main verb but may not occupy the main verb slot in a boundary-crossing event. Whereas in English, a person would generally say *he ran into the room,* in Spanish this would usually be expressed as *he entered the room running.* Although in both language types there are alternative options, this flexibility does not usually apply to V-framed languages when there is a crossing of a boundary.

As a result of these typological differences, difficulties may arise for some language learners (e.g. L1 speakers of Romance languages) when it comes to the acquisition of the S-framed pattern (e.g. Treffers-Daller & Tidball, 2015) (see Section 2.8 for further discussion of these differences). This is possibly due to L1 transfer. With the term *transfer,* I refer to the effect of a person's first language on the use of a newly acquired language (see section 2.10). For example, in the domain of motion, a speaker from a V-framed L1 may continue to map *Path* onto the verb in English, which in turn may result in more unconventional ways of talking about motion,

(1) He entered the bank (running).

PATH MANNER

(Treffers-Daller & Tidball, 2015)

If used by second language learners, such examples would appear to hint at an underlying L1 transfer (see section 2.10), particularly when the event involves some kind of boundary crossing (Treffers-Daller & Tidball, 2015; Larrañaga, Treffers-Daller, Tidball & Ortega, 2012). In my own preliminary study, which used Mayer's (1969) *Frog, where are you?* to elicit oral narratives from intermediate L2 English learners from a variety of typological L1 backgrounds, descriptions of motion events involving the *entering/exiting* of a figure in a certain manner again proved particularly challenging. For this reason, the focus of the current study will be on this type of event.

While making the switch from L1 motion event patterns to the typologically different L2 pattern may be difficult for some language learners, in language teaching this area has been relatively neglected. A preliminary review of 35 textbooks in current use for the teaching of L2 English revealed that manner-of-motion verbs and Path satellites often receive scant attention. Where they do appear, emphasis is placed on the lexical meaning of the manner verb with no engagement with the challenges involved in the processing of an entire motion event, in particular the mapping of semantic features such as the Figure, Path, Ground and Manner onto surface features of an L2 (nouns, verbs, adverbial expressions etc.). Table 1 shows an example of this kind of approach (*Oxford Word Skills* (Advanced), Gairns & Redman, 2008, p. 32),

Table 1 Lexical approach to manner-of motion verbs

Word	Example	Meaning
stagger	Despite his injury, he **staggered** to the nearest house for help.	Walk with difficulty, being almost unable to stand up.
hike	They **hiked** across the countryside.	Walk long distances in the country.
dash	I **dashed** across the road for the bus.	Run quickly and suddenly.
creep	I **crept** up the stairs, so that I wouldn't wake anyone.	Move slowly and quietly so you are not seen or heard.

Such examples are followed by sentences where the learner is asked to fill in gaps by selecting the appropriate verb. However, in the materials examined, while an effort is made to make the manner-of-motion verb more salient, attention is not drawn to Path satellites or to the intricacies of how these features fit together within English argument structure. Consequently, L2 learners are not being made aware of the underlying satellite-framed structure. As demonstrated by a number of researchers (e.g., Antonijevic & Berthaud, 2009; Cadierno, 2004; Inagaki, 2001), the complex relationship between motion verbs and Path satellites may represent substantial challenges in terms of both interpretation and production for those learning to express motion events in an L2 that is typologically different from their L1. From the learner's stance, there are three major challenges. In the first place, there may be limited exposure to the target form, which, in turn, may lead to a lack of both positive and negative evidence regarding the acceptability of certain patterns (Treffers-Daller & Tidball, 2015). In terms of language acquisition, three types of evidence may affect learning: positive evidence, direct negative evidence and indirect negative evidence (Chomsky, 1981, pp. 8-9). Positive evidence refers to exemplars of forms and structures that occur in the language, which serve as examples of what can be expressed. For some, both positive evidence (Chomsky, 1989) or indirect negative (Chomsky, 1981), may play important roles in acquisition. However, for others negative evidence such as explicit grammar explanations or error correction may also play an important role in showing learners what is less common in the target language (e.g., Gass, 2003).

Furthermore, for some learners, the features of the L2 motion structure that differ from the L1 may not be immediately obvious due to the variety of options available to express the same content (Hendriks, Hickmann & Demagny, 2008). Indeed, the issue of *transparency* of the English S-framed system is an area that requires closer investigation, (Treffers-Daller & Tidball, 2015). Finally, there may be an underlying cognitively entrenched L1 blueprint, which is difficult to override and which affects the manner in which a learner conceptualises an event before its L2 articulation (Slobin, 1996). The implications of this view are that for a learner to achieve target-like L2 expression in the manner domain, semantics alone may not suffice and that learners may benefit from guidance towards a re-conceptualization of how the event itself is perceived (Hendriks et al, 2008; Daller, Treffers-Daller & Furman, 2011).

From the teaching viewpoint, two main issues arise. Firstly, instructors may have little experience with the complexities of the motion domain and, as a result, when designing syllabi, may give little or no attention to the topic. Furthermore, instructors who have identified the description of motion as an area of difficulty may find there is a lack of suitable resources available to aid instruction. As an entry point to the expression of L2 motion, the current study focuses on boundary-crossing expressions for *entering* and *exiting*, which use intransitive/self-propelled manner-of-motion verbs involving directed motion, as in (2),

(2) The man walked into the park

but not transitive/causative motion as in (3)

(3) The man walked the dog into the park.

These verbs are part of a sub-category of manner of motion also referred to as *self-agentive* verbs, which are characterised as exhibiting *protagonist control* as opposed to *direct external cause* (Levin & Rappaport Hovav, 1992, p. 253).

The instructional phase of the study takes up the suggestion from Inagaki (2001) who observed that regarding the acquisition of L2 motion expressions, availability of positive evidence alone may not guarantee success, and that some type of input enhancement could be more effective. Input Enhancement (IE) is the process by which language input is adapted in some way to become more salient to learners (Sharwood Smith, 1991, p. 118). One kind of IE, which shows potential in the L2 motion domain (Treffers-Daller, 2012) due to its recognition of the potential effects of cognitive processes in L2 learning, is Processing Instruction (PI) (VanPatten & Cadierno, 1993). In contrast to other forms of IE, such as input flooding or textual enhancement (TTIE), PI is an input-based approach that involves the manipulation of written or oral input aimed at guiding learners towards an appropriate form-meaning connection (FMC) (VanPatten, 1996; 2004). In the context of motion event construal, PI may be effective in helping learners to reconceptualise motion and to acquire new mappings of concepts such as Figure, Path and Manner onto linguistic forms such as verbs and prepositions. However, since its inception there has been much debate regarding the relative effectiveness of PI when compared with other approaches which involve output practice (e.g., Benati 2005; Morgan-Short & Bowden 2006; Toth, 2006). While VanPatten does not underestimate the importance of output in terms of language development (2002, p. 762), he attributes a more central role to input (VanPatten, 2004, p. 27). From a language teaching perspective, the debate regarding the relative roles of input and output is a key issue, which has the potential to affect curriculum design and how time is spent in the classroom on a daily basis. With these issues in mind and following recommendations that researchers test combinations of PI and output practice with different structures (Kirk, 2013), the present study uses a quasi-experimental design involving an input-based group and an input/output-based group to investigate the effectiveness of the two approaches in promoting appropriate interpretation and target-like production of L2 English manner-of-motion verbs and Path satellites. In terms of originality, this is the first study to propose practical solutions to the well-documented challenges for learners in the L2 motion domain. Furthermore, it is envisioned that the insight gained from the study may prompt further research into the teaching and learning of a broader range of L2 motion events and that recommendations to ESL instructors and textbook editors can be made in order to improve a relatively neglected area in L2 instruction.

The rest of this thesis is organised as follows. Chapter 2 summarizes the theoretical framework on which this study is based, which includes the typological classification of languages according to Talmy (1985, 1991, 2000) and Slobin (1987, 1996, 2004, 2005, 2006), and key issues and research methodologies in motion event construal (sections 2.6-2.12). This is followed by an overview of theories of language acquisition (section 2.13-2.14) with a particular focus on Input Processing (IP) (section 2.15-2.17). Chapter 3 focuses on the pilot studies, which informed the teaching and testing materials used in the current study. As the reader will see, substantial changes were made to both the instructional materials and methods of assessment based on the insight gained from the various trials at the piloting stage. Chapter 4 describes the methodology used in the study, including the study design, information about the participants, the development of the instructional packages and data collection procedures. Chapters 5 and 6 provide an in-depth overview of the two methods of assessment: data from elicited written narrative descriptions to assess the participants' production of the target forms (Chapter 5); data from self-paced reading tasks (SPRTs), which were designed to assess both the response latency and accuracy during interpretation of a variety of motion expressions (Chapter 6). Chapter 7 links the theoretical debates summarized in the literature review with the current study and explains how an attempt has been made to address an area of language teaching which is often ignored in the ESL classroom. The chapter concludes with practical recommendations for teachers based on the insight gleaned from the study (section 7.4). Chapter 8 summarizes the main findings and restates the justification for the study in an ESL teaching context. The thesis ends with recognition of the limitations of the research and discusses possible future lines of enquiry.

2 Literature review

2.1. Overview

This chapter is divided into five broad sections. The first section focuses on the theoretical framework for language typology developed by Talmy (1985, 1991, 2000) and Slobin (1987, 1996, 2004, 2005, 2006) and in particular the typological classification of the languages which form the focus of the current study (sections 2.2–2.5). In the second section, there is a summary of key issues and research methodologies in motion event construal (sections 2.6-2.12). This is followed, in the third section, by a discussion of theories which have tried to explain features of language acquisition (section 2.13-2.14). The fourth section critically examines PI, its theoretical underpinnings and discusses issues often raised when contrasting input and output-based instruction (section 2.15-2.17). In section 2.18, an introduction is given to the aims and motivation for the current study and includes a brief outline of the experimental design and testing procedures, which is intended to anticipate the research questions. The chapter ends with a summary of the key issues raised in the previous sections, which are directly relevant to the study. This is followed by the research questions (section 2.19).

2.2. Talmy's typology of motion events

A motion event has been described as a situation "containing movement or the maintenance of a stationary location" and is made up of four basic internal components: FIGURE, GROUND, PATH and MOTION (Talmy, 1985, p. 61).

(4) The bottle floated into the cave.

Figure **Motion** **Path** **Ground**

In Talmyan terms, the Figure refers to the object that moves or is located while Motion refers to either the movement of an object or its stationary state. The Ground is the object which provides the Figure with a point of reference in terms of movement or location while Path refers to the source, trajectory and end point of the motion or the location of the Figure. However, these basic components can be combined with additional information regarding how the object is moving. One such *co-event* (Talmy, 1985), which is commonly incorporated into the expression of motion in English, is the manner of motion. Talmy's example reproduced below shows the typological difference between predominantly V-framed Spanish and commonly S-framed English in terms of how the additional Manner component is expressed:

V-framed language (e.g. Spanish)

(5) La botella entró en la cueva **flotando**

↑

Subordinate element

(The bottle entered the cave floating)

S-framed language (e.g. English)

(6) The bottle **floated** into the cave

↑

Main verb slot

(Talmy, 1985, p. 69)

As seen in examples (5) and (6), in Spanish, a predominantly V-framed language, manner of motion can be expressed through the addition of a gerund (*flotando*) or an adverb, whereas in English the co-event of manner of motion (*floated*) usually takes up the main verb slot. In English, the Path component can be expressed outside the verb with the satellite (*into*), thus obviating the need for additional lexical items (Slobin, 2005).

Difficulties with Talmy's typology

While Talmy's classification of motion-event typology has been influential in many areas of linguistic and psycholinguistic research (Croft, Barðdal, Hollmann, Sotirova & Taoka, 2010), there is a growing body of research which suggests limitations to the original classification. More recently, the existence of a third group of equipollent-framed languages has been proposed (Slobin, 2004). In this group, which includes Mandarin Chinese, Path and Manner are lexicalized by a series of verbs (Chen & Guo, 2009) with neither the Path nor the Manner constituent regarded as the main verb. However, while recognising the value of Slobin's proposal, Talmy warns against overgeneralising this third category and calls into question the extensiveness of equipollence (Talmy, 2009). Furthermore, it has been argued that most languages demonstrate some features of both verb-framing and satellite-framing and cannot be regarded as polar opposites (see, e.g., Aske 1989; Beavers, Levin, & Tham , 2010; Berman & Slobin 1994; Gennari, Sloman, Malt & Tecumseh, 2002; Slobin & Hoiting, 1994; Slobin 1996, 2004). There are cases where an S-framed language may behave like a V-framed language and vice-versa, for example, English has Latinate verbs such as *enter* and *exit* which express Path without the need for an additional Path expression outside the verb,

(7) The man <u>entered</u> the room.

Furthermore, in a largely V-framed language like Spanish some manner verbs may be used with a preposition to express directed motion.

(8) Volaron a Mar del Plata.

"They flew to Mar del Plata."

(Martínez Vázquez, 2001, p. 52)

Regarding these possible variations, Slobin argues that it is possible to rank languages on a cline of Manner salience with language typologies not polarized but rather situated at different points on a continuum (Slobin, 2004, p. 220). Indeed, because of some of the difficulties with applying Talmy's original theory like those outlined above, alternative models have been proposed.

Alternatives to Talmy's Typology

Recent studies have begun to question both Talmy's motion-event typology and Slobin's salience cline or continuum, as researchers attempt to come up with a different framework that takes in the wider range of options available within a language, (e.g. Zlatev & Yangklang, 2003). While the present study is based on Talmy's original S-language vs. V-language typology and is informed by Slobin's approach, the overview presented below provides a glimpse of recent trends in contemporary motion event research.

One alternative to Talmy's classification can be found in Pourcel (2005). Primarily, Pourcel's model differs in its attempt to differentiate between a *motion event* (9) and a *motion activity* (10):

(9) The dog ran out of the barn across the field to the house.

(10) The dog is running around the house.

(Pourcel, 2005, pp. 153-154)

While Pourcel concurs with Talmy in attributing the conceptual focus of a *motion event* (9) to Path, the core schema of a *motion activity* (10) is regarded as being that of Manner. However, in this alternative model, separating a *motion event* from a *motion activity* can prove difficult. This alternative model is refined further in Pourcel and Kopecka (2006), in their study of the typological intricacies of motion events in L1 French. The findings, which showed a wide variety of patterns in actual language use, point towards an important role for semantic and pragmatic factors, leading the authors to suggest the potential advantages of considering *motion scenarios* consisting of several *motion events* instead of focusing on an isolated event. Along these lines, Beavers, et al (2010, p. 52) have also drawn attention to the importance of pragmatic factors highlighting the fact that when certain contextual conditions are met, some speakers of V-framed languages may prefer the S-framed pattern. In the example from French, which originally appears in Stringer (2003), the use of *dans* (11) is described as more natural than the V-framed expression of the same meaning (12):

(11) Allez, courons dans la maison!
"Come on, let's run in the house!"

(12) Allez, entrons dans la maison en courant!
' "Come on, let's enter the house running!"

(Stringer, 2003, p. 46 cited in Beavers et al., 2010)

2.3. Typological classification of the languages in the current study

The new trends discussed above offer insightful critiques and alternatives to Talmy's (1985) motion-event typology. Nevertheless, Talmy's bipartite division has proved to be a useful starting point for a large number of psycholinguistic typological studies (e.g., Choi & Bowerman, 1991; Berman & Slobin, 1994; Slobin, 1996, 2004; Naigles, Eisenberg, Kako, Highter & McGraw, 1998; among others). While keeping in mind the alternative models and critiques outlined above, the present study follows previous studies of second language acquisition of motion event construal (e.g. Inagaki, 2002; Cadierno, 2004; Cadierno & Lund, 2004) and uses Talmy's framework as an entry point to motion events in the ESL classroom.

2.4. Motion event construal

As noted above certain languages would seem to favour particular frames in the expression of motion. However, these surface variations may be more deeply rooted and perhaps related to differences in the way motion events are construed before speaking, at the preverbal stage (in Levelt's (1989) terms, the *Conceptualizer,* see Appendix A). Before producing an utterance, speakers of a particular language learn to make choices at any early age regarding the elements required for verbalization and attend particularly to the features of a motion event that can be mapped more readily onto the linguistic patterns available for encoding (Levelt, 1989). For example, in a mainly S-framed language like English, speakers seem to develop sensitivity on a conceptual level towards finer manner distinctions when talking about motion than speakers of V-framed languages.

This conceptual sensitivity towards a certain mode of expression is particularly evident in Slobin’s (2005) study of how events are related in translation. The findings suggest that manner verbs are not only easily accessible to English speakers but also present in their mental imagery (Slobin, 2005). In the study, participants were asked to recall passages from Spanish novels which had been translated into English without the use of manner verbs as in the extract reproduced below which comes from Isabel Allende’s *La Casa de los Espíritus*.

Original:

"Tomó sus maletas y echó a andar por el barrial y las piedras de un sendero que conducía al pueblo. Caminó más de diez minutos, agradecido de que no lloviera, porque a duras penas podía avanzar con sus pesadas maletas"

Translation:

"He picked up his bags and started to walk through the mud and stones of a path that led to the town. He walked for more than ten minutes, grateful that it was not raining, because it was only with difficulty that he was able to advance along the path with his heavy suitcases."

(Slobin, 2005, p. 10)

Despite the absence of manner verbs in the original, most of the English speakers reported the story back using manner verbs such as *stagger* or *trudge.* According to Slobin, such findings would appear to indicate that the actual conceptualizations of motion events may differ for speakers of typologically different languages and therefore the prominence of the mental imagery or *salience* (Talmy 1985) of the information will vary from speaker to speaker depending on the language background.

2.5. Cross-linguistic differences: the boundary-crossing constraint

A key difference between S-framed and V-framed languages is the way in which the crossing of a boundary is expressed. In Romance languages, like Spanish and French it is only possible to use a manner verb followed by a path phrase if no boundary-crossing is involved (Slobin, 1996). Indeed, in V-framed languages, a figure may *fly to/from the tree* where there is no crossing of a boundary but not *fly into/out of the hole*, which would entail crossing a boundary. This movement from one location *to* or *into* another would usually be expressed by a motion verb, rather than a manner-of-motion verb and a preposition (e.g. *exit the hole flying)* (Talmy 2000; Aske 1989). In (13) and (14) the prepositions *hasta* and *jusquà* ('until') are used to describe motion involving Manner verbs where the Figures arrive at a boundary but do not cross it:

Spanish:

(13) Juan bailó hasta la puerta

"John danced up to the door" *(Not boundary-crossing)*

(Aske, 1989)

French:

(14) La cire coule jusqu'au bord de la table.

"The wax flowed to the edge of the table." *(Not boundary-crossing)*

(Cummins, 1996)

Manner verbs such as *bailó* in Spanish and *couler* in French can be used with a preposition which delimits an endpoint without a boundary-crossing but not with prepositions such as *into* or *out of* which involve moving from one side of a boundary to another. There are exceptions to this constraint. For instance, in both Italian and Spanish (Slobin & Hoiting, 1994) verbs which are used to describe *instantaneous acts* of limited duration or *punctual events* (Naigles et al., 1998), such as *diving into a swimming pool*, the use of a manner of motion verb and a boundary-crossing path phrase is possible (see 15-17).

English (boundary-crossing)

(15) He dived into the swimming pool

Spanish (boundary-crossing)

(16) Se tiró a la pileta

Italian (boundary-crossing)

(17) Si è gettato in piscina

As mentioned previously such punctual events are the exception rather than the rule. For a manner of motion activity that is extended in time/space while crossing a boundary (Kita, 1999), locative interpretations would be common in V-framed languages such as Spanish (Aske 1989) and Italian (Cardini, 2009):

English: ***(directional)*** *(boundary-crossing)*

(18) He crawled into the room

Spanish: ***(locative)*** *(Not boundary-crossing)*

(19) Se arrastró dentro la pieza

"He crawled inside the room"-

(This means the person crawled around inside the room but did not move in the direction of the room.)

Italian*:* ***(locative)*** *(Not boundary-crossing)*

(20) Si è strisciato nella stanza

"He crawled inside the room"

(As in (19), this means the person crawled around inside the room but did not move in the direction of the room.)

While it is true that Italian and Spanish have fewer verbs for describing fine-grained differences in manner of motion this explanation does not account completely for the limited use of broader manner type verbs such as *camminare* "walk "or *correre* "run". Furthermore, there would seem to be grammatical constraints for some languages that have difficulties combining manner verbs with telic path or boundary-crossing phrases. Telic path phrases involve changes of location and are expressed by *into, out of, across, through, away from/off* (Aske, 1989; Cardini, 2009). There are two distinct types of Path, telic and atelic (or locative) Paths (Aske, 1989). As shown in Table 2, telic path phrases are directional phrases which entail an end-point or the crossing of a boundary whereas atelic path phrases specify a trajectory without an end-point.

Table 2 The relationship between telicity and boundary-crossing

	Directional (boundary-crossing)	**Locative (no boundary-crossing)**
Telic	The dog ran into the house.	The dog ran up to the house.
Atelic	Not applicable	The dog ran in the house.

In Spanish, manner of motion can only be used in cases of non boundary-crossing,

(21) El perro corrió hasta la casa

"The dog ran up to the house"

However, in contrast to Spanish, some Italian manner verbs are able to lexicalise directionality (see Table 2) which means Italian is not entirely verb-framed and shares some features with satellite-framed languages (Cardini, 2009). The following example in Italian where the speaker uses *è scesa* "has descended" and *è venuta giù* "has come down" shows that both V-framed and S-framed constructions are used,

(22) [...] perché io ho vista XYZ che è scesa

"because I saw XYZ who descended"

ma io ero in box è venuta giù ha detto [...]

"but I was in the garage she came down and said"

(LIP corpus, cfr. De Mauro et al. 1993, telephone conversation, Milan, as cited in Bernini Spreafico & Valentini, 2006)

The key differences between V-framed and S-framed languages are summarized in Table 3:

Table 3 Summary of typological differences

S-framed typology	V-framed typology
Predominantly satellite-framed with less frequent verb-framed options e.g. English, German, Swedish	Predominantly Verb-framed with fewer instances of Satellite-framed patterns than English e.g. Spanish, Hebrew, Korean
Able to combine manner with all path phrases including boundary-crossing.	Able to combine manner with some path phrases if no boundary crossing is involved (except for instantaneous movement)
High-frequency of manner verbs in speaking and writing.	High-frequency of path verbs with little use of manner verbs.
Richer lexicon of manner verbs.	Fewer manner verbs.
Manner of motion salient in mental imagery.	Manner less salient

2.6. Verb + Path satellite combinations

In many predominantly V-framed languages, it would seem that there is limited availability of particular verb + satellite combinations. Whereas in English manner of motion verbs can be used in the expression of directed motion events, in V-framed languages relatively few manner of motion verbs can be used directionally. For instance, whereas in English *he <u>danced into</u> the room* is possible as an example of manner-of-motion verb + directional preposition, this combination is only possible in V-framed languages with verbs which are inherently more directional. With reference to manner of motion in Spanish, Morimoto (2001) identifies two distinct patterns: internal manner of motion and external manner of motion. The first sub-category comprises verbs such as *bailar* "to dance", which are self-contained with no reference to trajectory. As a result, *he danced into the room* would be expressed in Spanish as, *entró bailando a la sala* "he entered the room dancing". This constraint contrasts with the second sub-category which includes verbs which communicate an element of displacement such as *correr* "to run", *caminar* "to walk", or *nadar* "to swim". These verbs can be used following both the V-framed and the S-framed patterns, as in *atravesó nadando el río* "he crossed swimming the river" or *nadó a través del río* "he swam across the river". To illustrate, Martínez Vázquez (2001) and Fábregas (2007) found the manner-of-motion verb + *a* combination with Spanish Manner of motion verbs like *volar* "fly" and *correr* "run".

(23) Volaron a Mar del Plata.

"They flew to Mar del Plata."

(Martínez Vázquez, 2001, p. 52,)

(24) Michel corre al molino y destruye el cementerio.

"Michel runs to the mill and destroys the cemetery."

(Julio Lopez Navarro, Clasicos del Cine, p. 152; cited in Fabregas, 2007, p. 168)

The same combination has been found in Italian

(25) La rondine e` volata al nido.

"The swallow flew to the nest."

(Folli & Ramchand, 2005, p. 96)

(26) Maria è corsa (fino) a casa in un'ora

"Maria has run to the house in an hour."

(Zubizarreta & Oh, 2007, pp. 2-3)

Additionally, Iacobini & Masini (2006, p. 169) show that verb + satellite combinations such as *andare dentro* "to go in" which are used alongside *entrare* "to enter" are very popular in Italian, in particular in informal speech.

To sum up, while many instances of S-framed patterns of motion expression can be found in languages which have been typically classified as canonically V-framed, there are key differences and limitations regarding the way in which these patterns may be deployed and their relative frequency of use. The cross-linguistic differences regarding language typology and relative frequency of manner-of-motion verbs will be discussed in the next section.

2.7. Cross-linguistic frequency of Manner of motion verbs

Regarding the more frequent manner-of-motion verb + satellite combination in English, it would appear that speakers of languages which favour the S-framed pattern tend to have a larger lexicon of manner-of-motion verbs and develop a greater sensitivity towards finer manner distinctions when talking about motion than speakers of languages which prefer the V-framed structure, such as Spanish (Aske, 1989) and Italian (Cardini, 2009). Indeed, in a quantitative analysis of written L2 corpora of French, Italian, and Spanish learners of English, Reshöft (2011) found that in contrast to monolingual native speakers of English, the learners showed less diversity in the types of manner verbs and few Manner + Path expressions.

This trend has also been observed in a comparison of manner-of-motion verbs used in novels (Özçalışkan & Slobin, 2000). In the study, samples were taken from novels written by authors from a wide range of L1 backgrounds, such as Carpentier, García Márquez, Pamuk, Fowles, Hemingway, Steinbeck and Dostoyevsky. It was found that S-framed language writers gave significantly more information regarding manner of motion than their V-framed counterparts. Table 4 shows the percentages found for the frequency of manner verbs used in the novels to describe the movement of the main characters.

Table 4 Cross-linguistic comparison motion verbs used in novels

Manner verb use V-framed	**Manner verb use S-framed**
Spanish 19%	English 41%
Turkish 21%	Russian 56%

(Özçalışkan & Slobin, 2000)

The findings of the study described above were echoed by a comparative type/token analysis of translations between English, Spanish and Turkish, which showed that when translating from for example Spanish to English, translators tended to use more vivid descriptions of manner of motion in their English translations (Slobin, 1996). The opposite was found to be true for translations from English into Spanish. The following is an example taken from Slobin's (1996) study:

English original*:*

(27) He <u>stomped</u> from the trim house.

Spanish translation

(28) <u>Salió</u> de la pulcra casa.

"He <u>exited</u> from the trim house"

(Slobin, 1996, p. 9)

2.8. Thinking-for-Speaking and conceptual transfer in motion event construal

The particular focus of this study is the set of challenges for language learners in the expression of L2 manner-of-motion verbs and Path satellites, which may result from conceptual and cross-linguistic differences. One theory, which may help to throw light on the apparent cognitive challenges involved, is Slobin's Thinking-for-Speaking Hypothesis (TFSH) (Slobin, 1996). According to this psycholinguistic theory, it is during the online thinking that takes place prior to speaking where choices are made regarding the conceptualization of an event and how it may be coded. Following this line of thought, it would appear that experiences cannot be expressed directly but must pass through some kind of linguistic filter before becoming a verbalised event (Slobin, 1996). For some (e.g. Levelt, 1989), this filter is in place from an early age and hence by the time a person reaches adulthood he or she has learned what to encode when preparing a message for expression. In the context of viewing a motion event, this means that a person automatically focuses on what can be easily expressed (Levelt, 1989, pp. 104-105). Indeed, it is suggested that by learning to think to speak in their native language, children learn to attend to specific features of an event which may be readily encoded within the grammatical parameters of their language, what Slobin has called *ripple effects of habitual attention to linguistically-encoded event characteristics* (Slobin, 2003, p. 3). As a result, a person is trained from an early age to attend to elements of a motion event which can be expressed in their language and with time this way of looking at the world becomes automatic. Importantly for this study, TFSH states that this attention to specific features is:

a) learned in childhood

b) exceptionally resistant to restructuring in adult second-language acquisition

c) likely to be transferred to a second language.

(Slobin, 1996, p. 89)

In sum, whereas Talmy's typology regards how the features of a motion event are encoded, Slobin's work focuses on the way in which native speakers and L2 learners of different languages attend to features such as Manner and Path to varying degrees. Slobin posits that this variation in speaker attention occurs because their language does not make these features equally salient and that instead of being able to relay a motion event objectively, speakers construe situations in terms of those dimensions privileged in their own language (Slobin, 1996, p. 76). In many cases, these L1 patterns are incorporated into or *transferred* to the learner's knowledge system of the L2 under construction (Ellis, 1994, p. 28). Also referred to as *cross-linguistic influence* (CLI) (Jarvis & Pavlenko, 2008), language transfer is broadly the effect that one language has on the usage or knowledge of another language. A wide variety of different kinds of transfer have been identified (e.g. phonological, conceptual, lexical and pragmatic) (Jarvis & Pavlenko, 2008) which may appear across many different dimensions (e.g. directionality, form, outcome, and mode). While Jarvis and Pavlenko identify ten different dimensions, they suggest that the number could be higher depending on one's perspective.

Historically speaking, the notion of transfer in SLA has enjoyed varying degrees of popularity. Despite receiving substantial attention in the 1950s-1960s where it was regarded as a main contributor to the difficulties of learning a second language, the notion of transfer fell out of favour with theorists in the 1970s. Since the 1980s however, there has been a resurgence of interest in the effects of L1 on L2 (Kohn, 1986). More recently, the transfer debate has taken a multi-directional turn with recognition of the varying effects an L1 may have on an L2, an L2 may have on an L3, an L1 on an L3 and vice-versa. It is now thought that transfer can result from variations between a target language and any other language that has been previously acquired (Odlin, 1989, p. 27) (see also Pavlenko & Jarvis, 2002 on *bidirectional transfer* and Jarvis & Pavlenko, 2008 on *forward transfer,* *reverse transfer*, and *lateral transfer*). The contemporary view on transfer in the motion domain is that it may have a significant effect on the learner's production and interpretation of L2 motion expressions.

Of particular relevance to the current study is *conceptual transfer*. In contrast to *semantic transfer* where a language learner may make an error when linking words and concepts, conceptual transfer regards differences in the actual concepts people from different language backgrounds may hold in their minds for *objects, events, qualities and relationships* (Jarvis, 2011, p. 1). An example of *semantic transfer* can be seen in the sentence produced by a Finnish learner of English who said "he bit himself in the language" (Ringbom, 2001, p. 64). Here the speaker seems to have confused not the underlying concept, but simply the English words *language* and *tongue* perhaps because Finnish has a single word *kieli* for both words. While this can be seen as a case of semantic transfer induced by L1 influence, when Russian learners of English describe *paper cups* as *glasses*, there may be both semantic and conceptual transfer at play due to differences in the way the object is categorised in the L1 (see Jarvis & Pavlenko, 2008). A Russian person sees *paper cups* as belonging to the same category as *glasses* rather than that of cups. Evidence of the use of such L1 concepts and patterns of conceptualization in a newly acquired language has given rise to the Conceptual Transfer Hypothesis (CTH) (Jarvis, 2007). Here Jarvis makes an important distinction between *concept transfer* and *conceptualization transfer* both of which are considered in CTH. Concept transfer is transfer stemming from cross-linguistic differences in the L1 concepts already held in the L2 user's mind. This differs from Conceptualization transfer which occurs at the moment when a choice is made from the stored L1 concepts available to the language user (Jarvis, 2007).

For the study of transfer in the expression of L2 motion events, the notion of conceptualization transfer is particularly relevant as it suggests that learners may choose the features of an event for verbalization following a blueprint of conceptualization patterns belonging to their native language (Daller, et al., 2011). This means that learners whose L1 is predominantly S-framed may continue to rely on this conceptualization pattern when using a V-framed L2 or vice-versa. For example, Brown & Gulberg (2010) found the use of adverbials as Path verbs

(29) and he throughed inside the drainpipe

The authors suggest that this kind of sentence may be indicative of cross-linguistic influence of the L1 on the L2 as the learner deploys the Path satellite as if it were a Path verb. The study compared the L1 performance of native speakers of Japanese who had reached an intermediate-level of English, with monolingual speakers of Japanese and English. In the study, 57 adults aged between 18 and 48 produced narrative descriptions of the Sylvester and Tweety cartoon, "Canary Row" (Freleng, 1950). The descriptions were video-recorded, transcribed and analysed for the motion expressions. As predicted, the results showed that the monolingual Japanese speakers did follow the typical V-framed pattern for the expression of Path, albeit with the morphosyntactic variations which are available in Japanese. Moreover, the results suggested a certain malleability regarding L1 path expression. Specifically, it was found that the L1 Japanese speakers with only intermediate-level English appeared to demonstrate bidirectional transfer in L1 Japanese. It was found that these speakers used a mixed strategy for Path lexicalization, using at times, Path verbs, like monolingual Japanese speakers, and at other times adverbial Path expressions typical of S-framed languages like English. These results appeared to be confirmed by the same authors in a subsequent study which replicated the overall design of the 2010 study (Brown & Gullberg, 2011). The findings from both studies seem to indicate some level of restructuring of the L1 even for intermediate-level language learners.

Hohenstein, et al., (2006) also found evidence to suggest bidirectional transfer in early and late adult Spanish L1 learners of English. There were 37 participants in the study, 18 of whom had begun learning English before or at age 5, while the other 19 participants had not studied English until age 12. The participants gave oral descriptions of video clips which showed a variety of motion events, such as a man jogging into a building or a girl running down a hill. The results showed an apparent preference for path verbs when descriptions were given and Spanish while descriptions in English produced more manner verbs. Moreover, it was also found that when compared with their monolingual counterparts, Spanish bilinguals produced more manner verbs while the English bilinguals produced fewer manner verbs than English monolinguals. While the authors attribute these variations to lexical bidirectional effects of L1 on L2 and from L2 on L1, they also found what appeared to be a grammatical influence in some motion expressions when L1 Spanish bilinguals were asked to describe the video clips in English. Further evidence of the challenges for learners in the motion domain can be found in Larrañaga et al (2012). The study examined the oral elicited narratives produced by 68 L1 English Spanish students at three different levels of proficiency. The participants were asked to describe a picture story involving a bank robber (Plauen, 1952; 1996). Of particular interest to the authors was a boundary-crossing event where the robber enters the bank due to the evident difficulties for learners in the encoding of manner in this particular kind of event. The results showed that even the level 3 students who had spent six months in Spain prior to data collection, seemed to be unaware of how path is typically encoded in Spanish, and the constraints when using a manner verb while describing a boundary-crossing event. As a result, many of the descriptions provided appeared to be literal translations from L1 English. On this particular point, the authors suggest that the existence of English latinate path verbs such as *enter* or *ascend* may both help and hinder acquisition. In some cases, the existence of these V-framed alternatives in English can be a bonus for learners when learning L2 Spanish Path verbs. However, this partial overlap may prompt learners to overestimate the similarities between the two languages and lead to the erroneous overgeneralization of the canonical English S-framed structure. The authors conclude that, particularly in boundary-crossing events, if learners do not encounter sufficient positive and negative evidence in the input, L1 transfer is likely to occur even at higher levels of proficiency.

In another study, Cadierno (2004) found an apparent correlation between L1 transfer and language level. While the influence of L1 thinking for speaking patterns seemed to disappear gradually at more advanced levels, learners with typologically different L1s and L2s, were found to use L1 structures in L2 at lower levels. Moreover, in a later study the same author found indications of transfer even with advanced level Spanish, German and Russian learners of Danish. Specifically, it was found that the German and Russian speakers used manner verbs + Path satellites more frequently than Spanish speakers, who preferred non-manner of motion verbs + path information in their L2 Danish (Cadierno, 2010). Similar evidence of apparent L1 transfer was found in a comparison of British learners of French and French learners of British English, where Treffers-Daller and Tidball (2015) found violations of the boundary crossing constraint with both intermediate level and advanced learners of French.

While previous research would seem to show some effect of a speaker's first language even at higher levels of language proficiency, some disagreement does exist. In Cadierno and Ruiz (2006) it was predicted that the Danish learners of Spanish whose L1 favoured the S-framed pattern would tend to relate to Path and Manner with a higher frequency and at higher levels of elaboration than Italian learners of Spanish. Instead, there were no significant differences regarding references to Manner and Path across the learner groups. Similarly, Navarro and Nicoladis (2005) found that English (L1) Spanish (L2) speakers came very close to achieving L1 Spanish patterns for the description of motion events in oral narratives. The participants described video excerpts stressing Path which is the most salient aspect of motion in Spanish (Navarro & Nicoladis, 2005).

The lack of an L1 effect on L2 motion expressions was also found in corpus-based analyses of descriptions of voluntary motion events along three paths (*up, down, across*) which compared Russian, English native speakers and upper-intermediate and advanced Russian learners of English. In this particular study, Iakovleva (2012) found that despite considerable differences between Russian and English the structures produced by L2 learners rarely followed L1 motion conceptualizations.

Broadly speaking, research into L1 effects on the expression of L2 motion would seem to support the CTH in that learners, particularly at lower levels, may continue to rely on overriding L1 conceptualization patterns in the motion domain. However, these transfer effects would seem to fade at higher levels of proficiency.

For evidence of conceptual transfer, three main points are considered:

(a) *intragroup homogeneity*: each group of learners should display a level of uniformity in their use of the recipient language and that the observed behaviour is not an individual characteristic.

(b) *intergroup heterogeneity*: there should be clear differences between each group of learners to show that variations in language background are significant and that the behaviours do not occur independent of L1/L2 combinations.

(c) *cross-linguistic performance congruity*: it should be demonstrable that the patterns found in the recipient language reflect the patterns observable in the source language when used in similar contexts.

(Jarvis & Pavlenko, 2008, p. 228)

2.9. Methodologies used in Motion event construal research

Researchers investigating motion event construal have used a variety of techniques for data collection (See Appendix B1-2 for summary of key research and methods). Frequently these methods have involved variations or combinations of the following three categories: spontaneous data; elicitation techniques and metalinguistic judgements.

2.9.1. Spontaneous data

Spontaneous data, which has been used frequently with research into L1 motion expressions, includes observations of unsolicited language use, such as written or spoken corpora of naturally occurring data. For instance, Choi and Bowerman (1991) used natural data to investigate the acquisition of the patterns used to express motion in English and Korean children. The data provided valuable insight into semantic organisation and more specifically how the expression of motion relates to language development.

2.9.2. Elicited data

Another means of data collection in the motion domain is through elicited narratives. Elicited narratives have been widely used in motion verb research prompted by the use of stimuli such as picture stories, motion event videos, movie clips and cartoons. In one study that used this kind of elicitation technique, L2 Spanish learners were shown video excerpts from the Pink Panther cartoon (Navarro & Nicoladis, 2005). The learners were then asked to tell the stories back orally in Spanish to a native speaker. The oral narratives were conducted individually and videotaped. The data elicited in this manner proved effective in allowing the authors to observe the extent to which the learners were able to acquire L2 motion event language patterns. Previously, Berman and Slobin (1996) used the picture story book *Frog, where are you?* (Mayer, 1969) in their seminal cross-linguistic developmental study. The picture book was used to investigate typological differences between 48 L1 and 17 L2 speakers worldwide.

Similarly, Cadierno and Ruiz (2006) used *The frog story* (Mayer, 1969) to elicit narrative data from L2 Spanish learners. In the study, Danish L1 and Italian L1 learners of Spanish were given up to 45 minutes to look at the 24 pictures and write a narration describing what they saw in each picture. Subjects in the two learner groups (i.e., Danish and Italian) were given a bilingual list of key nouns that appeared in the pictures and were instructed to use these nouns in their narratives. From the data in this particular study, the authors found a limited role for the L1 thinking for speaking patterns in advanced second language acquisition.

Despite their popularity, the use of static picture books and cartoons in motion construal research is not without its critics. On the one hand, it has been suggested that the lack of movement in picture stories may encourage participants towards a locative interpretation of otherwise dynamic events (e.g. Naigles et al., 1998). With regard to the use of cartoons or video clips for elicitation, one disadvantage is the fact that participants may rely too much on memory when generating their narratives, which may affect their ability to produce the target forms (Navarro & Nicoladis, 2005).

A further criticism of these elicitation techniques regards the fact that stories such as *Frog, where are you*? and cartoons like *The Pink Panther* were not designed specifically for the purposes of motion event research. Indeed, to overcome this issue some researchers have created their own elicitation materials. For instance, Antonijevic and Berthaud (2009) used a series of pictures which had been designed specifically for investigating the use of five verbs in English (*go, climb, play, pull, and jump*) and six verbs in French (*aller, descendre, monter, jouer, tirer, sauter*). Participants were instructed in their L1 to describe a set of pictures in L2 using a given verb. The participants were then asked to translate all their sentences into L1 to verify their understanding of the pictures. From the data, it was found that the learners of French whose L1 was English were more successful than the learners of English whose L1 was French. It was also found that while advanced English learners of French were close to the production of target-like expressions of motion events, this was not the case for French groups learning English.

Finally, it has been suggested that perhaps the greatest advantage of using a picture story for elicitation is what it leaves to the imagination. What the pictures lack in detail must be filled in by the viewer's construal of the events on display (Sanchez & Jarvis, 2008.)

2.9.3. Metalinguistic judgements

Another method of investigating learners' use of motion expressions is through metalinguistic or grammaticality judgement tasks. In these kinds of tasks, participants are typically presented with some form of stimuli such as written or spoken sentences, pictures or video clips. The participants are then asked to make some kind of judgement regarding grammaticality. This often involves some kind of time limit or response time measurement. For example, Pourcel and Kopecka (2006) used grammaticality judgement tasks in combination with video clips and an extract from Charlie Chaplin's City Lights in order to examine the effects of language typology on the narrative descriptions of a group of L1 French speakers. One group were shown 45 video clips depicting human motion scenes in real-life settings. After each clip, participants wrote a sentence to describe the action. A second group were shown an extract from Chaplin's City Lights, which involved a thwarted suicide attempt. The scene showed numerous motion events in a sequence with various Manner and Path types. Participants were then instructed to perform an oral recall task followed by a grammaticality judgement task. The data obtained suggested evidence of the speakers using and accepting typologically mixed forms of expression in French (Pourcel & Kopecka, 2006).

2.9.4. Triad tasks

Triad tasks involve the identification of similarities and differences in the stimuli provided. For instance, Gennari and her colleagues (2002) made a series of motion events clips in order to compare the linguistic differences between English and Spanish. The researchers used a set of 108 filmed motion events organized as a set of 36 triads: 36 targets and 72 alternates, two for each of the target events. Within a triad, the target video showed a motion event while the two alternates portrayed variations in either the manner or the path dimension. Participants were then asked to perform tasks based on the clips, which included recognition memory, similarity judgements and participants' descriptions. Specifically it was found that linguistic descriptions seemed to have an effect on subsequent non-linguistic judgements (Slobin, 1996), which, in turn, may hint at the influence of language on non-linguistic cognition (Lucy, 1992).

2.10. Motion events and instructed SLA

As discussed in section 2.8, there are often contradictory findings regarding transfer effects in the L2 motion domain. Indeed, while a growing body of research exists regarding typological differences and the challenges they represent for L2 learners, the question of the teachability of these patterns has received less attention. What is apparent from the extant research is that it is not a simple task for learners to achieve conventional form and meaning mappings in L2 motion expressions. It would appear that learners themselves lack the familiarity with the S-framed pattern to unpack the relevant information from the overall structure, to isolate the components of *Path* and *Manner* and to discover the regularities in how the forms and their meanings are mapped onto each other. This task is further complicated by the fact that L2 learners have already established a system of form-meaning mappings for the expression of motion events in their first language, which may affect the expression of motion events in a second language (Hendriks et al., 2008, p. 36).

While very little is known about the kind of instruction which may benefit learners in this domain, Inagaki (2001) ventures that instruction which involves some type of input enhancement may prove fruitful. More specifically, Treffers-Daller (2012) has suggested that a link could be made between VanPatten's input processing and the teaching of motion event construal.

2.11. Theories of Second Language Acquisition, Nativism and Cognitive linguistics

In order to identify the kind of instruction which may benefit learners in the L2 motion domain, this study draws on insight from SLA theory. SLA is a complex process, which is difficult to define (Robinson, 2001). While SLA is often compared to First Language acquisition (FLA) there are important differences (Bley-Vroman, 1989). For example, the rate at which an L2 is acquired and the level of proficiency reached may vary considerably from speaker to speaker. In contrast, the acquisition of an L1, which usually occurs during childhood, generally leads to native speaker ability, with little variation in the rate of acquisition (Robinson, 2001).

Two contrasting approaches that have provided the theoretical frameworks for a great deal of research in SLA are *nativism* and *cognitive linguistics*. From a nativist standpoint, a child is born with an innate ability to acquire the L1 grammar through a mechanism referred to as the Language Acquisition Device (LAD), a hypothetical module of the brain posited to account for a child's innate predisposition for language acquisition (Chomsky, 1965, p. 25). This natural ability or *language instinct* (Pinker, 1994) is believed to be available for a limited time or *critical period* (Critical Period Hypothesis) which ends before puberty (Lenneberg, 1967). After this period, it is suggested that the cognitive resources previously deployed for language learning are required for other operations. According to Bley-Vroman's Fundamental Difference Hypothesis (FDH) (1989), child language acquisition draws on Universal Grammar (UG), a mental language faculty or blueprint, which constrains the shape that human languages can take (e.g. Chomsky, 1981, 1995). From this perspective, the language module is separate from other aspects of cognition although there is close interaction between them. While UG forms the basis of language acquisition during childhood, it has been argued that adult second language learners do not have access to this domain-specific faculty and have to deploy other general cognitive skills to acquire an L2 which are not unique to language (Bley-Vroman, 1989). Moreover, individual differences in the ability to use these skills, may lead to qualitative differences in the course of acquisition. As a result, the outcome of adult language acquisition is often less native-like and less uniform across individuals than that of child language.

While for the FDH access to UG is available for only a limited period of time, another theory suggests that there may be evidence of a *poverty of stimulus* in second language learners and that L2 input underdetermines the L2 grammar in the same way that L1 input underdetermines the L1 grammar (White, 2003). From this stance, if an L2 learner's knowledge of the target language extends beyond the input received and this knowledge could not be acquired using general learning strategies or from the L1, it can be argued that UG may still play a significant role (White, 2003, p. 22). Along these lines, a middle ground has been posited where a limited role for UG is assumed (White, 2003). From this perspective, which stands between SLA theories of *no-access* and *full-access,* it has been hypothesized that UG is still available but only partially and that access to it is mediated by the learner's L1. While an L2 learner may draw initially on principles and parameter settings from the L1 when processing L2 input, parameter resetting to the L2 value is still possible.

In contrast to the nativist-linguistic perspective and the innate language module, a cognitive linguistic approach suggests that language learning skills are not domain-specific but are part of more general cognitive skills such as perception and attention (Fauconnier, 1997). While Universal Grammar theorists focus on the linguistic system underlying second language grammars and its construction, cognitivist theorists place an emphasis on how learners access this linguistic knowledge and focus on the cognitive processes used by language learners and their outcomes. Moreover, of particular relevance to the current study, which draws a comparison between input-based and input/output-based instruction, is the notion that a second language is acquired through usage and is driven by input (Lieven & Tomasello, 2008). Within the cognitivist framework, language is not regarded as an autonomous cognitive faculty but as symbolic in nature where grammatical structures of language are related to the way in which a particular event is conceptualized. Eventual language acquisition is regarded as stemming from usage through which connections between form and meaning are made (Croft & Cruse, 2004, pp. 328-329).

While researchers are yet to agree on many of the areas discussed above, some consensus has been reached regarding the benefits of second language instruction (instructed SLA) (Doughty, 1991; Long, 1991; Norris & Ortega, 2000). By instruction I refer to what Housen and Pierrard (2005, p. 3) have defined as "any systematic attempt to enable or facilitate language learning by manipulating the mechanisms of learning and/or the conditions under which these occur". This contrasts with uninstructed SLA, which is more naturalistic, spontaneous and can occur across a wider variety of settings outside the traditional limits of the classroom. A key challenge in the motion domain for ESL teachers is to draw the learners' attention through instruction to differences between English motion expressions and motion expressions in their own language. As the research suggests, it would appear that the patterns used in the English S-framed system are not readily discernible without some form of instruction, which may help learners to attend to these particular patterns. In their study of the role of statistical learning in the acquisition of L2 motion event construal, Treffers-Daller & Tidball (2015) found evidence that the positive evidence available to the L2 learners of French from the input did not appear to be enough for the learners to acquire the boundary-crossing constraint. These findings conflict to some extent with the view of frequency of a particular form as a key factor in language learning (Ellis, 2002). While the authors do not dispute the importance of the role that frequency plays in the acquisition of many forms, it may not be the only key factor in the context of motion event construal. In their paper, parallels are drawn with other areas of language (e.g. prepositions and articles), which consistently present difficulties for learners despite their relative frequency (Gass and Mackey, 2002 cited in Treffers-Daller & Tidball, 2015). The authors conclude that attention to the frequency of path and manner verb patterns was only partially successful in helping the learners to master these forms, with a noticeable failure as regards constructions which involved the crossing of a boundary. It would appear that perhaps due to the lack of transparency that the learners were unable to detect the linguistic constraints on this particular construction just by attending to the positive evidence available in the input and that either direct or indirect negative evidence may be required to focus their attention. Indeed, it would appear that beyond the role of frequency, drawing attention to typological differences may be an important step in the instructional process. The issue of attention in SLA is discussed in the following section.

2.11.1. Theories of attention in SLA

In the context of language acquisition, there are different theories of *attention*, which have been transposed from cognitive psychology, neuroscience and psycholinguistics. While *attention* has been described by some as the cognitive process of selectively concentrating on one aspect of the environment while ignoring other stimuli (e.g. Broadbent, 1958; LaBerge, 1995; Tomlin & Villa, 1994), the term has often been substituted by related terms such as *consciousness*, *noticing*, *awareness*, and *understanding*, making comparisons more difficult (Schmidt, 1994a).

For some researchers, attention is regarded as being a limited resource which can be allocated to only one task at a time unless the task can be performed automatically (e.g., Posner & Snyder, 1975; Tomlin & Villa, 1994; Schmidt, 2001). An oft-cited example of an automatic process is that of an experienced driver driving a car (McLaughlin, 1987). For the driver, the process requires little attention to the mechanics of performance, which in turn frees up cognitive resources to be deployed for other tasks while driving. In contrast, a person who is learning to drive employs controlled cognitive processes, which require close attention and which limit the capacity to perform other tasks simultaneously. Selective attention theories, which are also referred to as bottleneck models due to the manner in which the flow of stimuli becomes restricted (Broadbent, 1958), include descriptions of voluntary and involuntary shifts in attention foci. Voluntary (endogenous) attention, has been characterized as having a slower more sustained influence on perception while involuntary (exogenous) attention is a faster process with a more transient effect (Posner & Cohen, 1984). One of the roles of attention is to control access to consciousness (Baars, 1988). Through this mechanism stimuli are selected and information is moved from one stage of processing to another. This selection is thought to be based on competition between stimuli, which compete for access to consciousness.

However, the extent to which consciousness plays a part in the allocation of attentional resources is contentious. For some researchers in SLA, attention and consciousness are inextricably linked (Schmidt, 2001). Others sustain, however, that attention can occur irrespective of consciousness (e.g., Tomlin & Villa, 1994; VanPatten, 2004). A third position regards attention as comprising two stages: an early processing stage where attention functions below the level of consciousness and a second, higher level of processing where attention becomes conscious (Marcel, 1983).

Whether or not consciousness is necessary for learning has been the subject of much debate (e.g., Baars, 1988; Sharwood Smith, 1991; Schmidt, 1995, 2001; VanPatten, 1996, 2004). However, two influential theories are Schmidt's Noticing Hypothesis (NH) (Schmidt, 1990, 2001) and Tomlin and Villa's (1994) theory of detection and orientation of attention.

A central tenet for NH is that learning is a conscious act, which is almost synonymous with attention (Schmidt, 1990). Schmidt suggests that people learn more about the things that they attend to and less about the things beyond their attention. *Noticing*, which occurs when attention is directed toward the input, comes about when learners become aware of differences between their current knowledge and the target language they are attempting to acquire. Furthermore, learners must consciously attend to a linguistic form to make form-meaning connections and for this to become intake (Schmidt, 1994a). Here the term *intake* refers to what Corder (1967) has defined as what is actually internalized by the learner and contrasts with *input* which refers to the language available to the learner. Schmidt (1990, p. 131) divides consciousness into three categories: *consciousness as awareness*, *consciousness as intention* and *consciousness as knowledge*. For the first category, *consciousness as awareness*, three levels are posited: *perception*, *noticing* and *understanding*. For input to become intake *noticing* at the level of awareness is considered necessary (Schmidt, 1990, p. 131). Awareness is further sub-divided into three different levels: *perception, understanding*, and *noticing*. Regarding *perception*, Schmidt accepts the notion that a learner is able to perceive either consciously or on a subliminal level (1990, p. 132). Furthermore, consciousness as awareness can also exist at the level of perception and can also occur subliminally. Schmidt (2001) has described *understanding* as higher-order awareness. For Schmidt *noticing* is a key factor for L2 learning/acquisition to occur, stating that it “is the necessary and sufficient condition for converting input into intake” (Schmidt, 1993a, p. 209).

For some Schmidt's NH has important conceptual and methodological flaws (e.g., Truscott, 1998). Truscott has pointed to the fact that there is no single clear definition of the notion of attention and the cognitive mechanisms implied in its deployment. For example, in contrast to Schmidt's emphasis on the role of attention, Tomlin and Villa (1994) argue that detection rather than attention is the key condition for input to be processed and for learning to take place, which in turn allows for the possibility of implicit learning (see section 2.13.2) at a subliminal level without the need for conscious *noticing.* Because of the lack of clarity regarding the kind of mechanisms involved in *noticing*, Truscott contends that the notion of conscious noticing may be best applied to the acquisition of metalinguistic knowledge (Truscott, 1998). From a methodological standpoint, there are difficulties for the researcher regarding how exactly what has and has not been *noticed* may be measured. A common way to investigate *noticing* in SLA research has been think-aloud protocols (TAPs) (e.g., Alanen, 1995) where learners are asked to verbalise their mental processes after engagement with a particular task. However, learners differ in their ability to report observations regarding linguistic forms, as do particular linguistic structures in terms of their complexity and the ease with which they may be reported (Jourdenais, 2001). Furthermore, due to the automatic nature of many psychological processes, it is unclear whether learners have conscious access to the mental processes they are required to comment on, or whether these processes remain inaccessible.

While VanPatten, (1996) agrees with Schmidt that some kind of attentional process is required in order for input to become intake, which would then become available for further mental processing, PI is perhaps more strongly influenced by the concepts of detection and orientation of attention posited in Tomlin and Villa's (1994) model of attention for second language learning. Tomlin and Villa's model is, in turn, influenced by Posner and Petersen's (1989) neuroscience research. Posner and Petersen used neuroimaging techniques to trace the three functions of attention to three different attentional networks. The studies showed increased blood flow levels in different areas of the brain depending on the nature of the sensory stimuli. While it was found that the separate components of each network appear to perform different functions, these components appear to work together to carry out each network's main function of alerting, orienting, and detecting (Posner & Rothbart, 1992). In some cases there also appeared to be some level of independence in the development and functions of the networks. Informed by these studies, Tomlin and Villa (1994) have described attention in terms of three networks: *alertness*, *orientation*, and *detection*. Alertness, which is the initial stage of attention, refers to the general readiness of a learner to receive input or stimuli. Alertness exercises executive control modulating resources toward the orientation. As a result, a direct relationship exists between higher levels of alertness and the faster speed at which information is selected for processing. Orientation is defined as the attentional process responsible for directing attentional resources to some type or class of sensory information at the exclusion of others (Tomlin & Villa, 1994, p. 191). It is suggested that orientation towards particular sensory stimuli increases the chance of detection. Detection refers to the cognitive registration of a stimulus. Once a stimulus is detected and awareness is achieved, the stimulus becomes available for further processing.

Drawing on Posner and Petersen's work outlined above, Tomlin and Villa (1994) have proposed an analysis of attention for SLA. This model includes the three components of attention: alertness, orientation and detection. According to Tomlin and Villa, detection alone is necessary for input to be processed and for learning to take place. While both alertness and orientation can enhance detection, they are not prerequisites for further processing and learning. Furthermore, Tomlin and Villa posit that detection does not imply awareness and that incoming linguistic information can be processed without the learner being aware. In effect, contrary to NH, Tomlin and Villa assume that L2 learning is possible without noticing. While Tomlin and Villa's model has been influential in SLA theory, it has been criticised on a number of points. Simard and Wong (2001) point out that while Posner and Petersen (1989) describe anatomical networks which can work independently of each other, Posner later stated that higher order tasks involving language processing may require the combination of all three attentional functions working together (Simard & Wong, 2001). The authors conclude, therefore, that Tomlin and Villa's (1994) claim that "neither awareness nor alertness nor orientation is required for detection to occur" is misleading (Simard & Wong, 2001, p. 198).

Despite the apparent flaws and subsequent critiques of Schmidt's NH and Tomlin and Villa's model, these theories have spawned at least two different strands in SLA theory. On the one hand, there are those who adopt the strong view on noticing, where noticing is the only and sufficient condition for learning to take place (see Schmidt, 1990, 2001; Doughty, 1991; Jourdenais, Ota, Stauffer, Boyson & Doughty, 1995, amongst others). On the other hand, some researchers follow Tomlin and Villa (1994) by taking the weaker view on noticing where attention is dissociated from conscious awareness (e.g. Carroll, 2001, Sharwood Smith, 1991, Truscott 1998; VanPatten, 2004, amongst others).

2.11.2. Explicit and implicit learning

These different perspectives regarding attention have prompted comparisons in cognitive psychology and SLA theory between what has been termed implicit and explicit learning. Implicit learning refers to learning which takes place without the deployment of attentional resources. This kind of learning occurs subliminally and therefore a learner is unaware of the process itself and unable to verbalize what is learnt. This means that certain features observable in a learner's linguistic behaviour may follow underlying rules without the learner being able to conceptualize or verbalize them due to limited meta-linguistic knowledge of the behaviour. By contrast, explicit learning involves conscious attention and implies a heavier cognitive load particularly in terms of demands placed on working memory. As a result, learners are aware of the learning process taking place and are able to verbalize what they have learnt (Ellis, 2009, p. 3). Advocates of the strong view on *noticing* suggest that learning and acquisition are achieved through explicit learning. In contrast, those that support the weaker view, claim that learning and acquisition can also be implicit.

2.12. Input processing

Input Processing (IP), originally proposed by VanPatten and Cadierno (1993) and refined in VanPatten (2004), provides the theoretical framework for Processing Instruction (PI), which informs the present study. IP builds on Krashen's (1985) theory of comprehensible input, which posits the existence of two independent processes that underlie L2 development: *acquired knowledge (competence)* and *learned linguistic knowledge* (LLK), (Krashen, 1985, p. 1). While LLK is regarded as the conscious process that results from instruction and knowledge of grammatical rules, it is suggested that *acquisition* is a separate process which takes place on a subconscious level. According to Krashen, it is the acquisition process that enables language learners to develop native-like L2 competence, while LLK serves to monitor and edit performance (*The Monitor Hypothesis*) by deploying knowledge of grammatical rules. This *acquisition–learning hypothesis* is complemented by the *Input Hypothesis* (Krashen, 1985) which claims that for language to be acquired it is enough for learners to be presented with sufficient amounts of comprehensible input without focusing on form. From this viewpoint, the role of the language teacher is not to instruct but to provide sufficient comprehensible input that is slightly ahead of the learner's current level of knowledge (*i+1*, where *i* is the language input and *+1* is the next stage of language acquisition) and ensure a pleasant anxiety free environment. This is done to avoid the negative effect of emotional variables which can hinder learning (*The affective filter hypothesis*) (Krashen, 1985). If these conditions are met, language learners will acquire the language naturally (Krashen & Terrell, 1983). Krashen's views, while influential in language teaching, have been criticised for both their lack of clarity and absence of empirical evidence to support the central hypotheses (e.g. McLaughlin, 1987; Larsen-Freeman & Long, 1991 among others). Indeed key concepts in Krashen's theories such as *comprehensible input*, the notion of *i+1*, *acquisition, learning, conscious or subconscious*; are never clearly defined nor operationalised making it difficult to ascertain exactly when a person is either *learning* or *acquiring* a particular language (Romeo, 2000).

For VanPatten, input, which he defines as the language that a learner hears (or reads) that has some kind of communicative intent, retains its position of primacy in the IP model. (VanPatten, 2004). According to IP, incoming linguistic data is at first processed and converted to *intake* (Corder, 1967) which can then be accommodated and incorporated into the developing system. Finally, this newly incorporated language may become available for the learner and can be accessed during production (Figure 1), (VanPatten, 1996).

Input ⟶ intake ⟶ developing system ⟶ output

Figure 1 Input processing model

However, as other researchers have also suggested (e.g. Pienemann, 1998, 2005), the system is not perfect. Both Pienemann (1998) and VanPatten (1993; 2004) assume that the input processing capacity of L2 learners is limited. As a result, not all input will become intake, not all intake will be delivered into the learner's developing linguistic system and made available for access. As VanPatten himself has stated on several occasions, IP is not a complete model of SLA but is instead concerned with the initial processes where input becomes intake.

Where IP differs from Krashen's theory is in the emphasis on the sub-processes of making FMC's and parsing. For VanPatten comprehension alone is not enough to guarantee acquisition. Instead, what is needed is for the learner to make connections between form and meaning during the act of comprehension (VanPatten, 1996). Moreover, due to the high demands on cognitive resources involved in L2 comprehension, it is suggested that learners will deploy selective processing strategies to decode the meaning of the input. For example, a sentence whose meaning comes at a high cognitive cost may lead learners to process content words before anything else (VanPatten, 1996). Consequently, grammatical forms that convey little semantic information may not be processed. For example, in the sentence

(30) Yesterday I walked the dog

the lexical item *yesterday* has a high *Communicative Value* (CV) (VanPatten, 1996, 2004). If learners decode the semantic meaning of *yesterday* they do not need to process the grammatical ending –*ed* of the verb in order to establish when the action takes place. As a result, the ending of the verb may be bypassed and not processed. The CV of a form refers to the meaningfulness of the form in contributing to the overall sentence meaning. Furthermore, where learners are able to obtain meaning from the input with little effort, attentional resources become available for the detection and processing of grammatical forms that may otherwise have been ignored (VanPatten, 1996, 2004).

To help learners with FMC's VanPatten (1996) proposes a set of Input Processing (IP) Principles (revised in VanPatten, 2004). These principles can help instructors to become more aware of the inefficient strategies that learners sometimes use when processing input and to produce instructional materials that prompt alternative ways to process input. Below is an example of one of these principles (See Appendix C for full list):

Principle 1b: The Lexical Preference Principle

Learners will tend to rely on lexical items as opposed to grammatical form to get meaning when both encode the same semantic information.

(VanPatten, 2004, p. 14)

Of particular relevance to the current study is the *L1 transfer principle,* which recognises the influence of the L1 on the L2. According to this particular principle, *learners begin acquisition with L1 parsing procedures* (VanPatten, 2004, p. 330). This principle is echoed by other researchers investigating the effects of language transfer in SLA. For example, according to the Full Transfer/Full Access model (Schwartz & Sprouse, 1996), learners are constrained by their native languages and begin the acquisition of a second language by transferring all L1 parameter settings to the L2. This appeared to be the case in Montrul's (2001) study of the use of agentive manner-of-motion verbs by English and Spanish learners. In the study, it was found that the native language (L1) had a significant effect on the second language (L2) acquisition of the target structures, with overgeneralization errors found for the Spanish learners and undergeneralization errors for their English counterparts (Montrul, 2001). This principle is particularly relevant for the current study in that it can help explain learners' failure to acquire the manner-of-motion verb + Path satellites combination in the L2. As mentioned in the introduction, it would appear that some learners do not map the semantic elements such as the Figure, Path and Manner onto the surface structures of the new language but maintain the L1 mapping between form and semantic elements.

2.13. Processing Instruction (PI)

The practical application of the IP model described above is *Processing instruction* (PI) which is an approach aimed at enhancing learner intake extracted from the input through a series of structured input (SI) activities. SI activities are designed to guide learners away from default processing strategies (VanPatten, 1993). Importantly during the SI phase learners focus on input and are not required to produce the target structure prematurely. Production of the target structures only occurs after substantial engagement with the input and its meaning. According to VanPatten (2009, p. 54), this focussed engagement does more than raising awareness, learners are pushed to make appropriate FMC's by prompting a disruption at the parsing stage that forces the learner to make a readjustment in how a sentence is decoded. Typically, a PI instructional design moves involves three stages:

- Explicit instruction (EI) where the learners are provided with both explicit information about the target form and made aware of potential problems with processing strategies.
- Referential Structured input activities, which are activities that require right or wrong answers and where learners are forced to process the target structure for the appropriate L2 form-meaning connection.
- Affective Structured input activities that do not have right or wrong answers and expose learners to extensive input of target structures. Students are asked to express opinions or beliefs about the real world through guided tasks.

Further guidelines for developing SI activities are as follows:

- Present one thing at a time.
- Keep meaning in focus.
- Move from sentences to connected discourse.
- Use both oral and written input.
- Have the learner do something with the input
- Keep the learner's processing strategies in mind

(Lee & VanPatten, 2003, p. 168)

In contrast to more traditional approaches that focus on form, VanPatten's model focuses on the mechanisms that promote FMC's in the conversion of input to intake (See Fig. 2). While input refers to the raw meaningful incoming linguistic data, intake is a subset of that data from which the information that has been understood can be made available to the developing system (VanPatten & Cadierno, 1993),

Input → intake → developing system → output

↑

processing mechanisms

↑

Focused practice

Figure 2 Focus of PI

While PI has never been applied to the domain of motion, this approach seems promising when taking into account the areas of language learning that have been targeted in previous studies. Importantly, PI has previously been used to focus on areas of language which:

a) appear to be slow to be acquired in production,

b) differ from the learners' L1

c) are likely to be 'ignored' by learners when they normally hear or read the languages

(Marsden, 2006)

These are key issues with direct relevance to the challenges for learners in the motion domain.

2.14. Processing Instruction research

Since its inception, Processing Instruction has been the subject of much debate. On one front, some researchers have perceived a lack of rigour in studies which attempt to compare PI with other pedagogic approaches (e.g., Salaberry, 1997). On another front, questions have been asked from within PI regarding the relative effectiveness of the different stages involved in PI (e.g., EI v. SI activities) (VanPatten & Oikkenon, 1996). Previous studies have compared PI with output-based approaches such as traditional instruction (TI) (e.g., VanPatten & Cadierno, 1993; VanPatten & Wong, 2004), meaning-based output instruction (MOI) (e.g., Benati 2005; Farley, 2001; Morgan-Short & Bowden, 2006); and communicative output instruction (COI) (Toth, 2006).

The first study to compare the effects of PI and those of Traditional Instruction (TI) was VanPatten and Cadierno (1993). At the time of the study, TI was considered by VanPatten to be the common grammar teaching approach adopted in US language classrooms (VanPatten & Wong, 2004, p. 100). The processing problem in this first study was related to the first noun strategy (FNP), which is a parsing strategy whereby learners assign by default the role of agent to the first noun in a sentence. The target forms were Spanish clitic object pronouns, which can cause problems for learners who erroneously interpret the preverbal object pronoun as the subject of the verb:

(31) Lo llama la chica

"The girl calls him"

(This can be misinterpreted by learners to mean, "He calls the girl")

VanPatten and Cadierno (1993) used explicit instruction to alert learners to the processing problem followed by structured input activities, which pushed learners to revise their default SVO interpretations.

The 80 participants in the study were English undergraduate learners of Spanish. They were divided into three groups. The first group (N=27) received a PI treatment, a second group (N=26) received Traditional Instruction (TI), while a third group (N=27) was a control group which received no instruction in the target forms. The study was quasi-experimental in nature and followed a pre-, post- and delayed post- test design. The treatments were administered over a two-day period following a pre-test used to establish a baseline.

The TI Treatment consisted in explicit grammar explanation (EI) of direct object pronouns. The explanations involved a full paradigm presentation and activities taken from a Spanish textbook and workbook. In the TI approach, the activities progressed from mechanical written and oral drills to more meaningful oral and written practice with simple sentence formation. This was followed by open-ended communicative oral and written tasks. During TI, the emphasis was placed on the learners producing the target items.

As with the TI treatment, the PI treatment package began with EI where the concepts of object and subject of a verb were explained. Attention was then drawn to the potential processing problem and learners were made aware of the differences between Spanish and English regarding possible word order. The EI phase was then followed by two types of structured input (SI) activity. In the first type of SI activity (referential) the learners were asked to match a variety of written or visual stimuli with the information they had either heard or read. In the second type of SI activity (affective), the learners gave personalised responses either agreeing or disagreeing with a sentence. At no point during the PI treatment were the learners asked to produce the target form. Finally, participants in the control group were exposed to, but received no instruction in the target form. Figure 3 shows an example of the kind of SI activity used in PI:

SAMPLE ACTIVITIES USED IN PROCESSING INSTRUCTION

Actividad B. **Listen to the speaker on the tape. Match each sentence you hear with one of the statements below.**

1. A man is calling me.
   I am calling a man.
2. My parents visit me.
   I visit my parents.
3. I am pleasing to my family.
   My family is pleasing to me.
4. We are greeting a friend.
   A friend greets us.
5. Our relatives don't understand us.
   We don't understand our relatives.

Actividad E. **Each sentence corresponds to something that you might do to your parents. Check which ones apply to you. Compare your responses with a classmate.**

____ 1. *Los llamo con frecuencia por teléfono.*
____ 2. *Los visito los fines de semana.*
____ 3. *Los visito por lo menos una vez al mes.*
____ 4. *Los abrazo cuando los veo.* (*abrazar* = to hug)
____ 5. *Los comprendo muy bien.*
____ 6. *Los ignoro completamente.*

Figure 3 Sample PI activities (VanPatten & Cadierno, 1993)

Following the delivery of the treatments learners performed a battery of post-tests which featured both interpretation and production tasks. The interpretation task consisted in selecting the appropriate picture in response to the target sentences. The production task was a written sentence completion task where a set of pictures were used to elicit the target form. Three post-tests were used to assess the effectiveness of the instructional packages: an immediate post-test, a second post-test a week later and finally, a delayed post-test, four weeks after treatment. The results showed that the PI group outperformed the other two groups in the interpretation task. However, no significant difference was found between the PI and TI groups in the production task.

Despite the promising results of this initial study, several issues have been raised such as the relatively small sample size, the duration of the instructional treatments and the methods of assessment. Furthermore, it has been argued that the IP model is founded on an outdated model of attention, which cannot account for the apparent improvement in the learners' ability to make more reliable form-meaning connections. The validity of the comparison in the original study has also been called into question because the PI group was given more explicit rule information than the TI group (DeKeyser et al., 2002). In addition, findings from PI studies have proved difficult to replicate. In particular, Dekeyser and his colleagues cite Allen (2000) where the findings regarding the learners' use of the French causative conflict with previous PI studies and suggest a significant advantage for the TI group in the production task and an equal level of performance in the interpretation task.

Following VanPatten and Cadierno (1993), several studies have attempted to replicate and expand on these initial studies by focussing on new target forms and using different assessment tasks. Cadierno (1995) investigated the effects of processing instruction on the acquisition of the preterite tense in Spanish. The study focussed on the lexical preference principle (P1b):

> *"P1(b) Learners will tend to rely on lexical items as opposed to grammatical form (e.g. morphological markings) when both encode the same semantic information"*
>
> (VanPatten, 2004, p. 14)

To prevent learners from extracting past tense meaning from alternative sources in a sentence, Cadierno avoided using adverbs of time forcing the learners to attend to the Spanish past tense inflection. Again, the study involved three participant groups: a PI group, a TI group and a control group. The results of the study seemed to reconfirm the overall effectiveness of PI over TI and no instruction. Specifically, the PI group outperformed the other two groups on the interpretation tasks with no significant differences between the PI and the TI groups on production tasks. The failure of the TI group to outperform the PI group on production tasks can be seen as somewhat surprising given that the PI group did not produce the target form during the treatment, whereas the learners from the TI group engaged in output practice.

Many of the findings of the previous studies outline above were confirmed by VanPatten and Sanz (1995), who investigated the effects of PI on both written and oral language production. The study followed a quasi-experimental design similar in nature to previous PI studies and once again focussed on object pronouns. However, by adding an oral video narration task to the assessment package, VanPatten and Sanz (1995) were able to show that PI may also prompt significant gains beyond the sentence-level and may also be effective for enhancing performance in general discourse-level tasks.

While the previous studies would seem to provide evidence for the relative effectiveness of PI when compared against more traditional approaches, comparisons with more communicative approaches have raised important questions. In an attempt to replicate the VanPatten and Cadierno (1993) study, DeKeyser and Sokalski (1996) contrasted the Spanish clitic object pronoun with the Spanish conditional structure. In the study, eighty-two participants were divided into six groups: three groups for the Spanish object pronoun which included an input, an output and a control group and three groups for the Spanish conditional structure which again included an input, an output and a control group. The treatment packages were delivered over a four-day period. A pre- test, an immediate post-test (one day post-instruction) and a delayed post-test (one week post-instruction) were performed. Regarding the findings for the Spanish direct object pronouns interpretation task, the immediate post-test revealed that the PI group outperformed the output practice group while the output group performed better than the control group. These results, however, did not hold firm over time with results from the delayed post-test showing significant differences between the three groups. Regarding performance on production tasks, no significant differences between the input and output based groups were found.

By contrast, results from the immediate post-test for the Spanish conditional structure showed that the output practice group outperformed the input group on both interpretation and production tasks. Nevertheless, these findings did vary slightly one week later with results from the delayed post-test showing that the input practice group performed slightly better on interpretation tasks, while the output group performed slightly better in production. Ultimately, it was found that, contrary to VanPatten and Cadierno's (1993) findings, output practice does have an effect on the production of direct object clitics (DeKeyser & Sokalski, 1996, p. 634). From these findings, the authors posit that L2 comprehension and production skills may be learned as separate skills.

While VanPatten has rejected the claim that DeKeyser and Sokalski's (1996) can be considered a replication study on various grounds ranging from study design to choice of target items, the study poses interesting questions regarding both the role of skills acquisition in SLA and the nature of the knowledge measured by delayed post-tests which are administered only four weeks after treatment. According to DeKeyser and Sokalski (1996) it would be difficult to justify a claim for acquisition of the target forms due to the limited amount of time. De Keyser and Sokalski indicate that the findings of the studies on PI could be discussed in terms of declarative and non-automatized procedural knowledge but not in terms of the automatization process because of the limited amount of practice employed in their study and in VanPatten and Cadierno (1993).

Further questions regarding the effectiveness of PI, when compared with output-based instruction, were raised by Salaberry (1997). As in the original study (VanPatten & Cadierno, 1993), Salaberry focussed on Spanish clitic object pronouns. An important difference, however, is that Salaberry provided the learners with the same EI for both the input and output based groups with the aim of enhancing the internal validity of the study. In the study, 33 learners of Spanish were separated into three groups: input practice, output practice, and no practice. The treatment lasted one and a half hours in total and a pre-test, an immediate and a delayed post-test (four weeks post treatment) were administered. Following VanPatten and Cadierno (1993), the assessment tasks included a comprehension and a production task. The results of the study showed no significant differences between the three groups in the production and the free narration task. Regarding the comprehension task, no significant differences were found between the input and output based groups. As a result, Salaberry draws the conclusion that PI is not better than a more traditional output based approach.

Ultimately, the findings of the Salaberry study appear inconclusive. In addition, two main issues have been raised regarding the generalizability and the validity of the study. Firstly, regarding generalizability, as with many PI studies, the number of participants (n=33) is regarded as too small to measure overall effectiveness of the intervention and the acquisition of the target form (e.g. Norris & Ortega, 2000). Secondly, in terms of following PI guidelines, Salaberry fails to identify the fundamental processing problem to be tackled, which as a result may limit the potential effectiveness of the PI materials and SI activities.

Further studies have aimed to test the effectiveness of PI by comparing it with approaches containing meaningful output practice. For instance, Benati (2005) compared the effectiveness of PI to MOI and TI in the teaching of simple past in English to Greek and Chinese children. The results of the study showed PI was superior to MOI and TI in interpretation tasks and equal in production tasks. However, results from a subsequent study paint a different picture. In their study of the acquisition of direct object pronouns in Spanish by first semester college students, Morgan-Short and Bowden (2006) found no significant difference between MOI and PI in interpretation tasks. In addition, the college students who had received MOI performed marginally better than their PI counterparts in production tasks.

These results echo those of a further study, which compared PI with COI in the teaching of the anti-causative *se* in Spanish to English undergraduates, (Toth, 2006). In the study, it was found that the participants performed equally well in grammatical judgment tests regardless of the kind of instruction received. Furthermore, participants in the COI group outperformed those in the PI group in guided production tasks.

As the studies discussed above illustrate, there are conflicting findings regarding the relative effectiveness of PI and this particularly when compared with instruction which provides opportunities for output practice. While this is part of a wider debate regarding the role of input and output in L2 acquisition, a criticism of the PI approach stems from the failure to explain the contribution of output to the learning process (e.g. DeKeyser et al., 2002). One of the key tenets of the PI approach is that learners do not produce the target form during the instructional phase (VanPatten, 1996). Following the IP theoretical framework which underpins PI, VanPatten emphasizes the importance of allowing the opportunity for input to become intake and for this to have an effect on the learner's developing linguistic system before proceeding to output practice. This does not mean that PI practitioners are intent on banishing output from the classroom but rather that output practice is seen as helping learners to improve in fluency and accuracy but not in developing the linguistic system. Furthermore, VanPatten agrees that learner output can serve as input for other learners in the classroom and may also aid acquisition by giving learners practice in accessing the developing system (VanPatten, 2002).

In addition to the debate regarding the effects of instruction on the developing system, VanPatten and his colleagues are concerned with gaining a greater understanding of which elements of their instructional design are most effective. In particular, there is a suggestion that the initial phase of PI where learners receive EI regarding the target form may be unnecessary and that SI activities by themselves may be sufficient (VanPatten & Oikennon, 1996).

For the current study, one of the most interesting questions to spring from the comparisons of traditional PI with approaches, which include an output component, regards the extent to which a learner's production may hamper or enhance acquisition. This line of enquiry is taken up by Kirk (2013) in her study of the relative effectiveness of PI on its own and PI followed by production practice in the teaching of Spanish subjunctive structures (Kirk, 2013). In the study, 70 Intermediate high school participants were divided into four groups, which received instruction in the target forms for three consecutive days. The first group received purely input-based instruction in the form of classic PI for three days with no output practice. The second group received PI for the first two days followed by meaning-based output practice on the third day. The third group received PI on the first day, output practice on the second day and PI again on the third day. The fourth group received PI on the first day followed by two days of output practice.

The instruction packages for the four groups were designed as follows:

1. PI+ PI +PI
2. PI + PI +O
3. PI+ O +PI
4. PI + O +O

While the results of the interpretation and production tasks showed positive effects of PI, no significant effect was found for the addition of output practice while the output practice did not exceed the amount of time spent on Structured Input (SI). Furthermore, an increase in output practice appeared to have a negative effect on the interpretation task results. Hence, the author concludes that a balance should be found between structured input activities and production practice.

2.15. The role of output

A much-debated area of SLA, which is particularly relevant to the current study, regards the role of output. While some researchers have emphasized the primacy of input in the process of acquisition (e.g. Krashen, 1985), it has also been suggested that arguments can be made for the complementary role of output which "facilitates second language learning in ways that are different from, or enhance, those of input" (Swain & Lapkin, 1995, p. 371). In direct contrast to Krashen's theories, the *Comprehensible Output Hypothesis* as proposed by Swain (1985) makes a strong case for encouraging learner production. Swain's hypothesis arose from observations of the frequently inaccurate performance of learners participating in a French immersion program in Canada. In spite of the extended exposure to input, it appeared that the learners' progress was hampered by relatively few opportunities to produce the target language.

For Swain written or oral production plays an important role in several areas such as helping learners to notice the gap between what they are able to express and what they are trying to express (*Noticing*); trying out what they believe to be correct, receiving feedback and making changes where necessary (*Hypothesis-testing*); reflection on what has been learnt (*Metalinguistic function*). Furthermore, Swain (1985) argued that input, which is related to understanding meaning, involves semantic processing whereas output requires a focus on the accuracy of form and therefore syntactic processing. This point has been reiterated by others who reject the notion that input alone is sufficient for acquisition to take place because one may understand the meaning of certain kinds of input without the need for syntactic processing (e.g. Gass, 2013).

In a recent evaluation of input-based and output-based approaches in SLA, Shintani, Li & Ellis. (2013) conducted a meta-analysis of 30 published studies comparing the relative effectiveness of comprehension-based instruction (CBI) and production-based instruction (PBI). According to the analysis, both types of instruction were effective in helping learners to develop in terms of comprehension and production. However, it was found that in terms of developing receptive knowledge, there was an initial advantage for CBI (mostly thanks to Processing Instruction) which began to fade at the delayed tests administered between 1 week and 75 days after instruction. By contrast, PBI proved to be more effective in the long term for developing production. Overall, it was found that while CBI would appear to be particularly effective in the initial stage of acquisition where input becomes intake, PBI is more suited to the process of access and retrieval of what has already been learnt. These results also seem to support VanPatten's suggestion that learners have a limited processing capacity, which may limit the extent to which input can be converted to intake. Therefore, pushing learners towards production at an early stage of processing can hamper their capacity to notice features of the linguistic form (Shintani et al., 2013, pp. 320-321).

In sum, the somewhat inconclusive findings of recent research into the roles of input and output in SLA would seem to suggest that a mixed practice approach may be beneficial. However, while some theories advocate the need for caution in terms of sequencing of activities (allowing input to become intake before moving on to output practice), Kirk (2013) did not find significant effects for the sequencing of input and output. However, her findings did suggest a negative effect of output in the condition where there was more output practice than exposure to the input.

2.16. The current study

The purpose of the current study is to test the effects of two kinds of instructional treatments on the acquisition of English manner-of-motion verbs and Path satellite combinations. The acquisition of this kind of construction has been shown to represent a substantial challenge for L2 learners of English who are speakers of a typologically distinct L1. In the study, the instructional treatments may be regarded as prompting *noticing* both in its stronger form in the explicit instruction phase and in its weaker form by aiding detection of the target form by forcing learners to process the form-meaning connection through specifically targeted input-based activities. However, one caveat is that, due to the behavioural nature of the assessment procedures used in the study as with many previous studies in SLA, it is difficult to draw conclusions regarding how detected stimuli are processed internally or how target forms are acquired (Sharwood Smith, 1991, Tomlin & Villa, 1994; VanPatten, 1996). In order to address these concerns, the current study draws on insights from the input processing model, which is closely linked to the theories of attention and cognition outlined in section 2.13.1 and which has provided a theoretical basis of several studies in SLA (e.g. VanPatten 1996, 2004, amongst others).

With this in mind, the current study compares the effectiveness of two pedagogical approaches, an input-based and an input + output-based approach, which are grounded in input processing theories. The effects of the two approaches are evaluated in terms of an increase in number (type/token) of target-like expressions of manner-of-motion verbs + Path satellite combinations during post-tests. There is also an assessment of the speed and accuracy with which the learners' are able to interpret the structures. This is done by means of a self-paced reading task performed on a laptop which records response times and error rates. During the reading task, the motion expressions which follow the canonical S-framed pattern for English are referred to as *usual,* whereas those that follow the V-framed pattern are referred to as *unusual* (See section 4.12.2).In terms of learner processing strategies, it is anticipated that some participants may need to revise their understanding as the sentences are read which may lead to longer reading times (Clifton & Duffy, 2001).

The study fills a gap in our knowledge with respect to the following points. While previous research has addressed the difficulties involved in acquiring the structures to express L2 motion events, to the best of my knowledge, this study is the first to investigate how these structures may be taught in the ESL classroom. In addition, the study broadens the investigation into the effects of Processing Instruction by being the first study to test the key principles of this theory in an intervention study which focuses on the teaching and learning of L2 motion event construal.

Research questions of this study:

(RQ1) What is the effect of the intervention on students' use of motion verbs?

H0: the intervention will not have an effect on the frequency and/or accuracy with which learners produce the target forms.

H1: Learners from the Output group will outperform Input only learners in the use of the target forms.

(RQ2): What is the effect of the intervention on students' interpretation of motion verbs?

H0: Reading times and error rates will not differ between pre-test and IPT for *usual* or *unusual* target items, or for *grammatical* or *ungrammatical* distractors, irrespective of the instructional package

H1: Reading times and error rates will decrease for *usual* target items between the pre-test and the IPT.

H2: Reading times and error rates will increase for *unusual* target items between the pre-test and the IPT.

H3: Participants will be equally fast and accurate at reading *usual* targets and *grammatical* distractors.

H4: Participants will be equally fast and accurate at reading *ungrammatical* distractors and at reading *unusual* targets

H5: The group that received the input-based treatment will demonstrate shorter RTs and lower error rates for *usual* and *unusual* targets at the IPT.

(RQ3) What is the effect of the students' first language on their use of motion verbs?

H0: There will be no difference between students from different language backgrounds.

H1: Learners from V-framed L1 backgrounds will show larger increases in types and tokens of the target forms than their S-framed counterparts after the intervention.

(RQ4): What is the effect of students' first language on their interpretation of motion verbs?

H0: There will be no difference between students from different language backgrounds.

H1: Significant differences will be found across language types. It is predicted that learners from an S-framed L1 will demonstrate shorter RTs and lower error rates at both pre-test and IPT for usual targets both with and without a boundary-crossing due similarities with the L1 structure.

H2: Learners with a V-framed L1 will demonstrate longer RTs for postverbal sentence segments for *usual* targets both with and without a boundary-crossing due to the learners' expectations which are likely to be carried over from the L1 structure.

H3: V-framed learners will demonstrate shorter RTs for postverbal sentence segments for *unusual* targets with/without a boundary-crossing, due to similarities with the participants L1's.

3 Pilot Studies

This chapter describes the key phases of development for the teaching and testing materials used in the current study. As the reader will see the research focus of the final study and the materials used were the result of a sequence of continuous trial and revision. The first section describes the development of the instructional materials through different forms of input enhancement (IE). The second section presents an overview of the first pilot study where the teaching materials were trialled and in the final section the second pilot study, which served to hone treatment and test procedures, is discussed.

Instructional design phase

The design of the materials for the instructional phase of the study represented a significant challenge for two main reasons. First of all, as discussed previously (section 2.12), there is a dearth of materials readily available to teachers wishing to venture into the motion domain and as a result lessons had to be created from scratch, trialled and reviewed. The second important challenge was related to the operationalization of the PI approach in the design of the instructional packages. Despite the body of research attesting to its comparative effectiveness, examples of PI materials remain difficult to come by. Indeed several months were spent on the production and trialling of a vast array of materials, which were finally deemed inappropriate for their failure to comply with PI principles and guidelines. For a newcomer to the PI approach, it was found to be easy to stray into other areas of input enhancement, such as "input flooding"(Wong, 2005). By *input flooding*, I refer to an approach whereby learners are exposed to multiple instances of the target structure through specially prepared reading or listening materials with the aim of rendering a particular form or structure more salient or noticeable. In figure 4 an example is included of the *input flood* materials trialled in a pre-pilot phase of the study.

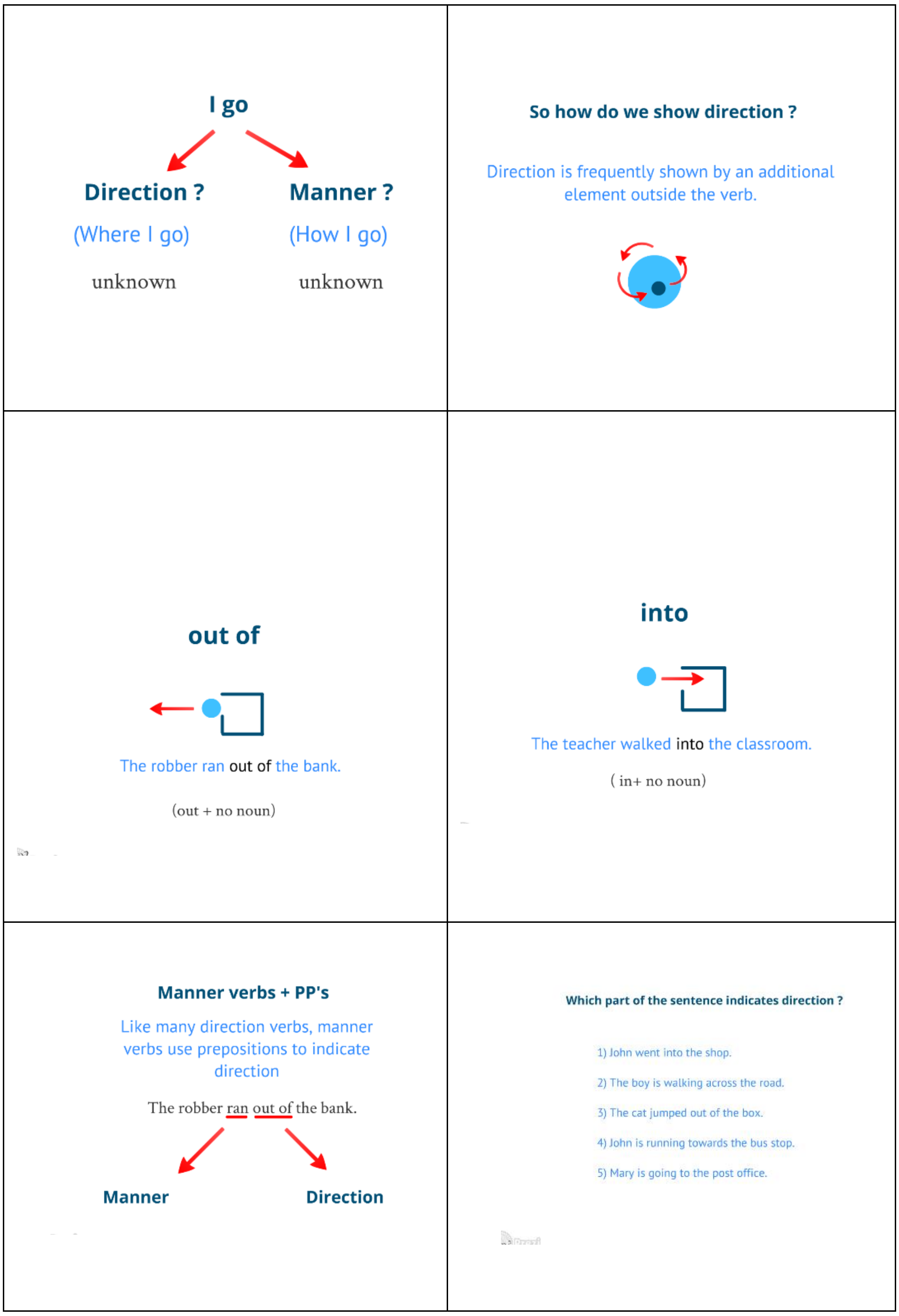


Figure 4 Instructional design phase 1 sample materials

The following worksheet is an example of a subsequent failed attempt at operationalising PI and can be best described as an example of input flooding. The exercises refer to a Parkour chase scene from the James Bond movie *Casino Royale*.

Sample material: Input flood 1

CASINO ROYALE

VOCABULARY MATCH

clamber to hit something very hard

scramble climb with difficulty or a lot of effort

smash (into/through) move quickly, with difficulty using one's hands and feet.

Note: into means impacted against something with verbs describing accidents or destruction

(e.g. crash, smash, bump, bang)

Phrase match

1. Bond smashes	a) up the building.
2. Bond smashes	b) onto the building.
3. The bomber scrambles	c) through the fence in a bulldozer.
4. Bond dashes	d) into a wall.
5. Bond leaps	e) up the crane.
6. The workers hurry	f) up the wire.
7. The bomber climbs	g) onto the pipes
8. The bomber leaps	h) up a ladder.
9. The bomber clambers	i) away from the explosion.

In context

1. Who would be more likely to smash into something?

a) An old lady in a small car b) a drunk driver c) a cyclist

2. Who may sometimes need to scramble across/up/down/into/ out of something?

a) A chess player b) a tennis player c) a formula one driver

3. Who clambered into a lifeboat?

a) A train passenger b) a motorist c) a passenger on the Titanic.

WHAT ABOUT YOU?

When was the last time you ……. smashed into something?

scrambled up something?

clambered into something?

These materials were later discarded due to the effect on the learners in terms of cognitive demands. Particularly, the exercises proved to be unsuccessful at helping learners to process the target form. Moreover, for many high intermediate learners taking part in this particular lesson, the materials proved to be overwhelming, perhaps due to the learners' particular stage of development in the acquisition of motion expressions. It may be the case that this kind of flooding of the input could be more effective at a later stage, once learners had become more accustomed to the basic satellite-framed pattern. Additionally, an important flaw in the design of the *Casino Royale* type exercises, in terms of making form-meaning connections, is the possibility that other clues within the input could facilitate comprehension, therefore obviating the need for the learner to process the target structure itself. For example, learners could just as easily complete the exercise reproduced below, by watching the video clip and reading the information that follows the verb (**Path** and **Ground**) without needing to focus on the particular manner of motion.

Sample material: Input flood 2

*Who does what? **B** = Bond, **TB** = the bomber*

.... bursts **through a door.**

.... leaps **over the table.**

.... slides **through a hole.**

.... sprints **along a corridor.**

.... flies **through a window.**

.... smashes **through a wall.**

Despite the failure of the *Casino Royale* materials to fit their intended purpose, a greater understanding was achieved regarding the potential pitfalls when adopting the PI approach for this particular target structure. This awareness eventually informed the subsequent revision of the instructional packages used in Pilot study 1.

In the following sections, the two pilot studies are presented. The first study focussed on refinement of the instructional and testing materials. In the second pilot study, the aim was to perfect the data collection, the delivery of the instructional phase and the testing procedures which were to be employed in the main study.

3.1. Pilot study 1

Following the failure of the *Input flood* materials, the first pilot study compared the effectiveness of three kinds of input enhancement: Processing Instruction (PI), (VanPatten & Cadierno, 1993); Textual/Typographical Input Enhancement (TTIE) (Sharwood Smith, 1993) and a combination of the two (PI+ TTIE). This focus was chosen because both TTIE and PI draw on psychological concepts such as attention and consciousness, albeit in different ways (see section 2.13.1). On the one hand, TTIE attempts to make input more perceptible to L2 learners by employing enhancement techniques with typographical cues such as underlining, bolding, italicization, capitalization, or other strategies such as colour coding or using different font sizes or types. On the other hand, PI aims to ensure that learners have to process the form in order to obtain meaning.

The research questions and hypotheses for Pilot study 1 can be found below:

> **(RQ1). What are the effects of interventions with PI and TTIE on students' learning of L2 English manner-of-motion verb and Path satellite combinations?**

H0: The three instructional packages will make no difference to students' learning of motion expressions as measured by pre- and post- tests.

H1: The combination of PI + TTIE will result in greater positive effects than the sole application of each.

(RQ2). Are the instructional packages equally effective with EFL learners with an S-framed language as their L1 and EFL learners with a V-framed language as their L1?

H0: The learners' L1 does not make a difference to students' success in acquiring S-framed patterns in either interpretation or production tasks.

H1: EFL learners with a V-framed L1 will be less successful in both interpretation and production tasks.

(RQ3). Will effects last over a period of time as measured by immediate and delayed post-tests?

H0: Effects will not be measurable either by immediate or delayed post-tests irrespective of the instructional package on offer

H1: Positive effects are likely to be found immediately after all three intervention packages.

H2: Longer term effects may result from the PI and PI+TTIE packages due to a modification in processing strategies.

(RQ4). Do the interventions lead to an increase in the use of S-framed patterns with manner-of-motion verbs and Path satellites not present in the instructional packages?

H0: Learners will only reproduce S-framed patterns with verbs they learned in the intervention but will not generalize these patterns to other verbs.

H1: Learners may begin to generalize the structure to include other manner-of-motion verbs and Path satellites.

(RQ5). Is there evidence of conceptual transfer?

H0: Learners will not transfer conceptualisation patterns from their L1 to their L2, irrespective of their L1.

H1: Learners will produce motion event expressions that are a reflection of patterns found in their L1.

Pilot study 1 experimental design

The experimental design included three groups receiving three different instructional treatments: PI, TTIE, and a PI+TTIE group.

1. a PI group
2. a TTIE group
3. a combined group PI+TTIE

In other words, the independent variable (i.e. the instructional treatment) was manipulated by varying the type of treatment delivered to each group. The dependent variable (i.e. the type/token ratio of motion verbs and the scores on achievement tests) was measured by pre- and post-tests (Table 5).

Table 5 Pilot study 1 Overview of experimental design

Stage	Materials	Mode
Pre-test Two days before treatment	1. Level assessment (Oxford placement test) 2. Production task Elicitation tool : cartoon *Canary Row* 3. Interpretation task GJT	• Written narrative. • GJT matching task on laptop.
Treatment 1 1 x 50 min lesson	Instructional treatments Group 1: PI, Group 2: PI+TTIE Group 3: TTIE	• Face to face, classroom with trained instructor
Treatment 2 1 x 50 min lesson **+ IPT**	1. Production task Elicitation tool: Picture book: *Frog, where are you?* 2. Interpretation task GJT	• Written narrative. • GJT matching task on laptop.
DPT 12 weeks after IPT	1. Production task Elicitation tool: *Casino royale* clip	• Written narrative. • GJT matching task on laptop.

Pilot study 1 participants

Participants were 12 adult intermediate EFL learners studying at a private language school in Brighton. These learners were from a variety of verb-framed and satellite-framed language backgrounds 3 Arabic, 1 Spanish, 2 Italian, 2 Korean, 1 Russian, and 3 Turkish.

Pilot study 1 procedure

Three treatment packages were developed for the different groups. One treatment package was prepared for the PI group, another for the TTIE group, a third for the combined group PI+TTIE. A fourth package was also developed containing the testing materials. The packages contained the target forms i.e. manner-of-motion verbs and Path satellite structures to express entering and exiting. In these three treatments the same motion verbs likely to be known to intermediate learners were used (Table 6).The same items were used on both days of the treatment for PI, TTIE and PI+TTIE groups.

Table 6 Pilot study 1 Target forms used in instructional treatments

Day 1 50 minutes	• PI group • TTIE group • PI+TTIE group	**Verbs** *go, get, walk, run, fly, drive, jump, climb,fall* **Path satellites** *into , out of*
Day 2 50 minutes	• PI group • TTIE group • PI+TTIE group	**Verbs** *go, get, walk, run, fly, drive, jump, climb,fall* **Path satellites** *into , out of*

Pilot study 1 treatment materials for the PI group

PI treatment materials were delivered on two consecutive days for 50 minutes each day. Participants of this group received brief explicit instructions (EI) at the beginning of the treatment. SI activities followed, divided into referential and affective activities (see Appendix D). Following PI guidelines, after an initial EI stage, participants performed SI referential activities. Below is an example of a referential activity in which learners were presented with an image and were then asked to choose from the three options provided. In the PI+TTIE package the materials were the same with the addition of textual enhancement i.e. the target form was enhanced through bolding and underlining (see Appendix D). Attention was also drawn to differences in language typologies and the potential processing problem for those learning to express motion in L2 English.

After the EI stage learners performed SI referential activities. Whereas a comprehension based activity would offer a choice between *right* and *wrong* answers which could be made by simply looking at the satellite, this particular activity added a third option which pushed learners to focus on the manner-of-motion as well as the satellite. The referential activities covered the four basic components that make up a motion event. The first referential activity was aimed at processing the manner-of-motion verb + satellite. The second referential activity was designed to make learners process the kind of ground where these motion events were likely to take place. The third referential activity drew attention to the Figure involved in the motion event. These referential activities were followed by affective or real world activities, which gave learners an opportunity to offer personal opinions through yes/no statements containing the target form. In keeping with PI guidelines at no stage were learners asked to produce the form themselves.

Sample materials Referential Activity 1

Look at the pictures and choose your answers:

1	a. walk into b. go into c. walk out of

Best answer ….........	Good answer….…..	Wrong answer......

Sample Referential activity 2- Ground

Choose the correct answer. There may be more than one answer.

1	A person can jump out of.... a. a park b. a car c. a plane
2	A person can walk into... a. a restaurant b. a car c. a bar

Sample Referential activity 3- Figure

Are the following sentences possible or impossible?

		Possible	**Not possible**	**reason**
1	A butterfly ran into the garden.			Butterflies....
2	A man walked into a bar.			Men..........

Sample Affective activity 1

Tick the actions you think have been performed by your teacher this week.

- *He has jumped out of a window.*
- *He has walked into a coffee bar.*
- *He has fallen into a hole.*

Check with your teacher

Tick the experiences you have had and compare with your partner.

Pilot study 1 treatment materials for the PI+TTIE group

In the PI+TTIE package the materials were exactly the same with the addition of textual enhancement i.e. the target form was enhanced through bolding and underlining.

Sample EI PI+TTIE

Motion verbs

The most common English motion verb is **go**.

e.g. **go into/out** of the classroom.

Direction is expressed by a preposition after the verb

e.g. **into, out of**

Pilot study 1 treatment materials for the TTIE package

In the TTIE package, the target form was enhanced through a picture verification task which involved bolding and underlining, however the referential activities became comprehension exercises. The EI phase and the affective activities were kept the same.

Sample Referential activity TTIE

Look at the pictures and circle the right answer:

1 a. They **walked into** the bank
b. They **walked out of** the church
c. They **ran into** the park.

Table 7 shows a summary of the differences between the treatment packages used in Pilot study 1

Table 7 Summary of Treatment packages used in Pilot study 1

Day 1	PI	Pi+TTIE	TTIE
50mins	1. **EI** 2.**Referential Activities** 1-3 3. **Affective** activity 1	**1. EI** + bolding/underlining **2.Referential** Activities 1-3+ bolding/underlining **3. Affectiveactivity** 1 + bolding/underlining	1. **EI** + bolding/underlining 2. **Comprehension based Activities** 1-3 + bolding/underlining 3. **Affective activity** 1+ bolding/underlining
Day 2 **50mins** **+ IPT (50 mins)**	1. EI reminder 2.Referential Activity 4a -c 3. Affective activity 2	**1. EI reminder +** **bolding/underlining** **2.Referential Activity 4a -c+** **bolding/underlining** **3. Affective activity 2+** **bolding/underlining**	1. EI reminder+ bolding/underlining 2.Comprehension based Activities 4a-c +bolding/underlining 3. Affective activity 2 +bolding/underlining

Pilot study 1 Pre-test and Post-tests

The effectiveness of the instructional treatments was judged by an increase in number of manner-of-motion verbs + Path satellites produced in the narrative tasks and by an increase in correct responses in an interpretation task as measured by a pre-test, an immediate post-test (IPT) and a delayed post-test (DPT). The participants performed a level assessment test (Oxford quick placement test) and a pre-test which consisted in an elicited written narrative description of a picture book story, two days before the treatment. An IPT was administered on the day of the second treatment, followed by a DPT administered 12 weeks later.

Pilot study 1 production task

The production task consisted in written narrative descriptions of a picture book story, a cartoon and a film clip. The picture book used for elicitation at the Pre-test was *Frog,* *where are you ?* (Mayer, 1969), which has been used on several occasions in motion event research (e.g. Berman & Slobin, 1994). At the IPT, the cartoon Canary *Row* (Freleng, 1950) was used in which Sylvester the cat attempts to catch Tweety. The cartoon was chosen for the high number of motion events involving entering and exiting and has also been used in previous psycholinguistic research (Mcneill, 2005).The third elicitation tool used at the DPT was a film clip from *Casino Royale* (Campbell, 2006) where Bond chases a suspect through a construction site. Again, the clip was chosen for the high number of manner-of-motion verbs + path combinations possible (minimum 30) which included both non-boundary crossing and boundary-crossing events. The narratives were analysed with particular attention given to type/tokens of manner-of-motion + satellites produced.

Pilot study 1 interpretation task

In Pilot study 1, in order to test participants' receptive knowledge of the target form a matching task was used. The matching task involved a series of slides displayed on a laptop, which showed a Figure performing an action and a sentence below the picture. During the task, participants were asked to press key *M* if the sentence matched the action or key *X* if it did not match (see Figure 5).

The people are walking into the building.

Figure 5 Matching task sample 1

As with the SPRTs later used in the main study, the task included 48 sentences: six practice sentences, 28 distractors and 14 target sentences. Among the 14 targeted test items, seven were grammatically *usual* sentences (see Figure 5) and seven *unusual* (see Figure 6). The task was designed using Superlab 4.0 software and was performed individually by each participant on the same Lenovo X61 laptop. Response times and accuracy were recorded by the program for each participant.

The man is entering the house running.

Figure 6 Matching task sample

Summary of findings Pilot study 1

Prior to Pilot study 1 many weeks were spent refining the instructional packages, which led to a change in direction away from input flooding to the PI+TTIE treatment packages described above. However, Pilot study 1 showed up several defects in both the instructional materials and the testing procedures. Regarding the design of the teaching materials, the first issue was trying to communicate too much to the learners over only two lessons. As can be seen in the sample materials reproduced below, at the EI stage Manner and Path are presented together (see Appendix D for more examples).

Pilot study 1 Sample materials PI group

Motion verbs

The most common English motion verb is go.

e.g. go into/out of the classroom.

Direction is expressed by a preposition after the verb

e.g. into, out of

Go can tell us about the direction of the movement (where) but gives no information about the manner in which a person is moving (how).

Motion Verb + Preposition	Direction (Where)	Manner (How)
go into/out of	Yes	No

To give more information we use a manner verb instead of go.

e.g. run, fly, walk

Furthermore, in the SI stage the exercises attempt to draw attention to how each component fits into the argument structure by separating activities by Figure and Ground. By contrast, in the final study instruction was spread out over four days with the first two lessons focussing on the S-framed structure for describing Path and the second two lessons showing how Manner can be incorporated into the overriding structure. Ultimately, the results of the Pilot study 1 tests showed no significant differences in performance scores, throwing doubt on the potential of the study design to highlight the merits and defects of the different approaches. Above all, what stood out from Pilot study 1 was the challenge of trying to deploy an input-based approach (PI) in an overwhelmingly output-driven environment. By this I mean that during the referential and affective activities, it was observed that many participants insisted on producing the target form in spite of recommendations to the contrary. Indeed, participants expressed their desire to repeat the input aloud and produce their own sentences, which they had been encouraged to do in previous lessons with other structures. This experience led to a change of focus more germane to the communicative language teaching context in which the study was taking place. It was felt that given the context, a comparison between a purely input-based approach and one that includes output practice of the target form would be of greater relevance. In addition, by incorporating a structured output component, the study would provide insight into the much-debated roles of input and output in acquisition (see section 2.17).

In addition to the flaws in the instructional design outlined above, issues were also found with the achievement measures. In the first place, the lack of consistency in the elicitation tools - the picture book story *Frog, where are you?* (Mayer, 1969), the cartoon *Canary Row* (Freleng, 1950) and the clip from *Casino Royale* (Campbell, 2006) – made the internal validity of the Pre- and Post-test comparisons difficult to justify. In addition, it was found that the wide array of Manner and Path components on display required a richer lexicon than those typically present in an intermediate learner's repertoire. Figure and Ground components were also found to be too diverse and potentially difficult to describe. These issues led to the design of a picture story book which could be manipulated to suit the anticipated level of the participants and the specific aims of the study (see section 4.8. for detailed description).

Issues were also found in the interpretation task. Specifically, the combination of pictures and sentences in the GJTs appeared to distract from the focus of the task, which was the speed and accuracy of interpretation of the sentences. As a result, a self-paced reading task, which focussed purely on the language itself, was designed to elicit the kind of data required (see section 4.16).

3.2. Pilot study 2

A second pilot study was conducted in the same language school where the main study was to be held in order to trial the changes.

Pilot study 2 participants

The sample consisted of eight (three male and five female) L2 English learners aged 20 – 40, who were studying General English at a private language school in the UK. Participants were from a range of language backgrounds 1 Chinese, 4 Korean, 1 Japanese, 1 Italian, 1 Arabic (Table 8). All participants had been enrolled at the school for at least 4 weeks and were attending a high intermediate level course for 28 hours a week. Scores from the Oxford Quick Placement Test ranged between 33 and 40 corresponding to CEFR B1- B2.

Table 8 Pilot Study: Distribution of Language Backgrounds

Number of participants	**Language typology**	**Language**
4	verb-framed	Korean
1	verb-framed	Arabic
1	verb-framed	Japanese
1	verb-framed	Italian
1	equipollent-framed	Taiwanese/Chinese
Total = 8 participants	**Total = 2 typologies**	**Total = 5 L1's**

While Pilot study 1 proved to be extremely useful for the refinement of the instructional packages and testing materials, Pilot study 2 was important for the trialling of the new instructional materials and data collection procedures which were used in the current study (see chapter 4). The language learner questionnaires were also introduced in Pilot study 2, which provided important information, such as whether or not the participants had ever received explicit instruction in the target structure (Appendix E1). Finally, during the treatment phase of the pilot studies several pictures were found to be unclear and were subsequently replaced.

4 Methodology

4.1. Introduction

This chapter describes the methodology of the present study and is divided into six sections. The first section will focus on the study design. The second part will provide information about the participants of the present study. The third part will describe the development of the instructional packages and data collection procedures. The fourth part will describe how the theoretical underpinnings of the PI approach have been operationalized and combined in the development of the treatment and testing materials for the two groups. The final part will describe the procedure and the manner in which data was collected.

The research questions and hypotheses that frame the study are repeated below:

4.2. Research questions of this study:

(RQ1) What is the effect of the intervention on students' use of motion verbs?

H0: the intervention will not have an effect on the frequency and/or accuracy with which learners produce the target forms.

H1: Learners from the Output group will outperform Input only learners in the production of the target forms.

(RQ2): What is the effect of the intervention on students' interpretation of motion verbs?

H0: Reading times and error rates will not differ between pre-test and IPT for *usual* or *unusual* target items, or for *grammatical* or *ungrammatical* distractors, irrespective of the instructional package

H1: Reading times and error rates will decrease for *usual* target items between the pre-test and the IPT.

H2: Reading times and error rates will increase for *unusual* target items between the pre-test and the IPT.

H3: Participants will be equally fast and accurate at reading *usual* targets and *grammatical* distractors.

H4: Participants will be equally fast and accurate at reading *ungrammatical* distractors and at reading *unusual* targets

H5: The group that received the input-based treatment will demonstrate shorter RTs and lower error rates for *usual* and *unusual* targets at the IPT.

(RQ3) What is the effect of the students' first language on their use of motion verbs?

H0: There will be no difference between students from different language backgrounds.

H1: Learners from V-framed L1 backgrounds will show larger increases in types and tokens of the target forms than their S-framed counterparts after the intervention.

(RQ4): What is the effect of students' first language on their interpretation of motion verbs?

H0: There will be no difference between students from different language backgrounds.

H1: Significant differences will be found across language types. It is predicted that learners from an S-framed L1 will demonstrate shorter RTs and lower error rates at both pre-test and IPT.

H2: Learners with a V-framed L1 will demonstrate longer RTs for postverbal sentence segments for *unusual* targets both with and without a boundary-crossing due to the learners' expectations which are likely to be carried over from the L1 structure.

H3: V-framed learners will demonstrate shorter RTs for postverbal sentence segments for *unusual* targets with/without a boundary-crossing, due to similarities with the participants L1's.

4.3. Study design

The participants

Fifty-nine participants at a private language school in Brighton, England were recruited for this study over an eight-month period, from the end of March 2015 to the middle of November 2015. The participants had all been learning English for at least three years prior to the intervention, and had been taking English lessons at the same school, from Monday to Friday (28 hours weekly), for at least four weeks prior to the intervention.

As revealed in exit questionnaires, none of the participants had ever received explicit instruction in the target structure, although given the frequency of the target forms used by native speakers outside the classroom, it is likely that they had been exposed to the target structure in their environment prior to the intervention.

Prior to commencement participants completed a language contact profile questionnaire (Adapted from Freed et al., 2001, Appendix E1) in order to build up a better understanding of the language backgrounds of each learner. At the end of the study, participants were also invited to complete an exit questionnaire regarding their participation in the study and prior knowledge of the target form (Appendix E6). It was not possible to randomise allocation of the participants to each intervention group per se, due to the manner in which opportunities for recruitment arose. Typically, English language learners arrive at this particular language school all year round and vary in terms of length of stay and course duration. However, to the extent that it was possible to achieve this on the basis of the available information, care was taken to ensure students in the experimental and control groups were of comparable backgrounds and had similar language profiles.

Participation in the study was offered to learners attending a high intermediate class in the form of an optional extra lesson per day for one week. This was done at four different periods throughout the year. The first experimental group began at the end of March 2015 and was followed by a second group six weeks later. A third group began at the beginning of September and was followed, again six weeks later, by the final group. The time distance between sessions with experimental groups was to ensure that all participants had concluded their courses at the school before recruitment of further participants began. This was done in order to avoid new participants coming into contact with previous participants who had had recent exposure to the target forms, the instructional packages and the testing materials. Below is a summary of the overall experimental design of the study:

<u>Stage 1</u>

Pre-test

Self-Paced Reading Task (SPRT1)

Robot story 1 (RBS1)

<u>Stage 2</u>

Intervention (4 x 45 mins)

Input-based package (Input group)

or

Input/Output-based package (Output group)

<u>Stage 3</u>

Immediate Post Test (IPT)

Self-Paced Reading Task (SPRT2)

Robot story 2 (RBS2)

<u>Stage 4</u>

Delayed Post Test (DPT)

(Two weeks after IPT)

Robot story 1 Repeated (RBS3)

(followed by six-week cooling-off period)

As with most intervention studies, a certain level of attrition was to be expected. Only those who took part in all the phases of the intervention (i.e. instructional sessions and assessments) were included in the final data pool. Initially, 69 participants were recruited for this study. However, ten participants were excluded from the final data pool: four were absent at either the post-test or the delayed post-tests; and three participants were identified as outliers, due to the relatively high scores attained at the pre-test when compared to other participants. This means that 59 participants were included in the final data pool. Ethical approval was obtained from the University of Reading ethics committee prior to the study.

Participant gender and age

The participants were quasi-randomly assigned to the two groups: the Input group and the Output group. In the Input group, 55% were female and 45 % were male whereas in the Output group 70% were female and 30% male. Although the average age of the participants was around 24 years for both groups (Input group M=24.34); (Output group M=24.7), there were substantial variations in each group ranging from 18-50 years in the Input group (std. deviation = 6.28) and from 18-36 for the Output group (std. deviation = 4.97).

Participant L1 background

There were ten different L1's across the two groups (Table 9).

Table 9 Participant L1

Participant L1	L1 Typology	Frequency	Input group	Output group
Korean	V-framed	13	5	8
Swiss-German	S-framed	10	6	4
Arabic	V-framed	7	6	1
Japanese	V-framed	6	2	4
Chinese	E-framed	3	1	2
Spanish	V-framed	5	1	4
French	V-framed	4	3	1
Portuguese	V-framed	4	4	0
Swiss-French	S-framed	3	1	2
Turkish	V-framed	3	0	3
Slovak	S-framed	1	0	1
Total		**59**	**29**	**30**

The language typologies were distributed fairly evenly across the groups with 72% of participants in the Input group speaking a V-framed language and 70% in the Output group. 24% of the Input group spoke an S-framed L1 and 23% of the Output group. A small number of equipollent-framed participants also took part with one participant in Input group 1 and two participants in the Output group (Table 10).

Table 10 Language typology across groups

Participant group	Verb-framed	Satellite-framed	Equipollent-framed
Input group	72% (21)	24% (7)	3.5% (1)
Output group	70% (21)	23% (7)	6% (2)

Stay in the UK prior to study and placement scores

The number of weeks present in the UK before the study varied across groups, ranging between 4-12 weeks. For the Input group, the average was around six and a half weeks while for the Output group, the figure was just over eight and a half weeks. The participants were classified as English intermediate learners (CEFR B1-B2). Before the start of the study, the proficiency level of the participants was tested using the Oxford Quick Placement test (Appendix F).The mean placement test scores for the Oxford placement test varied to some extent across groups with scores ranging from 29-56. This means that the level of participants ranged from low intermediate to advanced level (A2-C1) (Table 11).

Table 11 Placement test mean scores

Participant group	N	Mean	Std. Deviation
Input group	29	39.72	9.14
Output group	30	39.23	6.08

Assessing the level of language learners is notoriously difficult. Indeed the CEFR itself has been criticised for its failure to take into account key issues in language testing such as contextual variables and cognitive processing at different levels of ability (Weir, 2005). However, with the use of pre-tests and post-tests specially designed to assess knowledge of the target structure, variance in the placement scores was not deemed an issue. Figure 7 shows the distribution of the placement scores across the two groups.

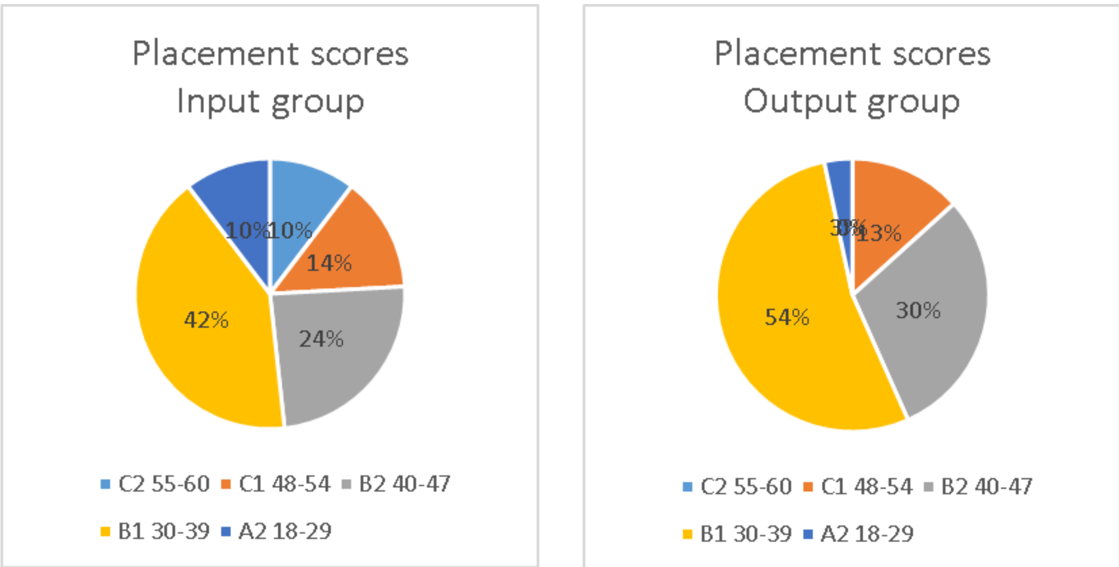


Figure 7 Placement test scores group comparison

4.4. Design of the instructional materials

Two instructional packages were designed for the purposes of the study: an input-based package (Input group) and an input-based package with an output component (Output group). All of the instructional materials were developed by the researcher to suit the participants' English proficiency and the particular aims of the study. Both packages were delivered over 4 x 45 minute lessons (one lesson per day for four days) and were divided into two blocks. The first block of two lessons focussed on Path with an explanation (EI) of the basic typological differences between V-framed and S-framed languages followed by Structured Input (SI) activities (For more examples see Appendix G1-G2). The researcher was the instructor for all four instructional sessions throughout the intervention. Table 12 shows the design of the instructional phase:

Table 12 Design of instructional phase

Lesson	Duration	Focus
Lesson 1	45 mins	Path 1
Lesson 2	45 mins	Path 2
Lesson 3	45 mins	Manner 1
Lesson 4	45 mins	Manner 2

EI phase

Explicit Instruction (EI) was presented to learners briefly prior to the Structured Input activities (SI). Informed by PI guidelines, which recommend that only one concept be presented at a time, the target feature was divided into two blocks in order to isolate the co-events of the Manner + Path combination.

The first block consisted of two lessons, which focussed on Path. In particular, the focus was on the directional component of the satellite-framed pattern most commonly used to denote a boundary-crossing from inside a location to outside or vice-versa i.e. *go into/out of.* This represents a significant departure from the few teaching materials readily available to instructors where a variety of prepositional phrases, adverbs and particles are typically presented together perhaps with the aim of achieving an input flood. While PI practitioners stress the importance of focussing on one feature of the target language at a time, this is often done through the use of contrasting pairs. For example, in their original study VanPatten and Cadierno (1993) contrasted Spanish subject pronouns with direct object pronouns to help learners develop the appropriate form-meaning connections. More recently, in a study of the acquisition of L2 German accusative case marking, English learners of German received instruction on the accusative case, which drew a contrast with the nominative case (Agiasophiti, 2011). In the first phase of the current study, this binary contrast was brought into play by setting *go into* against *go out of.*

As can be seen in the sample materials below, the EI phase consisted in a brief explanation of the satellite-framed pattern, followed by two examples. After the brief explanation learners were alerted to the potential pitfalls regarding the influence of default processing strategies carried over from the learners' L1 (VanPatten, 1996).

Entering and Exiting

e.g.

John goes into the classroom. Mary goes out of the shop.

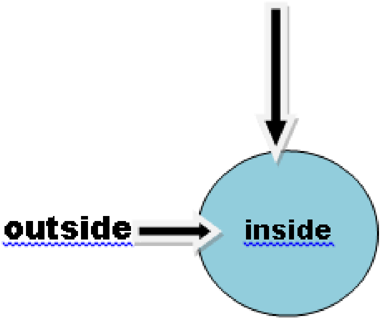
Direction is expressed by the verb + a preposition after the verb

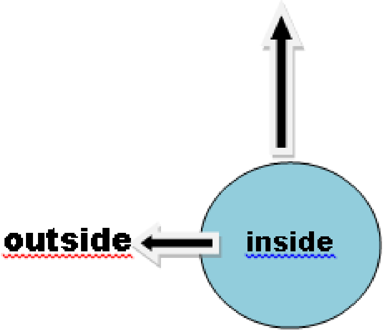
go into/out of

To change direction we change the preposition not the verb.

John goes into the classroom

Mary goes out of the shop.





Be careful:

In different languages direction is described in different ways. In English to change direction we change the preposition. In other languages to change direction, the verb is changed.

John goes into the classroom .(acceptable in English)
Mary goes out of the shop.(acceptable in English)

John enters the classroom. (less common in English)
Mary exits the shop. (less common in English)
(acceptable in Turkish, Spanish, Italian, French, Japanese, Korean)

SI phase

The SI activities were developed so that learners were obliged to pay specific attention to the Satellite-framed target structure in order to achieve an appropriate interpretation. Following PI guidelines, learners were asked to complete a number of referential activities before moving on to affective activities where they were asked to offer their views on a number of boundary-crossing events. After the presentation of explicit instruction (EI) regarding the satellite-framed pattern, learners moved on to the SI activities where they were presented with visual stimuli and performed listening and reading comprehension tasks which were designed to push learners to look for Path information on the satellite rather than on the verbs. In the first referential activity, participants performed a picture verification task where they listened twice to a sentence and were asked to choose between two pictures. There were 20 sentences showing a figure going *into/out of* different locations. In order to make the correct choice, the learners were required to shift attention away from the verb and to focus on whether the sentence contained either *into* or *out of*. Once completed the participants were given an answer key which showed the number of the question and the correct answer. After the listening exercises, the participants moved on to written input. This time instead of hearing the sentence, participants read a written sentence and were asked to match the meaning of the sentence with the appropriate picture. Again, there were 20 questions in the exercise. Samples of these exercises can be found below (see Appendix G1-G2 for more examples).

Sample material: (Path) Referential activities 1

Listening

Listen and choose the right picture:

1.

a. b.

.

Reading

Look at the pictures and choose your answers:

1.

a. b.

The woman is walking into the shop.

On the second day of the intervention, the Path referential activities consisted in listening to, reading and comprehending connected discourse. Again, the exercise was constructed so that participants were obliged to attend to the satellite in order to derive the appropriate meaning.

Sample material: (Path) Referential activities 2

Reading (Connected discourse)

An Amazon Adventure

Part 1- True or False

1. Juan and Maria were leaving Bogota.

2. After the crash Maria was still in the plane.

3. Maria had to go into the jungle.

4. After the crash Juan was outside the plane.

On December 21st 2012, Juan Gomez and his wife Maria were flying out of Bogota. Two hours after take-off, the plane broke up in a terrible storm. The morning after the crash, Maria woke up and climbed out of a window. She looked for her husband Juan but could not find him. She was alone and she had to walk out of the jungle. An hour later Juan climbed into the plane looking for Maria. He called for her but there was no answer.

After completion of the referential activities, participants were asked to give their views regarding the likelihood of certain scenarios involving a boundary-crossing event. Here there were no right or wrong answers and learners did not receive feedback regarding the target form. It is the function of affective activities to give learners the opportunity to personalize the activity with real world examples from their own experiences. In contrast to referential activities, which offer positive and negative evidence of the target forms, affective activities provide only positive evidence.

Sample Material: (Path) Affective activities

Here are some actions which have been performed by your teacher this month.

Tick the actions that are also true for you.

1. *He has jumped out of a box.*
2. *He has walked into a coffee bar.*
3. *He has fallen into a hole.*
4. *He has run into a hospital.*
5. *He has run out of a train station.*
6. *He has jumped into a swimming pool*
7. *He has climbed out of a window.*
8. *He has fallen out of bed.*
9. *He has run into school.*

Check with your teacher

EI (Manner)

The second block of two lessons showed the learners how Manner information can be added to a motion event in English. In the SI activities that followed, learners were again presented with visual stimuli and performed listening and reading comprehension tasks designed to focus their attention this time on the Manner of an event and how this information is expressed on the main verb.

Sample Material: EI (Manner)

How we move

In English we often give extra information about how a person is moving.

To give extra information we can use different verbs:

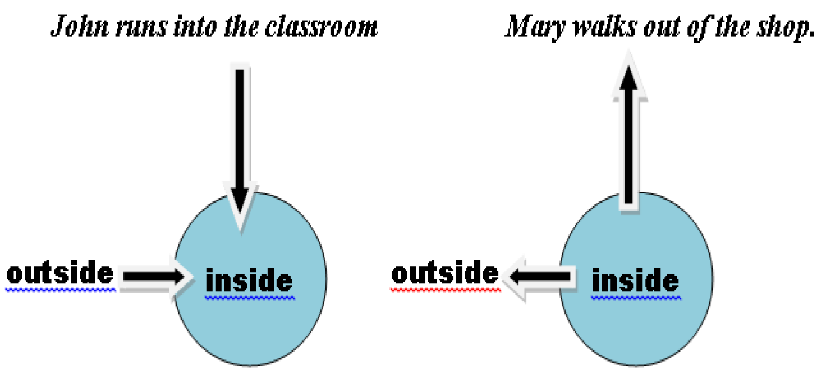
e.g.

run, fly, walk, climb, swim

These verbs can be followed by a preposition to show direction.

run into/out of , fly into/out of, walk into/out of, climb into/ out of

With this construction we can see how and where a person is going.



Be careful:

In different languages motion is described in different ways. In English to give information about how a person moves, we change the verb. In other languages to give information about how a person moves, a second verb is needed.

The dog ran into the house.(acceptable in English)

The bird flew out of the room.(acceptable in English)

SI (Manner) Referential activities

After the explanation of how Manner can be incorporated into a motion expression, participants were presented with SI activities, which again contained visual stimuli with listening and reading comprehension tasks. This time the focus was placed on the manner in which the action was performed. In the first SI task this was achieved by the inclusion of a third option represented by a question mark, which stood for the answer *I'm not sure*. In order to choose the correct picture, participants needed to attend to whether the sentence was *walking out of*, *running out of* or *going out of*. If the sentence was *going out of*, this meant the correct response would be **c***: I'm not sure*, due to the lack of specific manner information. As with the Path referential activities there were 20 questions and the listening task was followed by a similar task which consisted of written input (Appendix G1-G2). Below is an example of the listening task where the participants were asked to choose the correct option after hearing the following sentence: *The children are running out of the school*.

Sample material: (Manner) Referential activities 1

Look at the pictures and answer ***a***, ***b*** or ***c*** (either):

1.

a.

b.

c.

On the fourth day of the intervention, the *Manner referential activities* consisted of listening to, reading and comprehending connected discourse. The exercise was constructed so that participants could not derive meaning without processing the target form, which in this case meant attending to the Manner information carried by the verb.

Sample material: (Manner) Referential activities 2: Reading (Connected discourse)

The Bank Robber and the Businessman

You are going to read a story:

True or False

1. The bank robber is in a hurry.

2. The businessman is early for his meeting.

3. The businessman forgot to turn off the engine because he got out of the car very slowly

Part 2

9.51 a.m. Joe stopped the white van opposite the bank and put on his cap. He got out of the van and walked into the bank carrying a package. He joined the queue and waited. A businessman late for a meeting bumped into Joe. Their eyes met for a second but they said nothing.

…..

Harry Burton jumped out of his Mercedes but forgot to turn off the engine. As he ran into the bank he bumped into a man carrying a package. The package nearly fell but the man caught it before it hit the floor. Harry stopped, looked at the man for a moment then walked into the manager's office.

SI (Manner) Affective activities

After completion of the referential activities, participants were again asked to give their views regarding the likelihood of certain scenarios involving a boundary-crossing event (as shown below). Here there were no right or wrong answers.

Sample Material: (Manner) Affective activities

Do you agree or disagree with the following sentences? Compare with your partner

	Agree	*Disagree*
I would never jump out of a plane.		
Once I walked into the wrong classroom.		
I used to run out of school when I was a child.		
I have never fallen out of bed.		
I have fallen into a river.		
I would jump into a river to save a dog.		
I would run into a burning building to get my laptop.		
Once I had to climb into my house.		
I would walk out of the building if there was a fire.		
I would like to swim into a cave.		
It would be funny if a bird flew into the classroom.		
I would not move if a snake crawled into my bed.		

4.5. Treatment differences: Input group v Output group

In order to facilitate comparison and control for internal validity, the Output package replicated most of the features of the Input package, including duration, format and the number of target forms available in the input. However, where the Output package differed was in the inclusion of learner output during the teaching phase. While at no time during the four Input lessons were the learners asked to produce the target form, in each of the four Output lessons, learners moved from input to oral and written production of the target forms. As per the Input learners, the Output learners were exposed to 260 tokens of the target forms during the teaching phase and a further 40 in the pre-test (20) and IPT (20) for a total of approximately 300 targets. Time spent on each task was kept the same for each group. It is, however, difficult to calculate the number of target forms which became available as input during oral production activities. The differences between the treatments are summarized in tables 13-16.

Table 13 Path Lesson1 Treatment Comparison

Path	Stage 1 5 mins	Stage 2 15 mins	Stage 3 25 mins
Input group Lesson 1	**EI** Brief explanation of learner issue.	**SI** Listen twice and choose picture	**SI** 1. Read and choose the right pictures 2. Personal judgement task
Output group Lesson 1	**EI** Brief explanation of learner issue.	**SI** Listen twice and choose picture	**SI** 1. Complete the sentence below the picture using target forms. 2. Sentence completion and discuss personal experiences using target forms.

Table 14 Path Lesson 2 Treatment Comparison

Path	Stage 1 5 mins	Stage 2 15 mins	Stage 3 25 mins
Input group Lesson 2	**EI** Brief explanation of learner issue.	**SI** Listen twice to a story (parts 1 - 2) and answer True or False.	**SI** 1. Read story (parts 3 - 5) and answer True or False. 2. Give opinion about story
Output group Lesson 2	**EI** Brief explanation of learner issue.	**SI** Listen twice to a story (parts 1 - 2) and write answers using target forms.	**SI** 1. Read story (parts 3 - 5) and write answers using target forms. 2.Recall story using target forms

Table 15 Manner Lesson 1 Treatment Comparison

Manner	**Stage 1** **5 mins**	**Stage 2** **15 mins**	**Stage 3** **25 mins**
Input group Lesson 1	**EI** Brief explanation of learner issue.	**SI** Listen twice and choose picture	**SI** 1. Read and choose the right pictures 2. Personal judgement task
Output group Lesson 1	**EI** Brief explanation of learner issue.	**SI** Listen twice and choose picture	**SI** 1. Complete the sentence below the picture. 2. Sentence completion and personal experiences

Table 16 Manner Lesson 2 Treatment Comparison

Manner	**Stage 1** **5 mins**	**Stage 2** **15 mins**	**Stage 3** **25 mins**
Input group Lesson 2	**EI** Brief explanation of learner issue.	**SI** Listen twice to a story (parts 1 - 2) and answer: Who did what?	**SI** 1. Read story (part 3) and answer True or False. 2. Give opinion about story
Output group Lesson 2	**EI** Brief explanation of learner issue.	**SI** Listen twice to a story (parts 1 - 2) and answer with target forms.	**SI** 1. Read story (part 3) and answer comprehension questions and recall with target forms. 2. Sentence completion with target forms and discuss personal experiences.

4.6. Target tokens

As mentioned above, in total learners were exposed to 260 tokens of the target forms during the teaching phase. To this number a further 40 possible tokens should be considered from the elicitation tools used in the pre-test (20) and IPT (20) which means learners were exposed to approximately 300 examples of the target form over a 7 day period (Table 17).

Table 17 Instructional packages total tokens

Tokens	Lesson 1 Path	Lesson 2 Path	Lesson 3 Manner	Lesson 4 Manner	Total
Input group	76	53	84	47	260
Output group	76	53	84	47	260

4.7. Procedure

This section will present the design and administration of the testing materials which were adopted in the current study in the following order:

1) The Self-Paced Reading Task (SPRT)

2) The written production task (picture-based narration task)

A battery of tests was deployed, involving two SPRTs and three picture-based written production tasks. After the pre-test, a four-day treatment was provided followed by the immediate post-test. Participants received the delayed post-test two weeks post-instruction. The total number of participants was 59 allocated into two groups, namely an Input group (N=29) and an Output group (N=30).

4.8. The Self-Paced Reading Task (SPRT)

Relevance of SPRTs to this study.

Prior to instruction, each participant performed a self-paced reading task where they were asked to make an acceptability judgement regarding the grammaticality of a number of sentences. This was done with the aim of uncovering traces of possible L1 transfer and gaining insight into the participants' processing of the target structure, which it was hoped could be evidenced by accuracy measures and *response latency*, i.e. the speed at which participants were able to process both *usual* and *unusual* motion expressions. Indeed, recent studies have used a combination of latency and accuracy data to assess the effects of instruction on L2 learners' development and increased sensitivity to target forms (e.g., Leung & Williams, 2012; Lado, Bowden, Stafford & Sanz, 2014). Previous research suggests that the higher relative frequency of a particular linguistic form or combination and its accessibility in working memory, the shorter reading times are likely to be. This has been shown to be true for both native speakers (Kapatsinski & Radicke, 2009) and L2 learners (Kim & Kim, 2012). With this in mind, it was predicted that participants from V-framed backgrounds would read more quickly and accept as usual many of the unusual forms, as in (32)

(32) He entered the room running.

and take longer to process S-framed patterns, as in (33)

(33) He ran into the room.

If this were indeed so, it may be indicative of the effect of an underlying cross-linguistic influence.

Indeed, it has been suggested that online measures can act as a window into the learner's mind providing information about moment-by-moment sentence comprehension which allows for analysis of precise points or segments (Keating & Jegerski, 2015, p.2).

At this stage, I would like to enter a caveat regarding the use of SPRTs in general. Due to the slide-by-slide segmentation of the sentences presented in such tasks, it has been argued that readers tend to read much more slowly than they would normally. In some SPR experiments readers have been estimated as reading at as much as half their natural reading speed, (Rayner, 1998). This may result in an interrupted flow of information and may give rise to difficulties in terms of reconciling syntactical elements and overall comprehension of particular sentences (Fodor, 2002). While careful consideration was given to the implications of these issues, it was concluded that the between/within subjects design of this particular study meant that these potential obstacles would be the same for all participants and would therefore not affect the between group comparisons significantly.

The design and contents of the SPRTs used in the study.

Four SPRTs were specifically designed for the purpose of the study:

SPRT1-Adverb; SPRT2-Adverb; SPRT1+Adverb; SPRT2+Adverb.

SPRT1-Adverb was given to the participants in Input group 1 prior to instruction to establish a baseline before intervention (34). SPRT2-Adverb was given to Input group 1 immediately after instruction. Input group 2 and the Output group were given a revised version of the SPRTs used for Input group 1. This second version (SPRT1+Adverb; SPRT2+Adverb) contained an extra slide with an added adverbial component (35).

(34) The man walked into the bank.

(35) The man walked into the bank yesterday.

The reason for this addition was that participants who performed the first version of the SPRTs appeared to stall on the last segment of the sentence before moving to the decision making slide. It was felt that the addition of an extra adverbial segment before the decision slide would allow participants to dwell on the added adverbial segment which did not form part of the target structure and as a result would allow for a truer reflection of the response latency for the target segments.

Participants performed the task individually on the same Lenovo X61 laptop in the presence of the researcher who monitored the task. This was done in a quiet classroom at a time chosen by the participant. Response times and participant responses were automatically stored by the program.

The slides were made using PowerPoint software with 60pts black Calibri font which appeared in the middle of the slide on a white background. The slides were then placed in a folder on the computer to be displayed by the Superlab 4.0 program. Following recommendations from previous SPRT research (e.g., Perea & Rosa, 2002) the font size and shape were held constant throughout. In order to maintain consistency throughout the test, the length of each sentence was controlled and ranged from five to six words on average with simple unmodified noun phrases (i.e. determiner + noun) as subject of past tense verbs (Appendix H1-H5). Furthermore, the acceptability of the test items was checked by two English native speakers to ensure accuracy.

Following recent SPR L2 studies (e.g. Jackson, 2010), the task was *non-cumulative* with only one segment visible at a time and used phrase-by-phrase, which may replicate more closely natural reading patterns than word-by-word segmentation (Jegerski, p.31, 2014). During the task, participants pressed the space bar on the laptop to proceed from one part of the sentence to the next without the possibility of going back to review the previous slides. At the end of a sentence, which was signalled by a full stop, a screen appeared inviting participants to press either key *M,* if they felt the grammar of what they had just read sounded *usual* or key *X,* if they felt a sentence was grammatically *unusual.* As mentioned previously (section 2.19), the choice of the word *unusual* to classify certain forms of expression is based on the assumption that some structures in English are statistically more common than others. For example, an internet search using the Google search engine revealed 54,600 hits for the sentence (see Appendix H1-H5 for details)

(36) The man walked into the bank (yesterday)

but no hits at all for

(37) The man entered the bank walking.

In each SPRT there were 48 sentences: six practice sentences, 28 distractors and 14 target sentences, all of which are listed in Appendix H1. Among the 14 targeted test items, seven were grammatically *usual* sentences and seven *unusual.* While overall response times and accuracy were recorded for each participant, the results of the 14 targeted test items (Tables 18 and 19) were the main focus of the subsequent statistical analysis.

Table 18 SPRT1 Target features

Form	Frequency	Category
manner+ into/out of	4	Usual
enter/exit + walking/running	4	Unusual
running+ up/down/across	3	Usual
going up/down / across + walking/running	3	Unusual

Table 19 SPRT2 Target features

Form	Frequency	Category
manner+ into/out of	4	Usual
entered/exited + flying/walking/running	4	Unusual
walked/ran+ up/down/across	3	Usual
went up/down / across + walking /climbing	3	Unusual

4.9. Picture-based written production task

A picture-based written production task was also used to assess the impact of the intervention. The two *Robot Stories* (RBS1 and RBS2) (Appendix I1-2) were specially designed by the researcher to elicit a variety of motion expressions. The stories featured a child's toy robot moving through a number of different situations in a variety of ways, e.g. *walking*, *running*, *jumping*, *falling* for a total of 24 pictures per story. The stories were each designed to include 20 motion events with several instances of the characters crossing a boundary either going into or out of various locations (see Table 20 for summary). In addition, an effort was made to include characters, objects, actions and locations the description of which were likely to fall within the limits of the participants' vocabulary level. Before writing, participants were told to focus as much as possible on the action rather than physical descriptions of the characters or environment. Instructions were translated where necessary to ensure comprehension and bilingual glossaries of nouns were provided in the participants' L1 to facilitate descriptions. Originally the intention had been to use a picture book already in existence, such as *Frog, where are you? (Mayer, 1969).* However it was felt that such stories did not contain enough instances of boundary-crossing, nor were they suitable for pre-test/ post-test comparisons because they did not allow for like-for-like comparisons. Participants performed the written task on three occasions with RBS1 being used at Pre-test and at DPT (two weeks later) (Figure 8).

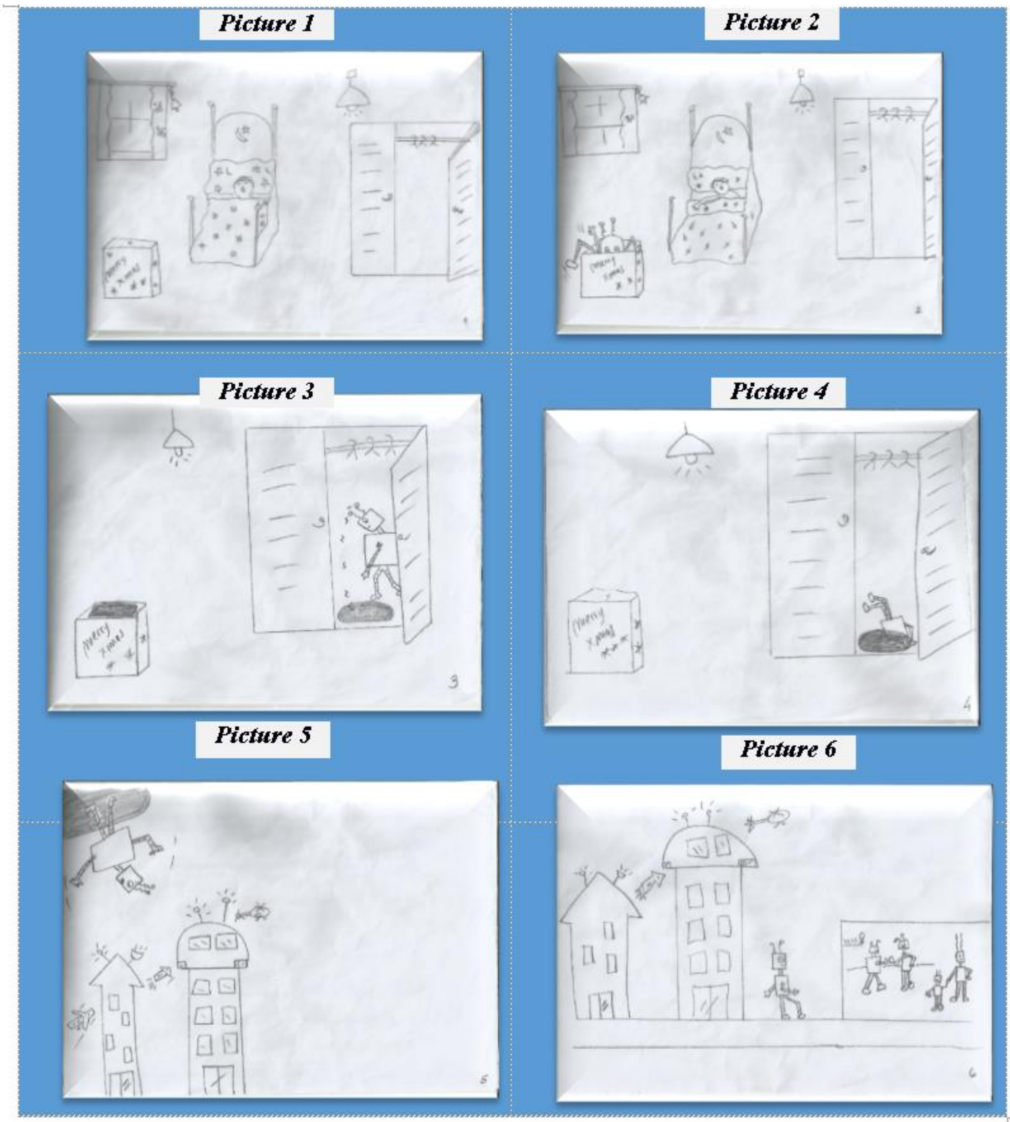


Figure 8 Sample Robot story 1

RBS2 was used once at IPT. Before writing, participants were told to focus as much as possible on the action rather than physical descriptions of the characters or environment. Instructions were translated where necessary to ensure comprehension and bilingual glossaries of nouns were provided in the participants' L1 to facilitate descriptions. A comparison of the content of the two stories can be found in Table 20.

Table 20 Robot Stories comparison

	Robot story 1 (and 3)	Robot story 2
Duration	24 pictures	24 pictures
Characters	A boy, a small robot, a bigger robot, some birds, other robots	A boy, a small robot, a bigger robot, a bird, Mum, a thief
Settings	A bedroom, a wardrobe, a city street, a pet shop, a café, a building with stairs, a lift, a taxi.	A bedroom, a wardrobe, a garden, a city street, a truck, a petrol station, a building with stairs.
Total Motion events	20	20
Manner verbs	15 climb x 5, jump x 3 run x 5, fly, walk	15 climb x 5, jump x 3 run x 5, fly, walk
Path	5 fall x 2, go, come, get	5 fall x 2, go, come, get
Boundary crossing	16 out of x 9, into x7	15 out of x 6, into x 9
Non-boundary crossing	4 up x 2, along, around	5 up x 3, down x 2

A summary of the assessment schedule is provided in Figure 9:

Pre-test :	**SPRT1 and RBS1**
Intervention:	**4 x 45 mins**
IPT:	**SPRT2 and RBS2**
DPT:	**RBS1 (two weeks after IPT)**

Figure 9 Assessment schedule

4.10. Coding

The pre-test, IPT and DPT narratives were transcribed and coded with respect to all linguistic devices expressing manner and/or path. For each participant a global analysis focussed on the number of satellite-framed and verb-framed motion events described, irrespective of the manner and path information contained in the stories (Table 20). A finer grained analysis then examined the devices used to express this information. Responses were divided into three main types, depending on whether they expressed only manner (*The boy is running*), only path (*It goes into*) or both (*The robot ran out of the shop*). In addition, two further sub-divisions were made depending on whether or not the event contained a boundary crossing. Table 21 shows an example of the data coding procedure.

Table 21 Robot Stories Participant 11

Participant 11	RBS1 Targets	Pre-test	RBS2 Targets	IPT	RBS3 Targets	DPT
Global motion	20	21	20	22	20	23
Path (Boundary-crossing)	5	8	4	3	5	3
Path (Non boundary-crossing)	5	8	3	1	5	3
Manner	0	2	0	2	0	1
Manner + Path (Boundary-crossing)	15	2	12	11	15	10
Manner + Path (Non boundary-crossing)	3	1	4	5	3	7
Total (Boundary-crossing)	16	10	16	14	16	13
Total (Non boundary-crossing)	4	9	7	6	4	10

5 Results: Robot story narratives

In this chapter, the results of the written narrative data are reported. Statistical tests were carried out using the Statistical Package for the Social Sciences (SPSS) to analyse the test results. Where boxplot analyses appeared to reveal outliers in the dataset, raw scores were checked manually and any adjustments have been reported. Given the general normality of distribution of the dataset, the Central Limit Theorem was applied. The Central Limit Theorem states that distribution of the means approaches a normal distribution as the sample size gets larger. This is particularly the case for sample sizes of around 30 and above. As a result, statistical analysis for the Robot stories (RBS) was carried out using parametric tests. Paired sample t-tests were used to test for significant within group differences between scores at pre-test, IPT and DPT. Independent samples t-tests were carried out to measure whether there were statistically significant differences across groups.

For ease of reference the research questions and hypotheses relevant to this chapter are repeated below:

(RQ1) What is the effect of the intervention on students' use of motion verbs?

H0: the intervention will not have an effect on the frequency and/or accuracy with which learners produce the target forms.

H1: Learners from the Output group will outperform Input only learners in the production of the target forms.

(RQ3) What is the effect of the students' first language on their use of motion verbs?

H0: There will be no difference between students from different language backgrounds.

H1: Learners from V-framed L1 backgrounds will show larger increases in types and tokens of the target forms than their S-framed counterparts after the intervention.

In the following sections (5.1- 5.9), the results of the analysis of the three elicited written narrative tasks for each group are presented. The analysis includes mean scores, percentages and frequencies for the different motion events and their constituent parts found in the participants' writing at the pre-test, immediate post-test (IPT) and delayed post-test (DPT). RBS1 refers to Robot Story 1, which was used to elicit narratives at the pre-test; RBS2 refers to Robot Story 2 and was administered at the IPT; RBS3 refers to the repetition of Robot Story 1 at the DPT, two weeks post instruction. To better illustrate the kind of analysis that was performed a sample from each written task is reproduced below (for picture stories see Appendix I1-I2).

These samples were produced by a Swiss-German (predominantly S-framed) L1 participant from the Output group who scored 50 (C1) on the placement test. In the examples below, the coding was focused on the S-framed structures which involved a boundary-crossing. As the reader will see, at the pre-test, this particular participant was already a competent user of the S-framed pattern but with a strong Path bias (S-framed Path only boundary-crossing = N16; S-framed Manner and Path boundary-crossing= N1). Post instruction the focus of the motion expressions changes with the incorporation of the manner component (RBS2: S-framed Path only boundary-crossing = N1; S-framed Manner and Path boundary-crossing = N18); (RBS3: S-framed Path only boundary-crossing = N6; S-framed Manner and Path boundary-crossing = N15).

Pre-test: Robot Story 1

S-framed Path only (Boundary-crossing) (N16)

S-framed Manner and Path (Boundary-crossing) (N1)

1. It was Christmas. A boy was sleeping in his bed.
2. A robot *came out from* the Christmas gift box.
3. He *went into* the wardrobe. Then he made a big hole on the bottom of wardrobe.
4. He disappeared to the hole.
5. In the hole, there was another world where there lived other robots.
6. He *came down* the road, then he saw some robots which were together.
7. After he walked for a few minutes, he saw one pretty robot drinking coffee in a house.
8. He *went into* the house. The pretty robot greeted and welcomed him.
9. The pretty robot tried to hug him. But he realized that she had virus on her body. He *ran away* from her house.
10. After he *came out from* the house, he saw a house where two robotic dogs were inside.
11. He opened the door and *went into* the house.
12. When he *came into* the house, he saw some bugs **flying into** the house through a window.
13. ^^Suddenly^^ the bugs tried to bite him ,he felt scared and *ran away* from the house , but they still followed him.
14. The pretty robot who he met in the previous house saw him.
15. The pretty robot let him know some building door which he could *run away*.
16. There was some steps inside the building . He *went up* again and again.

17. Finally, he managed to get the highest level of the building. He saw one taxi waiting outside.
18. He took the taxi and told a driver to bring him home. The taxi driver found a sign board “home”.
19. In front of the sign board “Home” he *got off* the taxi.
20. There was an elevator next to the sign board. He *went into* the elevator and pressed “home” button.
21. The pretty robot saw him leaving her town. She felt sad.
22. Finally, he managed to *get back* the wardrobe which he *went out* through.
23. He *went back into* the Christmas gift box. Amazingly, the pretty robot had been^^looking at^ this in the wardrobe.
24. The boy woke up and she waved him inside the box.

IPT: Robot Story 2

S-framed Path only (Boundary-crossing) (1)

S-framed Manner and path (Boundary-crossing) (18)

1. The big robot was in the wardrobe. It saw a toy box.
2. The big robot **walked out of** the wardrobe **into** the toy box and it opened the box.
3. A small robot **jumped out of** the box, opened the door and it saw a boy.
4. The small robot **ran into** the room and fell down when he saw another robot was **crawling into** the bed
5. The boy walked into the little robot and he got it.
6. The boy **walked out of** the room while the big robot was still under the bed.
7. The big robot **climbed out of** the window and it **climbed down through** the drainpipes.
8. The big robot *fell into* a barrel outside of the house.

9. The big robot **<u>jumped out of</u>** the barrel quickly.
10. The big robot **<u>jumped into</u>** the back of the truck.
11. When the boy and his mother arrived to the petrol station, there was a thief cycling to them near the truck.
12. The thief walked into the truck and stole the small robot while the big robot was watching.
13. The thief cycled out of the truck and the big robot **<u>jumped out of</u>** the truck behind him.
14. The robot ran into the thief.
15. When the mother **<u>drove out of</u>** the station, the boy noticed that the little robot was not there.
16. When the big robot was running to the thief, the bird saw them and decided to get the robot.
17. The bird flew into the thief and it took the little robot from the thief.
18. The bird flew into the track and threw the little robot in the back again.
19. The track stopped and the big robot **<u>jumped into</u>** the truck.
20. When they arrived, the robots were **<u>jumped out of</u>** the truck.
21. Later they **<u>climbed into</u>** the house **<u>through</u>** the drainpipe.
22. The boy **<u>was running into</u>** the room when the robots arrived,
23. The big robot **<u>ran into</u>** the wardrobe and the little one was close to a box.
24. Finally, the boy caught the robot and the big one was watching them hiding.

DPT: Robot Story 3

S-framed Path only (Boundary-crossing) (6)

S-framed Manner and path (Boundary-crossing) (15)

1. It was Christmas .A boy was asleep in his room.
2. While the boy was up, the robot **<u>jumped out of</u>** the box.
3. The robot *went into* the wardrobe

4. The robot <u>**jumped into**</u> a hole that is in the wardrobe

5. It *fell out of* the hole *into* a new world

6. It **started walking into** a coffee shop

7. The robot *was into* a Costas coffee shop

8. When it arrived, it saw its girlfriend **was walking out of** the Costas coffee shop

9. Its girlfriend ran into the robot.

10. When the robbot was walking, it saw a shop

11. It <u>**walked into**</u> the shop

12. Three birds <u>**flew out of**</u> a cage

13. Then the birds <u>**flew out of**</u> the shop

14. The robot <u>**ran out of**</u> both the shop and the angry birds.

15. The robbot <u>**ran into**</u> a building

16. It **climbed into** the building

17. It <u>**climbed out of**</u> the building

18. The robot <u>**jumped into**</u> a taxi

19. The robot *came out of* the taxi

20. Suddenly the robot <u>**walked into**</u> the elevator

21. The robot <u>**climbed into**</u> the elevator

22. and then the robot <u>**jumped out of**</u> the hole.

23. After that the robot *was going into* its box

24. The boy woke up while the robbot was look out the wardrobe

(For more samples of participants' writing tasks see Appendix L1-L4)

A repeated measures analysis of variance (RMA) was conducted on the influence of the treatment type on the motion expressions used by the participants in three written narrative tasks: RBS1, RBS2 and RBS3. Treatment type included two levels (an input only treatment and an input + output treatment). Where Mauchly's test indicated that the assumption of sphericity had been violated, degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity (Appendix J1-J5). My analysis begins with within group results for the Input only group (section 5.2). In section 5.3, an analysis of the data for the Output group is presented. These sections are then followed by a between group comparison (section 5.4). From section 5.5 onwards, the narratives are compared across language typology, beginning with comparisons of participants from a verb-framed L1. Pairwise comparisons of the following analyses can be found in Appendix K1-K4. All post hoc pairwise comparisons used Bonferroni as corrected automatically by SPSS.

5.1. Results for the Input group

Manner component

The results for the Manner component for the Input group are summarized in Table 22.

Table 22 Manner[1] Mean and SDs of the use of motion verbs in the Input group (n = 29)

	Pre-test		IPT		DPT	
	M	*SD*	*M*	*SD*	*M*	*SD*
Total motion events	19.89	4.49	20.14	2.99	21.27	2.31
Total manner verbs (tokens)	5.48	2.47	12.69	2.27	12.79	3.36
Total manner verbs (types)	3.24	1.24	4.93	1.07	4.83	1.19
Total Manner + Path BC (tokens)	2.21	1.69	7.97	2.18	8.83	3.07
Total Manner + Path Non-BC (tokens)	2.14	1.38	3.97	1.52	3.35	1.86
Total Manner only (tokens)	1.14	.88	.72	.88	.62	.82

Manner verbs tokens and types

The analysis showed that there was a significant overall increase over time in the use of manner verb tokens, such as *run*, *walk* and *fly* ($F(2, 56) = 72.29$, $p < .001$; $\eta_p^2 = .72$). The means for manner verb tokens increased from M= 5.48 at the pre-test to M=12.69 at the IPT. The high scores were maintained (M=12.79) at the DPT. Specifically, post hoc

[1] Mauchly's test indicated that the assumption of sphericity was met for all Manner components see Appendix J.

pairwise comparisons using Bonferroni (as corrected automatically by SPSS) revealed that there was a significant difference in the scores between the pre-test and the IPT and the pre-test and the DPT but no significant difference between the IPT and the DPT.

A significant main effect was also found for the number of Manner verb types: (F (2, 56) = 25.72, p <.001; η_p^2= .48). Once again, pairwise post hoc comparisons showed there was a significant difference in the scores between the pre-test (RBS1 (types) M = 3.24), and the IPT (RBS2 (types) M = 4.93), and pre-test and DPT (RBS3 (types) M = 4.83) but no significant difference between the IPT and the DPT.

Manner and Path expressions

Regarding the frequency of Manner and Path expressions with a boundary-crossing (MPBC) i.e. *run into/ out of* a significant main effect was found overall: (F (2, 56) = 63.53, p <.001; η_p^2= .69). Post hoc tests showed there was a significant difference in the scores between the pre-test: (RBS1 (MPBC) M = 2.21), and IPT (RBS2 (MPBC) M = 7.97), and pre-test and DPT (RBS3 (MPBC) M = 8.83). However, no significant difference was found between test scores at IPT and DPT.

In terms of Manner and Path expressions without a boundary-crossing (MPNonBC) i.e. *run up/ down,* a significant overall effect was found: (F (2, 56) = 10.9, p <.001; η_p^2= .28). Post hoc tests showed there was a significant difference in the scores between the pre-test (RBS1 (MPNonBC) M = 2.14) and the IPT (RBS2 (MPNonBC) M = 3.97), as well as the pre-test and the DPT (RBS3 (MPNonBC) M = 3.35). Again, no significant difference was found between test scores at the IPT and DPT.

Manner only

A significant main effect across the three time points (pre-test, IPT and DPT) was found: (F (2, 56) = 3.23, p <.001; η_p^2= .1) for Manner verbs used on their own without a satellite. While post hoc comparisons showed no significant difference in the scores between the pre-test and the IPT, significant differences were found between the pre-test (RBS1

(Manner only) M = 1.14), and the DPT (RBS3 (Manner only) M = .62). No significant difference was found between scores on the IPT and the DPT.

Summary of the results for the Manner component (Input group)

The results for the Manner component show significant gains in the use of both Manner and Path combinations with and without the crossing of a boundary, with the effect persisting for at least two weeks after instruction. This increase in the number of Manner and Path events coincided with a fall in the number of Manner verbs used on their own throughout the written production tasks (Figure 10).

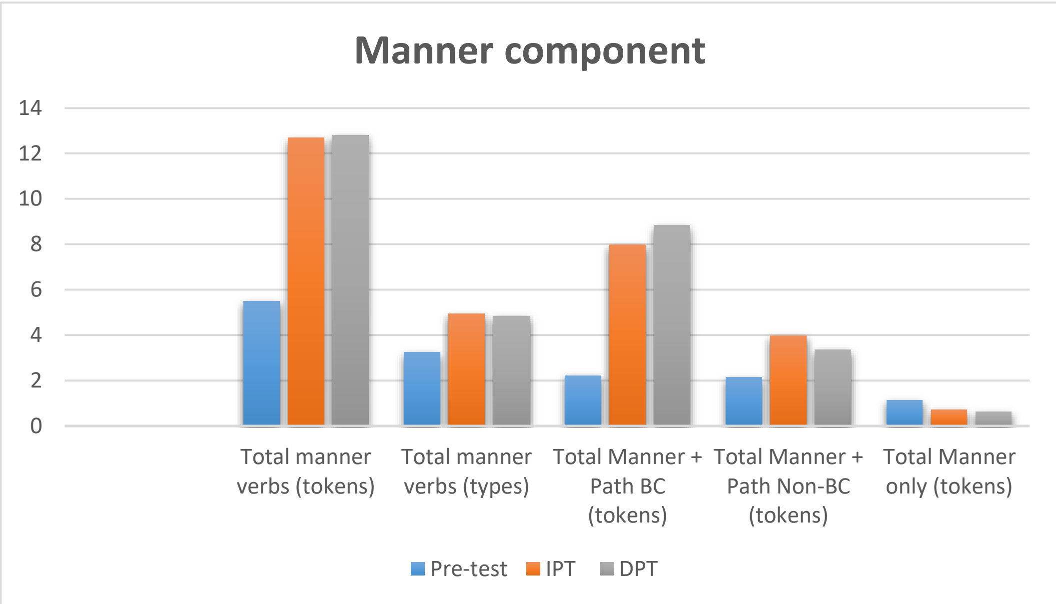


Figure 10 Summary of the results for the Manner component (Input group)

Path component

The results for the Path component for the Input group are summarized in Table 23.

Table 23 Path[2] Mean and SDs of the use of motion verbs in Input group (n = 29)

	Pre-test		IPT		DPT	
	M	*SD*	*M*	*SD*	*M*	*SD*
Total path verbs (tokens)	13.93	3.53	7.34	2.74	8.28	2.55
Total path verbs (types)	7.10	1.54	5.00	1.71	4.31	1.42
Total path satellites (tokens)	12.76	3.85	17.76	2.53	18.28	2.74
Total path satellites (types)	7.10	1.99	7.52	2.59	6.97	2.23

Path verb tokens and types

There was a significant difference between the number of Path verb tokens across the three time points (pre-test, IPT and DPT): (F (1.61, 45.1) = 45.13, p <.001; η_p^2= .62). Post hoc comparisons revealed that the number of Path verbs, such as *go, fall, come*, fell significantly from pre-test (RBS1 (tokens) M = 13.93) to IPT (RBS2 (tokens) M = 7.34). However, the slight increase at the DPT did not reach significance.

For Path verb types, a significant main effect across the three time points (pre-test, IPT and DPT) was found: (F (2, 56) = 34.65, p <.001; η_p^2= .55). Post hoc comparisons showed a significant fall in the variety of Path verbs from pre-test (RBS1 (types) M = 7.1) to IPT (RBS2 (types) M = 5.0). The number of path verbs appeared to decline further between the IPT and the DPT but the difference between these measurements turned out not to be significant.

[2] Mauchly's test indicated that the assumption of sphericity was met only for Path verb types see Appendix J.

Path satellites

By contrast, a significant main effect across the three time points (pre-test, IPT and DPT) was found: (F (1.62, 45.36) = 29.9, $p < .001$; $\eta_p^2 = .52$) for the number of Path satellites, such as *into, out of, up, down.* Post hoc tests indicated a significant increase from pre-test (RBS1 (tokens) M = 12.76) to IPT (RBS2 (tokens) M = 17.76). The number then remained constant from IPT to DPT.

Summary of the results for the Path component (Input group)

The results show an overall fall in the number and variety of path verbs used by the Input group when compared with the pre-test (Figure 11).

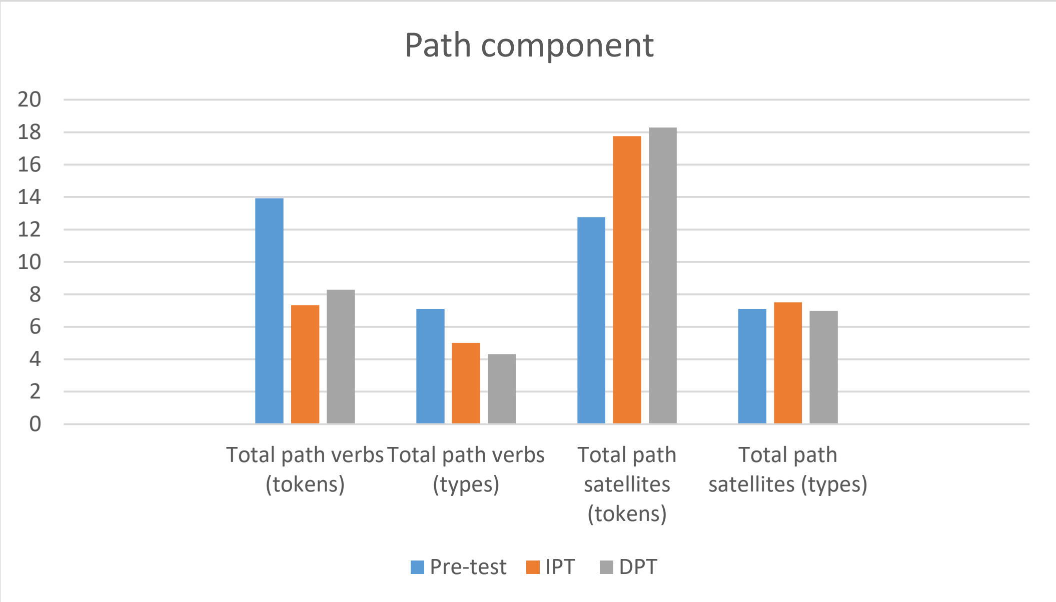


Figure 11 Summary of the results for the Path component (Input group)

5.2. Results for the Output group

Manner component

The results for the Manner component for the Output group are summarized in Table 24.

Table 24[3] Mean and SDs of the use of manner verbs in the Output group (n = 30)

	Pre-test		**IPT**		**DPT**	
	M	***SD***	***M***	***SD***	***M***	***SD***
Total motion events	19.97	3.69	20.97	3.32	21.6	3.42
Total manner verbs (tokens)	6.07	2.35	12.63	3.33	10.83	3.94
Total manner verbs (types)	3.63	1.56	5.47	1.66	4.67	1.37
Total Manner + Path BC (tokens)	1.9	1.32	7.87	3.29	7.00	3.58
Total Manner + Path Non-BC (tokens)	2.2	1.27	3.77	1.61	2.9	1.75
Total Manner only (tokens)	1.93	1.36	1.00	1.23	.93	.94

Manner verb tokens and types

As with the Input group, a significant main effect was found for the Output group regarding Manner verb tokens: (F (2, 58) = 41.46, p <.001; η_p^2= .59). Post hoc tests revealed a significant difference between pre-test (RBS1 (tokens) M = 6.07), and IPT (RBS2

[3] Mauchly's test indicated that the assumption of sphericity was met for all Manner components see Appendix J.

(tokens) M = 12.63) and the pre-test and DPT (RBS3 (tokens) M = 10.83). However, the difference between the IPT and DPT did not reach significance.

A similar trend was also present for Manner verb type with a significant main effect of RBS found overall: (F (2, 58) = 12.18, p <.001; η_p^2= .3). Post hoc tests showed a significant rise from the pre-test (RBS1 (types) M = 3.63) to the IPT (RBS2 (types) M = 5.47), with a slight apparent fall at the DPT, which did not reach significance.

Manner and Path expressions

A significant main effect was found: (F (2, 58) = 9.26, p <.001; η_p^2= .24) for the Output group in terms of frequency of Manner and Path expressions with a boundary-crossing (MPBC). Post hoc tests showed there was a significant difference in the scores between pre-test (RBS1 (MPBC) M = 1.9), and IPT (RBS2 (MPBC) M = 7.87) and pre-test and DPT (RBS3 (MPBC) M = 7.0). No significant difference was found between test scores at IPT and DPT.

A significant main effect was also found for MPNonBC (F (2, 58) = 47.13, p <.001; η_p^2= .62). Post hoc tests showed there was a significant difference in the scores between pre-test (RBS1 (MPNonBC) M = 2.2) and IPT (RBS2 (MPNonBC) M = 3.97). However, no significant difference was found between test scores at the pre-test and DPT, and the IPT and DPT.

Manner only

A significant main effect was found for the number of Manner verbs used on their own without a satellite (F (2, 58) = 6.28, p <.003; η_p^2= .18). Post hoc tests showed a significant fall from pre-test (RBS1 (Manner only) M = 1.93) to IPT (RBS2 (Manner only) M = 1.0,) and from pre-test to DPT (RBS3 (Manner only) M = .93) but no significant difference was found from IPT to DPT.

Summary of the results for the Manner component (Output group)

These results, which show similar trends to those for the Input group, with an increase in the number of manner verb types and tokens and a higher frequency of Manner and Path combinations, which persisted beyond the intervention period (Figure 12). As for the Input group, the increase in the number of Manner and Path combinations was accompanied by a significant fall in the number of Manner only descriptions, a pattern which is perhaps more typical of V-framed languages (see Discussion section 7.2).

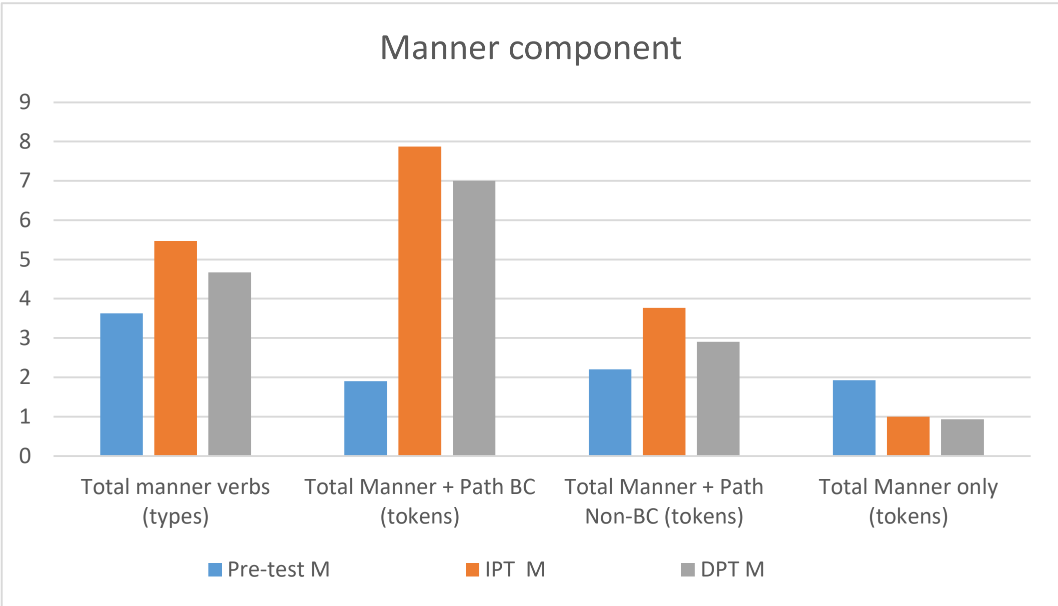


Figure 12 Summary of the results for the Manner component (Output group)

Path component (Output group)

The results for the Path component for the Output group are summarized in Table 25.

Table 25 Path [4]Mean and SDs of the use of motion verbs in the Output group (n = 30)

	Pre-test		IPT		DPT	
	M	*SD*	*M*	*SD*	*M*	*SD*
Total path verbs (tokens)	13.67	3.19	7.87	2.42	10.23	3.55
Total path verbs (types)	6.33	1.37	4.67	1.37	5.17	1.68
Total path satellites (tokens)	13.97	3.49	18.20	2.76	18.7	3.09
Total path satellites (types)	8.00	1.72	6.83	1.86	6.8	1.92

Path verb tokens and types

A significant main effect was found for the number of Path verbs used overall ($F(2, 58) = 12.97$, $p < .001$; $\eta_p^2 = .3$). Post hoc comparisons revealed that the number of Path verbs used fell significantly from pre-test to IPT (RBS1 (tokens) M = 13.67), (RBS2 (tokens) M = 7.87) and from the pre-test to the DPT (RBS3 (tokens) M = 10.23). However, the slight increase from the IPT to DPT did not reach significance.

[4] Mauchly's test indicated that the assumption of sphericity was met for all Path components see Appendix J.

A significant effect was also found for Path verb types: (F (2, 58) = 26.57, p <.001; η_p^2= .48). Post hoc tests revealed a significant fall from the pre-test to IPT (RBS1 (types) M = 6.33), (RBS2 (types) M = 4.67) and from the pre-test to DPT (RBS3 (types) M = 5.17)but no significant difference between the IPT and the DPT.

Path satellites

A significant main effect was found for the number of Path satellites used by the Output group: (F (2, 58) = 27.82, p <.001; ηp2= .49). Post hoc tests showed a significant increase from the pre-test to the IPT (RBS1 (tokens) M = 13.97), (RBS2 (tokens) M = 18.20) and from the pre-test to DPT (RBS3 (tokens) M = 18.70). No significant difference was found from the IPT to DPT.

Regarding satellite types, post hoc tests revealed that the differences were not significant from pre-test to IPT (RBS1 (types) M = 8.00, SD = 1.72), (RBS2 (types) M = 6.83), or from the pre-test to DPT (RBS3 (types) M = 6.80) or from the IPT to DPT.

Summary of the results for the Path component (Output group)

Overall, the path component results for the Output group demonstrate a fall in the number of Path verb types and tokens and an increase in the number of tokens of Path satellites. These higher scores were maintained two weeks after the intervention period (Figure 13).

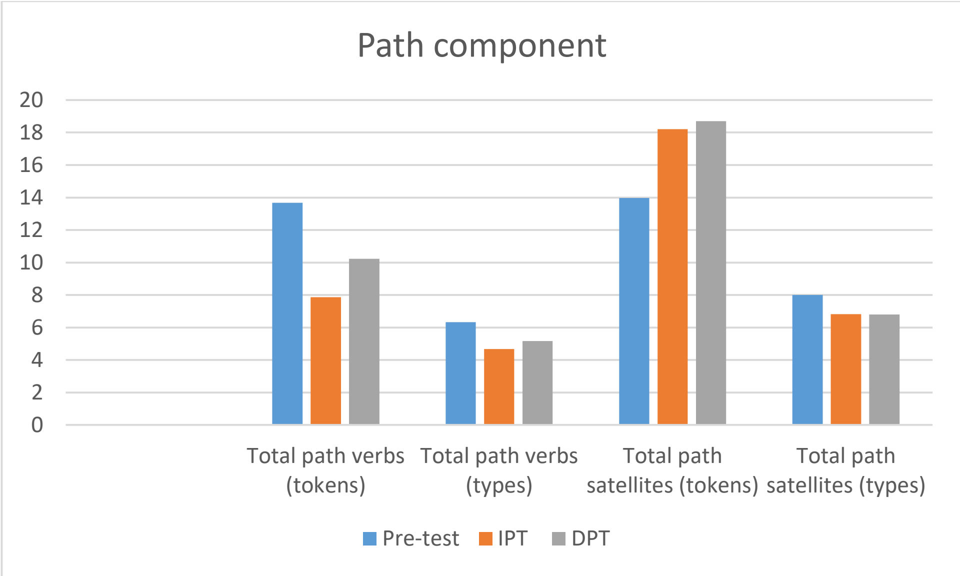


Figure 13 Summary of the results for the Path component (Output group)

5.3. Between group comparisons

Following the within groups comparison, independent samples t-tests were used to compare the data from the input group and the output group. Intergroup comparisons show there was no significant difference between the mean numbers of tokens used across groups in the written production tasks (Table 26). However, within both groups there were variations ranging from as few as 150 tokens to as many as 450 tokens. As mentioned above examples of the writing produced can be found in Appendix L1-L4.

Table 26 Total Words (tokens) Intergroup comparison

	Treatment group	Mean	Std. Deviation	Significance
RBS1	Input group	267.03	71.36	NS
	Output group	263.57	61.55	
RBS2	Input group	242.00	36.58	NS
	Output group	242.50	53.55	
RBS3	Input group	221.79	38.57	NS
	Output group	208.60	40.42	

The mean for the number of motion events expressed by participants in both groups was also very similar ranging from 19 to 21 expressions with no significant differences between groups (Table 27).

Table 27 Global motion events Intergroup comparison

	Treatment group	Mean	Std. Deviation	Significance
RBS1	Input group	19.90	4.50	NS
	Output group	20.00	3.67	
RBS2	Input group	20.14	2.98	NS
	Output group	20.97	3.32	
RBS3	Input group	21.28	2.31	NS
	Output group	21.60	3.42	

Manner component comparisons

Manner tokens and types

An ANOVA revealed that there was no main effect for group, although a small but significant interaction was found between RBS and treatment group ($F(2,114) = 3.35$, $p = .04$, $\eta_p^2 = .06$), which means that the increase in manner verb tokens was not the same for both groups. At the DPT, the Input group scores for Manner verb tokens overtook those of the Output group, reaching a significantly higher number of tokens, (Table 28).

Table 28 Manner verb tokens intergroup comparison

	Treatment group	Mean	Std. Deviation	Significance
RBS1	Input group	5.48	2.47	NS
	Output group	6.07	2.35	
RBS2	Input group	12.69	2.27	NS
	Output group	12.63	3.33	
RBS3	Input group	12.79	3.36	*
	Output group	10.83	3.94	

*= p <.05; ** p< .01

There was also a significant main effect of RBS for Manner verb type ($F(2, 114) = 31.75$, $p < .001$; $\eta_p^2 = .36$). An independent samples t-test showed significant differences from pre-test to IPT and pre-test to DPT and no significant difference between IPT and DPT. An ANOVA revealed that there was no main effect of group for manner verb types ($F(2,114) = 1.28$, $p = .281$, $\eta_p^2 = .02$).While the Input group appeared to begin with fewer Manner verb types at pre-test and seemed to use a wider range at DPT, these differences were not found to be significant (Table 29).

Table 29 Manner Verb Type Intergroup comparison

	Treatment group	Mean	Std. Deviation	Significance
RBS1	Input group	3.24	1.24	NS
	Output group	3.63	1.56	
RBS2	Input group	4.93	1.07	NS
	Output group	5.47	1.66	
RBS3	Input group	4.83	1.19	NS
	Output group	4.67	1.37	

*= p <.05; ** p< .01

Manner and Path expressions

For Manner + Path expressions with a boundary-crossing, there was a significant main effect over time ($F(2,114) = 107.72$, $p < .001$; $\eta_p^2 = .65$). An independent samples t-test showed significant differences from pre-test to IPT and pre-test to DPT but no significant difference between IPT and DPT. An ANOVA revealed no main effect for group for Manner + Path expressions with a boundary-crossing ($F(2,114) = 2.09$, $p = .128$, $\eta_p^2 = .04$). While the Input group appeared to achieve marginally higher scores throughout the written production tasks for MPBC the differences between the two groups were only found to be significant at DPT (Table 30).

Table 30 Manner and path Expression with a boundary-crossing Intergroup comparison

	Treatment group	Mean	Std. Deviation	Significance
RBS1	Input group	2.21	1.69	NS
	Output group	1.90	1.32	
RBS2	Input group	7.97	2.18	NS
	Output group	7.87	3.29	
RBS3	Input group	8.83	3.07	*
	Output group	7.00	3.58	

*= p <.05; ** p< .01

This apparent advantage for the Input group was confirmed by the analysis of lexical density. While both groups showed similar gains for Manner + Path expressions with a boundary-crossing throughout the study, at DPT there was a slight advantage for the Input only group of around 13% (Table 31).

Table 31 Lexical Density MP+BC Expressions Intergroup comparison

Lexical Density	RBS1 MP + BC expressions	RBS2 MP + BC Expressions	RBS3 MP + BC expressions
Input group	0.70 (54 / 7744)	3.29 (231 / 7018)	3.99 (256 / 6432)
Output group	0.72 (57 / 7907)	3.24 (236 / 7275)	3.35 (210 / 6258)

For Manner + Path Non-BC expressions, there was a significant main effect over time (F (2,114) = 19.92, p <.001; η_p^2= .26). However, an ANOVA revealed no main effect for group for Manner + Path expressions without a boundary-crossing (F (2,114) = .44, p =.644, η_p^2= .008) (Table 32).

Table 32 Manner and Path Expression non-boundary crossing intergroup comparison

	Treatment group	Mean	Std. Deviation	Significance
RBS1	Input group	2.14	1.38	NS
	Output group	2.20	1.27	
RBS2	Input group	3.97	1.52	NS
	Output group	3.77	1.61	
RBS3	Input group	3.34	1.86	NS
	Output group	2.90	1.75	

*= p <.05; ** p< .01

The analysis of lexical density of the number of Manner + Path combinations showed an advantage for the Input group for overall Manner and Path + BC/ Non-BC expressions at DPT (Table 33).

Table 33 Lexical Density Combined MP+BC/Non-BC Expressions Intergroup comparison

Lexical Density	RBS1 Combined MP + BC/ Non BC expressions	RBS2 Combined MP + BC/ Non BC Expressions	RBS3 Combined MP + BC/ Non BC Expressions
Input group	1.50 % (54 + 62 / 7744)	4.93 % (115 + 231/ 7018)	5.48 % (97 + 256 / 6432)
Output group	1.52 % (57 + 66 / 7907)	4.79 % (113 + 236 / 7275)	4.74 % (87 + 210 / 6258)

Manner only

For Manner verbs used without a path satellite, there was a significant main effect of overall ($F(2,114) = 9.35$, $p < .001$; $\eta_p^2 = .14$). An independent samples t-test showed significant differences from pre-test to IPT and pre-test to DPT but no significant difference between IPT and DPT. An ANOVA revealed a significant main effect of treatment group for Manner verbs used on their own ($F(2,114) = 1.14$, $p = .324$, $\eta_p^2 = .02$). Differences at pre-test were found to be significant. However, the number of Manner only verb tokens fell steadily, converging throughout until the differences were no longer found to be significant at DPT (Table 34).

Table 34 Manner only Verbs Intergroup comparison

	Treatment group	Mean	Std. Deviation	Significance
RBS1	Input group	1.14	0.88	**
	Output group	1.93	1.36	
RBS2	Input group	0.72	0.88	NS
	Output group	1.00	1.23	
RBS3	Input group	0.62	0.82	NS
	Output group	0.93	0.94	

*= p <.05; ** p< .01

Summary for the Manner component (Intergroup comparisons)

The results of the between group comparisons for the manner component suggest a slight advantage for participants who received input only instruction. This was reflected in the overall increase in the number of Manner verb tokens at the DPT where the Input group scores for Manner verb tokens overtook those of the Output group. In addition, the analysis of lexical density of the number of Manner + Path combinations showed an advantage for the Input group for overall Manner and Path + BC/ Non-BC expressions at the DPT. This was most significant in expressions which involved the crossing of a boundary (Figure 14).

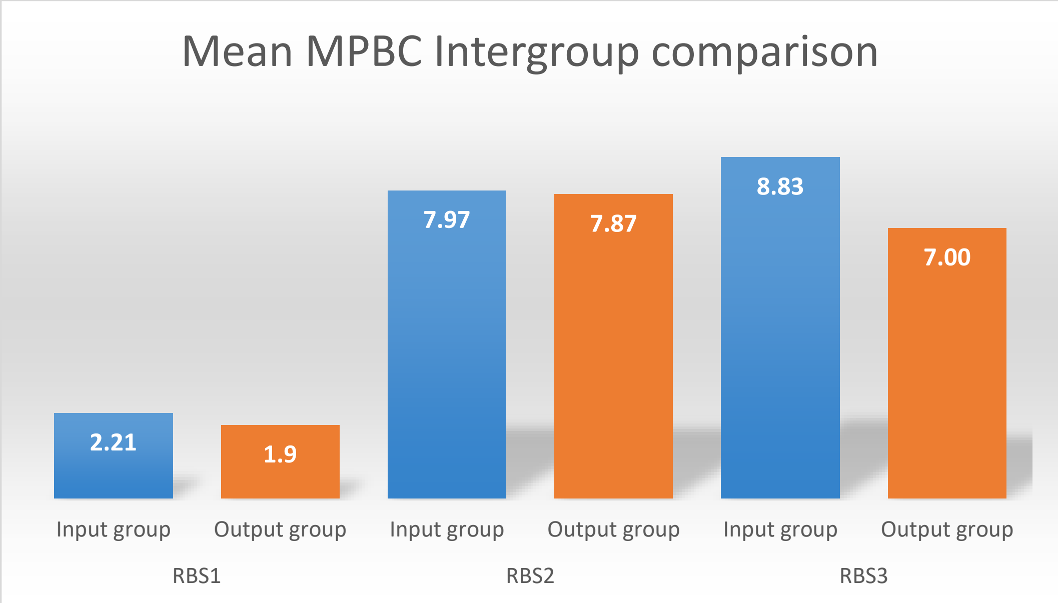


Figure 14 Manner + Path with a boundary-crossing intergroup comparison

Path component comparisons

Path verbs tokens and types

In terms of Path verb tokens, there was a significant main effect over time ($F\ (2, 114) = 68.2$, $p < .001$; $\eta_p^2 = .55$). However, an ANOVA revealed no main effect for treatment group for Path verb tokens at IPT ($F\ (2) = 2.1$, $p = .127$, $\eta_p^2 = .04$). In addition, while scores for Path verb tokens converged at IPT, differences at pre-test (Input group M=13.93; Output group=13.67) and at DPT (Input group M=7.34; Output group=7.87) were found to be significant with the Output group producing more Path verbs than the Input group who scored higher in the use of Manner +Path combinations (Table 35).

Table 35 Path verb tokens intergroup comparisons

	Treatment group	Mean	Std. Deviation	Significance
RBS1	Input group	13.93	3.53	**
	Output group	13.67	3.19	
RBS2	Input group	7.34	2.74	NS
	Output group	7.87	2.42	
RBS3	Input group	8.28	2.55	**
	Output group	10.23	3.55	

*= p <.05; ** p< .01

An ANOVA revealed a main effect for treatment group for Path verb types ($F(2,114) = 6.04$, $p = .003$, $\eta_p^2 = .1$). As with scores for Path verb tokens, the variety of Path verb types converged at IPT, whereas differences at pre-test (Input group M=7.10; Output group=6.33) and at DPT (Input group M=4.31; Output group=5.17) were found to be significant, with the Output group overtaking the Input group who had initially used a wider variety of Path verbs at the pre-test (Table 36).

Table 36 Path verb types by treatment group

	Treatment group	Mean	Std. Deviation	Significance
RBS1	Input group	7.10	1.54	**
	Output group	6.33	1.37	
RBS2	Input group	5.00	1.71	NS
	Output group	4.67	1.37	
RBS3	Input group	4.31	1.42	*
	Output group	5.17	1.68	

*= p <.05; ** p< .01

An analysis of the lexical density of the Path component appeared to confirm the trend illustrated by the data detailed in Table 37. The analysis regards the frequency of descriptions which focussed exclusively on the directional component using either a verb-framed or a satellite-framed structure without the inclusion of how the motion was performed, such as *he entered the room* or *he went into the room*. Overall for both groups there was a reduction in the number of Path only expressions which did not include the addition of a Manner co-event: Pre-test (Input group M=5.20; Output group=5.20); IPT (Input group M=3.08; Output group=3.24). However, DPT results did suggest an increase in the number of Path expressions when compared against results for the IPT: DPT (Input group M=3.73; Output group=4.92). This backsliding (Selinker, 1972) was more evident in the Output group than in the Input group.

Table 37 Lexical Density combined Path BC/Non BC Expressions comparison

Lexical Density	RBS1 Combined Path BC / Non-BC Expressions	RBS2 Combined Path BC / Non-BC expressions	RBS3 Combined Path BC / Non-BC expressions
Input group	5.20 % (171 + 238 / 7744)	3.08 % (97 + 119 / 7018)	3.73 % (117 + 123 / 6432)
Output group	5.20 % (167 + 245 / 7907)	3.24 % (132 + 104 / 7275)	4.92 % (125 + 183 / 6258)

Path Satellite tokens and types

An ANOVA revealed no main effect for group for the number of Path satellites tokens ($F (2,114) = .36$, $p = .696$, $\eta_p^2 = .006$), with the apparent slight advantage for the Output group not found to be significant. (Table 38).

Table 38 Path satellite tokens by treatment group

	Treatment group	Mean	Std. Deviation	Significance
RBS1	Input group	12.76	3.85	NS
	Output group	13.97	3.49	
RBS2	Input group	17.76	2.53	NS
	Output group	18.20	2.76	
RBS3	Input group	18.28	2.74	NS
	Output group	18.70	3.09	

*= p <.05; ** p< .01

An ANOVA revealed that there was no main effect for group for Path satellite types ($F_{(2,114)} = 2.8$, $p = .064$, $\eta_p^2 = .05$), (Table 39).

Table 39 Path Satellite types

	Treatment group	Mean	Std. Deviation	Significance
RBS1	Input group	7.10	1.99	NS
	Output group	8.00	1.72	
RBS2	Input group	7.52	2.59	NS
	Output group	6.83	1.86	
RBS3	Input group	6.96	2.23	NS
	Output group	6.80	1.92	

*= p <.05; ** p< .01

Summary for the Path component (Intergroup comparisons)

Overall, the between group comparisons for the Path component appear to confirm the movement towards Manner+ Path combinations with an overall fall in the number of Path verbs used as a main verb .

Significant differences were found in the variety and higher number of Path verbs used by the Output group both before and after treatment. While once again the differences between the groups are slight, they are in keeping with the results for the Manner component and appear to hint at a slight advantage for input-based instruction in terms of helping learners to internalize the Manner + Path combination (see Discussion chapter).

5.4. Language typology

In this section, comparisons of the results for participants from different language backgrounds are reported. This is done in order to address the third research question and hypotheses:

> **(RQ3) What is the effect of the students' first language on their use of motion verbs?**

H0: There will be no difference between students from different language backgrounds.

H1: Learners from V-framed L1 backgrounds will show larger increases in types and tokens of the target forms than their S-framed counterparts after the intervention.

For ease of reference, a brief summary is provided of the theoretical framework for the typology of satellite-framed and verb-framed languages developed by Talmy (1985, 1991, 2000) and Slobin (e.g. 1987, 1996, 2003, 2006), as presented in the literature review chapter. As stated previously, Talmy's typology consists of two basic language types: V-framed languages like Spanish where the *Path* component is lexicalized in the verb, with

Manner of motion either omitted or expressed by adding an adverbial phrase or a gerund; S-framed languages like English, where the Path or directional component is expressed outside the verb, in a satellite which frees up the verb slot to be used for expressing manner of motion if required (Talmy 1985, 1991, 2000). Due to the fact that these patterns are often deeply entrenched (Slobin, 1996), language learners may find it challenging to make the switch from L1 motion event patterns to a typologically different L2 pattern and may exhibit evidence of an underlying linguistic transfer in their expression of L2 motion events. This is particularly the case when there is potential to conflate manner and motion in the main verb, while Path is expressed in a satellite in a boundary-crossing event, such as *run into/out of a room*. Here participants with a predominantly V-framed L1 may choose to focus on the directional components of entering or exiting (expressed in a verb) without the additional Manner information. Regarding participants with a canonically S-framed L1 there may be a greater likelihood of expressing both components due to possible L1 structural similarities.

The results of participants with a verb-framed L1 are presented first (section 5.6) and then the results of those with a satellite-framed L1 (section 5.7), after which the results for both groups are compared (section 5.8). For ease of reference the distribution of language typologies in the study are reproduced in Table 40.

Table 40 Participant L1

Participant L1	L1Typology	Frequency	Input group	Output group
Korean	V-framed	13	5	8
Swiss-German	S-framed	10	6	4
Arabic	V-framed	7	6	1
Japanese	V-framed	6	2	4
Chinese	E-framed	3	1	2
Spanish	V-framed	5	1	4
French	V-framed	4	3	1
Portuguese	V-framed	4	4	0
Swiss-French	S-framed	3	1	2
Turkish	V-framed	3	0	3
Slovak	S-framed	1	0	1
Total		**59**	**29**	**30**

5.5. Participants with satellite-framed L1s

Manner component

Results for the manner component for the satellite-framed participants are summarized in Table 43.

Table 41[5] Mean and SDs of the use of manner verbs for S-framed learners (n = 11)

	Pre-test		**IPT**		**DPT**	
	M	***SD***	***M***	***SD***	***M***	***SD***
Total manner verbs (tokens)	7.55	1.97	12.82	2.89	12.36	3.91
Total manner verbs (types)	4.09	1.14	6.00	1.84	5.27	1.68
Total Manner + Path BC (tokens)	3.36	1.50	7.09	2.55	7.82	3.37
Total Manner + Path Non-BC (tokens)	2.55	1.37	4.55	1.21	3.91	1.92
Total Manner only (tokens)	1.55	1.75	1.18	.87	.73	1.00

Manner verb tokens and types

For the satellite-framed participants, a significant main effect of RBS was found regarding Manner verb tokens: (F (2, 20) = 9.7, p <.001; η_p^2= .49). Post hoc tests revealed a significant

[5] Mauchly's test indicated that the assumption of sphericity was met for all Manner components see Appendix J

difference between pre-test (RBS1 (tokens) M = 7.55), and IPT (RBS2 (tokens) M = 12.82) and the pre-test and the DPT (RBS3 (tokens) M = 12.36). However, the difference between the IPT and DPT did not reach significance.

A similar trend was also present for Manner verb type with a significant main effect of RBS found overall: (F (2, 20) = 4.22, p = .03; η_p^2= .3). Post hoc tests showed a significant rise from the pre-test (RBS1 (types) M = 4.09) to the IPT (RBS2 (types) M = 6.00), with a slight fall at the DPT (RBS3 (types) M = 5.27) which did not reach significance. There was no significant difference between IPT and DPT.

Manner and Path expressions

A significant main effect of RBS was found for Manner and Path expressions with a boundary-crossing (MPBC): (F (2, 20) = 8.99, p =.002; η_p^2= .47). Post hoc tests showed there was a significant difference in the scores between pre-test (RBS1 (MPBC) M = 3.36), and IPT (RBS2 (MPBC) M = 7.09) and pre-test and DPT (RBS3 (MPBC) M = 7.82). No significant difference was found between test scores at IPT and DPT.

A significant main effect of RBS was also found for (MPNonBC): (F (2, 20) = 3.89, p =.04; η_p^2= .28).Post hoc tests showed there was a significant difference in the scores between pre-test (RBS1 (MPNonBC) M = 2.55) and IPT (RBS2 (MPNonBC) M = 4.55). However, no significant difference was found between test scores at the pre-test and DPT, and the IPT and DPT.

Manner only

A significant main effect of RBS was found for the number of Manner verbs used on their own without a satellite: (F (2, 20) = .33, p <.001; η_p^2= .1). Post hoc tests showed no significant difference from pre-test (RBS1 (Manner only) M = 1.55) to IPT (RBS2 (Manner only) M = 1.18) or from pre-test to DPT (RBS3 (Manner only) M = .73). There were no significant differences between the IPT and the DPT.

Summary of the results for the Manner component (S-framed)

Results for Manner verb types and tokens showed significant increases from pre-test to IPT, after which scores for both measures remained relatively stable (Figure 17). The same was found for Manner and Path expressions both with and without a boundary-crossing, with post-instruction scores sustained at the DPT. Where the results for the S-framed participants differ, is with the number of Manner verbs used without a Path satellite. Whereas the number of Manner verbs used on their own fell for verb-framed participants, the results for the satellite-framed participants revealed no significant differences from the pre-test to the DPT (see Discussion chapter).

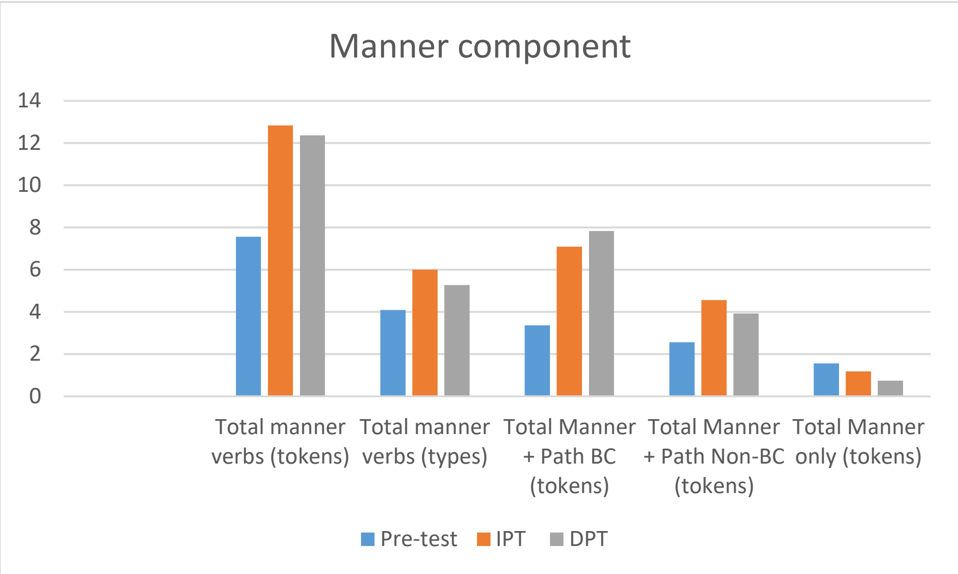


Figure 15 Summary of the results for the Manner component (S-framed)

Path component

Results for the Path component for the satellite-framed participants are summarized in Table 44.

Table 42 Path Mean and SDs of the use of motion verbs for S-framed learners (n = 11)

	Pre-test		**IPT**		**DPT**	
	M	***SD***	***M***	***SD***	***M***	***SD***
Total path verbs (tokens)	12.27	3.00	7.18	2.27	10.36	4.00
Total path verbs (types)	6.64	1.69	4.73	2.00	5.45	1.63
Total path satellites (tokens)	13.36	3.04	17.91	1.97	19.82	3.03
Total path satellites (types)	6.82	1.83	8.82	1.89	7.82	1.83

Path verb tokens and types

A significant main effect was found for the number of Path verbs used overall: (F (2, 20) = 7.14, p =.005; η_p^2= .41). Post hoc comparisons revealed that the number of Path verbs used fell significantly from pre-test to IPT (RBS1 (tokens) M = 12.27), (RBS2 (tokens) M = 7.18) but not from the pre-test to the DPT (RBS3 (tokens) M = 10.36). The increase from the IPT to DPT did not reach significance.

No significant main effect of RBS was found for Path verb types: Path verb types (F (2, 20) = 3.17, p =.06; η_p^2= .24). Post hoc tests revealed no significant difference from the pre-test to IPT, from the pre-test to DPT or from the IPT to DPT.

Path satellites

A significant main effect of RBS was found for the number of Path satellites used by the s-framed participants: (F (2, 20) = 15.04, p <.001; η_p^2= .6). Post hoc tests showed a significant increase from the pre-test to the IPT (RBS1 (tokens) M = 13.36), (RBS2 (tokens) M = 17.91) and from the pre-test to DPT (RBS3 (tokens) M = 19.82). The slight increase from the IPT to DPT was not found to be significant. Regarding satellite types, a significant main effect of RBS was found: (F (2, 20) = 4.29, p =.03; η_p^2= .3). However, post hoc tests revealed that the differences were not significant from the pre-test to IPT, from the pre-test to DPT or from the IPT to DPT.

Summary of results for the Path component

While the overall number of Path verbs used by the S-framed participants fell, the variety of Path verb and Path satellite types remained relatively constant throughout (Figure 18). In addition, the number of Path satellites increased from the pre-test to the IPT with gains maintained for up to two weeks post-instruction at the DPT.

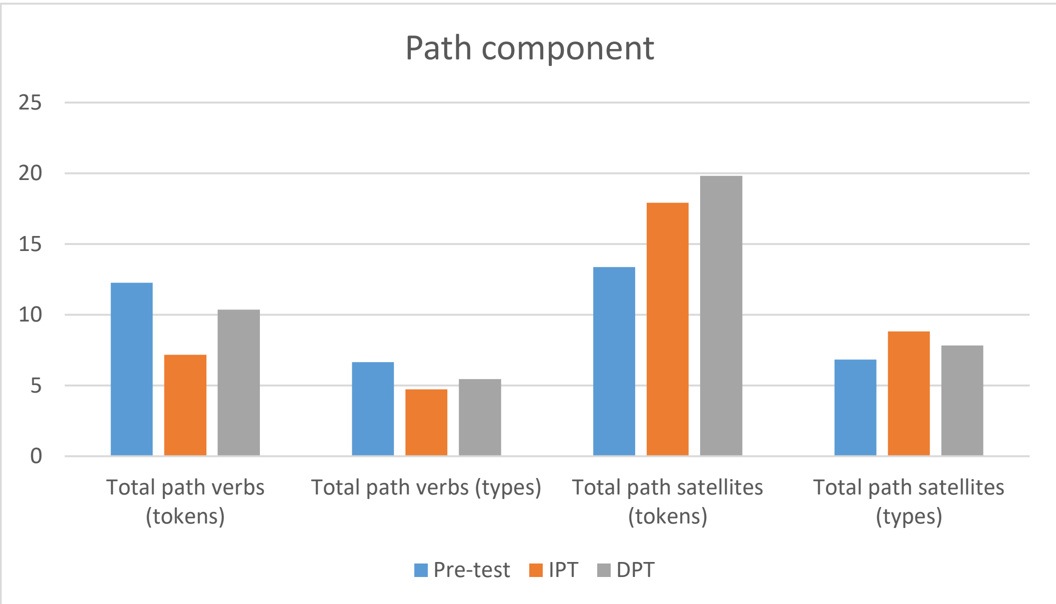


Figure 16 Summary of results for the Path component

5.6. Participants with verb-framed L1s

Manner component

The results for the manner component are summarized in Table 41.

Table 43 Manner[6] Mean and SDs of the use of motion verbs for V-framed learners (n = 45)

	Pre-test		**IPT**		**DPT**	
	M	***SD***	***M***	***SD***	***M***	***SD***
Total motion events	19.8	4.37	20.51	3.2	20.98	2.42
Total manner verbs (tokens)	5.18	2.18	12.62	2.74	11.69	3.86
Total manner verbs (types)	3.24	1.26	5.0	1.19	4.62	1.07
Total Manner + Path BC (tokens)	1.6	1.19	8.0	2.47	7.91	3.58
Total Manner + Path Non-BC (tokens)	2.0	1.31	3.73	1.64	2.93	1.79
Total Manner only (tokens)	1.53	1.08	.69	.82	.82	.89

6 Mauchly's test indicated that the assumption of sphericity was met for all Manner components see Appendix J.

Manner verbs tokens and types

The ANOVA showed that there was a significant overall increase over time in the use of manner verb tokens: (F (2, 88) = 101.6, p <.001; η_p^2= .7). Post hoc comparisons using the Bonferroni corrected P=0.001showed that there was a significant difference in the scores between the pre-test (RBS1 (tokens) M = 5.18), and the IPT (RBS2 (tokens) M = 12.62) and the pre-test and the DPT (RBS3 (tokens) M = 11.69) but no significant difference between RBS2 and RBS3.

A significant main effect was also found for the number of Manner verb types: (F (2, 88) = 31.75, p <.001; η_p^2= .42). Post hoc comparisons showed there was a significant difference in the scores between the pre-test (RBS1 (types) M = 3.24), and the IPT (RBS2 (types) M = 5.0), and pre-test and DPT (RBS3 (types) M = 4.62) but no significant difference between RBS2 and RBS3.

Manner and Path expressions

Regarding the frequency of Manner and Path expressions with a boundary-crossing (MPBC) a significant main effect was found overall: (F (2, 88) = 102.57, p <.001; η_p^2= .7). Post hoc tests showed there was a significant difference in the scores between the pre-test: (RBS1 (MPBC) M = 1.60), and IPT (RBS2 (MPBC) M = 8.00), and pre-test and DPT (RBS3 (MPBC) M = 7.91). No significant difference was found between test scores at IPT and DPT.

In terms of Manner and Path expressions without a boundary-crossing (MPNonBC) a significant overall effect was found: (F (2, 88) = 15.38, p <.001; η_p^2= .26). Post hoc tests showed there was a significant difference in the scores between the pre-test (RBS1 (MPNonBC) M = 2.00) and the IPT (RBS2 (MPNonBC) M = 3.73), as well as between the pre-test and the DPT (RBS3 (MPNonBC) M = 2.93). No significant difference was found between test scores at the IPT and DPT.

Manner only

A significant main effect of RBS was found for Manner verbs used on their own without a satellite: ($F(2, 88) = 9.27$, $p < .001$; $\eta_p^2 = .2$). Post hoc comparisons showed a significant fall between the pre-test (RBS1 (Manner only) M = 1.53), and the IPT (RBS2 (Manner only) M = .69), and between the pre-test and the DPT (RBS3 (Manner only) M = .82). No significant difference was found between scores on the IPT and the DPT.

Summary of the results for the manner component (V-framed)

Overall, the manner component results showed an increase in the number of manner + Path combinations both with and without a boundary-crossing (Figure 15). This increase in the use of the target forms is coupled with a significant reduction in the number of Manner verbs used on their own without an accompanying Path satellite. Furthermore, with the results showing no significant changes between the IPT and the DPT, it would appear that whatever gains were made were sustained for up to two weeks post-instruction.

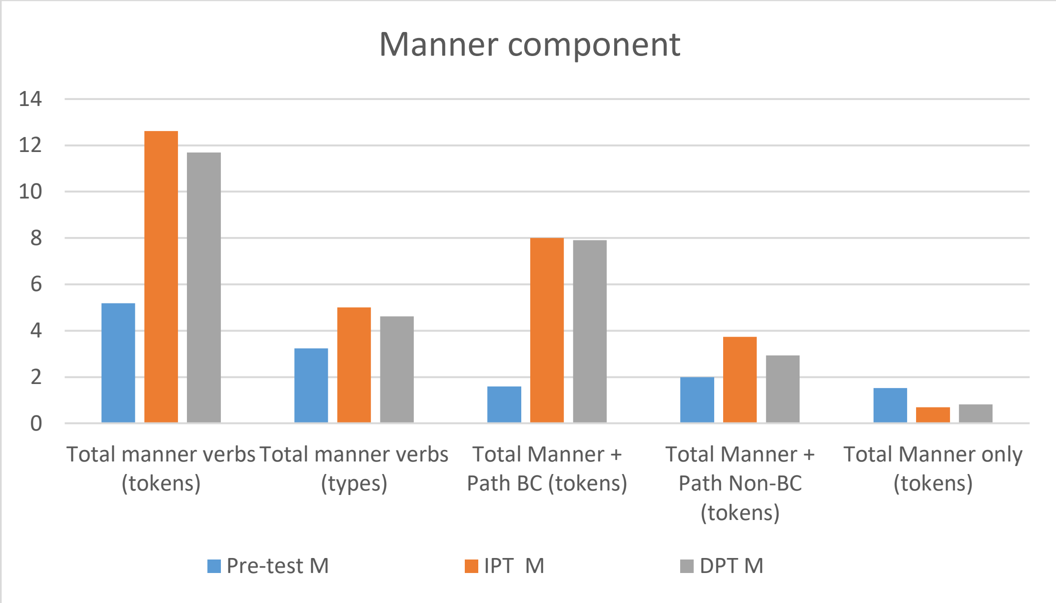


Figure 17 Summary of the results for the manner component (V-framed)

Path component

The path component results for verb-framed participants are summarized in Table 42.

Table 44 Path[7] Mean and SDs of the use of motion verbs for V-framed learners (n = 45)

	Pre-test		**IPT**		**DPT**	
	M	***SD***	***M***	***SD***	***M***	***SD***
Total motion events	19.8	4.37	20.51	3.2	20.98	2.42
Total path verbs (tokens)	14.16	3.43	7.64	2.71	8.89	3.00
Total path verbs (types)	6.69	1.50	4.82	1.48	4.51	1.31
Total path satellites (tokens)	13.16	3.80	17.91	2.41	18.18	2.91
Total path satellites (types)	7.73	1.92	6.78	2.23	6.64	2.09

Path verb tokens and types

As with the Manner verb token counts, a significant main effect of RBS was found for Path verbs tokens (F (2, 88) = 61.8, p <.001; η_p^2= .58). Post hoc comparisons revealed that the number of Path verbs, such as *go, fall, come*, fell significantly from pre-test (RBS1 (tokens) M = 14.16) to IPT (RBS2 (tokens) M = 7.64). However, the difference at DPT: (RBS3 (tokens) M = 8.89) did not reach significance.

[7] Mauchly's test indicated that the assumption of sphericity was met only for Path verb types see Appendix J.

For Path verb types, a significant main effect of RBS was found: ($F (2, 88) = 39.3$, $p <.001$; $\eta_p^2 = .47$). Post hoc comparisons showed a significant fall in the variety of Path verbs from pre-test (RBS1 (types) $M = 6.69$) to IPT (RBS2 (types) $M = 4.82$). While the number of path verb tokens rose after the IPT, mean scores at the DPT remained well below those of the pre-test: (RBS3 (types) $M = 4.51$) without achieving significance by comparison with the IPT.

Path satellites

By contrast, a significant main effect of RBS was found for the number of Path satellites: ($F (2, 88) = 45.37$, $p <.001$; $\eta_p^2 = .5$). Post hoc tests indicated that these increased significantly from pre-test (RBS1 (tokens) $M = 13.16$) to IPT (RBS2 (tokens) $M = 17.91$). The difference between the IPT to DPT did not reach significance.

As regards the range of satellites, a significant decrease was detected ($F (2, 88) = 4.56$, $p = .01$; $\eta_p^2 = .09$).Post hoc tests indicated no significant differences from the pre-test to the IPT or from the IPT to the DPT However, the overall difference from pre-test (RBS1 (types) $M = 7.73$), to DPT (RBS3 (types) $M = 6.64$) was found to be significant.

Summary of the results for the Path component (V-framed)

There was an overall fall in the number of Path verbs and an increase in the number of Path satellites used to express directional meaning. Comparisons between the results for the IPT and the DPT suggest that the changes in the way that motion was expressed by the V-framed participants persisted beyond the instructional period (Figure 16).

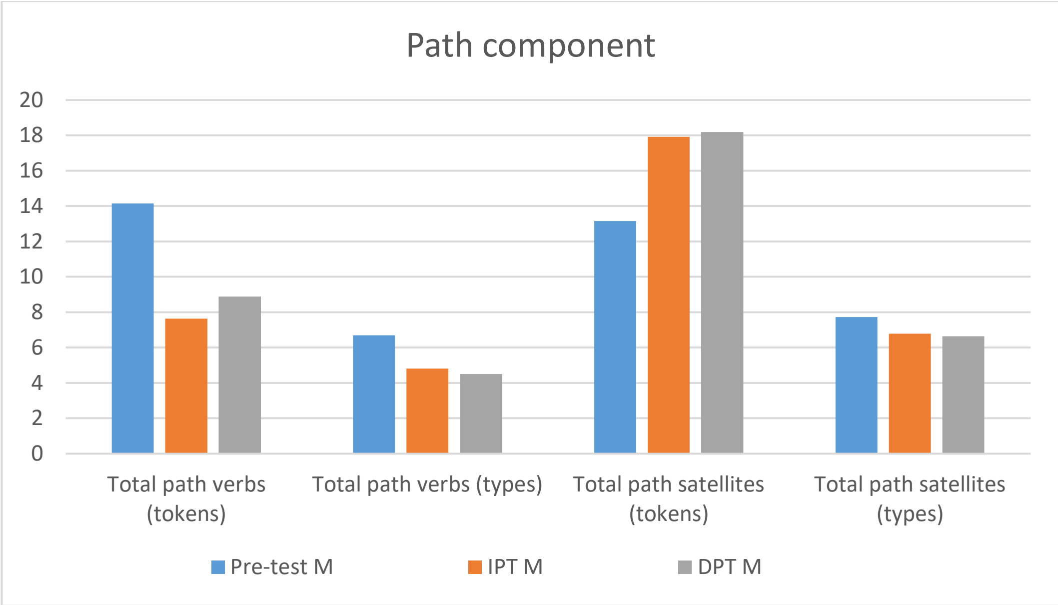


Figure 18 Summary of the results for the Path component (V-framed)

5.7. Between language group comparisons

Independent samples t-tests were used to compare how motion was expressed by the participants from V-framed and S-framed L1 backgrounds. No significant differences were found between language types for the mean number of motion events used overall. Participants from both language types produced more motion expressions as the study progressed (Table 45).

Table 45 Global motion events by Language Typology

	Language Typology	Mean	Std. Deviation	Significance
RBS1	Verb-framed	19.80	4.37	NS
	Satellite-framed	19.91	3.18	
RBS2	Verb-framed	20.51	3.20	NS
	Satellite-framed	20.27	2.90	
RBS3	Verb-framed	20.98	2.42	NS
	Satellite-framed	23.18	4.33	

*= p <.05; ** p< .01

[8]Manner component

Manner tokens and types

For manner verb tokens, there was a significant increase over time ($F(2, 112) = 23.66$, $p < .001$; $\eta_p^2 = .3$). However, no significant interaction was found between RBS and language type: ($F(2, 112) = 1.25$, $p = .3$; $\eta_p^2 = .04$). An independent samples t-test showed significant differences at the pre-test across the language types for Manner verb tokens. However, even though the verb-framed participants began with a lower Manner verb token score at pre-test, the difference between the mean number of tokens at the IPT and DPT did not reach significance (Table 46).

[8] Mauchly's test indicated that the assumption of sphericity was met for all Manner components see Appendix J.

Table 46 Manner verb tokens by Language Typology

	Language Typology	Mean	Std. Deviation	Significance
RBS1	Verb-framed	5.18	2.18	*
	Satellite-framed	7.55	1.97	
RBS2	Verb-framed	12.62	2.74	NS
	Satellite-framed	12.82	2.89	
RBS3	Verb-framed	11.69	3.86	NS
	Satellite-framed	12.36	3.91	

*= p <.05; ** p< .01

For Manner verb type, a significant main effect of RBS was found: (F (2, 112) = 8.85, p <.001; η_p^2= .14) but no significant interaction between RBS and language type: (F (2, 112) = .31, p=.87; η_p^2= .11). The independent samples t-test showed that significant differences between language types found at both pre-test and IPT gradually faded, with the data showing no significant difference at DPT (Table 47).

Table 47 Manner verb type by language typology

	Language Typology	Mean	Std. Deviation	Significance
RBS1	Verb-framed	3.24	1.26	*
	Satellite-framed	4.09	1.14	
RBS2	Verb-framed	5.00	1.19	*
	Satellite-framed	6.00	1.84	
RBS3	Verb-framed	4.62	1.07	NS
	Satellite-framed	5.27	1.68	

*= p <.05; ** p< .01

Manner and Path expressions

For Manner + Path expressions with a boundary-crossing, there was a significant main effect of RBS ($F (2, 112) = 25.05$, $p <.001$; $\eta_p^2= .3$) but no significant interaction between RBS and language type: ($F (2, 112) = 1.98$, $p =.1$; $\eta_p^2= .07$). Independent samples t-tests showed no significant differences across language type at the pre-test, the IPT or at the DPT for Manner + Path expressions with a boundary-crossing (Table 48).

Table 48 Manner and Path expression with a boundary-crossing by language typology

	Language Typology	Mean	Std. Deviation	Significance
RBS1	Verb-framed	1.60	1.19	NS
	Satellite-framed	3.36	1.50	
RBS2	Verb-framed	8.00	2.47	NS
	Satellite-framed	7.09	2.55	
RBS3	Verb-framed	7.91	3.58	NS
	Satellite-framed	7.82	3.37	

*= $p < .05$; ** $p < .01$

For Manner + Path Non-BC expressions, there was a significant main effect of RBS: (F $(2, 112) = 4.94$, $p = .009$; $\eta_p^2 = .08$) but no significant interaction between intervention type and language type: (F $(2, 112) = .31$, $p = .87$; $\eta_p^2 = .01$). As with MPBC, independent samples t-tests showed no significant differences across language type at the pre-test, the IPT or at the DPT for Manner + Path expressions without a boundary-crossing (Table 49).

Table 49 Manner and Path expression without a boundary crossing by language typology

	Language Typology	Mean	Std. Deviation	Significance
RBS1	Verb-framed	2.00	1.31	NS
	Satellite-framed	2.55	1.37	
RBS2	Verb-framed	3.73	1.64	NS
	Satellite-framed	4.55	1.21	
RBS3	Verb-framed	2.93	1.79	NS
	Satellite-framed	3.91	1.92	

*= $p < .05$; ** $p < .01$

Manner only

For Manner verbs used without a path satellite, there was a significant main effect of RBS: (F (2, 112) = 4.88, p =.009; η_p^2= .08) but no significant interaction between RBS and language type. Results from the independent samples t-tests showed no significant differences across language type at the pre-test, the IPT or at the DPT for Manner only tokens (Table 50).

Table 50 Manner only verbs by language typology (tokens)

	Language Typology	Mean	Std. Deviation	Significance
RBS1	Verb-framed	1.53	1.08	NS
	Satellite-framed	1.55	1.75	
RBS2	Verb-framed	.69	.82	NS
	Satellite-framed	1.18	.87	
RBS3	Verb-framed	.82	.89	NS
	Satellite-framed	.73	1.00	

*= $p < .05$; ** $p < .01$

Summary of results for the Manner component

The overall results for the between language type comparisons for the manner component suggest a slight advantage prior to instruction for participants from an S-framed L1 background as regards Manner verb types and tokens. However, these differences faded with the participants achieving similar scores for all Manner components as the study progressed.

Path component

Path verbs tokens and types

In terms of Path verb tokens, there was a significant main effect of RBS: (F (2,112) = 18.27, p <.001; η_p^2= .25) but no significant interaction between RBS and treatment group. Results from the independent samples t-tests showed no significant differences across language type at the pre-test, the IPT or at the DPT for Path verb tokens (Table 51).

Table 51 Path verb tokens language typology

	Language Typology	Mean	Std. Deviation	Significance
RBS1	Verb-framed	12.20	3.43	NS
	Satellite-framed	11.18	3.00	
RBS2	Verb-framed	7.64	3.20	NS
	Satellite-framed	7.18	2.27	
RBS3	Verb-framed	8.89	2.42	NS
	Satellite-framed	10.36	4.00	

*= p <.05; ** p< .01

This was also the case for Path verb types with a significant main effect of RBS: (F (2, 112) = 14.94, p <.001; η_p^2= .21). No significant effect between RBS and language type was found. Results from the independent samples t-tests revealed no significant differences at the pre-test and at the IPT. However, the V-framed participants produced a significantly lower variety of Path verbs at DPT (Table 52).

Table 52 Path verb types by language typology

	Language Typology	Mean	Std. Deviation	Significance
RBS1	Verb-framed	6.69	1.50	NS
	Satellite-framed	6.64	1.69	
RBS2	Verb-framed	4.82	1.48	NS
	Satellite-framed	7.18	2.27	
RBS3	Verb-framed	4.51	1.31	*
	Satellite-framed	5.45	1.63	

*= p <.05; ** p< .01

Path Satellite tokens and types

The frequency of Path satellites increased for both groups with a significant main effect of RBS: (F (2, 112) = 13.74, p <.001; η_p^2= .2) but no significant interaction between RBS and language type was found. Results from the independent samples t-tests showed no significant differences across language type at the pre-test, the IPT or at the DPT for Path satellite tokens (Table 53).

Table 53 Path satellite tokens by language typology

	Language Typology	Mean	Std. Deviation	Significance
RBS1	Verb-framed	13.16	3.80	NS
	Satellite-framed	13.36	3.04	
RBS2	Verb-framed	17.91	2.41	NS
	Satellite-framed	17.91	1.97	
RBS3	Verb-framed	18.18	2.91	NS
	Satellite-framed	19.82	3.03	

*= $p <.05$; ** $p< .01$

For Path satellite types there was no significant main effect of RBS (F (2, 112) = .23, p = .8; η_p^2= .004) and no interaction between RBS and language type was found: (F (2, 112) = 3.13, p = .02; η_p^2= .1). Results from the independent samples t-tests showed no significant differences across language type at the pre-test or at the DPT. However, significant differences were found in the variety of satellite types used at the IPT, with the V-framed participants using fewer types when compared with their S-framed counterparts (Table 54).

Table 54 Path Satellite types by language typology

	Language Typology	Mean	Std. Deviation	Significance
RBS1	Verb-framed	7.73	1.92	NS
	Satellite-framed	6.82	1.83	
RBS2	Verb-framed	6.78	2.23	**
	Satellite-framed	8.82	1.89	
RBS3	Verb-framed	6.64	2.09	NS
	Satellite-framed	7.82	1.83	

*= p <.05; ** p< .01

Summary of results for the Path component

In sum, the between language type results revealed no significant differences in the number of Path verb or Path satellite tokens. However, the mean scores show that, overall, the S-framed participants used a wider variety of Path verbs and Path satellites. Overall, these results are open to interpretation in terms of language transfer and are discussed in detail in the Discussion chapter.

5.8. Summary of chapter

The results for the expression of Manner and Path in the written elicitation tasks showed significant differences in terms of the higher number of Manner verb tokens and the increased use of Manner + Path combinations for both treatment groups. The statistical analysis showed a slight advantage for participants who received input only instruction when compared with the Output group. Furthermore, there is some evidence of learners from both groups deploying the S-framed structure beyond the forms which were the focus of the instructional package to create Manner verb/Path satellite combinations that did not contain a boundary-crossing. Overall increases in the number of manner verb types and tokens and in the use of Manner and Path combinations were found two weeks after treatment. This included the use of a variety of Manner and Path combinations which had not been taught in the classroom. Language type effects proved more difficult to detect. As expected, learners with a satellite-framed L1 produced more Manner + Path combinations at the pre-test. However, predicted L1 differences faded at the post-tests.

6 Results: Self-paced reading tasks

Participants performed two SPRTs: one prior to instruction and another immediately after. The SPRTs consisted in 48 sentences where participants were asked to judge the acceptability of different segmented sentences (six warm-up, 14 targets + 28 distractors).

e.g. The man|| walked|| into|| the bank|| (this morning.)

The slides were displayed on the same laptop using the Superlab 4.0 program, which recorded response times and accuracy for each participant. Non-parametric tests were chosen to analyse the data because, owing to the skewed nature of the distributions, the dataset did not pass the normality and homogeneity of variance tests.

In this section, the results of the analysis of the four self-paced reading tasks are presented. In SPRT1-Adverb (38) and SPRT2-Adverb there were 48 sentences: six practice sentences, 28 distractors and 14 target sentences.

(38) The man walked into the bank.

Among the 14 targeted test items, seven were grammatically *usual* sentences (39) and seven *unusual* (40).

(39) He ran into the room.

(40) He entered the room running.

SPRT1+Adverb and SPRT2+Adverb were the same in content as SPRT1-Adverb and SPRT2-Adverb apart from the addition of an extra adverbial slide prior to the XM decision slide (41).

(41) The man walked into the bank yesterday.

Due to these differences, the SPRTs analyses are split into two sections. Participants 1-16 who performed SPRT1-Adverb and SPRT2-Adverb are referred to as Input group 1, participants 17-29 who performed SPRT1+Adverb and SPRT2+Adverb are referred to as Input group 2 and participants 30-59 who also performed SPRT1+Adverb and SPRT2+Adverb are referred to as the Output group.

The research questions and hypotheses formulated in chapter 4 are repeated below for the reader's convenience.

(RQ2): What is the effect of the intervention on students' interpretation of motion verbs?

H0: Reading times and error rates will not differ between pre-test and IPT for *usual* or *unusual* target items, or for *grammatical* or *ungrammatical* distractors, irrespective of the instructional package

H1: Reading times and error rates will decrease for *usual* target items between the pre-test and the IPT.

H2: Reading times and error rates will increase for *unusual* target items between the pre-test and the IPT.

H3: Participants will be equally fast and accurate at reading *usual* targets and *grammatical* distractors.

H4: Participants will be equally fast and accurate at reading *ungrammatical* distractors and at reading *unusual* targets

H5: The group that received the input-based treatment will demonstrate shorter RTs and lower error rates for *usual* and *unusual* targets at the IPT.

(RQ4): What is the effect of the students' first language on their interpretation of motion verbs?

H1: Significant differences will be found across language types. It is predicted that learners from an S-framed L1 will demonstrate shorter RTs and lower error rates at both pre-test and IPT for *usual* targets both with and without a boundary-crossing due similarities with the L1 structure.

H2: Learners with a V-framed L1 will demonstrate longer RTs for postverbal sentence segments for *usual* targets both with and without a boundary-crossing due to the learners' expectations which are likely to be carried over from the L1 structure.

H3: V-framed learners will demonstrate shorter RTs for postverbal sentence segments for *unusual* targets with/without a boundary-crossing, due to similarities with the participants L1's.

The analyses are divided into the following sections:

- Input group 1 (section 6.1-6.3);

- Input group 2 (section 6.4);
- Output group (section 6.5);
- Between group comparisons(Input group 2/Output group) (section 6.6)
- Learners with a verb-framed L1: Input group 2 (8) vs Output group (23)(section 6.7)
- Learners with a satellite-framed L1:Input group 2(4) vs Output group (5) (section 6.8)
- Summary of findings(section 6.9)
- Sentence type and sentence segment means by language typology (Input group 2/Output group) (section 6.10)
- Treatment effects on verb-framed participants(Input group 2/Output group) (section 6.11);

In these sections, the results are analysed by treatment group and subsequently by L1 language typology. The first block focuses on the mean response times and mean error rates for the Input group 1 who performed the pre-test (SPRT1- Adverb) and the IPT (SPRT2-Adverb). In the second block, attention turns to Input group 2 and the Output group participants, who performed the pre-test (SPRT1+ Adverb) and the IPT (SPRT2 + Adverb). This is followed by a comparison of these two groups and a subsequent analysis across language typologies. In the following section, the results for Input group 2 and the Output group are presented by language type for each sentence type and for the most significant sentence segments. This analysis was not performed on the data for Input group 1 due to the low number of participants in this first group. The final section focuses on the effects of the treatments on the performance of participants with a verb-framed L1 from Input group 2 and the Output group.

6.1. Input group 1

Pre-test (SPRT1- Adverb) vs IPT (SPRT2 - Adverb)

The results for the Input group 1 (Participants 1-16) are summarized in Table 55.

Table 55 Overall mean reaction times and error rates for Input group 1 (16)

Sentence Type (Number)	PT Mean RT (ms)	IPT Mean RT (ms)	PT Error rate (%)	IPT Error rate (%)
Grammatical Distractors (14)	6307.46 (2355.40)	5407.52 1999.34)	22.12 (19.00)	8.31 (6.37)
Ungrammatical Distractors (14)	6589.24 (2100.65)	5862.97 (1915.11)	27.06 (12.74)	12.31 (11.71)
Usual Targets (7)	6941.5 (2780.29)	6181.15 (2883.95)	28.63 (23.31)	6.13 (7.17)
Unusual Targets (7)	6997.23 (2464.98)	5229.12 (1440.67)	51.81 (25.37)	18.69 (24.81)
All Sentences (42)	**6624.51 (2272.19)**	**5637.42 (2062.77)**	**27.91 (12.51)**	**14.78 (11.62)**

Wilcoxon matched pairs signed rank tests were conducted to determine whether there was a difference in the overall response times and error rates for overall sentence means at the pre-test and the IPT. The tests revealed there was a significant decrease in the RTs between the pre-test (M=6624.51) and the IPT (M=5637.42; z = -2.59, p = .01) and in the error rate from the pre-test (M=27.91) to the IPT (M=14.78; z = -2.75, p = .01). These results suggest that participants in Input group 1 were faster and generally more accurate the second time they performed the SPRT.

Although the overall mean response times for *usual* targets appeared to fall slightly, no significant drop was found between pre-test response times and those of the IPT. However, for *unusual* targets the RTs dropped significantly between pre-test (M=6997.23) and IPT (M=5229.12; z= -3.36 =, p = .001). Furthermore, a significant difference was found in the response times for *grammatical* distractors, with the participants taking more time overall at the pre-test (M=6307.46) than at the IPT (M=5407.52; z = -2.22, p = .03). The same was not true for the *ungrammatical* distractors as the difference between the pre-test response times and those of the IPT failed to reach significance.

Regarding error rates, the test revealed there was a significant drop for *usual* targets between the pre-test (M=28.63) and the IPT (M=6.13; z = -2.85, p =0.004). A similar drop was found for *unusual* targets between pre-test (M=51.81) and the IPT (M=18.69; z = -3.08, p =.002). This trend continued for both *grammatical* and *ungrammatical* distractors between the pre-test (M=22.12) and the IPT (M=8.31; z = -2.82, p =.01); pre-test (M=27.06) and the IPT (M=12.31; z = -2.85, p =.004).

Summary of the SPRT results for Input group1

Overall, the results for Input group 1 show a significant reduction in response time for the 42 trials. This was particularly so for *unusual* targets and for *grammatical* distractors. While the participants appeared to respond more quickly to *usual* targets and to *ungrammatical* distractors, the difference in mean response times did not reach significance. However, the failure to reach significance could be related in some cases to high standard deviations for RTs, which generally appeared to decrease between the pre-test and the IPT except in the case of *usual* targets. In terms of accuracy, error rates fell significantly for both *usual* and *unusual* targets as well as for *grammatical* and *ungrammatical* distractors.

In the following section, the results based on the participants' language typology in this first input group (1-16) are reported.

6.1.1. Input group 1: Learners with a verb-framed L1(14)

Wilcoxon matched pairs signed rank tests were conducted to determine whether there were differences in response times and error rates at the pre-test and the IPT within language typology groups.

Pre-test (SPRT1-Adverb) vs IPT (SPRT2-Adverb)

The results for the fourteen V-framed participants from Input group 1 are summarized in Table 56. Statistical tests could not be performed on the two S-framed learners in this group due to their low number.

Table 56 Overall mean reaction times and error rates V-framed L1 Input group 1 (14)

Sentence Type (Number)	PT Mean RT (ms)	IPT Mean RT (ms)	PT Error rate (%)	IPT Error rate (%)
Grammatical Distractors (14)	6079.48 (2013.71)	5376.71 (2026.94)	24.29 (19.40)	9.00 (6.40)
Ungrammatical Distractors (14)	6293.50 (1811.14)	5821.73 (2036.02)	28.43 (13.01)	11.00 (10.53)
Usual Targets (7)	6686.36 (2626.91)	6216.33 (3043.34)	28.64 (24.39)	7.00 (7.26)
Unusual Targets (7)	6828.76 (2301.88)	5197.52 (1526.10)	54.07 (26.29)	16.29 (21.60)
All Sentences (42)	**6379.69 (1997.00)**	**5629.61 (2174.19)**	**28.68 (13.23)**	**15.54 (11.93)**

The tests revealed there was a significant drop in the overall RTs from the pre-test (M=6379.69) to the IPT (M=5629.61; z = -2.23, *p* = .03) and in the error rate between the pre-test (M=28.68) and the IPT (M=15.54; z = -2.49, *p* = .01). Overall, mean response times for *usual* targets appeared to fall between pre-test and the IPT but no significant difference was found. The test did reveal a significant drop in RTs for *unusual* targets between the pre-test (M=6828.76) and the IPT (M=5197.52; z= -3.17, *p* =.002). Differences in the response times for the *grammatical* distractors were not found to be significant for the learners with a verb-framed L1in the first Input group 1 although they appeared to be slightly slower at the pre-test than at the IPT. The same was true for the *ungrammatical* distractors with the difference between the pre-test response times and those of the IPT failing to reach significance.

Regarding error rates, significant differences were detected for *usual* targets between the pre-test (M=28.64) and the IPT (M=7.00; z = -2.61, p = .01). Similarly, differences in error rates for *unusual* targets also reached significance between pre-test (M=54.07) and the IPT (M=16.29; z = - 2.99, p =.003). In addition, there was a significant drop in error rates for *grammatical* distractors between the pre-test (M= 24.29) and the IPT (M=9.00; z = -2.68, p =.01). This was also the case for *ungrammatical* distractors, with error rates dropping significantly between the pre-test (M= 28.43) and the IPT (M=11.00; z = -3.08, p =.002).

Summary of the SPRT results for V-framed L1 Input group 1

While overall response times fell for the learners with a verb-framed L1, the apparent improvement in mean response times failed to reach significance for *usual* targets. However, there was a significant drop in RTs for *unusual* targets. Furthermore, the participants with a verb-framed L1 became significantly more accurate in their interpretation of both targets and distractors with error rates dropping significantly for all structures between the pre-test and the IPT.

6.1.2. Learners with a satellite-framed L1 Input group 1 (2)

Pre-test (SPRT1-Adverb) vs IPT (SPRT2-Adverb)

The results for the learners with a satellite-framed L1 are summarized in Table 57.

Table 57 Overall mean reaction times and error rates S-framed L1 Input group 1 (2)

Sentence Type (Number)	PT Mean RT (ms)	IPT Mean RT (ms)	PT Error rate (%)	IPT Error rate (%)
Grammatical Distractors (14)	7903.36 (4968.13)	5623.14 (2538.51)	7.00 (0.00)	3.50 (4.95)
Ungrammatical Distractors (14)	8659.39 (3708.42)	6151.68 (966.67)	17.50 (4.95)	21.50 (20.51)
Usual Targets (7)	8727.50 (4353.25)	5934.93 (2052.73)	28.50 (20.51)	0.00 (0.00)
Unusual Targets (7)	8176.57 (4368.1)	5450.29 (862.87)	36.00 (9.89)	35.50 (50.21)
All Sentences (42)	**8338.26 (4345.74)**	**5692.12 (1538.23)**	**22.50 (2.12)**	**9.50 (10.61)**

For the learners with a satellite-framed L1, the Wilcoxon tests could not be conducted due to the low number of learners with an S-framed L1 in Input group 1. However, it was observed that response times for the two participants fell in all sentence types used in the SPRT. Accuracy also improved substantially with the exception of *ungrammatical* distractors where the error rate increased marginally. Unfortunately, given the low number of learners with a satellite-framed L1, it is difficult to draw any conclusions as to the overall gains achieved in speed and accuracy.

6.1.3. Between language type comparisons Input group 1

Pre-test (SPRT1-Adverb) vs IPT (SPRT2-Adverb)

The results for the between language type comparisons Input group 1 are summarized in Table 58.

Table 58 Overall mean reaction times and error rates by Language Typology Input group 1 at pre-test (PT) and immediate post-test (IPT)

Sentence Type (Number)	Language Typology (N)	PT Mean RT (ms)	IPT Mean RT (ms)	PT Error rate (%)	IPT Error rate (%)
Grammatical Distractors (14)	S-framed (2)	7903.36 (4968.13)	5623.14 (2538.51)	7.00 (0.00)	3.50 (4.95)
	V-framed (14)	6079.48 (2013.71)	5376.71 (2026.94)	24.29 (19.40)	9.00 (6.40)
Ungrammatical Distractors (14)	S-framed (2)	8659.39 (3708.42)	6151.68 (966.67)	17.50 (4.95)	21.50 (20.51)
	V-framed (14)	6293.50 (1811.14)	5821.73 (2036.02)	28.43 (13.01)	11.00 (10.53)
Usual Targets (7)	S-framed (2)	8727.50 (4353.25)	5934.93 (2052.73)	28.50 (20.51)	0.00 (0.00)
	V-framed (14)	6686.36 (2626.91)	6216.33 (3043.34)	28.64 (24.39)	7.00 (7.26)
Unusual Targets (7)	S-framed (2)	8176.57 (4368.1)	5450.29 (862.87)	36.00 (9.89)	35.50 (50.21)
	V-framed (14)	6828.76 (2301.88)	5197.52 (1526.1)	54.07 (26.29)	16.29 (21.6)
All Sentences (42)	**S-framed (2)**	**8338.26 (4345.74)**	**5692.12 (1538.23)**	**22.50 (2.12)**	**9.50 (10.61)**
	V-framed (14)	**6379.69 (1997.00)**	**5629.61 (2174.19)**	**28.68 (13.23)**	**15.54 (11.93)**

Unfortunately due to the low number of learners with a satellite-framed L1, it was impossible to conduct Mann-Whitney U tests for the between language type comparisons for Input group 1. As a result, it is difficult to draw any specific conclusions from this first group of participants regarding possible effects of L1 transfer. However, from the mean RTs and error rates shown in the table it can be seen that all participants improved in speed and accuracy for both *usual* and *unusual* targets at the IPT.

Due to differences in the SPRT design for Input Group 1 compared with that used for Input Group 2 and the Output Group, the data from Input Group 1 were not used in further comparisons.

6.2. Input group 2

Pre-test (SPRT1+Adverb) vs IPT (SPRT2+Adverb)

The results for Input group 2 (Participants 17-29) are summarized in Table 59.

Table 59 Overall mean reaction times and error rates for the Input group 2 (13)

Sentence Type (Number)	PT Mean RT (ms)	IPT Mean RT (ms)	PT Error rate (%)	IPT Error rate (%)
Grammatical Distractors (14)	5849.22 (3671.12)	5758.19 (3385.12)	17.85 (17.78)	12.47 (13.38)
Ungrammatical Distractors (14)	5611.32 (3933.66)	5251.85 (1387.24)	19.46 (10.49)	15.31 (20.17)
Usual Targets (7)	7272.35 (9137.69)	5086.98 (1124.82)	6.54 (9.44)	6.46 (7.26)
Unusual Targets (7)	6339.15 (3695.84)	4590.45 (854.58)	43.92 (32.83)	24.23 (30.66)
All Sentences (42)	**6088.77 (4520.87)**	**5057.28 (1265.77)**	**21.81 (8.18)**	**14.04 (14.63)**

For Input group 2, while mean RTs and error rates appeared to fall from pre-test to IPT, the Wilcoxon rank tests failed to reveal significant differences for any of the test variables.

Summary of the SPRT results for Input group 2

The results for learners from Input group 2 proved to be inconclusive. While the mean response times for the learners appeared to fall from the pre-test to the post-test, the improvement did not reach significance for any of the test variables. The same was found for mean error rates, which again appeared to fall throughout without the differences reaching significance. Once again, the failure to reach significance could be due to the low number of participants and the fact that standard deviations for RTs and error rates were found to be extremely high in some cases.

6.3. Output group

Pre-test (SPRT1+Adverb) vs IPT (SPRT2+Adverb)

The results for the Output group are summarized in Table 60.

Table 60 Overall mean reaction times and error rates for the Output group (30

Sentence Type (Number)	PT Mean RT (ms)	IPT Mean RT (ms)	PT Error rate (%)	IPT Error rate (%)
Grammatical Distractors (14)	7062.46 (2088.32)	6101.97 (2082.55)	21.47 (17.76)	11.03 (11.29)
Ungrammatical Distractors (14)	7119.25 (2415.47)	6547.04 (2108.61)	16.03 (14.04)	11.97 (10.58)
Usual Targets (7)	8050.91 (3316.04)	6299.50 (2148.04)	8.53 (15.26)	5.60 (6.98)
Unusual Targets (7)	7609.32 (2575.87)	6172.94 (1863.52)	33.77 (29.22)	24.23 (28.01)
All Sentences (42)	**7337.27 (2204.65)**	**6142.29 (2073.49)**	**22.03 (11.84)**	**10.53 (7.53)**

For the Output group (30), the tests revealed there was a significant drop in the overall sentence mean RTs between the pre-test (M=7337.27) and the IPT (M= 6142.29; z = -2.54, p = .01) and in the error rates from the pre-test (M=22.03) to the IPT (M=10.53; z = -3.56, p <.01). A significant drop was found for overall mean RTs for *usual* targets between pre-test response times (M=8050.91) and those of the IPT (M=6299.5; z=-2.79, p = .01) and for *unusual* targets between pre-test response times (M=7609.32) and those of the IPT (M=6172.94; z= -2.64, p = .01). In addition, a significant drop was found in the response times for the *grammatical* distractors, with participants taking more time overall at the pre-test (M= 7062.46) than at the IPT (M=6101.97; z = -2.36, p = .02). This was not the case for the *ungrammatical* distractors as the difference between the pre-test response times (M=7119.25) and those of the IPT (M=6547.04) failed to reach significance.

In terms of error rates, the test did not reveal a significant difference in scores for *usual* targets between the pre-test (M=8.53) and the IPT (M=5.60) or in scores for *unusual* targets between pre-test (M=33.77) and the IPT (M=24.23). However, there was a significant difference in error rates for *grammatical* distractors between the pre-test (M=21.47) and the IPT (M=11.03; z = -2.63, p =.01). This was not the case for *ungrammatical* distractors between pre-test (M=16.03) and the IPT (M=11.97).

Summary of the SPRT results for the Output group

For learners from the Output group, the tests revealed significant drops in overall sentence mean response times, response times for the *grammatical* distractors and for both the *usual* and *unusual* targets. Regarding mean error rates, significant differences were found for overall sentence means and for *grammatical* distractors only. While error rates appeared to fall for *ungrammatical* distractors and for all targets, once again the differences were not found to be significant.

6.4. Between groups comparisons: Input group 2 vs Output group

Pre-test (SPRT1+Adverb) vs IPT (SPRT2+Adverb)

The mean RTs and error rates for Input group 2 and the Output group can be found in Tables 59 and 60. The difference between the pre-test overall response time means for the Input group (M=6088.77) and the Output group (M=7337.27) was statistically significant (U=99.50, p= .01). By contrast, at the IPT, the difference between the response time means for the two groups was no longer significant. Regarding accuracy measures, no significant differences were found between either the pre-test overall error rate means for Input group 2 and the Output group or those of the IPT.

The difference between the pre-test response time means for *grammatical* distractors for Input group 2 (M=5849.22) and the Output group (M=7062.46) just reached significance (U=116.50, p= .04). However, this was not the case at the IPT where the difference between the groups failed to reach significance. Similarly, for *ungrammatical* distractors, the difference between the pre-test response time means for the Input group (M=5611.32) and the Output group (M=7119.25) was statistically significant (*U*=104.50, *p*= .02), whereas the difference at the IPT was no longer found to be significant. In terms of accuracy, all error rate comparisons failed to reach significance.

The pre-test response time means for *usual* targets for Input group 2 (M=7272.35) was significantly lower than those for the Output group (M=8050.91; *U*=89.50, *p*=0.004). However, this was not the case at the IPT where the difference was no longer significant. Conversely, while the difference between the pre-test response time means for *unusual* targets was not found to be significant, the difference at the IPT between Input group 2 (M=4590.45) and the Output group (M=6172.94) was significant (*U*=84.00, *p*= .003).

As stated above, no significant differences were detected between either the pre-test or IPT error rates for Input group 2 and the Output group.

Summary of the SPRT between treatment groups results: Input group 2 and the Output group

From the between group comparison results, it would appear that differences between the two groups prior to instruction began to fade after the treatment period. This is particularly the case in differences for overall response time means and response times for *usual* targets *and grammatical* and *ungrammatical* distractors, which were no longer significant at the IPT. Although the Mann-Whitney tests did not reveal significant differences for the error rates, there would appear to be a convergence in scores for the two treatment groups at the IPT.

6.4.1. Learners with a verb-framed L1:Input group 2 (8) vs Output group (23)

Pre-test (SPRT1+Adverb) vs IPT (SPRT2+Adverb)

The results for the learners with a verb-framed L1 from Input group 2 (8) and the Output group (23) are summarized in Table 61.

Table 61 Overall mean reaction times and error rates V-framed L1 (31)

Sentence Type (Number)	PT Mean RT (ms)	IPT Mean RT (ms)	PT Error rate (%)	IPT Error rate (%)
Grammatical Distractors (14)	6948.62 (2526.54)	6334.08 (2704.98)	23.48 (19.00)	11.10 (10.43)
Ungrammatical Distractors (14)	6875.82 (2934.55)	6413.55 (1955.54)	19.39 (13.45)	10.94 (11.78)
Usual Targets (7)	8484.87 (6288.57)	6308.69 (2001.62)	9.16 (14.97)	6.32 (7.08)
Unusual Targets (7)	7519.28 (2926.32)	5895.12 (1661.94)	38.68 (29.89)	20.68 (26.16)
All Sentences (42)	**7275.51 (3127.85)**	**6059.57 (1910.45)**	**23.61 (11.28)**	**10.74 (8.031)**

For the learners with a verb-framed L1 (31), the tests revealed there was a significant drop in the overall sentence mean RTs between the pre-test (M=7275.51) and the IPT (M=6059.57; z = -3.86, p = .01) and in the error rate from the pre-test (M=23.61) to the IPT (M=10.74; z = -2.45, p = .01).

A significant difference was found for mean response times for *usual* targets between pre-test response times (M=8484.87) and those of the IPT (M=6308.69; z=-2.76, p =0.01) but not for *unusual* targets between pre-test response times and those of the IPT. A significant difference was also found in the response times for the *grammatical* distractors between the pre-test (M=6948.62) and the IPT (M=6334.08; z = -2.80, p = .01). This was not the case for the *ungrammatical* distractors as the difference between the pre-test response times and those of the IPT failed to reach significance.

Regarding error rates, the test did not reveal a significant difference in scores for *usual* targets between the pre-test and the IPT. However, significant differences were found in the scores for *unusual* targets between pre-test (M=23.61) and the IPT (M=10.74; z= -

2.65, p = .01). However, the test revealed there was no significant difference in scores for either *grammatical* or *ungrammatical* distractors between the pre-test and the IPT.

Summary of the SPRT results for the learners with a verb-framed L1: Input group 2(8) vs Output group (23)

For the learners with a verb-framed L1, the significant drop in overall reaction times between PT and IPT appeared to be attributable to decreases in response time for *grammatical* distractors and *usual* targets. While the tests seemed to show improvements in response times and error rates for all variables, differences in error rates for *usual* targets, *grammatical* and *ungrammatical* distractors and in response times for *ungrammatical* distractors and *unusual* targets failed to reach significance.

6.4.2. Learners with a satellite-framed L1: Input group 2 (4) vs Output group (5)

Pre-test (SPRT1+Adverb) vs IPT (SPRT2+Adverb)

The results for the learners with a satellite-framed L1 (Input group 2 (4), Output group (5)) are summarized in Table 62.

Table 62 Overall mean reaction times and error rates for learners with a satellite-framed L1 (Input group 2 (4), Output group (5)) at pre-test (PT) and immediate post-test (IPT)

Sentence Type (Number)	PT Mean RT (ms)	IPT Mean RT (ms)	PT Error rate (%)	IPT Error rate (%)
Grammatical Distractors (14)	5219.60 (2534.00)	5719.06 (1513.46)	14.11 (11.38)	12.67 (17.85)
Ungrammatical Distractors (14)	5681.33 (3473.86)	6130.70 (1871.99)	11.67 (10.50)	16.56 (20.51)
Usual Targets (7)	5572.63 (3082.51)	5422.08 (1418.31)	4.78 (10.20)	1.56 (4.67)
Unusual Targets (7)	6114.83 (3281.21)	5773.00 (1986.20)	30.11 (34.59)	22.22 (26.02)
All Sentences (42)	**5581.55 (2996.70)**	**5846.30 (1617.71)**	**19.17 (8.58)**	**13.28 (16.89)**

For the learners with a satellite-framed L1, the tests revealed there was no significant difference in the overall sentence mean RTs between the pre-test and the IPT or in the error rates from the pre-test to the IPT.

Summary of the SPRT results for the learners with a satellite-framed L1:Input group 2 (4) vs Output group (5)

Overall, the results for the learners with a satellite-framed L1 showed no significant differences. While an increase in RT (albeit not significant) between PT and IPT was observed in the overall means, this was mainly attributable to the *grammatical* and *ungrammatical* distractors.

6.5. Summary of findings

The non-parametric analyses of the data revealed shorter response times and lower error rates for both treatment groups at the IPT. However, while pre-test differences began to fade post instruction, the Input group appeared to respond more quickly across all sentence types when compared with the Output group.

As regards language types, a significant drop was detected between the pre-test and IPT response time for *usual* targets. As was expected, the learners with a predominantly S-framed L1 responded more quickly across all sentence types when compared with participants with a typically verb-framed L1. However, error rate differences were not as consistent due to the learners with a verb-framed L1 making fewer errors overall at the IPT.

6.6. Sentence type and sentence Segment Means by Language typology: Input group 2 and the Output group

In this section, the results by language type for the participant mean values for each sentence type and postverbal sentence segments 3 to 6 are presented (Figure 19). For *usual* targets both with and without a boundary-crossing, it was speculated that learners from a predominantly V-framed L1 background would take longer to process the postverbal S-framed Path structure due to possible language transfer effects. It was anticipated that these learners would perhaps expect the non-canonical pattern that mirrors structures in their own language as in the *unusual* targets shown in Figure 19. It was further predicted that these expectations would have the opposite effect for the learners from an L1 which preferred the S-framed structure, with these learners predicted to demonstrate shorter RTs for usual targets and vice-versa for the non-canonical patterns.

Predictions relating to where the language type effect can be located in the target sentences are illustrated in Figure 19:

	1:	2:	3:	4:	5:	6:
Usual Targets with BC	The man	walked	into	the bank	yesterday	Response
			Predicted to be longer for V-framed	Longer for V-framed	Longer for V-framed	Longer for V-framed
Usual Targets with no BC	The woman	walked	down	the stairs	yesterday	Response
			Predicted to be longer for V-framed	Longer for V-framed	Longer for V-framed	Longer for V-framed
Unusual Targets with BC	The dog	entered	the room	running	yesterday	Response
			Predicted to be longer for S-framed	Longer for S-framed	Longer for S-framed	Longer for S-framed
Unusual Targets with no BC	The dog	went	down	running	yesterday	Response
			Predicted to be longer for S-framed	Longer for S-framed	Longer for S-framed	Longer for S-framed

Figure 19 Predicted language type effects for sentence segments

The aim here was to identify a possible effect of *usual* vs *unusual* targets in response times and error rates and whether there is a Boundary Crossing (BC) effect. The mean results were compared using Wilcoxon rank tests. The mean values were calculated by adding, for example, the 4 segment 3 RTs for Boundary Crossing *unusual* target sentences, for each participant, dividing by 4, then by calculating group means and standard deviations. This process was conducted for each target sentence segment for each participant in order to test for potential L1 effects in the interpretation of the target structures. For learners with a verb-framed L1, RTs were predicted to be longer for segments 3 to 6 (all post-verbal elements, as shown in Figure 19) for *usual* targets both with and without a boundary-crossing due to the learners' expectations based on their familiarity with V-framed structures. This was not predicted to be the case for *unusual* targets with/without a boundary-crossing, which approximate more closely structures from the verb-framed participants L1's.

By contrast, for learners with a satellite-framed L1, RTs were predicted to be longer for segments 3 to 6 for *unusual* targets both with and without a boundary-crossing, again due to underlying differences when compared with the L1 structure. It was further expected that these learners would respond more quickly to the sentences and sentence segments which mirror the structure of their own L1's.

6.6.1. Sentence type means: Learners with a verb-framed L1

Overall mean RTs and error rates by target Sentence type for 31 learners with a verb-framed L1 (Input Group 2 (8) and Output group (23) are summarized in Table 63:

Table 63 Overall mean reaction times and error rates by Target sentence type for learners with a verb-framed L1 (31) at pre-test (PT) and immediate post-test (IPT)

Sentence Type (Number)	PT Mean RT (ms)	IPT Mean RT (ms)	PT Error rate (%)	IPT Error rate (%)
Usual Targets with BC (4)	6665.07 (2447.39)	6166.59 (3148.90)	35.48 (22.15)	8.07 (13.52)
Usual Targets with no BC (3)	6714.74 02950.42)	6282.64 (2971.28)	7.4839 (16.53)	4.26 (11.25)
Unusual Targets with BC (4)	6964.41 (2019.92)	4958.39 (1846.95)	21.77 (19.09)	11.29 (16.88)
Unusual Targets with no BC (3)	6647.88 (3416.03)	5516.36 (1636.40)	37.52 (20.79)	13.84 (16.55)

For the 31 learners with a verb-framed L1, the tests revealed there was a significant drop for *usual* targets with a boundary-crossing in the RTs between the pre-test (M=6665.07) and the IPT (M=6166.59; z = -3.47, p = .001) and for *unusual* targets with a boundary-crossing between the pre-test (M=6964.41) and the IPT (M=4958.39; z = -3.68, *p* = .01). While the RTs for both *usual* and *unusual* targets without a boundary-crossing appeared to decrease from the pre-test to the IPT, the differences were not found to be significant.

Regarding error rates, accuracy improved for all the target sentences from the pre-test to the IPT. In particular, error rates for *usual* targets with a boundary-crossing dropped significantly between the pre-test (M=35.48) and the IPT (M=8.07; z = -3.94, *p* = .01). This was also the case for *unusual* targets with a boundary-crossing between the pre-test (M=21.77) and the IPT (M=11.29; z = -1.99, *p* = .047); and for *unusual* targets without a boundary-crossing between the pre-test (M=37.52) and the IPT (M=13.84; z = -3.54, *p* = .01)

6.6.2. Segment analysis: Learners with a verb-framed L1

The analysis of segment mean RTs for *usual* target sentences for the learners with a verb-framed L1 (Table 64) revealed there was a significant fall in response time for segment 4 (end-point) between the pre-test (M=1496.09) and the IPT (M=925.01; z = -3.35, *p* = .001); and for segment 5 (adverb) between the pre-test (M=2912.71) and the IPT (M=1066.76; z = -3.45, *p* =.001). By contrast, no significant differences were found for *usual* targets without a boundary-crossing.

Table 64 Segment mean reaction times by *usual* target sentence type for learners with a verb-framed L1 (31) at pre-test (PT) and immediate post-test (IPT)

Sentence Type (Number)	Segment (example)	PT Mean RT (ms)	IPT Mean RT (ms)
Usual Targets with BC (4)	3: Preposition (into)	1068.36 (664.54)	921.09 (374.62)
Usual Targets with BC (4)	4: End-point (the bank)	1496.09 (957.23)	925.01 (356.09)
Usual Targets with BC (4)	5: Adverb (this morning)	2912.71 (5796.31)	1066.76 (480.21)
Usual Targets with BC (4)	6: Response (Usual/Unusual)	1313.92 (772.33)	1213.90 (681.29)
Usual Targets with no BC (3)	3: Preposition (down)	873.22 (9447.63)	1030.58 (471.94)
Usual Targets with no BC (3)	4: Path (the stairs)	1010.29 (439.99)	1279.03 (701.21)
Usual Targets with no BC (3)	5: Adverb (yesterday)	1635.68 (1561.62)	1274.38 (601.69)
Usual Targets with no BC (3)	6: Response (Usual/Unusual)	1545.45 (1750.18)	1410.61 (838.93)

With regard to *unusual* targets for the same group (Table 65), the tests revealed there was a significant fall in response time for segment 3 (end point) between the pre-test (M=1280.54) and the IPT (M=933.07; z = -2.32, *p* = .02); and for segment 5 (adverb) between the pre-test (M=1613.50) and the IPT (M=1024.98; z = -2.78, p = .005).

Table 65 Mean segment reaction times by *unusual* target sentence type learners with a verb-framed L1 (Participants 17-59) at pre-test (PT) and immediate post-test (IPT)

Sentence Type (Number)	Segment (example)	PT Mean RT (ms)	IPT Mean RT (ms)
Unusual Targets with BC (4)	3: End-point (the room)	1280.54 (822.82)	933.07 (337.04)
Unusual Targets with BC (4)	4: Manner Adv (running)	1157.05 (610.23)	931.52 (398.36)
Unusual Targets with BC (4)	5: Adverb (yesterday)	1613.50 (1184.07)	1024.98 (461.90)
Unusual Targets with BC (4)	6:Response (Usual/Unusual)	1403.14 (925.98)	1111.54 (534.08)
Unusual Targets with no BC (3)	3: Path Adv (down)	883.37 (437.88)	893.86 (370.47)
Unusual Targets with no BC (3)	4: Manner Adv (running)	983.14 (589.81)	1086.01 (530.68)
Unusual Targets with no BC (3)	5: Adverb (yesterday)	1420.62 (1019.82)	1318.24 (716.09)
Unusual Targets with no BC (3)	6.Response (Usual/Unusual)	1315.08 (1093.92)	1304.12 (778.02)

6.6.3. Sentence type means: Learners with a satellite-framed L1

Overall, while both sentence type mean reaction times and error rates, appeared to improve for the target sentences from the pre-test to the IPT, the Wilcoxon rank tests did not reveal significant differences (Table 66).

Table 66 Overall mean reaction times and error rates by target sentence type for learners with a satellite-framed L1 Input group 2 and Output group at pre-test (PT) and immediate post-test (IPT)

Sentence Type (Number)	PT Mean RT (ms)	IPT Mean RT (ms)	PT Error rate (%)	IPT Error rate (%)
Usual Targets with BC (4)	9265.75 (4731.96)	5133.88 (1640.66)	30.56 (16.67)	11.11 (18.16)
Usual Targets with no BC (3)	8009.83 (3848.31)	7003.00 (2602.15)	14.78 (33.77)	3.67 (11.00)
Unusual Targets with BC (4)	8392.00 (3959.44)	4730.50 (1318.40)	36.11 (28.26)	11.11 (25.35)
Unusual Targets with no BC (3)	7889.33 (4912.98)	6410.00 (255.50)	48.11 (17.92)	14.78 (24.24)

6.6.4. Segment analysis: Learners with a satellite-framed L1

No significant differences were found for learners with a satellite-framed L1 from Input group 2 and the Output group in terms of segment mean RTs for *usual* target sentences at pre-test and IPT (Table 67).

Table 67 Segment mean reaction times by *usual* target sentence type learners with a satellite-framed L1 at pre-test (PT) and immediate post-test (IPT)

Sentence Type (Number)	Segment (example)	PT Mean RT (ms)	IPT Mean RT (ms)
Usual Targets with BC (4)	3: Preposition (into)	737.00 (450.89)	869.69 (390.07)
Usual Targets with BC (4)	4: End-point (the bank)	801.28 (622.44)	809.50 (330.64)
Usual Targets with BC (4)	5: Adverb (this morning)	1485.08 (1218.59)	980.69 (426.12)
Usual Targets with BC (4)	6:Response (Usual/Unusual)	1382.31 (844.68)	1096.25 (346.16)
Usual Targets with no BC (3)	3: Preposition (down)	710.44 (419.94)	958.63 (341.10)
Usual Targets with no BC (3)	4: Path (the stairs)	702.78 (431.42)	990.37 (422.12)
Usual Targets with no BC (3)	5: Adverb (yesterday)	880.30 (627.88)	1083.78 (401.57)
Usual Targets with no BC (3)	6:Response (Usual/Unusual)	982.33 (484.16)	1301.67 (656.71)

With regard to *unusual* targets for the same group, the tests revealed there was a significant increase in RT for segment 3 (Path preposition) between the pre-test (M=559.15) and the IPT (M=946.63; z = -2.31, p = .02) and for segment 5 between the pre-test (M=936.82) and the IPT (M=1518.11; z = -2.67, p = .01). RTs for all other segments also appeared to increase from the pre-test to the IPT. However, the differences were not found to be significant (Table 68).

Table 68 Segment mean reaction times by Unusual Target sentence type learners with a satellite-framed L1 at pre-test (PT) and immediate post-test (IPT)

Sentence Type (Number)	Segment (example)	PT Mean RT (ms)	IPT Mean RT (ms)
Unusual Targets with BC (4)	3: End-point (the room)	856.56 (463.23)	861.97 (245.13)
Unusual Targets with BC (4)	4: MannerAdv (running)	677.11 (363.02)	806.08 (315.84)
Unusual Targets with BC (4)	5: Adverb (yesterday)	908.44 (687.69)	777.25 (322.22)
Unusual Targets with BC (4)	6:Response (Usual/Unusual)	2017.33 (2020.77)	980.67 (345.22)
Unusual Targets with no BC (3)	3: Path Adv (down)	559.15 (177.57)	946.63 (335.54)
Unusual Targets with no BC (3)	4: MannerAdv (running)	674.15 (479.27)	1025.41 (449.85)
Unusual Targets with no BC (3)	5: Adverb (yesterday)	936.82 (846.71)	1518.11 (934.87)
Unusual Targets with no BC (3)	6:Response (Usual/Unusual)	1513.93 (1268.84)	1774.67 (2621.12)

6.6.5. Between language type comparisons: Input group 2 and Output group

Mann-Whitney U tests were conducted for the between language type comparisons for Input group 2 and Output group. Pre-test response times for postverbal segments are summarized in Table 69:

Table 69 Pre-test mean response times between language type comparisons for segments 3-6 Input group 2 and Output group

Sentence Type	Language Typology (N)	Segment 3: (Path preposition)	Segment 4: (End-Point)	Segment 5: (Adverb)	Segment 6: (Response)
Usual Targets with BC (4)	S-framed (9)	737.00 (450.89)	801.28 (622.44)	1485.08 (1218.59)	1382.31 (844.68)
	V-framed (31)	1068.36 (664.54)	1496.09 (957.23)	2912.71 (5796.31)	1313.92 (772.33)
		Segment 3: (Path prep)	**Segment 4: (ground)**	**Segment 5: (Adverb)**	**Segment 6: (Response)**
Usual Targets with no BC (3)	S-framed (9)	710.44 (419.94)	702.78 (431.42)	880.30 (627.88)	982.33 (484.16)
	V-framed (31)	873.22 (9447.63)	1010.29 (439.99)	1635.68 (1561.62)	1545.45 (1750.18)
		Segment 3: (end-point)	**Segment 4: (Manner)**	**Segment 5: (Adverb)**	**Segment 6: (Response)**
Unusual Targets with BC (4)	S-framed (9)	856.56 (463.23)	677.11 (363.02)	908.44 (687.69)	2017.33 (2020.77)
	V-framed (31)	1280.54 (822.82)	1157.05 (610.23)	1613.50 (1184.07)	1403.14 (925.98)
		Segment 3: (ground)	**Segment 4: (Manner)**	**Segment 5: (Adverb)**	**Segment 6: (Response)**
Unusual Targets with no BC (3)	S-framed (9)	559.15 (177.57)	674.15 (479.27)	936.82 (846.71)	1513.93 (1268.84)
	V-framed (31)	883.37 (437.88)	983.14 (589.81)	1420.62 (1019.82)	1315.08 (1093.92)

The tests revealed that pre-test response time means for *usual* targets with a boundary-crossing segment 4 (end-point) for the learners with a verb-framed L1 (M=1496.09) was significantly greater than that for learners with a satellite-framed L1 (M=801.28) (U=57.00, p=0.01). The tests also revealed that the difference between the pre-test response time means for *usual* targets with a boundary-crossing segment 3 (Path Preposition) for the learners with a verb-framed L1 (M=1068.36) and learners with a satellite-framed L1 (M=737.00) approached significance (U=80.00, p=0.06). For *usual* targets without a boundary-crossing the drop at segment 4 (Ground) for the learners with a verb-framed L1 (M=1010.29) and learners with a satellite-framed L1 (M=702.78) was statistically significant (U= 74.00, p= 0.03). This was also the case for segment 5 (Adverb) for the learners with a verb-framed L1 (M=1635.68) and learners with a satellite-framed L1 (M=880.30); (U=73.00, p=0.03).

For *unusual* targets with a boundary-crossing segment 4 (Manner) for the learners with a verb-framed L1 (M=1157.05) and learners with a satellite-framed L1 (M=677.11) the difference was statistically significant (U=57.00, p=0.01). The same was found for segment 5 where for the learners with a verb-framed L1 (M=1613.50) and learners with a satellite-framed L1 (M=908.44) the difference was statistically significant (U=70.00, p=0.02).

Regarding *unusual* targets without a boundary-crossing, the difference at segment 3 (Ground) for the learners with a verb-framed L1 (M=883.37) and learners with a satellite-framed L1 (M=559.15) was statistically significant (U=69.00, p=0.02). By contrast, at the IPT, the differences between the response time means described above were no longer significant. IPT response times for segments 3-6 are summarized in Table 70:

Table 70 IPT mean response times between language type comparisons for segments 3-6 Input group 2 and Output group

Sentence Type (Number)	Language Typology (N)	Segment 3: (Path preposition)	Segment 4: (End-Point)	Segment 5: (Adverb)	Segment 6: (Response)
Usual Targets with BC (4)	S-framed (9)	869.69 (390.07)	809.50 (330.64)	980.69 (426.12)	1096.25 (346.16)
	V-framed (31)	921.09 (374.62)	925.01 (356.09)	1066.76 (480.21)	1213.90 (681.29)
		Segment 3: (Path preposition)	**Segment 4: (Ground)**	**Segment 5: (Adverb)**	**Segment 6: (Response)**
Usual Targets with no BC (3)	S-framed (9)	958.63 (341.10)	990.37 (422.12)	1083.78 (401.57)	1301.67 (656.71)
	V-framed (31)	1030.58 (471.94)	1279.03 (701.21)	1274.38 (601.69)	1410.61 (838.93)
		Segment 3: (end-point)	**Segment 4: (Manner)**	**Segment 5: (Adverb)**	**Segment 6: (Response)**
Unusual Targets with BC (4)	S-framed (9)	861.97 (245.13)	806.08 (315.84)	777.25 (322.22)	980.67 (345.22)
	V-framed (31)	933.07 (337.04)	931.52 (398.36)	1024.98 (461.90)	1111.54 (534.08)
		Segment 3: (Ground)	**Segment 4: (Manner)**	**Segment 5: (Adverb)**	**Segment 6: (Response)**
Unusual Targets with no BC (3)	S-framed (9)	946.63 (335.54)	1025.41 (449.85)	1518.11 (934.87)	1774.67 (2621.12)
	V-framed (31)	893.86 (370.47)	1086.01 (530.68)	1318.24 (716.09)	1304.12 (778.02)

Summary of between language type comparisons for sentence and segment mean reaction times and error rates Input group 2 and Output group

Overall, the tests revealed that the learners with a verb-framed L1 appeared to improve in speed and accuracy in many of the variables with significant differences for RTs and error rates for both *usual* and *unusual* targets with a boundary-crossing. Furthermore, the segment analysis revealed a significant increase in speed for *usual* targets with a boundary-crossing from segment 4 (end-point) to segment 5 (adverb) and for nearly all sentence segments for *unusual* targets with a boundary-crossing. Conversely many of the differences found for learners with a satellite-framed L1 in terms of RTs and error rates were not found to be significant.

6.7. Treatment effects on V-framed participants: Input group 2 (8) and Output group (23)

This section focuses on the analyses which were conducted in order to draw out differences in the effects of the Input and Output treatments on the processing times and accuracy for the participants with a verb-framed L1. The decision to focus exclusively on participants with a verb-framed L1 in this section can be justified for two reasons. Firstly, it was predicted that there would be a more discernible effect of treatment on the participants from an L1 background that differed typologically to S-framed English. In addition, compared with participants from an S-framed L1, there was a greater availability of participants with a predominantly V-framed L1 in this particular data pool.

The analyses are divided into four parts:

- Mean overall sentence processing times and error rates within group comparisons (section 6.16-6.16.2);

- Mean overall sentence processing times and error rates between group comparisons (section 6.17);

- Mean response segment processing times and error rates within group comparisons (section 6.18);

- Mean response segment processing times and error rates between group comparisons (section 6.19);

At the beginning of each section, a summary of the comparisons and relevant predictions are provided.

6.7.1. Mean overall sentence processing times and error rates within group comparisons for verb-framed L1 participants

Wilcoxon matched pairs signed rank tests were conducted to determine whether there was a difference in the overall sentence processing times and error rates between the following variables at the pre-test and IPT:

***Grammatical* distractors v *ungrammatical* distractors**

(Prediction Pre-test: *grammatical* distractors < *ungrammatical* distractors)

(Prediction IPT: *grammatical* distractors < *ungrammatical* distractors)

Due to the likelihood that these ESL learners will have been exposed to positive, direct and indirect negative evidence regarding possible sentence permutations in past simple, it was predicted that the participants would be able to recognise grammatical sentences such as *The woman bought flowers this morning*, more readily than ungrammatical ones such as *The man was play his guitar today*, which the participants are unlikely to have come across previously or which they may misinterpret as either a passive form or past progressive (Appendix H2). As the participants did not receive specific feedback regarding their performance it was likely that these differences would be maintained at the IPT.

Usual **targets v** ***unusual*** **targets**

(Prediction Pre-test: *usual* targets > *unusual* targets)

(Prediction IPT: *usual* targets < *unusual* targets)

In spite of the likelihood of receiving some positive and indirect negative evidence of motion expressions, it was predicted that the effect of the participants' L1 would lead to a tendency at the pre-test to prefer non-canonical expressions, such as *The dog || entered|| the room|| running.* Post instruction, it was predicted that the participants would accept the S-framed structure (e.g. The dog ran into the house) more readily and begin to question the acceptability of the non-canonical expressions, which incorporated manner as a postverbal adjunct (Appendix H2).

Grammatical **distractors v** ***usual*** **targets**

(Prediction Pre-test: *grammatical* distractors < *usual* targets)

(Prediction IPT: *grammatical* distractors = *usual* targets)

It was also predicted that due to the likelihood of the learners having more frequent exposure to past simple sentences and the possibility of having encountered a variety of different kinds of evidence that they would accept grammatical sentences more readily than the S-framed motion expression at the pre-test. However, it was anticipated that post instruction, the participants would judge the S-framed structure as grammatically acceptable as the grammatical distractors.

ungrammatical distractors v *unusual* targets

(Prediction Pre-test: *ungrammatical* distractors > *unusual* targets)

(Prediction IPT: *ungrammatical* distractors < *unusual* targets)

Finally, while the participants were likely to judge non-canonical motion expressions at the pre-test acceptable and have some difficulties interpreting ungrammatical sentences, at the IPT, it was hypothesised that the effect of instruction could be to prompt learners to pause and reflect on the acceptability of the V-framed pattern. This could lead to a delay when choosing a response and possible variations in terms of accuracy.

6.7.2. Input group 2: Participants (8)

The tests failed to detect significant differences at either the pre-test or the IPT for *grammatical* v *ungrammatical* distractors, *usual* v *unusual* targets and *grammatical* distractors v *usual* targets. While significant differences were found at the pre-test in overall sentence processing times between *ungrammatical* distractors (M=6121.95) and *unusual* targets (M=6931.89 z = -1.4, $p < .01$) (Table 71), these differences were no longer significant at the IPT (Table 72).

Regarding error rates, at the pre-test significant differences were found for three out of four comparisons (Table 71), namely for *usual* targets (8.88) and *unusual* targets (46.38, z = -1.99, $p = 0.05$); *grammatical* distractors (23.75) and *usual* targets (8.88, z = -1.98, $p = 0.05$); *ungrammatical* distractors (2.88) and *unusual* targets (46.38, z = -2.03, $p = 0.04$). However, at the IPT, these differences were no longer found to be significant, as the Input group improved in accuracy across all variables (Table 72).

Table 71 Within Input group 2 (8) comparisons for overall sentence processing time and error rates at pre-test for verb-framed participants

Time		Input Group 2 (8)		
PT	Processing time	**Grammatical distractors** 6317.38 (3790.09)	**Ungrammatical distractors** 6121.95 (4592.52)	NS
	Error rate	**Grammatical distractors** 23.75 (20.80)	**Ungrammatical distractors** 22.88 (9.17)	NS
PT	Processing time	**Usual Targets** 9233.73 (11378.98)	**Unusual Targets** 6931.89 (4228.30)	NS
	Error rate	**Usual Targets** 8.88 (10.68)	**Unusual Targets** 46.38 (30.52)	**
PT	Processing time	**Grammatical distractors** 6317.38 (3790.09)	**Usual Targets** 9233.73 (11378.98)	NS
	Error rate	**Grammatical distractors** 23.75 (20.80)	**Usual Targets** 8.88 (10.68)	**
PT	Processing time	**Ungrammatical distractors** 6121.95 (4592.52)	**Unusual Targets** 6931.89 (4228.30)	**
	Error rate	**Ungrammatical distractors** 22.88 (9.17)	**Unusual Targets** 46.38 (30.52)	**

*= p <.05; ** p< .01

Table 72 Within Input group 2 comparisons for overall sentence processing time and error rates at IPT for verb-framed

Time		Input Group 2 (8)		
IPT	Processing time	**Grammatical distractors** 5920.67 (4304.27)	**Ungrammatical distractors** 4930.85 (1309.73)	NS
	Error rate	**Grammatical distractors** 10.50 (9.17)	**Ungrammatical distractors** 12.50 (17.49)	NS
IPT	Processing time	**Usual Targets** 4499.20 (755.63)	**Unusual Targets** 4768.98 (1104.43)	NS
	Error rate	**Usual Targets** 7.00 (7.48)	**Unusual Targets** 19.63 (30.60)	NS
IPT	Processing time	**Grammatical distractors** 5920.67 (4304.27)	**Usual Targets** (4499.20) (755.63)	NS
	Error rate	**Grammatical distractors** 10.50 (9.17)	**Usual Targets** 7.00 (7.48)	NS
IPT	Processing time	**Ungrammatical distractors** 4930.85 (1309.73)	**Unusual Targets** (4768.98) 1104.43	NS
	Error rate	**Ungrammatical distractors** 12.50 (17.49)	**Unusual Targets** 19.63 (30.60)	NS

6.7.3. Output group: Participants (23)

For the Output group, the tests revealed no significant differences in overall sentence processing times at the pre-test (Table 73). However, significant differences were found at the IPT for comparisons between *grammatical* distractors (6477.88) and *ungrammatical* distractors (6929.27, z = 1.95, p < .01); and for *ungrammatical* distractors (6929.27) and *unusual* targets (6380.65, z = -2.45, p < .01) (Table 74).

In terms of accuracy, results for the Output group showed that the differences found between variables at the pre-test (Table 73) persisted at the IPT (Table 74). Significant differences were found in the error rates for *usual* targets (9.26) and *unusual* targets (36.00, z = -3.01, p = 0.03); *grammatical* distractors (23.39) and *usual* targets (9.26, z = -2.95, p = 0.03); *ungrammatical* distractors (18.17) and *unusual* targets (36.00, z = -3.20, p = 0.01). These differences were maintained at the IPT for *usual* targets (6.09) and *unusual* targets (21.04, z = -3.12, p = 0.02); *grammatical* distractors (11.30) and *usual* targets (6.09, z = -2.22, p = 0.03); *ungrammatical* distractors (10.39) and *unusual* targets (21.04, z = -2.54, p = 0.01).

Table 73 Within Output Group (23) comparisons for overall sentence processing time and error rates at pre-test for verb-framed

Time		Output Group (23)		
PT	Processing time	Grammatical distractors 7168.19 (1984.61)	Ungrammatical distractors 7138.04 (2180.29)	NS
	Error rate	Grammatical distractors 23.39 (18.84)	Ungrammatical distractors 18.17 (14.63)	NS
PT	Processing time	Usual Targets 8224.39 (3528.90)	Unusual Targets 7723.59 (2412.38)	NS
	Error rate	Usual Targets 9.26 (16.41)	Unusual Targets 36.00 (29.87)	**
PT	Processing time	Grammatical distractors 7168.19 (1984.61)	Usual Targets 8224.39 (3528.90)	NS
	Error rate	Grammatical distractors 23.39 (18.84)	Usual Targets 9.26 (16.41)	**
PT	Processing time	Ungrammatical distractors 7138.04 (2180.29)	Unusual Targets 7723.59 (2412.38)	NS
	Error rate	Ungrammatical distractors 18.17 (14.63)	Unusual Targets 36.00 (29.87)	**

*= $p < .05$; ** $p < .01$

Table 74 Within Output Group (23) Comparisons for Overall Sentence processing and error rates at IPT for verb-framed

Time		Output Group (23)		
IPT	Processing time	Grammatical distractors 6477.88 (1999.74)	Ungrammatical distractors 6929.27 (1895.11)	**
	Error rate	Grammatical distractors 11.30 (11.01)	Ungrammatical distractors 10.39 (9.53)	NS
IPT	Processing time	Usual Targets 6844.24 (1978.23)	Unusual Targets 6380.65 (1621.64)	NS
	Error rate	Usual Targets 6.09 (7.10)	Unusual Targets 21.04 (25.19)	**
IPT	Processing time	Grammatical distractors 6477.88 (1999.74)	Usual Targets 6844.24 (1978.23)	NS
	Error rate	Grammatical distractors 11.30 (11.01)	Usual Targets 6.09 (7.10)	**
IPT	Processing time	Ungrammatical distractors 6929.27 (1895.11)	Unusual Targets 6380.65 (1621.64)	**
	Error rate	Ungrammatical distractors 10.39 (9.53)	Unusual Targets 21.04 (25.19)	**

*= p <.05; ** p< .01

Summary of within group comparisons for verb-framed L1 participants Input group 2 and Output group

Results for pre-test and IPT sentence processing times and error rates differed across the two groups. For Input group 2, the differences that were detected in overall sentence processing times between *ungrammatical* distractors and *unusual* targets at the pre-test, and those in the pre-test error rates in three out of four comparisons, were no longer significant at the IPT. By contrast, where no significant differences were found at the pre-test for the Output group, at the IPT, significant differences were found in two out of the four comparisons. Furthermore, the differences in error rates detected at the pre-test persisted at the IPT.

6.7.4. Mean overall sentence processing times and error rates between group comparisons: Input group 2 vs. Output group

Mann-Whitney U tests were conducted to determine whether there was a difference in the overall sentence processing times and error rates between the two groups. Overall it was predicted that there would be no significant difference between the groups at the pre-test. However, post instruction, there was a possibility that the input-based group would demonstrate an advantage when compared with the group which had engaged in output practice. This tentative assumption was based on the findings of some previous studies which showed an advantage in interpretation tasks for exclusively input-based instruction (e.g. VanPatten and Cadierno, 1993). Below is a summary of the pre-test and IPT comparisons and hypotheses:

Grammatical distractors

(Prediction pre-test : Input group 2 = Output group)

(Prediction IPT: Input group 2 < Output group)

Ungrammatical distractors

(Prediction pre-test: Input group 2 = Output group)

(Prediction IPT: Input group 2 < Output group)

Usual Targets

(Prediction pre-test : Input group 2 = Output group)

(Prediction IPT : Input group 2 < Output group)

Unusual Targets

(Prediction pre-test: Input group 2 = Output group)

(Prediction IPT: Input group 2 < Output group)

The Pre-test RTs and error rates provided a baseline for the grammaticality judgement tasks. Significant differences were found only for *ungrammatical* distractors which just reached significance, with the Output group taking longer to respond than the Input group, (U= 46.50, p= .04), (Table 75). However, no significant differences were found for error rates. Importantly, these results seemed to indicate that the groups were evenly matched in terms of familiarity with the target forms prior to instruction.

Table 75 Between group comparisons for overall sentence processing time at pre-test

Time	Input Group 2 (8)	Output Group (23)	
PT	**Grammatical distractors** 6317.38 (3790.09)	**Grammatical distractors** 7168.19 (1984.61)	**NS**
PT	**Ungrammatical distractors** 6121.95 (4592.52)	**Ungrammatical distractors** 7138.04 (2180.29)	*
PT	**Usual Targets** 9233.73 (11378.98)	**Usual Targets** 8224.39 (3528.90)	NS
PT	**Unusual Targets** 6931.89 (4228.30)	**Unusual Targets** 7723.59 (2412.38)	NS

*= p <.05; ** p< .01

Differences did begin to appear post instruction with the for verb-framed L1 participants in the Output group taking significantly longer to respond than the Input group on three out of four variables (Table 76). Significant differences were found for *ungrammatical* distractors (U= 38.00, p= 0.15); *usual* targets (U= 30.00, p= 0.005); and *unusual* targets (U=24.00, p= .002).

Table 76 Between group comparisons for overall sentence processing time at IPT

Time	Input Group 2 (8)	Output Group (23)	
IPT	**Grammatical distractors** 5920.67 (4304.27)	**Grammatical distractors** 6477.88 (1999.74)	NS
IPT	**Ungrammatical distractors** 4930.85 (1309.73)	**Ungrammatical distractors** 6929.27 (1895.11)	**
IPT	**Usual Targets** 4499.20 (755.63)	**Usual Targets** 6844.24 (1978.23)	**
IPT	**Unusual Targets** 4768.98 (1104.43)	**Unusual Targets** 6380.65 (1621.64)	**

*= p <.05; ** p< .01

Summary of between group comparisons for overall sentence processing time and mean error rates for verb-framed L1 participants

Overall, results for mean error rates revealed no significant differences at either the pre-test or the IPT when comparing the treatment effect on the participants from a verb-framed L1 across the two groups. Regarding mean overall sentence processing times, there were no significant differences at the pre-test except in the case of *ungrammatical* distractors, where participants in the Output group took longer to respond overall. At the IPT, the participants with a verb-framed L1 from Input group 2 responded more quickly to ungrammatical distractors, *usual* and *unusual* targets while showing no significant variation in accuracy counts.

6.7.5. Within group comparisons for response segment processing times

The Wilcoxon tests of the within group results for the response segment RTs showed no significant differences for Input group 2 at the pre-test and IPT, which would seem to indicate a relatively consistent length of time required to make a final decision regarding the acceptability of the forms. By contrast, while no significant differences were found for the Output group regarding the response segment at the pre-test, significant differences were found at the IPT between *grammatical* (1087.00) and *ungrammatical* distractors (1279.15, $z = -3.01$, $p = 0.003$) and *grammatical* distractors (1087.00) and *usual* targets (1425.27, $z = -3.25$, $p = 0.001$), (Table 77). While participants from the Output group were faster to respond at the IPT when compared with the pre-test, the results suggest some hesitation remained when it came to making a final decision as regards the acceptability of some structures.

Table 77 Within Output group Comparisons for Response segment processing at IPT

Time	Output Group (23)		
IPT	**Grammatical distractors** 1087.00 (448.39)	**Ungrammatical distractors** 1279.15 (535.29)	**
IPT	**Usual Targets** 1425.27 (684.04)	**Unusual Targets** 1274.60 (542.81)	NS
IPT	**Grammatical distractors** 1087.00 (448.39)	**Usual Targets** 1425.27 (684.04)	**
IPT	**Ungrammatical distractors** 1279.15 (535.29)	**Unusual Targets** 1274.60 (542.81)	NS

*= p <.05; ** p< .01

6.7.6. Mean response segment times between group comparisons

While the within group comparisons showed some variation for the Output group at the IPT, Mann-Whitney U tests did not reveal significant differences between the groups at either the pre-test or the IPT.

Summary of Mean response segment times between group comparisons for verb-framed Input group 2 and Output group

Within group comparisons showed no significant differences for the Input group at pre-test and IPT. However, for the Output group, although no significant differences were found in the mean response segment times at the pre-test, differences at the IPT reached significance in two out of four comparisons. Despite these within group variations, between group comparisons did not reveal significant differences across the groups at either the pre-test or the IPT for mean response segment times.

Summary of treatment effects on verb-framed participants: Input group 2 (8) and Output group (23)

In terms of overall mean sentence processing times, participants with a verb-framed L1 in Input group 2 made significantly fewer errors at the pre-test when judging the acceptability of *usual* target forms than either *unusual* targets or grammatical distractors. These participants were also more accurate and responded more quickly when judging *ungrammatical* distractors than when judging *unusual* targets. These differences faded at the IPT with improvements in speed and accuracy across all variables.

Similarly, the participants with a verb-framed L1 in the Output group were more accurate at the pre-test when recognising *usual* target forms compared against error rates for *unusual* targets and *grammatical* distractors. While they were also more accurate when judging *ungrammatical* distractors than when judging *unusual* targets, responses were not significantly faster. At the IPT, participants in the Output group were again more accurate when judging *usual* target forms than either *unusual* targets or *grammatical* distractors.

Comparing across the two groups, there were no significant differences in error rates when comparing pre-test and IPT scores. However, at the IPT, the participants with a verb-framed L1 from Input group 2 were faster at recognising both *usual* and *unusual* targets. Regarding response segment processing times there were no significant differences for the Input group when comparing across variables at the pre-test and IPT. However, the Output group responded more slowly at the IPT for *usual* targets than for the other variables.

7 Discussion

7.1. Introduction

The present study set out to investigate the effectiveness of two different teaching interventions, using an input-based treatment and an input + output based treatment. This was done with the aim of investigating the extent to which the two approaches could be effective in helping L2 learners of English acquire the Manner + Path satellite-framed combination typical in the expression of L1 English motion events. The study draws on Talmy's theories of typological differences across languages (Talmy, 1985, 1991, 2000) and Slobin's psycholinguistic perspective on how entrenched linguistic patterns may affect the way in which features of a motion event may become more or less salient at the moment of speaking, (Slobin, 1987, 1996, 2004, 2005, 2006). Prior to the study, it was found that, a gap exists in the academic literature regarding how teachers and learners may approach motion in the ESL classroom despite a substantial body of research describing the difficulties for learners in this domain. This study is the first of its kind to take up this particular gauntlet and attempt to tackle the problem through specially designed instructional materials. Additionally, this is the first study to attempt to apply principles and guidelines from Processing Instruction (VanPatten and Cadierno, 1993) to L2 motion, thereby extending the scope of this particular approach. The prediction was that learners from the Output group would outperform Input only learners in the use of the target forms but not the interpretation. Moreover, it was hypothesised that the learners who received an input-based treatment would demonstrate shorter RTs for *usual* and *unusual* targets at the IPT. Also of interest was the potential effect of the students' first language on their use and interpretation of the target structures. It was speculated that the Learners from predominantly V-framed L1 backgrounds would show larger increases in types and tokens of the target forms than their S-framed counterparts. In addition, it was anticipated that the learners from a predominantly S-framed L1 would demonstrate shorter RTs and lower error rates at both pre-test and IPT in the SPRTs. It was further hypothesised that the learners from a predominantly V-framed L1 background would demonstrate shorter RTs for postverbal segments 3 to 6 for *unusual* targets with/without a boundary-crossing, due to similarities with the L1.

The discussion of these results is divided into six sub-sections as follows:

1) Summary of the relative effectiveness of the interventions on production by treatment group;

2) Summary of the relative effectiveness of the interventions on interpretation by treatment group;

3) The link between the results of the findings by treatment group to previous studies

4) Summary of the relative effectiveness of the interventions on production by language type;

5) Summary of the relative effectiveness of the interventions on interpretation by language type;

6) The link between the results of the findings by language type to previous studies.

7.2. Discussion of the findings by treatment group

7.2.1. Summary of the relative effectiveness of the interventions on production by treatment group

Research question 1 asked what the effect of the interventions would be on the students' use of motion verbs. It was assumed that learners who had had an opportunity to produce the form would outperform those in the Input only group. Overall, the results showed positive effects for both treatments with the two groups producing more Manner + Path combinations and fewer Manner or Path only expressions at the post-tests, indicating a preference for the satellite-framed target structure for Manner + Path combinations both with and without a boundary-crossing. However, while the Output group started by producing a higher number of Manner verb tokens at the pre-test, the Input group produced a significantly higher number of Manner verbs at the DPT, two weeks post treatment.

The main focus of the study was on the combination of Manner and Path expressions with a boundary-crossing, which was chosen for the apparent difficulties L2 learners experience with this feature due to an underlying effect from a typologically distinct L1 (e.g. Treffers-Daller & Tidball, 2015). For this target structure, the findings showed that the Input group outperformed the Output group with a significantly higher number produced at the DPT. These results were also reflected in the analysis of lexical density, which revealed an almost three-fold increase for the Input group. While no significant difference was found between the groups for Manner and Path Expressions without a boundary-crossing, the Input group appeared to score higher than the Output group on both post-tests. For both groups, the increase in the number of Manner and Path combinations was accompanied by a significant fall in the number of Manner only descriptions, which appears to confirm the effectiveness of the treatment in encouraging the learners to combine both Manner and Path.

The analysis of the Path component revealed a slightly greater effect of treatment for the Input group represented by a lower number of Path verb tokens used at the IPT and the DPT despite producing a higher number at the pre-test. Furthermore, these gains were maintained for up to two weeks after treatment albeit with a slight fall between the IPT and DPT for both groups.

7.2.2. Summary of the relative effectiveness of the interventions on interpretation by treatment group

Research question 2 asked what the effect of the intervention on students' interpretation of motion verbs would be. It was speculated that reading times would decrease for both *usual* and *unusual* target items between the pre-test and the IPT, which proved to be true.

An advantage for the group that received the input-based treatment was also predicted as demonstrated by shorter reading times for *usual* and *unusual* targets at the IPT. This was also found to be true, with the Input group producing consistently shorter reading times across all sentence types when compared with the Output group.

In terms of accuracy, error rates fell for both *usual* and *unusual* targets as well as for *grammatical* and *ungrammatical* distractors. However, in some cases the differences were not found to be significant, which may be related to the number of participants and the high levels of variance in the scores. Overall, the results would seem to indicate positive effects for both treatments in terms of gains in speed and accuracy, with a slight advantage for the Input group. However, it is difficult to separate the overall improvement in speed and accuracy that resulted from the repetition of the SPR task and the gains in effectiveness that are due to the intervention itself.

In sum, the results would seem to provide evidence of a positive effect of treatment as revealed in shorter response times and lower error rates for both treatment groups. However, while pre-test differences began to fade post treatment, in line with predictions, the Input group continued to respond more quickly across all sentence types when compared with the Output group.

7.2.3. The link between the findings by treatment group to previous studies

The design of the instructional packages was informed by PI principles and guidelines. Both treatment groups received Explicit Instruction (EI) in the form of a brief explanation about the satellite-framed Path form and the conflation of the Manner component, after which learners were made aware of potential problems with processing strategies. This was done bearing in mind potential cross-linguistic influence (Jarvis & Pavlenko, 2010) or what VanPatten has called the L1 transfer Principle (VanPatten, 2004, p. 330). The EI phase was followed by Structured Input (SI) activities, which were designed to help learners from a wide variety of L2's to make the appropriate form-meaning connections (VanPatten, 2004). The SI activities followed PI guidelines (Lee & VanPatten, 2003, p. 168) by presenting one thing at a time with a focus on the satellite-framed Path structure through a contrasting pair (into/out of) before moving on to the conflation of Manner on the main verb. The activities were specifically designed in order to keep the meaning of the target form in focus. The packages began with sentence level exercises and moved onto connected discourse in the shape of reading comprehension designed to make the learners search for information on both the verb and the satellite.

The relatively high number of Path only verbs used at the pre-test compared with the number of Manner + Path combinations in the post-tests would seem to be in line with the L1 transfer hypothesis as the learners moved away from their default form of expression towards the S-framed structure. These differences between the pre- and post-test scores would seem to lend support to VanPatten's suggestion that for acquisition to take place comprehension alone may not suffice and that the SI activities had possibly made the learners go beyond comprehension to an internalisation of the target form. As discussed previously (section 2.15), despite the relatively high frequency of the target form in English, learners from a verb-framed background did not tend to adopt the satellite-framed structure prior to instruction as in example (42),

(42) The robot entered the wardrobe

(Participant 1, RBS1)

Regarding the interpretation tasks, it would seem that the instructional packages were successful in enhancing the saliency of the target structure (Treffers-Daller & Tidball, 2015). In terms of Tomlin and Villa's model of attention discussed in chapter 2, this greater prominence may be related to an increase in alertness as regards the information the learners should be attending to and where to find it in the surface forms (Tomlin & Villa, 1994). With this enhanced alertness, learners proved to be more successful at orienting attentional resources towards the target form while ignoring other competing sources of information. This in turn seems to have led to an increase in the speed of detection as suggested by faster processing speed and greater accuracy in the SPRTs.

However, there are doubts regarding the kind of knowledge the interventions produced. In the explicit instruction phase the learners' attention was drawn to the cross-linguistic differences in the lexicalization of motion and given examples of the favoured form of expression in English. This potentially allowed learners to grasp some level of metalinguistic appreciation of the target forms. This more explicit learning was complemented by the SI activities, which were aimed at guiding learners towards a more implicit understanding. As suggested by (VanPatten, 2002, p. 792), the inclusion of RT measures and error rates proffered some insight into the effects of instruction. The shorter RTs in many of the variables would seem to be an indication of faster processing of motion constructions. In terms of Anderson's framework of automaticity (1993), it is not clear whether the improvement in the learners' performance could be categorised as stemming from declarative or procedural knowledge. It is likely that DeKeyser and Sokalski's (1996) comments regarding the findings of VanPatten and Cadierno's (1993) studies could also apply to the results of the current study. Due to the relatively short length of the instructional period, the kind of knowledge that the learners may have been accessing at the post-tests could be more characteristic of declarative knowledge than of procedural knowledge. It could also be argued that the participants' increased automaticity with the target structure could simply be the result of input flooding.

Whatever the case, there did not seem to be evidence of skill specificity in terms of production of the target form (DeKeyser, 1997) in that there was no significant advantage for the learners who had practised producing the form. Furthermore, contrary to the findings reported in Shintani et al, (2013) in this particular study, comprehension-based activities appeared to be more effective in enhancing interpretation and for promoting productive knowledge than the production-based activities. This apparent advantage could be interpreted as supporting to some extent VanPatten's view that it is important that input has time to become intake for it to feed into the learner's developing linguistic system prior to moving on to output practice. Indeed, the inclusion of production tasks during the SI phase for the Output group and the subsequent backsliding at the DPT may mean that these participants have been pushed prematurely into production before allowing input to become intake. From the input processing perspective, the SI activities may have led to greater intake of the Manner and Path combinations for the Input group, which in turn may have prompted these learners to make the necessary adjustments in their expression of motion. This advantage for the Input group would seem to provide support for VanPatten and Cadierno's observation that by focusing on enhancing how input is processed can lead to greater availability for production (VanPatten & Cadierno, 1993). According to the IP model, learner output cannot affect the developing system in the same way but can increase fluency of access to these forms once FMC's have been established. Moreover, the need to balance the number of types and tokens across the treatment groups meant that the Output group did in fact end up performing fewer SI activities than the Input group. As shown in Tables 13-16 (Section 4.5), the final stage of the four lessons for the Output group involved production tasks instead of the comprehension-based exercises performed by the Input group. It could be argued that, in some of these production tasks, learner output then became input for fellow learners, however this kind of input did not require the listener to focus on form to extract meaning. It is also important to point out that the three written elicitation tasks count as forms of output practice and did not seem to have a negative effect on the learning of the target form for the input-based group. In light of the factors outlined above, it is difficult to attribute differences in outcomes to the addition of an output component, however the findings, as in VanPatten and Oikennon (1996), do seem to indicate the important role of SI (section 2.14), in that the participants who performed more SI activities showed greater and sustained improvement in overall performance.

7.3. Discussion of the findings by language type

7.3.1. Summary of the relative effectiveness of the interventions on production by language type

Research question 3 asked what the effect of the students' first language would be on the students' use of motion verbs. It was speculated that learners with a predominantly verb-framed L1 would show larger increases in types and tokens of the target forms than their satellite-framed counterparts after the intervention. This assumption was confirmed by the fact that despite an initial advantage for learners from a predominantly S-framed L1 at pre-test, the post-instruction scores converged across all Manner components for both language type groups. The subsequent slight decrease in the scores for the Manner component was similar for both language types and did not reveal a significant difference between the participants. In addition, while the learners with a satellite-framed L1 tended to use a wider variety of Path verbs and Path satellites, the difference was not significant. Overall, instruction had a positive effect on both language types with all learners producing a higher number of Manner + Path combinations as the study progressed.

7.3.2. Summary of the relative effectiveness of the interventions on interpretation by language type

Research question 4 asked what the effect of language type would be on the students' interpretation of motion verbs. It was predicted that learners with an S-framed L1 would be faster and more accurate at both pre-test and IPT for *usual* targets with and without a boundary-crossing due to similarities with their L1. For the first self-paced reading task (SPRT-Adverb), statistical tests could not be performed on the data for the participants from a predominantly S-framed background due to their low number. However, the two S-framed participants in this first group did show improvements from the pre-test to the IPT in response times and accuracy for both *usual* and *unusual* target variables. For learners with an S-framed L1 from the subsequent groups who performed SPRT + Adverb, there were no discernible differences across variables or data points in terms of processing times or error rates.

For participants with predominantly V-framed L1s, it was hypothesised that there would be a decrease in the reading time for *usual* targets and an increase in the time it took to read *unusual* target items. This prediction was based on potential L1 transfer effects and the possibility that these (V-framed) participants would respond more quickly at the pre-test to a structure that mirrored their own language. It was further predicted that after instruction, these participants would begin to have doubts regarding the acceptability of the unusual target structure. Unfortunately, while mean processing times fell for both sentence types, the tests failed to detect any significant differences between these variables.

It was also predicted that response times for *ungrammatical* distractors were expected to be longer at the pre-test than *unusual* targets with a subsequent reversal expected at the IPT, once the participants had begun to question the acceptability of the *unusual* target form. However, while reading times for *unusual* targets fell overall, participants with a predominantly S-framed L1 took longer to read *ungrammatical* distractors at the IPT.

In terms of overall error rates, participants with a V-framed L1 in both Input group 2 and the Output group were least accurate at the pre-test when judging the acceptability of *unusual* target forms when compared with the other variables. These differences faded at the IPT with improvements in speed and accuracy across all variables.

Comparing across the two groups, there were no significant differences in error rates for pre-test and IPT scores. However, at the IPT, the participants with a V-framed L1 from Input group 2 were faster at recognising both *usual* and *unusual* targets. Regarding response segment processing times there were no significant differences for the Input group when comparing across variables at the pre-test and IPT. However, the Output group responded more slowly at the IPT for *usual* targets than for the other variables.

Overall, compared with the written narrative tasks, it proved more difficult to discern language effects in the SPRTs. From one viewpoint, it could be argued that the difficulty for participants with a V-framed L1 in both Input group 2 and the Output group when judging the acceptability of *unusual* target forms at the pre-test may be indicative of an underlying transfer effect, particularly as these difficulties were no longer present post instruction. However, possibly due to the relatively low number of participants involved in the study, it is difficult to confirm evidence of L1 language transfer.

7.3.3. The link between the findings by language type to previous studies

As discussed above the results of the SPRTs did not reveal significant differences for language types. However, the pre-test narratives (RBS1) showed that the learners with a satellite-framed L1 used more manner-of-motion verbs than their counterparts with predominantly verb-framed L1s. This suggests a possible connection between the way in which the learners construed the events in the picture story which followed their default settings at the level of the *Conceptualizer* (Levelt, 1989) before mapping these conceptualization patterns onto L2 surface forms (Daller et al., 2011). The patterns observed in the RBS1 narratives echo Slobin's Thinking-for-Speaking (or writing) Hypothesis with type/token ratios hinting at the effect of some kind of filter on the verbalisation of the events of the story (Slobin, 1996). Indeed, the RBS1 narratives suggest the presence of conceptualization transfer with the deployment of L1 concepts in the learners' L2 expression (Jarvis, 2007). The detection of this cross-linguistic influence was facilitated by the conditions of the study, which took into account the three guidelines outlined in Jarvis and Pavlenko, (2008) i.e. intragroup homogeneity between the learners with a verb-framed L1; intergroup heterogeneity with clear differences at the pre-test between this group of learners and the learners with a satellite-framed L1; cross-linguistic performance congruity with many verb-framed patterns observable in the narrative descriptions at the pre-test, which were no longer present at the post-tests. This cross-linguistic influence present at the pre-test in the written narratives was very much in keeping with the findings of previous studies of intermediate to advanced language learners (e.g. Slabakova, 2000; Cadierno, 2004; Treffers-Daller & Tidball, 2015) all of which found an apparent correlation between language level and what appeared to be L1 transfer. However, evidence of the language effect faded as the study progressed with the narratives written by the learners with a verb-framed L1 becoming indistinguishable from those written by the learners with a satellite- framed L1. The similarities in the scores for the Manner components during the post-tests would seem to suggest that instruction had at least a temporary positive impact on the salience of the target forms irrespective of language typology. This can be seen particularly in the V-framed learners' increased sensitivity to differences in how actions were performed (e.g. run, walk, fly, and jump). Furthermore, the intervention appears to have been particularly successful in helping the participants with a predominantly verb-framed L1 to overcome the challenges inherent in mastering the expression of a crossing of a boundary. On the one hand, it could be argued that whatever gains were made are due to the frequency of the form with around 300 examples available to the learners in a relatively short space of time. However, these could also be attributed to the combination of different types of evidence present in the input. While the instructional materials proffered a great deal of positive and indirect negative evidence of the target form, direct negative evidence was also available at the initial EI stage. As has been the case in previous PI research, the design of the study does not allow for the separation of these variables. Nevertheless, research into the acquisition of the boundary-crossing constraint has suggested that the role of frequency may be limited and that directing of attention to typological differences through different kinds of evidence may be key (Treffers-Daller & Tidball, 2015).

While the length of the study does not allow firm conclusions to be drawn on this point, there was certainly an increase in sensitivity to manner of motion and an apparent switching of focus away from Path only expressions for the learners with a mainly verb-framed L1. This would seem to suggest that progress can be made if the instructional approach takes into account the potential cognitive challenges for these learners due to L1 transfer.

7.4. Recommendations for approaching motion in the ESL classroom

The main aim of the study was to investigate a relatively neglected area in language teaching with the purpose of providing guidance for instructors wishing to approach the motion domain in the ESL classroom. In light of the findings and issues discussed above the following tentative recommendations are made (see Figure 20 for summary).

Firstly, it is recommended that instructors approach the expression of motion by focusing on a single contrasting pair to avoid overloading learners with extraneous cognitive demands (e.g. into/out of; up/down; across/through). When a particular pair has been chosen, instruction should proceed in three stages. The first stage of instruction should spotlight the expression of Path, making learners aware of the satellite-framed structure and possible differences in the way that motion is expressed in English compared with other languages. As part of this stage, learners should perform activities with an emphasis on the S-framed Path structure alone without the co-event of Manner. Once this has been done, the conflation of the Manner component can be broached. At this stage, a directional verb such as *go* could be contrasted with a reduced number of manner-of-motion verbs already present in the learners' repertoire, such as *run* or *walk,* in order to avoid increasing the cognitive load of the activities. In a final phase, a wider range of Manner + Path combinations may be introduced.

In terms of the content of the instructional materials, insight gained from the study would seem to suggest that input-based instruction, which moved from sentence level activities to connected discourse may be beneficial. However, it was also observed that the addition of an output component did not detract substantially from the learners' ability to master the form. In fact, the potential of one learner's output becoming input for another in the classroom setting in addition to the advantage of exercising retrieval and repetition of the target structure would seem to indicate that structured output activities may be beneficial in the classroom context. Above all, it is recommended that the instructional approach take into account the likelihood of cross-linguistic influence and recognise the dynamic relationship between the learners' default motion event construal, the L1 form of expression and subsequent L2 construal and expression (Figure 20). Indeed, it is possible that, due to the possibility of bidirectional transfer (Jarvis & Pavlenko, 2008), the increased salience of the L2 Manner component and subsequent usage may have an impact upon the learners' L1 expression and construal.

Overall, it would appear that by increasing the transparency of the satellite-framed structure and providing graded instruction, learners may be able to interpret and produce a variety of Manner + Path combinations despite the cognitive difficulties that this particular structure implies.

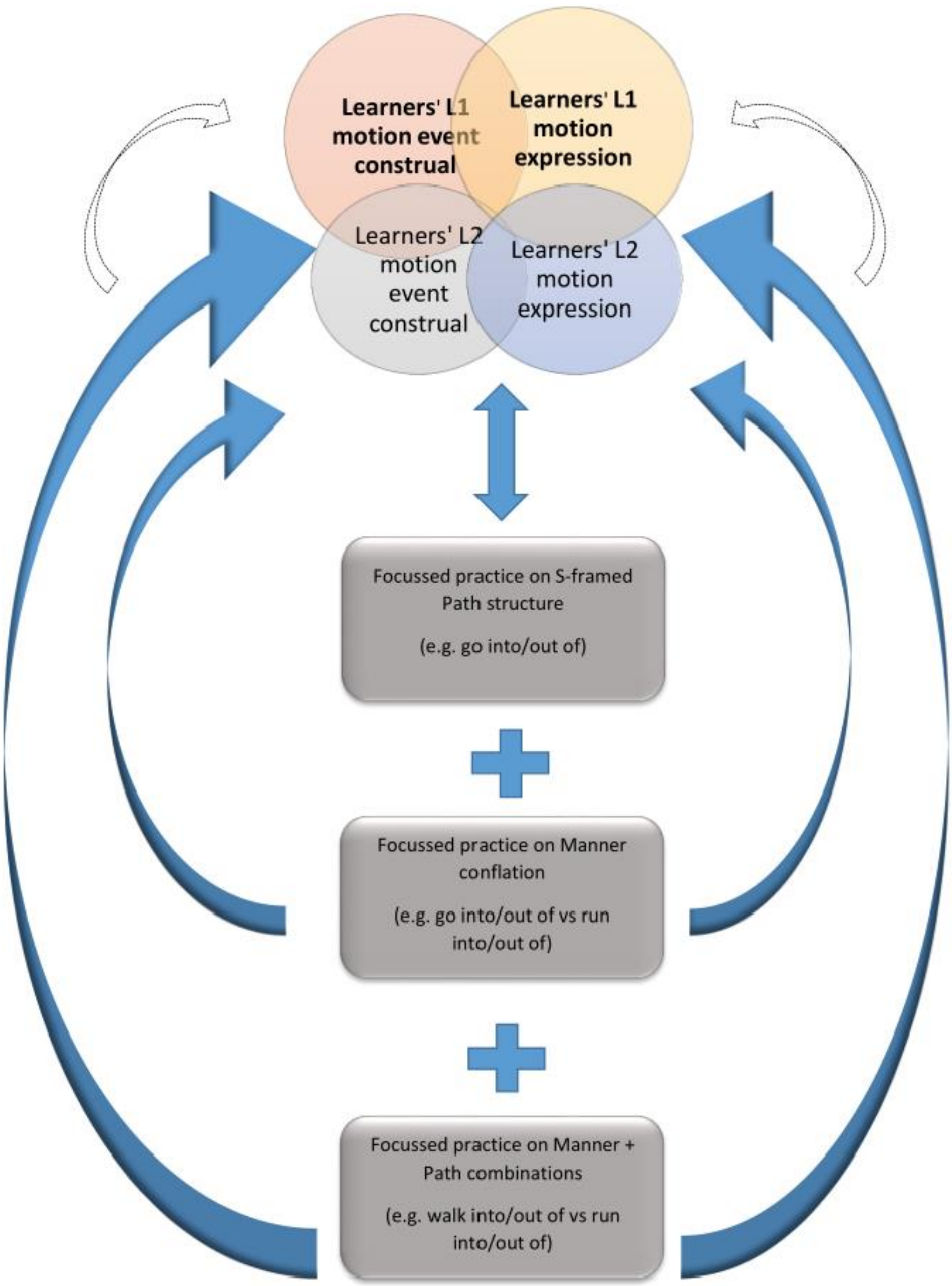


Figure 20 Approaching Motion in the ESL classroom

8 Conclusion

Summary of the current study

This thesis presented a classroom-based, quasi-experimental study involving 59 learners of English from a variety of L1 backgrounds in a private language school in the UK. The study set out to compare the effects of two different types of instruction, one input-based and the other input-based with an additional output component. Particularly the study focused on the acquisition of L2 English motion events with a focus on boundary-crossing events. The design of the instructional packages was informed by the framework of Processing Instruction (PI) and included explicit instruction, referential activities and affective activities, moving from sentence level to connected discourse. The participants were quasi-randomly assigned to two instructional groups (an Input group and an Output group). No control group was used on the basis that a substantial body of research already attests to the kinds of challenges for L2 learners in the motion domain. Furthermore, it was felt that testing students who have not had any training in this domain would be unethical. The instructional treatment lasted three hours and was spread over four consecutive days. The effectiveness of the instruction was measured by a production task which took place twice after the completion of the intervention (once immediately after and once two weeks later) and an interpretation task which took place immediately after instruction. Two types of measure were designed to assess learning: a self-paced reading task, which included a judgement of acceptability test and a picture-based written narration test.

Justification and originality of the current study

The originality of the study lies in its departure from previous studies of motion events in SLA, which have aimed to highlight language effects and document language level related challenges for learners across different language types. By contrast, this is the first study which attempts to develop a practical approach which could be used in the ESL classroom.

Furthermore, this is the first study to attempt to apply PI guidelines to the design of instructional materials which target motion verbs.

Summary of Findings

The findings are briefly summarised here in light of the Research Questions

(RQs 1-4) and Hypotheses (H) which appear in section 2.19.

(RQ1) What is the effect of the intervention on students' use of motion verbs?

H0: the intervention will not have an effect on the frequency and/or accuracy with which learners produce the target forms.

This was not the case with significant gains for both groups.

H1: Learners from the Output group will outperform Input only learners in the use of the target forms.

There was no significant difference between the groups.

(RQ2) What is the effect of the intervention on students' interpretation of motion verbs?

H0: Reading times will not differ between pre-test and IPT for *usual* or *unusual* target items, or for *grammatical* or *ungrammatical* distractors.

The null hypothesis was rejected on the basis that learners from both treatment groups made overall improvements in both speed and accuracy.

H1: reading times will decrease for *usual* target items between the pre-test and the IPT.

H2: reading times will increase for *unusual* target items between the pre-test and the IPT.

Evidence to support this hypothesis was found, however reading times for *unusual* targets also fell.

H3: participants will be equally fast at reading *usual* targets and *grammatical* distractors.

Evidence to support this hypothesis was also found

H4: participants will be equally fast at reading *ungrammatical* distractors and at reading *unusual* targets

Evidence to support this hypothesis was found.

H5: the group that received the input-based treatment will demonstrate shorter RTs for *usual* and *unusual* targets at the IPT.

No significant difference was found.

(RQ3): What is the effect of the students' first language on their use of motion verbs?

H0: There will be no difference between students from different language backgrounds.

H1: Learners from predominantly V-framed L1 backgrounds will show larger increases in types and tokens of the target forms than their S-framed counterparts after the intervention.

Evidence to support this hypothesis was found with the learners from a V-framed L1 achieving similar scores to learners with an S-framed L1 despite their initial advantage at the pre-test.

(RQ4): What is the effect of students' first language on their interpretation of motion verbs?

H0: There will be no difference between students from different language backgrounds.

No evidence was found for language effects post instruction.

H1: significant differences will be found across language types. It is predicted that learners from an S-framed L1 will demonstrate shorter RTs and lower error rates at both pre-test and IPT for *usual* targets both with and without a boundary-crossing due to similarities with the L1 structure.

No evidence was found to confirm this.

H2: learners with predominantly V-framed L1s will demonstrate longer RTs for postverbal segments for *usual* targets both with and without a boundary-crossing due to the learners' expectations which are likely to be carried over from the L1 structure.

This was the case in only the pre-test results.

H3: learners with predominantly V-framed L1s will demonstrate shorter RTs for postverbal segments for *unusual* targets with/without a boundary-crossing, due to similarities with the participants L1's.

While a difference was found at the pre-test in the reading times for *usual* targets in favour of the learners with an S -framed L1, this was not the case post instruction where no significant differences were found across language types.

The contribution of the current study

The study contributes to English language teaching and the discussion regarding the role of input and output in the classroom. Indeed the findings of the study would seem to suggest a primacy for focused input activities, which appeared to have a positive effect on language learning either with or without output activities. However, the most significant contribution regards the approach to motion events in instructed SLA. The study has shown that despite the challenges for both teachers and learners in the L2 motion domain, headway can be made with instruction that recognises the possible underlying cross-linguistic influence and that gives learners activities structured in a way that guides them away from their default forms of expression. As a result of the insight gained, practical recommendations have been made which could serve as a guide to instructors wishing to assist learners in the interpretation and production of motion in L2 English.

Limitations of the current study and implications for future research

The limitations of the study relating to the research design and achievement assessments are discussed below.

Research design

The first limitation related to the design of the study regards duration of the intervention, which at about 180 minutes was relatively short and did not allow for revising, revisiting or recycling. Future studies could extend the interventional period to allow for opportunities for this to take place. Furthermore, the overall sample size was rather small, with only 59 participants in total. This made comparisons for the first group of participants particularly difficult and Mann Whitney tests could not be performed due to the low number of participants in one of the sub-conditions.

Achievement assessments

Regarding learning assessments, additional follow-up tests could be conducted to assess whether instruction had been effective in changing the way in which the participants perceived a motion event and if the relative saliency of Manner had a lasting effect. There is little doubt that instruction had a positive effect on acquisition. However, evidence of how the instructional packages interacted with differences between the language groups proved more elusive. The jury is still out regarding the kind of knowledge the learners were using in the tests. Moreover, the generalisability of the study may be limited due to the somewhat inconclusive findings of the assessment tests.

For future studies, several avenues could be explored. For example, the use of think-aloud protocols could provide greater insight into the kind of mental processes taking place during particular tasks. In addition, it has been suggested that to draw out the finer distinctions between whether during the tests learners were accessing implicit or explicit knowledge, a Likert scale could be used to assess levels of certainty in the acceptability judgement tasks instead of using the binary option of acceptable /unacceptable (Sorace, 1996).

Perhaps, further insights could be gleaned from ERP and fMRI techniques, which may be able to show the extent to which the learners from typologically distinct L1s process Path and Manner in L2 English motion expressions. In a recent study of explicit and implicit L2 language instruction, per-Short and her colleagues were able to discern fine differences between experimental groups by using ERP data, which accuracy measures had failed to show up, (Morgan-Short, et al., 2012).

A further potentially fruitful line of investigation could be to use eye-tracking data. Unlike the SPRTs used in the current study, eye-tracking studies offer the researcher the advantage of collecting data at natural reading speed (e.g. Rayner, 2009). Furthermore, the potential to trace participants' saccadic movements across fixation points could perhaps reveal distinct patterns in the direction of eye movements when a participant from a particular L1 background is viewing a motion event or providing a description of a particular event (e.g. Flecken, 2011). Of particular interest could be measurements of perceptual span in terms of the amount of information extracted at each reading and whether learners with a verb-framed L1 *skip* motion components or employ *regressions* (Rayner, 2009) more frequently than learners from a satellite-framed L1 or native speakers (for further discussion of *skipping* see Frenck-Mestre, 2005).

Summary

Chapter 8 summarized the main findings of the current study. This included a review of the research questions and the conclusions drawn from the study. The limitations of the study were also discussed and possible lines of enquiry for future research using the latest developments in SLA research were considered. The study has its limitations and the findings regarding the effectiveness of the approaches outlined above should be treated tentatively. Nevertheless, it is clear that the expression of L2 motion is complex, representing a substantial challenge even for relatively proficient learners. It is, therefore, worthy of special treatment on the ESL syllabus and deserving of far greater attention in future ESL publications.

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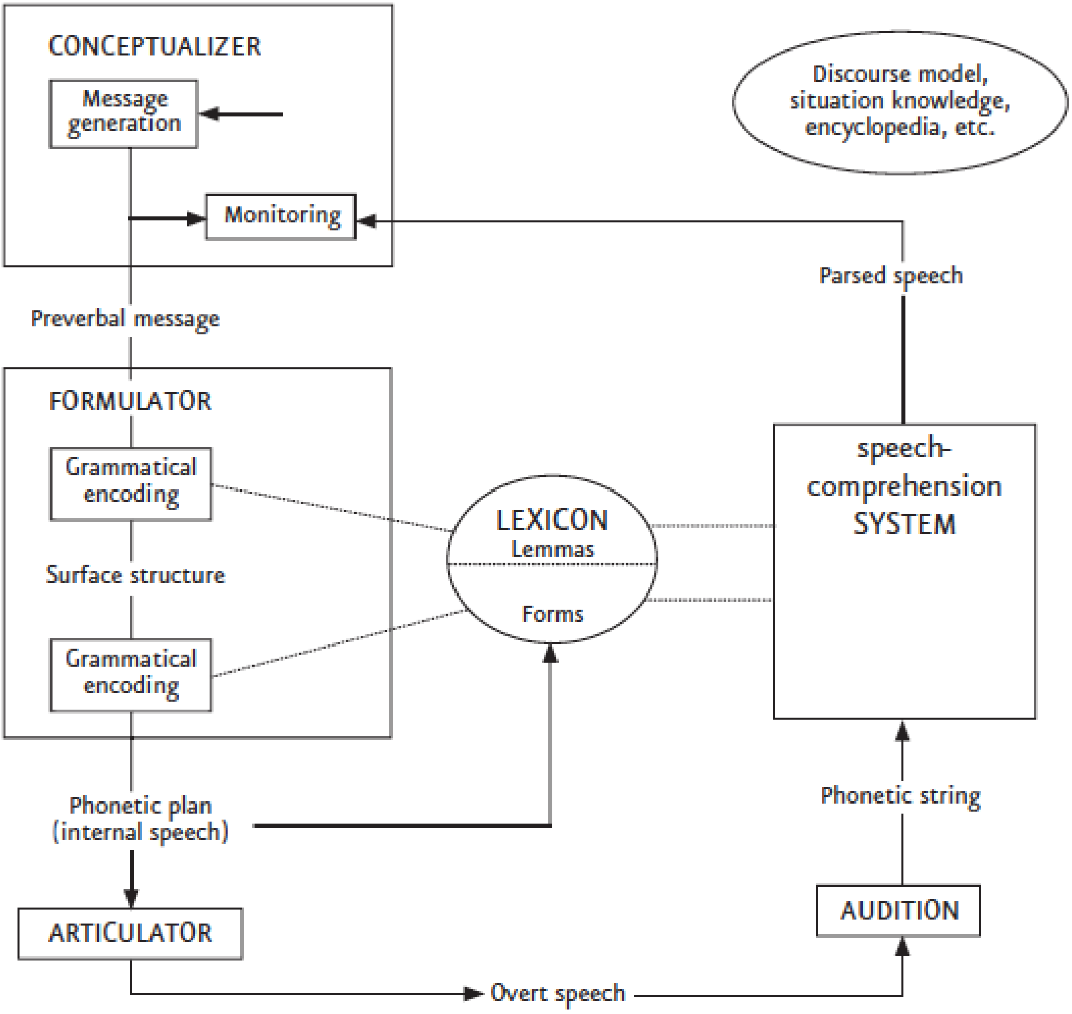
Appendix A Speech production according to Levelt's Model



Appendix B1 Summary of key studies in motion events

Choi & Bowerman (1991)

Title	Data collection	Relevance	Divergence
Learning to express motion events in English and Korean: The influence of language-specific lexicalization patterns	The English data came from Bowerman's diary records of her two young daughters. Korean data collected longitudinally by Choi, who visited four children in their homes every three to four weeks	1. Insight into typological differences. 2. Appropriate for analysis of language development. Findings suggest that children are Influenced by the semantic organization of their language from very early childhood.	1. Ethnographic methods not replicable for the focus of this study. 2. Focus exclusively on L1 acquisition of motion event construal.

Berman & Slobin 1994

Title	Data collection	Relevance	Divergence
Relating events in narrative: A cross-linguistic developmental study	Children's elicited narratives based on the picture story book *Frog, where are you?* (Mayer 1969) Conducted in 48 L1's and 17 L2's worldwide.	1. The picture book can be used to investigate typological differences between speakers of same language and different languages. 2. Participants can focus on generating narratives without relying on memory. 3. Equivalency among narratives. 4. Variations used extensively in many subsequent studies (e.g., 1996; Berman & Slobin, 1994; Peterson & McCabe, 1983; Reilly, 1992, Daller et al 2011)	1. Material perhaps inappropriate for adult learners. 2. Static pictures may encourage locative bias, motion events are dynamic. 3. Online production more difficult in L2 to access target forms in spontaneous speech. 4. Not specifically designed for motion event construal research

Gennari et al. 2002

Title	Data collection	Relevance	Divergence
Motion events in language and cognition (English and Spanish)	The researchers used a set of 108 filmed motion events organized as a set of 36 triads: 36 targets and 72 alternates, two for Each of the target events. Within a triad, the target video showed a motion event while the two alternates portrayed variations in either the Manner or the path dimension.	1. Motion events clips allow for a targeted comparison of the Linguistic differences in English and Spanish. 2. Used a variety of conditions: recognition memory; similarity judgments; participants' linguistic descriptions. 3. Compares different lexicalization patterns in English and Spanish on cognition. 4. Supports TFS hypothesis in that linguistic descriptions directed attention to certain aspects of the events later used to make non-linguistic judgements.	1. Focus exclusively on L1 motion event construal.

Pourcel & Kopecka 2006

Title	Data collection	Relevance	Divergence
Motion Events in French : Typological Intricacies	Elicited written sentences, oral narratives and acceptability/grammaticality judgement task. One group were shown 45 video clips depicting Human motion scenes in real-life settings. Each scene lasted about 5 seconds. After each clip participants wrote a sentence to describe the action. A second group were individually shown a 4½ minute-long extract from Charlie Chaplin's City Lights which involved a thwarted suicide attempt. Participants were instructed to perform an immediate oral recall task averaging 3 minutes in speaking time.	1. Dynamic action clips. 2. Variety of data collected (written, oral, metalinguistic judgements.) 2. Use of both shorter individual clips and longer film extract allowing sentence and discourse level analysis of linguistic patterns.	1. Focus exclusively on L1 motion event construal. 2. The Chaplin clip may be difficult to recall. Many of the actions are quite complex, the description of which may even prove challenging for native speakers. 3. Study concerned with L1 French in relation to Talmy's typology. Does not address conceptual transfer or SLA.

Appendix B2 Summary of Key studies in the learnability of motion events

Navarro & Nicoladis 2005

Title	Data collection	Relevance	Divergence
Describing Motion Events in Adult L2 Spanish Narratives	Participants were shown two video excerpts from the Pink Panther cartoon (2 minutes each) presented sequentially. The stories were chosen for their clear plot that was rich in temporal and causal sequences, displacement from place to place. They were then asked to tell the stories orally in Spanish to a native speaker of Spanish. The oral narratives were conducted individually and videotaped.	1. Video films as stimuli for eliciting data enables participants to describe a motion scene based on an actual dynamic figure that is in displacement within a given context. More realistic than picture books (Naigles et al., 1998). 2. Addresses the role of L1 lexicalization patterns in lexicalization patterns of motion in advanced L2 Spanish speakers. 3. Asks whether the process of learning to lexicalize motion in a Second language entails relearning to view motion scenes from the "perspective" that native speakers consider is more salient.	1. Focus on learners of a Verb-framed language rather than Satellite-framed. 2. The authors describe the use of video films as more realistic. This claim is debatable given the use of a Pink panther cartoon. 3. Compares but does not instruct.

Cadierno & Ruiz 2006

Title	Data collection	Relevance	Divergence
Motion events in Spanish L2 acquisition	Spanish narrative data were elicited by means of the 'frog story'. Subjects were told to look at the 24 pictures first in order to get an idea of what the story was about, and then to write a narration describing what they saw in each picture. Subjects in the two learners groups (i.e., Danish and Italian) were given a bilingual list of key nouns that appeared in the pictures Subjects were instructed to use these nouns in their narratives	1. Focus on acquisition of Path and Manner of motion by learners whose L1 and L2 belong to different typological patterns. 2. Native speaker production used for comparison.	1. Picture book elicitation may not allow participants to describe a motion scene effectively. 2. Focus on acquisition of Verb-framed language. 3. Written narratives only. 4. Compares but does not instruct.

Antonijevic & Berthaud 2009

Title	Data collection	Relevance	Divergence
Verbs of motion and sentence production in second language	Five verbs were selected in English (go, climb, play, pull, and jump) while to cover identical meanings six verbs were selected in French (aller, descendre, monter, jouer, tirer, sauter). 38 pictures were constructed for each language and a further 15 pictures for practise trials. Participants were instructed in their L1 to describe presented pictures in L2 using a given verb which was named in L2. In the end participants were asked to translate all sentences productions into L1 to ensure that they understood the pictures correctly.	1. Focus on acquisition of Path and Manner of motion by learners whose L1 and L2 belong to different typological patterns. 2. Results revealed that it was easier for English speakers to use a path verb than for French speakers to use a manner verb, as manner is usually an optional argument in French (Berthaud, 2007)	1. Picture elicitation may not allow participants to describe a motion scene effectively. 2. Focus on acquisition of Verb-framed language. 3. Compares but does not instruct.

Appendix C IP Principles-Complete and revised list of Principles

Principle 1. The Primacy of Meaning Principle. Learners process input for meaning before they process it for form.

Principle 1a. The Primacy of Content Words Principle. Learners process content words in the input before anything else.

Principle 1b. The Lexical Preference Principle. Learners will tend to rely on lexical items as opposed to grammatical form to get meaning when both encode the same semantic information.

Principle 1c. The Preferences for Non-redundancy Principle. Learners are more likely to process non-redundant meaningful grammatical form before they process redundant meaningful forms.

Principle 1d. The Meaning-Before-Non-meaning Principle. Learner are more likely to process meaningful grammatical forms before non-meaningful forms irrespective of redundancy.

Principle 1e. The availability of Resources Principle. For learners to process either redundant meaningful grammatical forms or non-meaningful forms, the processing of overall sentential meaning must not drain available processing resources

Principle 1f. The Sentence Location Principle. Learners tend to process items in sentence initial position before those in final position and those in medial position.

Principle 2. The First Noun Principle. Learners tend to process the first noun or pronoun they encounter in a sentence as the subject/agent.

Principle 2a. The Lexical Semantics Principle. Learners may rely on lexical semantics, where possible, instead of word order to interpret sentences.

Principle 2b. The Event Probabilities Principle. Learners may rely on event probabilities, where possible, instead of word order to interpret sentences.

Principle 2c. The Contextual Constraint Principle. Learners may rely less on the First Noun Principle if preceding context constrains the possible interpretation of a clause or sentence.

(VanPatten, 2004:14-18)

Appendix D Pilot study 1 Sample materials TTIE group

Motion verbs

The most common English motion verb is **go**.

e.g. **go into/out** of the classroom.

Direction is expressed by a preposition after the verb

e.g. **into, out of**

Go can tell us about the direction of the movement (where)but gives no information about the manner in which a person is moving (how).

Motion Verb + Preposition	Direction (Where)	Manner (How)
go into/out of	Yes	No

To give more information we use a manner verb instead of **go**.

e.g. **run, fly, walk**

Manner verbs
(how we move)

Manners verbs can describe how a person is moving.

e.g. **run,fly,walk**

Run

(**How not where**)

The manner verb can be easily changed

Run
Walk
Fly

Direction
(where)

For manner verbs direction is expressed by a preposition after the verb

e.g. **into, out of**

So we can combine manner and direction.

Run into the house.

(**How and Where**)

The preposition can be easily changed

into/out of the house.

Be careful: In different languages motion is described in different ways.

He entered the house running. (not acceptable in English)
He exited the room flying. (not acceptable in English)
(Turkish, Spanish, Italian, French, Japanese, Korean)

He **ran into** the house.(acceptable in **English**)
He **flew out of** the room.(acceptable in **English**)
(English, German, Dutch, Russian, Swedish)

Appendix E1 Language Contact Profile (Learners)

LANGUAGE CONTACT PROFILE LEARNERS

PROJECT: **A COMPARATIVE STUDY OF THE EFFECTS OF PI AND TTIE ON THE TEACHABILITY OF INTRANSITIVE DIRECTED MOTION EVENTS IN L2 ENGLISH WITH A FOCUS ON ENTERING AND EXITING**

The responses that you give in this questionnaire will be kept confidential.
An identification number will be used in place of your name when referring to your responses in publications. Every effort will be made to keep your responses confidential.
Thank you for your cooperation. The information that you provide will help us to better understand the backgrounds of students who are studying English in various contexts. Your honest and detailed responses will be greatly appreciated.

Participant Number:

Part 1:

In the boxes below, rate your language ability in each of the languages that you know.

Use the following ratings: 0) Poor, 1) Good, 2) Very good, 3) Native/nativelike

How many years have you studied this language in a formal school setting?

Language	Listening	Speaking	Reading	Writing	Number of years of study
English					
Spanish					

10. Have you studied English in school in the past at each of the levels listed below? If yes, for how long?

a) Primary school:

_No _Yes: _less than 1 year _1–2 years _more than 2 years

b) Secondary school

_No _Yes: _less than 1 year _1–2 years _more than 2 years

d) University/college:

_No _Yes: _less than 1 year _1–2 years _more than 2 years

11. What year are you in at school/university?

12. What is your major?

Part 2: All of the Questions That Follow Refer to Your Use of English

15. For each of the items below, choose the response that corresponds to the amount of time you estimate you spent on average doing each activity in English.

a. watching English language television

0) never 1) a few times a year 2) monthly 3) weekly 4) daily

b. reading English language newspapers

0) never 1) a few times a year 2) monthly 3) weekly 4) daily

c. reading novels in English

0) never 1) a few times a year 2) monthly 3) weekly 4) daily

d. listening to songs in English

0) never 1) a few times a year 2) monthly 3) weekly 4) daily

e) reading English language magazines

0) never 1) a few times a year 2) monthly 3) weekly 4) daily

f. watching movies or videos in English

0) never 1) a few times a year 2) monthly 3) weekly 4) daily

16. List any other activities that you commonly did using English before this course.

Appendix E2 Language contact profile (native speakers)

LANGUAGE CONTACT PROFILE NATIVES

PROJECT: **A COMPARATIVE STUDY OF THE EFFECTS OF PI AND TTIE ON THE TEACHABILITY OF INTRANSITIVE DIRECTED MOTION EVENTS IN L2 ENGLISH WITH A FOCUS ON ENTERING AND EXITING**

The responses that you give in this questionnaire will be kept confidential.
An identification number will be used in place of your name when referring to your responses in publications. Every effort will be made to keep your responses confidential.
Thank you for your cooperation. Your honest and detailed responses will be greatly appreciated.

Participant Number:

Part 1:

In the boxes below, rate your language ability in each of the languages that you know.

Use the following ratings: 0) Poor, 1) Good, 2) Very good, 3) Native/nativelike

How many years have you studied this language in a formal school setting?

Language	Listening	Speaking	Reading	Writing	Number of years of study
English					

10. Have you studied English in school in the past at each of the levels listed below? If yes, for how long?

a) Primary school:

_No _Yes: _less than 1 year _1–2 years _more than 2 years

b) Secondary school

_No _Yes: _less than 1 year _1–2 years _more than 2 years

d) University/college:

_No _Yes: _less than 1 year _1–2 years _more than 2 years

Part 2: All of the Questions That Follow Refer to Your Use of a Foreign Language

15. For each of the items below, choose the response that corresponds to the amount of time you estimate you spend on average doing each activity.

a. watching television

0) never 1) a few times a year 2) monthly 3) weekly 4) daily

b. reading newspapers

0) never 1) a few times a year 2) monthly 3) weekly 4) daily

c. reading novels

0) never 1) a few times a year 2) monthly 3) weekly 4) daily

d. listening to songs

0) never 1) a few times a year 2) monthly 3) weekly 4) daily

e) reading magazines

0) never 1) a few times a year 2) monthly 3) weekly 4) daily

f. watching movies or videos

0) never 1) a few times a year 2) monthly 3) weekly 4) daily

16. List any other activities that you commonly do in a foreign language

Appendix E3 Participant information

University of Reading

Background Information

1.Gender: Male / Female

2. Age:

3.Job:

4. Country of birth:

5. What is your native language?

6. What language~s) do you speak at home?

5a. If more than one, with whom do you speak each of these languages?

6. In what language~s) did you receive the majority of your education?

6a. If more than one, please give the approximate number of years for each language.

7. Have you ever been to another country for the purpose of studying a language?

Circle one: Yes / No

7a. If yes, when?

7b. Where?

7c. For how long?

(Adapted from Freed et al.,2001)

Appendix E4 Principal information sheet and consent form

Research Project:

A COMPARATIVE STUDY OF THE EFFECTS OF TWO INTERVENTIONS ON THE TEACHABILITY OF INTRANSITIVE DIRECTED MOTION EVENTS IN L2 ENGLISH WITH A FOCUS ON ENTERING AND EXITING

Researcher: Anthony Attwood
Supervisor: Dr. Jeanine Treffers-Daller
*Phone:*00-44-118-3782690
Email: j.c.treffers-daller@reading.ac.uk

Dear Principal

We are writing to invite your school to take part in a research study about learning to describe entering and exiting in English.

What is the study?

The study is being conducted by Anthony Attwood as part of a doctoral dissertation for the Institute of Education at the University of Reading. The study aims to test whether a 180 minute teaching intervention can help to improve the description of action scenes in English involving entering and exiting. This is done with the intention of making recommendations regarding how to best help learners to make progress in this area. Two methodologies will be compared an input-based approach and an input/output-based approach.

The study will involve two groups of intermediate level adult learners who are currently studying English in the UK. One group of learners will attend 4 x 45 minute lessons which uses the input-based approach. The second group will attend 4 x 45 minute lessons which uses the input/output-based approach.

Why has this school been chosen to take part?

You have been invited to take part in the project because the DOS at your school expressed an interest in being involved in our project.

Does *the school have to take part?*

It is entirely up to you whether your school participates in the study. You may also withdraw your consent to participation at any time during the project, without any repercussions to you, by contacting the Project Researcher, Anthony Attwood, Tel: 01444 210987, email: a.attwood@pgr.reading.ac.uk

What will happen if the school takes part?

With your agreement, participation would involve the use of a classroom with an IWB for administering a level assessment test, a pre-test and two post-tests. Furthermore a classroom would also be required for a period of two days to deliver a specially designed course aimed at improving descriptions of dynamic action in English. The classroom group would attend one 50 minute lesson per day for two days.

What are the risks and benefits of taking part?

The information given will remain confidential and will only be seen by the researcher and research supervisor listed at the start of this letter. Neither the school nor the participants will be identifiable in any published report resulting from the study.

Participants in similar studies have found it interesting to take part. We anticipate that the findings of the study will be useful for teachers in planning how they teach motion verbs in English.

What will happen to the data?

Any data collected will be held in strict confidence and no real names will be used in this study or in any subsequent publications. The records of this study will be kept private. No identifiers linking you, or the school to the study will be included in any sort of report that might be published. Participants will be assigned a number and will be referred to by that number in all records. Research records will be stored securely on a password-protected computer and only the researcher and supervisor will have access to the records. The data will be destroyed securely once the findings of the study are written up, after three years. The results of the study will be presented at national and international conferences, and in written reports and articles. We can send you electronic copies of these publications if you wish.

What happens if I change my mind?

You can change your mind at any time without any repercussions. During the research, you can stop completing the activities at any time. If you change your mind after data collection has ended, we will discard your data.

Who has reviewed the study?

This project has been reviewed following the procedures of the University Research Ethics Committee and has been given a favourable ethical opinion for conduct. The University has the appropriate insurances in place. Full details are available on request

What happens if something goes wrong?

In the unlikely case of concern or complaint, you can contact Dr.Jeanine Treffers-Daller, University of Reading; Tel: 00441183782690 email: j.c.treffers-daller@reading.ac.uk

Where can I get more information?

If you would like more information, please contact Anthony Attwood
Tel: 01444 210987, email: a.attwood@pgr.reading.ac.uk

We do hope that you will agree to your participation in the study. If you do, please complete the attached consent form and return it, sealed, in the pre-paid envelope provided, to us.

Thank you for your time.

Research Project: **A COMPARATIVE STUDY OF THE EFFECTS OF AN INPUT-BASED APPARAOACH AND AN INPUT/OUTPUT-BASED APPROACH ON THE TEACHABILITY OF INTRANSITIVE DIRECTED MOTION EVENTS IN L2 ENGLISH WITH A FOCUS ON ENTERING AND EXITING**

Principal Consent Form

I have read the Information Sheet about the project and received a copy of it.

I understand what the purpose of the project is and what is required of me. All my questions have been answered.

Name of Principal: ____

Name of school: ____

Please tick as appropriate:

I consent to the involvement of my school in the project as outlined in the Information Sheet ☐

Signed:____________________________

Date: ________________________________

Appendix E5 Participant information sheet and consent form

Supervisor: Dr. Jeanine Treffers-Daller
*Phone:*00-44-118-3782690
Email: j.c.treffers-daller@reading.ac.uk

University of Reading

Participant information sheet

Research Project:

A COMPARATIVE STUDY OF THE EFFECTS OF PI AND TTIE ON THE TEACHABILITY OF INTRANSITIVE DIRECTED MOTION EVENTS IN L2 ENGLISH WITH A FOCUS ON ENTERING AND EXITING

Researcher: Anthony Attwood

We would like to invite you to take part in a research study about learning to describe entering and exiting in English.

What is the study?

The study is being conducted by Anthony Attwood as part of a doctoral dissertation for the Institute of Education at the University of Reading. The study aims to test whether a ten day course can help to improve the written and oral description of dynamic action scenes in English. This is done with the intention of making recommendations regarding how to best help learners to make progress in this area. Two methodologies will be compared an input-based and an input/output-based approach.

Learners will be randomly allocated to two different classes. One class will receive a treatment package based on the Processing Instruction approach (Van Patten 1993). The second group will receive a treatment package based on Processing Instruction approach with an additional output component.

Why have I been chosen to take part?

You have been invited to take part in the project because you have expressed an interest in being involved in our project, and because you are either an intermediate to advanced level Spanish or Italian learner of English or because you are a native speaker of English.

Do I have to take part?

It is entirely up to you whether you participate. You may also withdraw your consent to participation at any time during the project, without any repercussions to you, by contacting the Project Researcher, Anthony Attwood, Tel: 01444 210987, email: a.attwood@pgr.reading.ac.uk

What will happen if I take part?

If you are part of the classroom groups, you will be asked to complete a short level assessment test (approx 30mins) and a pre-test (approx 30mins) and a Language learner Profile questionnaire to assess your level of contact with the English language. You will then be invited to attend 4 x 45 minute lessons in a private language school in Brighton. The lessons will be free of charge and all materials will be supplied. You will also be asked to complete 2 post-tests; one two days after the lessons, then one two weeks after. The pre and post-tests packages will involve written descriptions of a picture book story and a self-paced reading test. You will be given an anonymous number to put on all forms so that we can identify the students without making reference to their name.

If you are a native English speaker you will be asked to complete a written report based on the testing package outlined above (approx 30mins).

What are the risks and benefits of taking part?

The information you give will remain confidential and will only be seen by the researcher and research supervisor listed at the start of this letter. Neither you, nor the school will be identifiable in any published report resulting from the study. Information about individuals will not be shared with the school.

What will happen to the data?

Any data collected will be held in strict confidence and no real names will be used in this study or in any subsequent publications. The records of this study will be kept private. No identifiers linking you, or the school to the study will be included in any sort of report that might be published. Participants will be assigned a number and will be referred to by that number in all records. Research records will be stored securely on a password-protected computer and only the researcher and supervisor will have access to the records. The data will be destroyed securely once the findings of the study are written up, after three years. The results of the study will be presented at national and international conferences, and in written reports and articles. We can send you electronic copies of these publications if you wish.

What happens if I change my mind?

You can change your mind at any time without any repercussions. During the research, you can stop completing the activities at any time. If you change your mind after data collection has ended, we will discard your data.

Who has reviewed the study?

This project has been reviewed following the procedures of the University Research Ethics Committee and has been given a favourable ethical opinion for conduct.

What happens if something goes wrong?

In the unlikely case of concern or complaint, you can contact Dr.Jeanine Treffers-Daller, University of Reading; Tel: 00441183782690 email: j.c.treffers-daller@reading.ac.uk

Where can I get more information?

If you would like more information, please contact Anthony Attwood
Tel: 01444 210987, email: a.attwood@pgr.reading.ac.uk

We do hope that you will agree to your participation in the study. If you do, please complete the attached consent form and return it, sealed, in the pre-paid envelope provided, to us.

Thank you for your time.
Research Project:

A COMPARATIVE STUDY OF THE EFFECTS OF PI AND TTIE ON THE TEACHABILITY OF INTRANSITIVE DIRECTED MOTION EVENTS IN L2 ENGLISH WITH A FOCUS ON ENTERING AND EXITING

Participant Consent Form

I have read the Information Sheet about the project and received a copy of it.

I understand what the purpose of the project is and what is required of me. All my questions have been answered.

Name of participant: ____

Please tick as appropriate:

I consent to completing a questionnaire ☐

I consent to the transcribing of the written data to be used for the purposes of the study. ☐

Signed:______________________________

Date: __________________________________

Appendix E6 Exit questionnaire

LEARNERS' QUESTIONNAIRE

PROJECT:**A comparative study of the effects of two different methodologies on the acquisition of verbs for in L2 English.**

The responses that you give in this questionnaire will be kept confidential. An identification number will be used in place of your name when referring to your responses in publications. The information that you provide will help us to better understand how successful your lessons have been. Your honest and detailed responses will be greatly appreciated. Thank you for your cooperation.

Participant Number:

Part 1:

1. On a scale of 1-5 how would you rate these lessons?

5 Very good	4 Good	3 Satisfactory	2 Poor	1 Very poor

2. Before these lessons how much did you know about the topic?

5 A lot	4 Quite a lot	3 Something	2 Not much	1 Very Little

3. How clear was the presentation of the topic?

5 Very clear	4 Clear	3 Clear in Parts	2 A bit confusing	1 Very confusing

4. How easy/difficult did you find it to understand the topic ?

5 Very easy	4 Easy	3 Not Easy or difficult	2 A bit difficult	1 Very difficult

5. How clear were the pictures?

5 Very clear	4 Clear	3 Clear in Parts	2 A bit confusing	1 Very confusing

6. How clear were the exercises?

5 Very clear	4 Clear	3 Clear in Parts	2 A bit confusing	1 Very confusing

7. Did the exercises help you to pay more attention to the action?

5 A lot more than usual	4 More than usual	3 The same as usual	2 Less than usual	1 A lot less than usual

8. How important is this topic to you?

5 Very important	4 Important	3 Sometimes important	2 Not very important	1 Unimportant

9. Regarding time spent on the topic were the lessons..... ?

5 Very long	4 A bit long	3 Right time	2 A bit short	1 Very short

10. What would you say to a friend who asked about attending these lessons in the future?

5 Very good	4 Good	3 Satisfactory	2 Poor	1 Very poor

Appendix F Oxford Quick Placement test (Sample pages)

Oxford University Press
and
University of Cambridge Local Examinations Syndicate

Name: ....

Date: ....

quick placement test

Version 1

This test is divided into two parts:

Part One (Questions 1 – 40) – All students.

Part Two (Questions 41 – 60) – Do not start this part unless told to do so by your test supervisor.

Time: 30 minutes

Appendix G1 Input group materials

Entering and Exiting

e.g.

John goes into the classroom. Mary goes out of the shop.

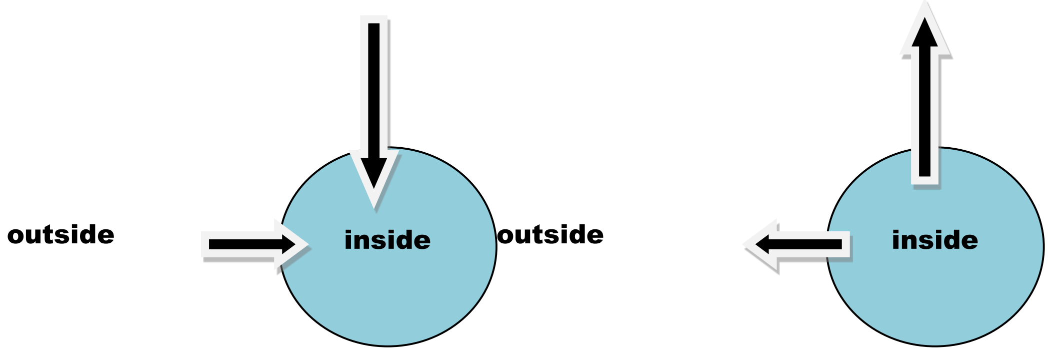
Direction is expressed by the verb + a preposition after the verb

go into/out of

To change direction we change the preposition not the verb.

John goes into the classroom

Mary goes out of the shop.



Be careful:

In different languages direction is described in different ways. In English to change direction we change the preposition. In other languages to change direction, the verb is changed.

John goes into the classroom .(acceptable in English)

Mary goes out of the shop.(acceptable in English)

John enters the classroom. (less common in English)

Mary exits the shop. (less common in English)

(acceptable in Turkish, Spanish, Italian, French, Japanese, Korean)

Listen and choose the right picture:
1.

a.

b.

.

Look at the pictures and choose your answers:

1.

a.

b.

The woman is walking into the shop.

2.

a.

b.

The tiger is jumping out of the water.

Affective 1

Tick the actions you think have been performed by your teacher this month.

10 He has jumped out of a box.

11 He has walked into a coffee bar.

12 He has fallen into a hole.

13 He has run into a hospital.

14 He has run out of a train station.

15 He has jumped into a swimming pool

16 He has climbed out of a window.

17 He has fallen out of bed.

18 He has run into school.

Check with your teacher

Tick the experiences you have had and compare with your partner.

An Amazon Adventure

Part 1- True or False

1. Juan and Maria were leaving Bogota.
2. After the crash Maria was still in the plane.
3. Maria had to go into the jungle.
4. After the crash Juan was outside the plane.

On December 21st 2012 Juan Gomez and his wife Maria were flying out of Bogota. Two hours after take-off, the plane broke up in a terrible storm.

The morning after the crash Maria woke up and climbed out of a window. She looked for her husband Juan but could not find him. She was alone and she had to walk out of the jungle. An hour later Juan climbed into the plane looking for Maria. He called for her but there was no answer.

Part 2

True or False

2.1. Maria went into a cave.
2.2. The bear was already inside the cave.
2.3. Maria stayed in the cave after she woke up.
2.4. The bats were inside the cave when Maria was asleep.

After some hours, Maria climbed into a cave and lay down. She was exhausted and soon she fell asleep. Soon a bear went into the cave but Maria woke up just in time. She ran out of the cave. She looked back and saw hundreds of bats flying into the cave above her head.

Part 3

True or False

3.1 The large cat was hiding in the grass.
3.2 Juan was already in the water.
3.3 The crocodile was waiting in the water.
3.4 Juan got out of the water.
3.5 The second crocodile was already in the water.
3.6 Juan went into the forest.

Two hours later Juan heard a sound behind him. As he turned, he saw a very large cat jumping out of the tall grass. Quickly Juan jumped into the water and began to swim. In the water Juan relaxed for a moment because he knew cats don't like water. However,
Juan also knew that some animals love water. Just then Juan saw a very large crocodile crawling into the river some metres away. He swam as fast as he could to the bank on the other side. He climbed quickly out of the water and looked round just as another crocodile jumped into the river and started fighting with the other crocodile. Juan ran into the forest leaving the river behind.

Part 4

True or False

4.1 The fisherman was in his hut before Juan arrived.
4.2 The children were inside their huts when Juan arrived.
4.3 Juan went into the huts for fruit and water.

After running for some time Juan saw smoke in the distance. It was an Indian village. A fisherman who was walking out of a hut saw Juan and shouted. Juan did not understand but he smiled. Little children ran into their huts and came out bringing fruit and water. Juan was safe but what about Maria?

Part 5

True or False

5.1 The canoe was in the river when Maria found it.
5.2 Maria got into the canoe.
5.3 At the waterfall, Maria fell out of the canoe.
5.4 Maria was in the canoe when she saw the man.
5.5 The man with the orange jacket was already in the water.

Maria went to the river. As she got closer to the water she saw an old canoe. She tried to move the canoe and it fell into the water. Maria climbed into the canoe and fell asleep. The following morning Maria was woken by the sun and the sound of water growing louder and louder. The canoe began to move faster and faster towards a huge waterfall. It was too late to stop and Maria and the canoe fell into the water far below. Maria climbed into the canoe. She was wet, cold and exhausted but still alive. Just then Maria looked to her left and saw a man wearing a bright orange jacket, jumping into the water. He swam to Maria and helped her out of the river. After a month in hospital Maria made a full recovery. Juan and Maria returned to their home in Bogota where they celebrated their adventure with a great party.

How we move

In English we often give extra information about how a person is moving.

To give extra information we can use different verbs:

e.g.

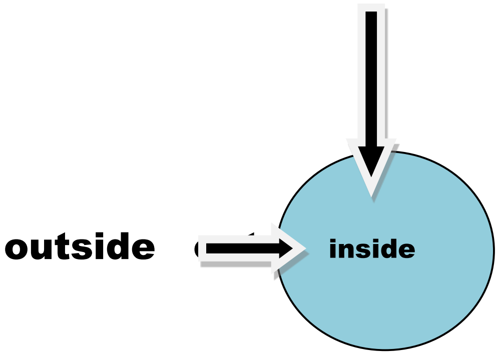
run, fly, walk, climb, swim

These verbs can be followed by a preposition to show direction.

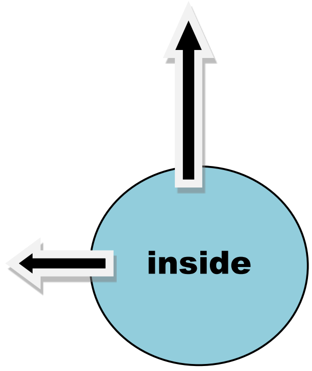
run into/out of , fly into/out of, walk into/out of, climb into/ out of

With this construction we can see how and where a person is going.

John runs into the classroom



Mary walks out of the shop.



Be careful:

In different languages motion is described in different ways. In English to give information about how a person moves, we change the verb. In other languages to give information about how a person moves, a second verb is needed.

The dog ran into the house.(acceptable in English)

The bird flew out of the room.(acceptable in English)

The dog entered the house running. (less common in English)

The bird exited the room flying. (less common in English)

(acceptable in Turkish, Spanish, Italian, French, Japanese, Korean

Look at the pictures and answer ***a*** , ***b*** or ***c*** (either):

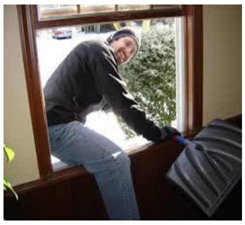
1.

a. b. c.

  ?

The children are walking out of the building.

2.

  ?

The man is climbing into the house.

a. b.

c.

 ?

The people are walking into the building.

Affective manner

Do you agree or disagree with the following sentences?

		Agree	Disagree
1	I would never jump out of a plane.		
2	Once I walked into the wrong classroom.		
3	I used to run out of school when I was a child.		
4	I have never fallen out of bed.		
5	I have fallen into a river.		
6	I would jump into a river to save a dog.		
7	I would run into a burning building to get my laptop.		
8	Once I had to climb into my house.		
9	I would walk out of the building if there was a fire.		
10	I would like to swim into a cave.		
11	It would be funny if a bird flew into the classroom.		
12	I would not move if a snake crawled into my bed.		

Compare with your partner.

The Bank Robber and the Businessman

You are going to read a story: The bank robber and the businessman.

Read Part 1 and answer the questions

19 Who drove into London?

20 Who flew into London?

21 Who is in a hurry?

Part 1

Joe saw London Bridge for the first time from behind the wheel of a stolen white van. He had chosen the van because there was nothing unusual about it. It was one of the most common vehicles around and would not attract attention.

…...

Harry Burton looked down through the white clouds and saw London Bridge for the first time. Harry was starting to feel nervous. He had to sign the contract today or his company and its pyramid of lies would come crashing down and Harry would go to prison for a long time. He ran out of the airport and jumped into his car, a Mercedes McLaren one of the best cars money could buy, other people's money in Harry's case.

2.1 While you read answer True or False

1. The bank robber is in a hurry.
2. The businessman is early for his meeting.
3. The businessman forgot to turn off the engine because he got out of the car very slowly.

Part 2

9.51 a.m Joe stopped the white van opposite the bank and put on his cap. He got out of the van and walked into the bank carrying a package. He joined the queue and waited. A businessman late for a meeting bumped into Joe. Their eyes met for a second but they said nothing.

…..
....

Harry Burton jumped out of his Mercedes but forgot to turn off the engine. As he ran into the bank he bumped into a man carrying a package. The package nearly fell but the man caught it before it hit the floor. Harry stopped, looked at the man for a moment then walked into the manager's office.

Affective manner

Which is the most scary? Put in order (Most scary = 1)

Are you afraid of ….?

Jumping out of a plane with a parachute.

Walking into a lion's cage.

Swimming into an old pirate ship.

Falling into the ocean wearing a life jacket.

Jumping out of a moving car.

Crawling into a cave full of bats.

Running into a burning building.

Compare with your partner.

Appendix G2 Output group materials

Entering and Exiting

e.g.
John goes into the classroom. Mary goes out of the shop.

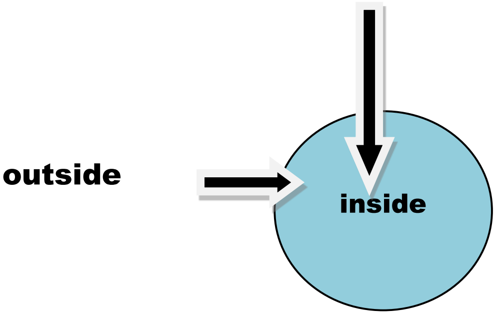
Direction is expressed by the verb + a preposition after the verb

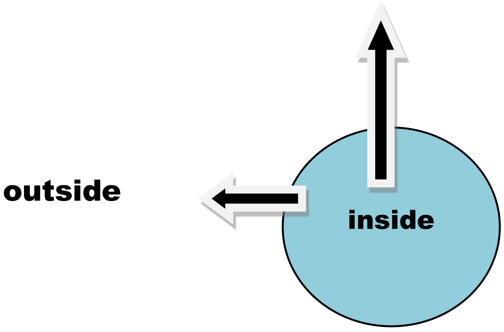
go into/out of

To change direction we change the preposition not the verb.

John goes into the classroom

Mary goes out of the shop.





Be careful:
In different languages direction is described in different ways. In English to change direction we change the preposition. In other languages to change direction, the verb is changed.

John goes into the classroom .(acceptable in English)
Mary goes out of the shop.(acceptable in English)

John enters the classroom. (less common in English)
Mary exits the shop. (less common in English)
(acceptable in Turkish, Spanish, Italian, French, Japanese, Korean)

Listen and choose the right picture:
1.

a. b.

.

Look at the pictures and write your answers:

1.

a. b.

The woman is ………….. the shop. (walk)

2.

a. b.

Affective 1

Tick the actions you think have been performed by your teacher this month.

i. *He has jumped out of a box.*

ii. He has walked into a coffee bar.

iii. He has fallen into a hole.

iv. He has run into a hospital.

v. He has run out of a train station.

vi. He has jumped into a swimming pool

vii. He has climbed out of a window.

viii. He has fallen out of bed.

ix. He has run into school.

Check with your teacher

Talk with your partner about the experiences you have had.

An Amazon Adventure

Part 1: answer the questions

1. What were Juan and Maria doing on December 21st, 2012?
2. What did Maria do after the crash?
3. What did Maria have to do?
4. What did Juan do when he was looking for Maria?

On December 21st, 2012 Juan Gomez and his wife Maria were flying out of Bogota. Two hours after take-off, the plane broke up in a terrible storm.

The morning after the crash Maria woke up and climbed out of a window. She looked for her husband Juan but could not find him. She was alone and she had to walk out of the jungle. An hour later Juan climbed into the plane looking for Maria. He called for her but there was no answer.

Part 2: answer the questions

2.1. What did Maria do after some hours?
2.2. Why did Maria wake up?
2.3. What did Maria do after she woke up?
2.4. What did Maria see when she looked back?

After some hours, Maria climbed into a cave and lay down. She was exhausted and soon she fell asleep. Soon a bear went into the cave but Maria woke up just in time. She ran out of the cave. She looked back and saw hundreds of bats flying into the cave above her head.

Part 3

3.1 What was the large cat doing when Juan saw it?
3.2 What did Juan do?
3.3 What was the crocodile doing when Juan saw it?
3.4 Juan got out of the water.
3.5 What did the second crocodile do?
3.6 What did Juan do?

Two hours later Juan heard a sound behind him. As he turned, he saw a very large cat jumping out of the tall grass. Quickly Juan jumped into the water and began to swim. In the water, Juan relaxed for a moment because he knew cats dislike water. However,
Juan also knew that some animals love water. Just then Juan saw a very large crocodile crawling into the river some metres away. He swam as fast as he could to the bank on the other side. He climbed quickly out of the water and looked round just as another crocodile jumped into the river and started fighting with the other crocodile. Juan ran into the forest leaving the river behind.

Part 4

4.1 What was the fisherman doing when he saw Juan?
4.2 What did the children do?

After running for some time Juan saw smoke in the distance. It was an Indian village. A fisherman, who was walking out of a hut, saw Juan and shouted. Juan did not understand but he smiled. Little children ran into their huts and came out bringing fruit and water. Juan was safe but what about Maria?

Part 5
5.1 What happened to the canoe when Maria tried to move it?
5.2 What did Maria do next?
5.3 What happened to Maria at the waterfall?
5.4 How did Maria get back into the canoe?
5.5 What was the man with the orange jacket doing when he saw Maria?

Maria went to the river. As she got closer to the water she saw an old canoe. She tried to move the canoe and it fell into the water. Maria climbed into the canoe and fell asleep. The following morning Maria was woken by the sun and the sound of water growing louder and louder. The canoe began to move faster and faster towards a huge waterfall. It was too late to stop and Maria and the canoe fell into the water far below.

Maria climbed into the canoe. She was wet, cold and exhausted but still alive. Just then she looked to her left and saw a man wearing a bright orange jacket, jumping into the water. He swam to Maria and helped her out of the river.

After a month in hospital Maria made a full recovery. Juan and Maria returned to their home in Bogotá, where they celebrated their adventure with a great party.

Affective:

Recall story using the prompts

Then discuss with your partner.

1. Maria / plane.

2. Juan /plane

Look at the pictures and write the answer :

1.

a.

b.

The children are ..………..…. the building. (run)

2.

a. b.

The dog is ……..……..…...the water. (run)

Affective manner

Do you agree or disagree with the following sentences?

		Agree	Disagree
1	I would never jump out of a plane.		
2	Once I walked into the wrong classroom.		
3	I used to run out of school when I was a child.		
4	I have never fallen out of bed.		
5	I have fallen into a river.		
6	I would jump into a river to save a dog.		
7	I would run into a burning building to get my laptop.		
8	Once I had to climb into my house.		
9	I would walk out of the building if there was a fire.		
10	I would like to swim into a cave.		
11	It would be funny if a bird flew into the classroom.		
12	I would not move if a snake crawled into my bed.		

Speak with your partner about your experiences.

The Bank Robber and the Businessman

You are going to read a story: The bank robber and the businessman.

Read Part 1 and answer the questions

1. How did Joe arrive in London?
2. How did Harry arrive in London?
3. How do we know that Harry was in a hurry?

Part 1

Joe saw London Bridge for the first time from behind the steering wheel of a stolen white van. He had chosen the van because there was nothing unusual about it. It was one of the most common vehicles around and would not attract attention.

…..

Harry Burton looked down through the white clouds and saw London Bridge for the first time. Harry was starting to feel nervous. He had to sign the contract today or his company and its pyramid of lies would come crashing down and Harry would go to prison for a long time. He ran out of the airport and jumped into his car, a Mercedes Mclaren one of the best cars money could buy, other people's money in Harry's case.

Appendix H1 SPRT Superlab contents

Superlab target sentences: Usual

Target sentence	Hits (Present)	Hits (Past)
1. The man is walking into the bank	6 (0.36 secs)	
2. The man walked into the bank		54,600 (0.21secs)
3. The children are running across the road.	2 (0.31 secs)	
4. The children ran across the road.		64,700 (0.31 secs)
5. The children are running into the classroom.	4,060,000 (0.61 secs)	
6. The children ran into the classroom.		2,930,000 (0.61secs)
7. The man is running up the hill.	113,000,000 (0.60 secs)	
8. The man ran up the hill.		344,000 (0.18 secs)
9. The birds is flying out of the cage.	1,260 (0.48 secs)	
10. The bird flew out of the cage.		6 (0.39 secs)
11. The frog is jumping out of the water.	3 (0.34 secs)	
12. The frog jumped out of the water.		38,900(0.34 secs)
13. The woman is walking down the stairs	51,500 (0.35 secs)	
14. The woman walked down the stairs		765,000 (0.33secs)

Accessed google.co.uk 14.02.15

Superlab target sentences: Unusual

Target sentence	Hits (Present)	Hits (Past)
1. The dog is entering the room running.	None	
2. The dog entered the room running.		None
3. The monkey is going up climbing.	None	
4. The monkey went up climbing.		None
5. The dogs are going down running.	None	
6. The dogs went down running.		None
7. The boys are going across running.	None	
8. The boys went across running.		None
9. The girl is entering the water jumping.	None	
10. The girl entered the water jumping.		None
11. The fish is exiting the water jumping.	None	
12. The fish exited the water jumping.		None
13. The butterflies are exiting the box flying.	None	
14. The butterflies exited the box flying.		None

Accessed google.co.uk 14.02.15

Appendix H2 SPRT1 - Adverb

Instructions :

Is this an unusual or a usual expression in English?

At the end of the sentence press the correct key.

X= unusual M= usual

Expt1. Target structures

Form	frequency	category
manner+ into/out of	4	usual
enter/exit + walking/running	4	unusual
running+ up/down/across	3	usual
going up/down / across + walking/running	3	unusual

28 fillers + 6 for warm up + 14 targets = 48

1.The students ||did|| an exam || yesterday.
2.The doctor s || were ate || at home || last night
3. The child ||were read || his book || yesterday.
4.The teacher || showed || a movie || in class.
5. The parents ||watched || the children || play.
6.The boys || were work|| outside || this morning.
7. <u>The butterflies || exited || the box || flying.</u>
8. The elephants || drank|| the water|| quickly.
9. <u>The man|| walked|| into|| the bank</u>.
10. The woman || bought || flowers|| this morning.
11. The man || was play || his guitar|| today.
<u>12. The children || ran || across|| the road.</u>
13. The birds|| were ate ||bread|| all day .
<u>14. The children|| ran|| into|| the classroom.</u>
<u>15. The man|| ran|| up|| the hill.</u>
16. The woman|| spoke|| on|| the phone.
17. The doctors|| was met ||at work|| yesterday.
<u>18. The bird|| flew|| out of|| the cage.</u>

19. The students|| listened ||to the teacher|| in class .
20**. <u>The frog|| jumped|| out of|| the water.</u>**
21. <u>The dog || entered|| the room|| running.</u>
22. The children || was look|| out of|| the window.
23. <u>The woman|| walked|| down || the stairs</u>.
24. The teacher || wrote|| on|| the board.
25. <u>The monkey || went|| up|| climbing.</u>
26. The baby || had|| a bath|| last night.
27. The man || was cleaned|| the house || yesterday.
28. <u>The dogs|| went|| down|| running.</u>
29. The cat || drank || milk|| in the kitchen.
30. The students || were worked|| together|| before.
31. <u>The boys || went|| across || running.</u>
32. The child || were played|| in || the garden.
33. The woman || was cook|| dinner || last night
34. The boy || were eat|| cake || today.
35. <u>The girl || entered|| the water || jumping</u>.
36. The nurses || changed|| the beds || today.
37. The teachers || was read|| a book || yesterday.
38. The boy || played|| piano || this morning.
39. The man || sold|| his house || today.
40. The singer || danced|| on || the table.
41. The doctors || was visit|| patients || this afternoon .
42. <u>The fish || exited|| the water || jumping</u>.
43. The artist || painted|| a picture || yesterday.
44. The policeman || was watched|| the students || carefully
45. The girl || made|| the coffee || just before.
46. The people || was waited|| for || the bus.
47. The children || watched|| TV || last night.
48. The woman || were read|| the newspaper || last night.

Appendix H3 SPRT2 - Adverb Superlab contents

Target structures

Form	frequency	category
manner+ into/out of	4	usual
entered/exited + flying/walking/running	4	unusual
walked/ran+ up/down/across	3	usual
went up/down / across + walking /climbing	3	unusual

28 fillers + 6 for warm up + 14 targets = 48

1. The girl ||was watched || a movie || yesterday.
2. The actor || bought|| a boat || last week.
3. The woman || played|| tennis || this morning.
4. The woman || sold|| her car || today.
5. The boys || were work|| inside || today.
6. The boy || was play|| games || this afternoon .
7. The child|| walked|| down|| the road.
8. The woman|| called|| her friend|| yesterday.
9. The doctor|| was work ||at home|| yesterday
10. The cat|| went || up || running.
11. The children || bought || sweets|| this morning.
12. The man || was saw || his friend|| today
13. The man || walked || across|| the bridge.
14. The cats || were drink ||milk|| earlier.
15. The cat|| ran|| into|| the house.
16. The monkey || ate|| the banana|| slowly.
17. The woman|| walked|| into|| the bar.
18. The woman || was cleaned|| the car || yesterday.
19. The monkey|| climbed|| out of|| the window.
20. The students|| listened ||to the teacher|| in class.
21. The rabbit|| jumped|| out of|| the box.
22. The man || was look|| into|| the box.
23. The dog|| ran|| up || the stairs.
24. The student || wrote|| in|| his book.
25. The cat || went || down || climbing.
26. The boy || had|| a sandwich|| for lunch.
27. The artist || sold|| a picture || yesterday.
28. The girl || was did|| the test || quickly.
29. The mouse || ate || the cheese|| last night.
30. The students || were play|| together|| before.
31. The bird || exited|| the tree || flying.

32. The girls || were buy|| ice cream || today.
33. <u>The people || entered|| the shop || walking.</u>
34. The man || made|| the breakfast || yesterday.
35. The student || was buy|| a book || yesterday.
36.The women ||did|| the work || yesterday.
37.The men || played || cards || last night.
38.**<u>The doctor || entered|| the room|| walking</u>**
39. The dog ||were found || a ball|| yesterday.
40.The teacher || sang || a song || in class.
41. The woman || made|| the cake || last night.
42. The people || were speak|| on || the train.
43. <u>The boys || went|| across || climbing.</u>
44. The doctors || were talk|| in || the restaurant.
45. The boy || was find|| the toy || last night.
46**. <u>The children || exited || the room || running.</u>**
47. The man || watched|| TV || last night.
48. The children || were buy|| the toy || last night.

Appendix H4 SPRT1+Adverb Superlab contents

Instructions :

Is this an unusual or a usual expression in English?
At the end of the sentence press the correct key.

X= unusual M= usual

Expt1. Target structures

Form	frequency	category
manner+ into/out of	4	usual
enter/exit + walking/running	4	unusual
running+ up/down/across	3	usual
going up/down / across + walking/running	3	unusual

28 fillers + 6 for warm up + 14 targets = 48

1.The students ||did|| an exam ||at school || yesterday.
2.The doctor s || ate ||fish|| at home || last night.
3. The child ||were read || his book ||at home || yesterday.
4.The teacher || showed || a movie || in class||this morning.
5. The parents ||watched || the children || play|| this morning.
6.The boys || were work||together || outside || this morning.
7. The butterflies || exited || the box || flying|| today.
8. The elephants || drank|| the water|| quickly||today.
9. The man|| walked|| into|| the bank|| this morning.
10. The woman || bought || flowers|| for Mary || this morning.
11. The man || was play || his guitar|| loudly|| today.
12. The children || ran || across|| the road || yesterday.
13. The birds|| were ate ||bread|| all day || yesterday.
14. The children|| ran|| into|| the classroom || this morning.
15. The man|| ran|| up|| the hill|| yesterday.
16. The woman|| spoke|| on|| the phone||last night.
17. The doctors|| was met|| each other ||at work|| yesterday.
18. The bird|| flew|| out of|| the cage || last night.
19. The students|| listened ||carefully|| to the teacher|| in class .
20**. The frog|| jumped|| out of|| the water|| last night.**
21.The dog || entered|| the room|| running || last night.

22. The children || was look|| out of|| the window||last night.
23. <u>The woman|| walked|| down || the stairs|| yesterday.</u>
24. The teacher || wrote|| on|| the board|| this morning.
25. <u>The monkey || went|| up|| climbing || last night.</u>
26. The baby || had|| a bath|| at home|| last night.
27. The man || was cleaned|| the house|| quickly|| yesterday.
28. <u>The dogs|| went|| down|| running || yesterday</u>.
29. The cat || drank || milk|| slowly|| in the kitchen.
30. The students || were worked|| nicely|| together|| before.
31. <u>The boys || went|| across || running || today</u>.
32. The child || were played|| in || the garden|| this morning.
33. The woman || was cook|| dinner || again|| last night.
34. The boy || were eat|| cake || quickly || today.
35. <u>The girl || entered|| the water || jumping|| this morning</u>.
36. The nurses || changed|| the beds|| **again** || today.
37. The teachers || was read|| a book || in class|| yesterday.
38. The boy || played|| piano || slowly || this morning.
39. The man || sold|| his house|| cheaply || today.
40. The singer || danced|| on || the table||last night.
41. The doctors || was visit|| patients || again|| this afternoon.
42. <u>The fish || exited|| the water || jumping || yesterday</u>.
43. The artist || painted|| a picture|| slowly || yesterday.
44. The policeman || was watched|| the students || carefully||yesterday**.**
45. The girl || made|| the coffee || carefully|| last night.
46. The people || was waited|| for || the bus|| thismorning**.**
47. The children || watched|| TV ||at home || last night.
48. The woman || were read|| the newspaper ||carefully || last night.

Appendix H5 SPRT2+Adverb Superlab contents

Form	frequency	category
manner+ into/out of	4	usual
entered/exited + flying/walking/running	4	unusual
walked/ran+ up/down/across	3	usual
went up/down / across + walking /climbing	3	unusual

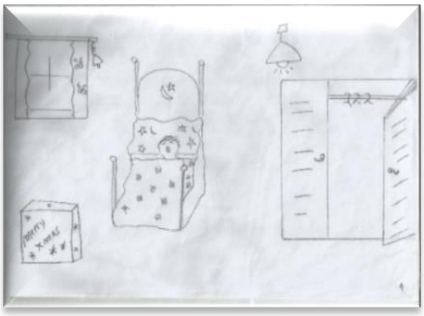
28 fillers + 6 for warm up + 14 targets = 48

1. The girl ||was watched || a movie ||at home ||yesterday.
2. The actor || bought|| a boat || cheaply ||last week.
3. The woman || played|| tennis || again ||this morning.
4. The woman || sold|| her car || quickly||today.
5. The boys || were work||together ||inside || today.
6. The boy || was play|| games ||at school ||this afternoon .
7. The child|| walked|| down|| the road. ||*this morning.*
8. The woman|| called|| her friend|| at home||yesterday.
9. The doctor|| was work ||hard ||at home|| yesterday.
10. The cat|| went || up || running||*last night.*
11. The children || bought || sweets|| again||this morning.
12. The man || was saw || his friend|| quickly||today.
13. The man || walked || across|| the bridge || this morning.
14. The cats || were drink ||milk|| quickly||earlier.
15. The cat|| ran|| into|| the house || last night.
16. The monkey || ate|| the banana|| slowly|| *today.*
17. The woman|| walked|| into|| the bar|| this afternoon.
18. The woman || was cleaned|| the car ||herself ||yesterday.
19. The monkey|| climbed|| out of|| the window || last night.
20. The students|| listened ||to the teacher|| in class||*today.*
21**. The rabbit|| jumped|| out of|| the box || this morning.**
22. The man || was look|| into|| the box||*today.*
23. The dog|| ran|| up || the stairs|| *yesterday.*
24. The student || wrote|| in|| his book ||*this morning.*
25. The cat || went || down || climbing|| last night.
26. The boy || had|| a sandwich|| at school||*f*or lunch.
27. The artist || sold|| a picture || quickly ||yesterday.
28. The girl || was did|| the test || quickly||*this morning.*
29. The mouse || ate || the cheese|| slowly||*l*ast night.
30. The students || were play|| outside||together|| before.
31. The bird || exited|| the tree || flying || *today.*
32. The girls || were buy|| ice cream ||at school ||today.
33. The people || entered|| the shop || walking|| *this morning.*
34. The man || made|| the breakfast || at home ||yesterday.
35. The student || was buy|| a book || for school|| yesterday.
36.The women ||did|| the work || at home ||yesterday.
37.The men || played || cards ||outside || last night.
38.**The doctor || entered|| the room|| walking**||*today.*
39. The dog ||were found || a ball|| outside ||yesterday.

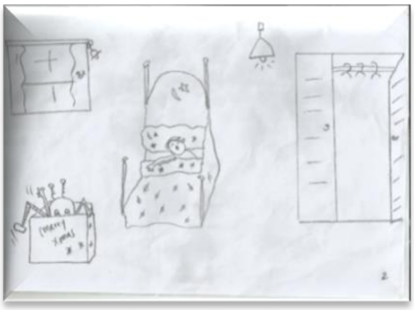
40.The teacher || sang || a song || in class||*today.*
41. The woman || made|| the cake || for Mary|| last night.
42. The people || were speak|| on || the train||*yesterday.*
43. The boys || went|| across || climbing || last night.
44. The doctors || were talk|| in || the restaurant||*last night.*
45. The boy || was find|| the toy||at home || last night.
46**. The children || exited || the room || running**||*today.*
47. The man || watched|| TV || at home || last night.
48. The children || were buy|| the toy || for Mary ||last night.

Appendix I1 Robot story picture narrative (Pre-test and DPT)

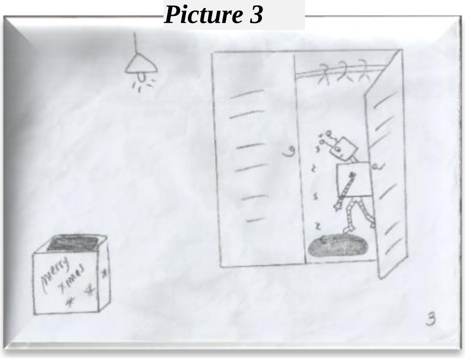
Picture 1



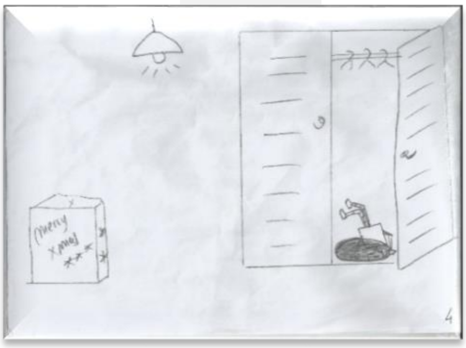
Picture 2



Picture 3

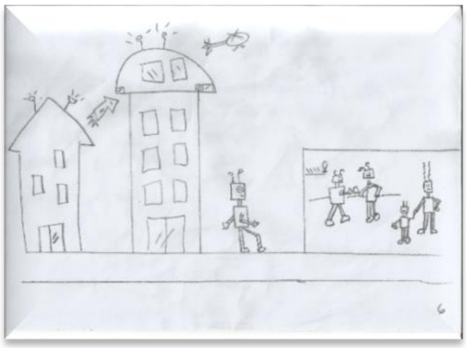


Picture 4

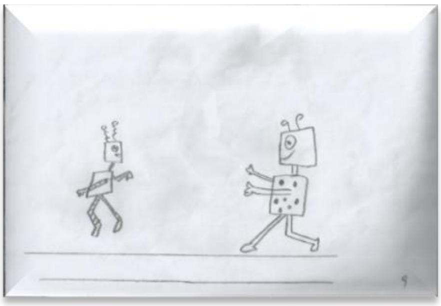


Picture 5

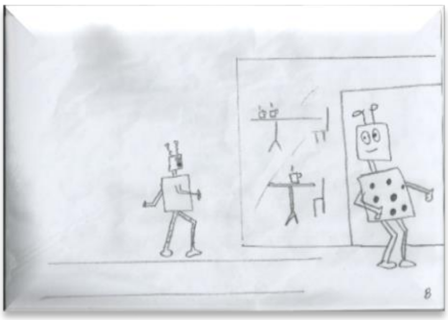
Picture 6



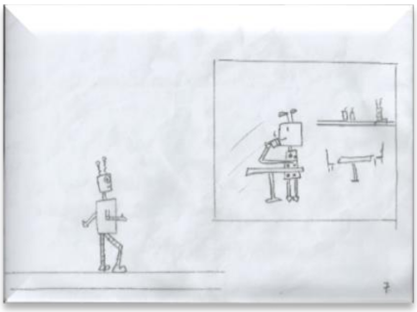
Picture 7



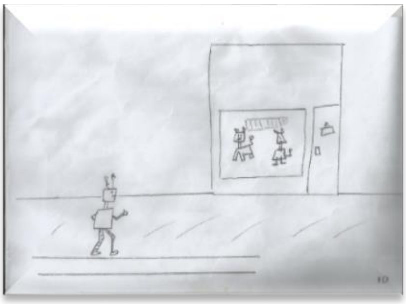
Picture 8



Picture 9

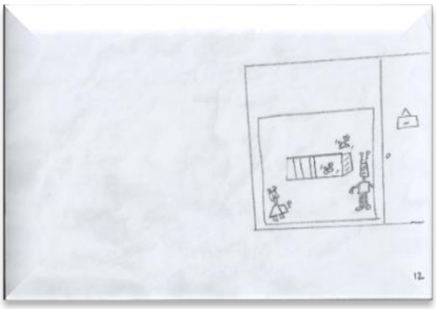


Picture 10



Picture 11

Picture 12



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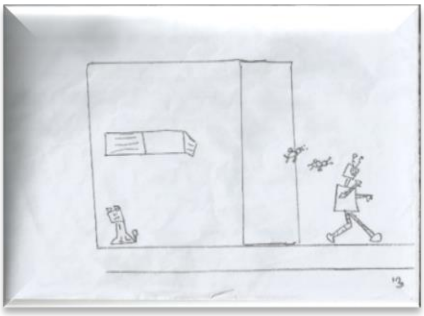

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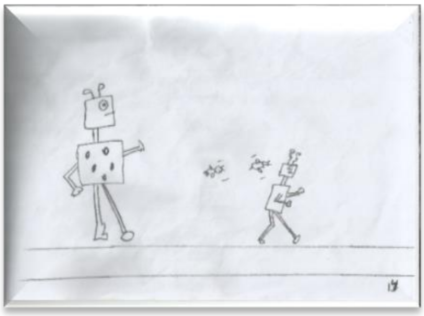

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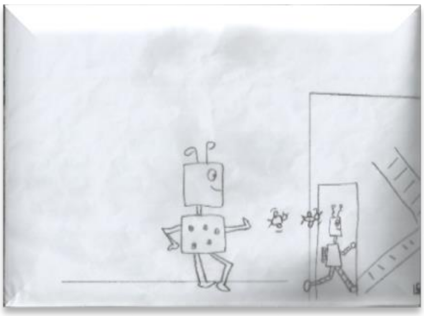
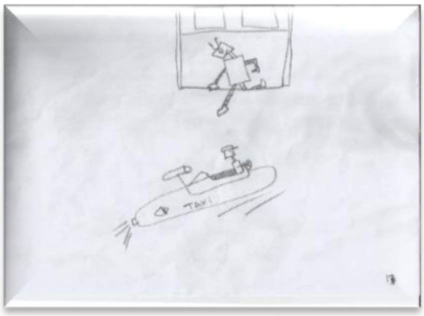


Picture 16

Picture 17



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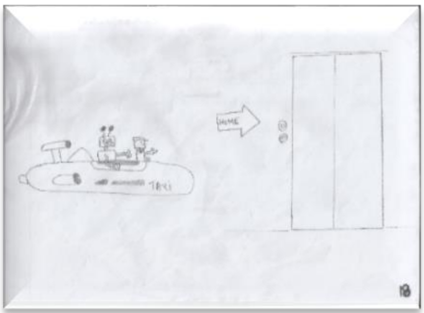
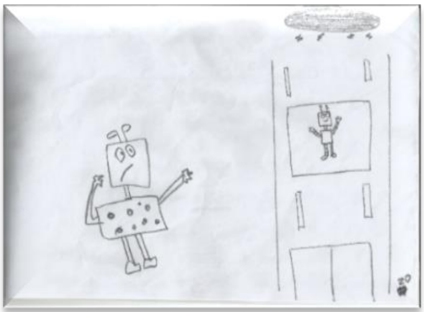


Picture 19

Picture 20



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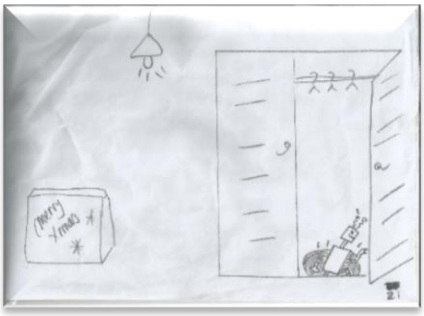

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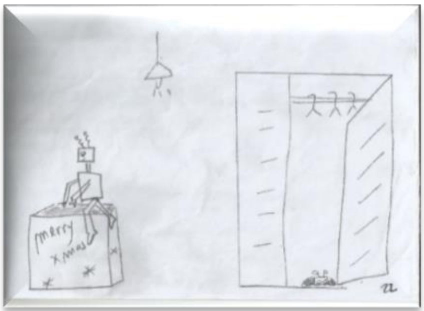
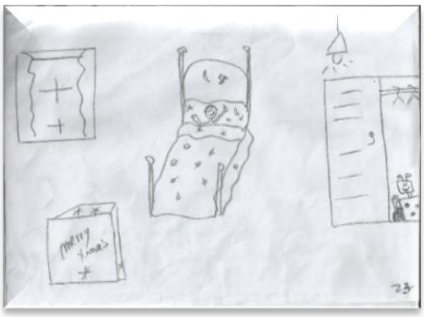


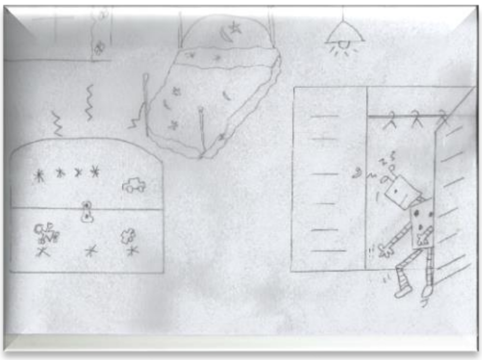
Picture 23



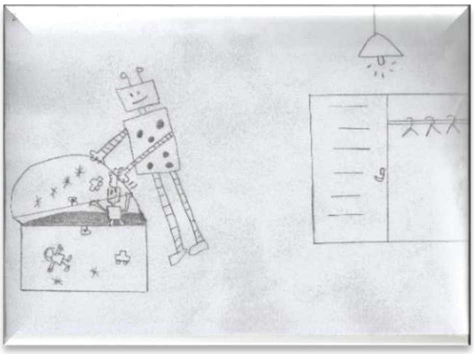
The end

Appendix I2 Robot story 2 picture narrative (IPT)

Picture 1

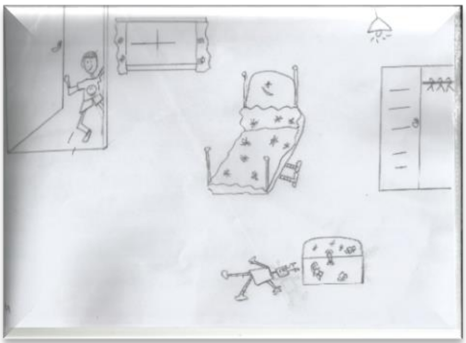


Picture 2

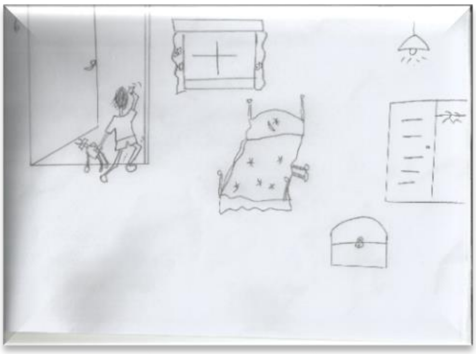


Picture 3

Picture 4



Picture 5



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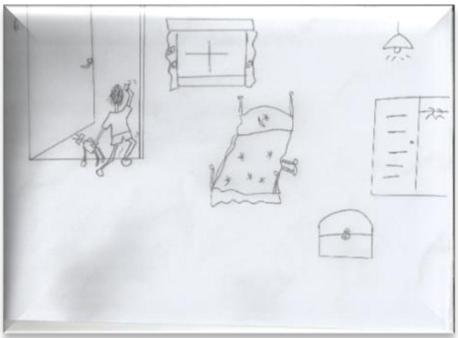
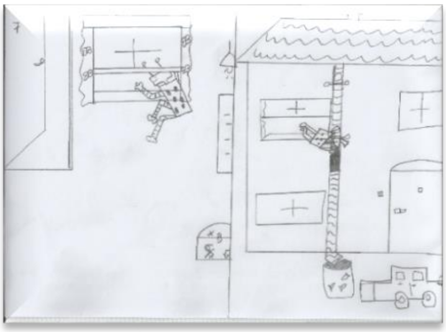
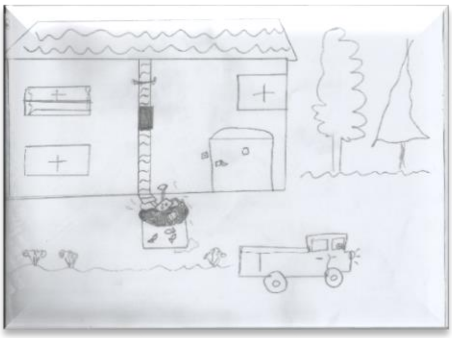
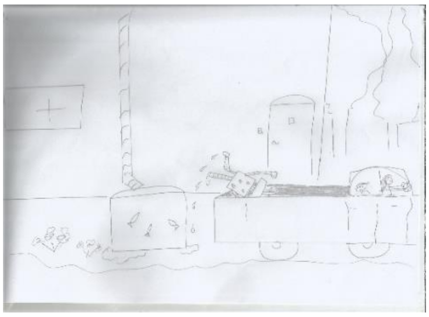


Picture 7 ***Picture 8***

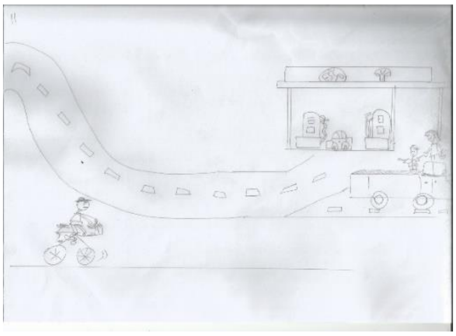




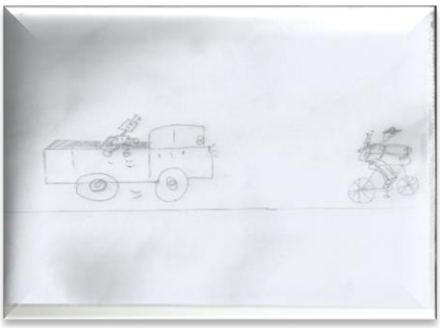
Picture 9 ***Picture 10***

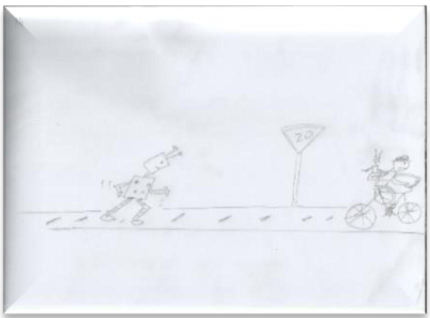


Picture 11 ***Picture 12***

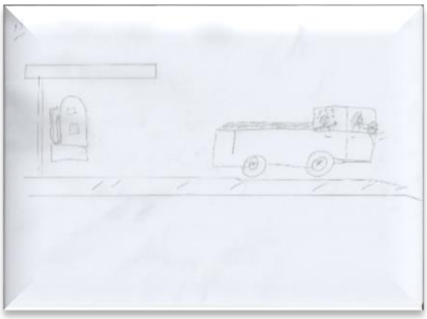


Picture 13 ***Picture 14***

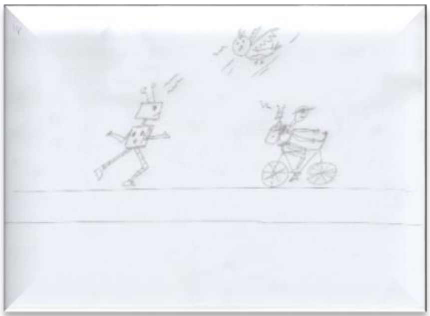




Picture 15 ***Picture 16***



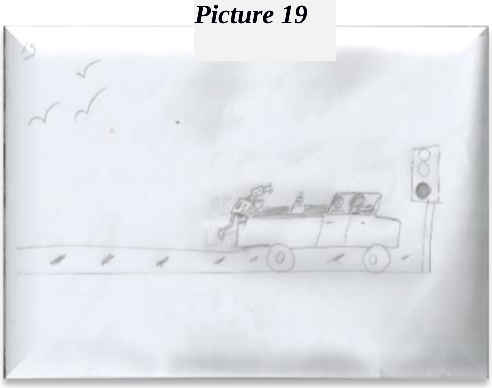
Picture 17



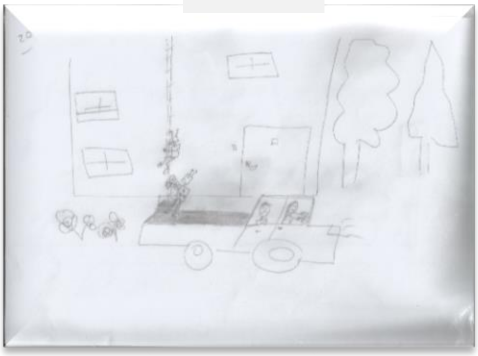
Picture 18

Picture 19

Picture 20

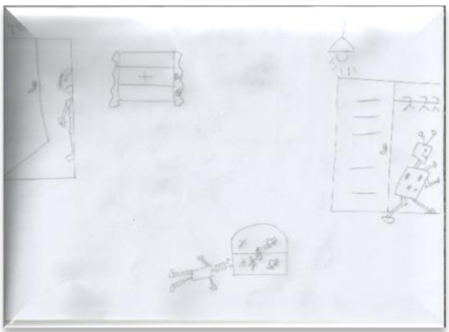


Picture 21



Picture 22

Picture 23



The end

Appendix J1 Sphericity Input group

Manner component	**Test of Sphericity**
Manner verb tokens	(x^2 (2) = 1.11, p = .57)
Manner verb types	(x^2 (2) = 5.98, p = .05)
MPBC	(x^2 (2) = .87, p = .65)
MPNonBC	(x^2 (2) = 2.71, p = .26)
Manner verbs only (tokens)	(x^2 (2) = .79, p = .67)

Path component	**Test of Sphericity**
Path verb tokens	(χ^2 (2) = 7.47, p = .024)
Path verb types	(χ^2 (2) = 1.19, p = .55)
Path satellite tokens	(χ^2 (2) = 7.21, p = .027)
Path satellite types	(χ^2 (2) = 7.12, p = .028)

Appendix J2 Sphericity Output group

Manner component	**Test of Sphericity**
Manner verb tokens	(x^2 (2) = 2.62, p = .27)
Manner verb types	(x^2 (2) = 1.44, p = .49)
MPBC	(x^2 (2) = .5, p = .78)
MPNonBC	(x^2 (2) = .14, p = .93)
Manner verbs only (tokens)	(x^2 (2) = .5, p = .78)

Path component	**Test of Sphericity**
Path verb tokens	(x^2 (2) = 3.48, p = .17)
Path verb types	(x^2 (2) = .78, p = .68)
Path satellite tokens	(x^2 (2) = 1.68, p = .43)
Path satellite types	(x^2 (2) = 2.01, p = .37)

Appendix J3 SphericityBetween Groups comparison

Manner component	**Test of Sphericity**
Manner verb tokens	(χ^2 (2) = 3.27, p = .19)
Manner verb types	(χ^2 (2) = 1.74, p = .42)
MPBC	(χ^2 (2) = .49, p = .78)
MPNonBC	(χ^2 (2) = .2.2, p = .33)
Manner verbs only (tokens)	(χ^2 (2) = 1.14, p = .57)

Path component	**Test of Sphericity**
Path verb tokens	(χ^2 (2) = 5.03, p = .08)
Path verb types	(χ^2 (2) = 1.57, p = .46).
Path satellite tokens	(χ^2 (2) = 4.17, p = .12)
Path satellite types	(χ^2 (2) = 3.35, p = .19)

Appendix J4 Sphericity Verb-framed participants

Manner component	**Test of Sphericity**
Manner verb tokens	(x^2 (2) = 3.7, p = .17)
Manner verb types	(x^2 (2) = 3.79, p = .15)
MPBC	(x^2 (2) = .76, p = .69)
MPNonBC	(x^2 (2) = 5.18, p = .08)
Manner verbs only (tokens)	(x^2 (2) = .4, p = .82)
Path component	**Test of Sphericity**
Path verb tokens	(χ^2 (2) = 4.51, p = .1)
Path verb types	(χ^2 (2) = 1.41, p = .49)
Path satellite tokens	(χ^2 (2) = 4.2, p = .12)
Path satellite types	(χ^2 (2) = 2.32, p = .31)

Appendix J5 Sphericity Satellite-framed participants

Manner component	**Test of Sphericity**
Manner verb tokens	(x^2 (2) = 3.71, p = .16)
Manner verb types	(x^2 (2) = 2.07, p = .36)
MPBC	(x^2 (2) = 2.67, p = .26)
MPNonBC	(x^2 (2) = 2.21, p = .33)
Manner verbs only (tokens)	(x^2 (2) = 3.13, p = .21)
Path component	**Test of Sphericity**
Path verb tokens	(x^2 (2) = 1.51, p = .47)
Path verb types	(x^2 (2) = .52, p = .77)
Path satellite tokens	(x^2 (2) = 3.4, p = .18)

Appendix K1 RBS1Pairwise comparisons Input group

Input group

Pairwise Comparisons[a]

Measure: Manner tokens

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	-7.207*	.629	.000	-8.807	-5.606
	3	-7.310*	.707	.000	-9.111	-5.509
2	1	7.207*	.629	.000	5.606	8.807
	3	-.103	.750	1.000	-2.013	1.806
3	1	7.310*	.707	.000	5.509	9.111
	2	.103	.750	1.000	-1.806	2.013

Pairwise Comparisons[a]

Measure: Manner types

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	-1.690*	.306	.000	-2.470	-.910
	3	-1.586*	.202	.000	-2.100	-1.073
2	1	1.690*	.306	.000	.910	2.470
	3	.103	.273	1.000	-.593	.800
3	1	1.586*	.202	.000	1.073	2.100
	2	-.103	.273	1.000	-.800	.593

Based on estimated marginal means

Pairwise Comparisons[a]

Measure: MPPBC

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	-5.759*	.595	.000	-7.273	-4.244
	3	-6.621*	.627	.000	-8.216	-5.025
2	1	5.759*	.595	.000	4.244	7.273
	3	-.862	.691	.667	-2.621	.897
3	1	6.621*	.627	.000	5.025	8.216
	2	.862	.691	.667	-.897	2.621

Measure: MPNonBC

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	-1.828*	.351	.000	-2.722	-.933
	3	-1.207*	.382	.011	-2.181	-.233
2	1	1.828*	.351	.000	.933	2.722
	3	.621	.453	.545	-.534	1.775
3	1	1.207*	.382	.011	.233	2.181
	2	-.621	.453	.545	-1.775	.534

Measure: manneronly

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	.414	.225	.229	-.159	.986
	3	.517*	.196	.040	.018	1.017
2	1	-.414	.225	.229	-.986	.159
	3	.103	.224	1.000	-.467	.673
3	1	-.517*	.196	.040	-1.017	-.018
	2	-.103	.224	1.000	-.673	.467

Pairwise Comparisons[a]

Measure: Pathtypes

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	2.103*	.319	.000	1.291	2.916
	3	2.793*	.345	.000	1.914	3.672
2	1	-2.103*	.319	.000	-2.916	-1.291
	3	.690	.382	.244	-.282	1.661
3	1	-2.793*	.345	.000	-3.672	-1.914
	2	-.690	.382	.244	-1.661	.282

Measure: Pathtokens

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c] Lower Bound	Upper Bound
1	2	6.586*	.897	.000	4.303	8.870
	3	5.655*	.748	.000	3.750	7.560
2	1	-6.586*	.897	.000	-8.870	-4.303
	3	-.931	.570	.341	-2.383	.521
3	1	-5.655*	.748	.000	-7.560	-3.750
	2	.931	.570	.341	-.521	2.383

Measure: Satellitetokens

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c] Lower Bound	Upper Bound
1	2	-5.000*	.940	.000	-7.395	-2.605
	3	-5.517*	.784	.000	-7.514	-3.521
2	1	5.000*	.940	.000	2.605	7.395
	3	-.517	.603	1.000	-2.053	1.018
3	1	5.517*	.784	.000	3.521	7.514
	2	.517	.603	1.000	-1.018	2.053

Pairwise Comparisons[a]

Measure: satellitetypes

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b] Lower Bound	Upper Bound
1	2	-.414	.569	1.000	-1.863	1.036
	3	.138	.360	1.000	-.780	1.056
2	1	.414	.569	1.000	-1.036	1.863
	3	.552	.534	.930	-.807	1.910
3	1	-.138	.360	1.000	-1.056	.780
	2	-.552	.534	.930	-1.910	.807

Appendix K2 RBS narratives Output group

Pairwise Comparisons[a]

Measure: Mannertokens

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	-6.567*	.634	.000	-8.177	-4.957
	3	-4.767*	.829	.000	-6.872	-2.661
2	1	6.567*	.634	.000	4.957	8.177
	3	1.800	.760	.074	-.132	3.732
3	1	4.767*	.829	.000	2.661	6.872
	2	-1.800	.760	.074	-3.732	.132

Pairwise Comparisons[a]

Measure: Manner types

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	-1.833*	.336	.000	-2.687	-.980
	3	-1.033*	.370	.027	-1.973	-.094
2	1	1.833*	.336	.000	.980	2.687
	3	.800	.408	.179	-.237	1.837
3	1	1.033*	.370	.027	.094	1.973
	2	-.800	.408	.179	-1.837	.237

Based on estimated marginal means

Pairwise Comparisons[a]

Measure: MPPBC

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	-5.967*	.644	.000	-7.603	-4.330
	3	-5.100*	.707	.000	-6.896	-3.304
2	1	5.967*	.644	.000	4.330	7.603
	3	.867	.639	.557	-.757	2.491
3	1	5.100*	.707	.000	3.304	6.896
	2	-.867	.639	.557	-2.491	.757

Pairwise Comparisons[a]

Measure: MPNonBC

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	-1.567*	.355	.000	-2.468	-.666
	3	-.700	.362	.190	-1.621	.221
2	1	1.567*	.355	.000	.666	2.468
	3	.867	.377	.086	-.091	1.824
3	1	.700	.362	.190	-.221	1.621
	2	-.867	.377	.086	-1.824	.091

c. Adjustment for multiple comparisons: Bonferroni.

Measure: manneronly

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	.933*	.332	.026	.090	1.777
	3	1.000*	.296	.006	.249	1.751
2	1	-.933*	.332	.026	-1.777	-.090
	3	.067	.318	1.000	-.741	.874
3	1	-1.000*	.296	.006	-1.751	-.249
	2	-.067	.318	1.000	-.874	.741

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Treatment group = output group

c. Adjustment for multiple comparisons: Bonferroni.

Measure: Pathtypes

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	1.667*	.308	.000	.883	2.450
	3	1.167*	.356	.008	.262	2.071
2	1	-1.667*	.308	.000	-2.450	-.883
	3	-.500	.342	.462	-1.368	.368
3	1	-1.167*	.356	.008	-2.071	-.262
	2	.500	.342	.462	-.368	1.368

Based on estimated marginal means

Measure: Pathtokens

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c] Lower Bound	Upper Bound
1	2	5.800*	.732	.000	3.939	7.661
	3	3.433*	.927	.003	1.078	5.788
2	1	-5.800*	.732	.000	-7.661	-3.939
	3	-2.367*	.725	.008	-4.208	-.525
3	1	-3.433*	.927	.003	-5.788	-1.078
	2	2.367*	.725	.008	.525	4.208

*. The mean difference is significant at the .05 level.

a. Treatment group = output group

Measure: Satellitetokens

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c] Lower Bound	Upper Bound
1	2	-4.233*	.643	.000	-5.866	-2.600
	3	-4.733*	.776	.000	-6.705	-2.762
2	1	4.233*	.643	.000	2.600	5.866
	3	-.500	.666	1.000	-2.191	1.191
3	1	4.733*	.776	.000	2.762	6.705
	2	.500	.666	1.000	-1.191	2.191

*. The mean difference is significant at the .05 level.

a. Treatment group = output group

c. Adjustment for multiple comparisons: Bonferroni.

Measure: satellitetypes

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b] Lower Bound	Upper Bound
1	2	1.167	.496	.077	-.094	2.427
	3	1.200	.495	.065	-.057	2.457
2	1	-1.167	.496	.077	-2.427	.094
	3	.033	.400	1.000	-.982	1.049
3	1	-1.200	.495	.065	-2.457	.057
	2	-.033	.400	1.000	-1.049	.982

a. Treatment group = output group

b. Adjustment for multiple comparisons: Bonferroni.

Appendix K3 RBS Pairwise comparisons verb-framed participants

Measure: Manner verb tokens Verb-framed

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c] Lower Bound	Upper Bound
1	2	-7.444*	.500	.000	-8.689	-6.200
	3	-6.511*	.590	.000	-7.980	-5.043
2	1	7.444*	.500	.000	6.200	8.689
	3	.933	.611	.401	-.587	2.454
3	1	6.511*	.590	.000	5.043	7.980
	2	-.933	.611	.401	-2.454	.587

Measure: Manner verb types Verb-framed

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c] Lower Bound	Upper Bound
1	2	-1.756*	.255	.000	-2.389	-1.122
	3	-1.378*	.197	.000	-1.867	-.888
2	1	1.756*	.255	.000	1.122	2.389
	3	.378	.241	.370	-.221	.977
3	1	1.378*	.197	.000	.888	1.867
	2	-.378	.241	.370	-.977	.221

Measure: MPBC Verb-framed

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c] Lower Bound	Upper Bound
1	2	-6.578*	.487	.000	-7.789	-5.366
	3	-6.311*	.546	.000	-7.669	-4.953
2	1	6.578*	.487	.000	5.366	7.789
	3	.267	.526	1.000	-1.041	1.575
3	1	6.311*	.546	.000	4.953	7.669
	2	-.267	.526	1.000	-1.575	1.041

Measure: MPnonBC Verb-framed

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	-1.689*	.284	.000	-2.396	-.982
	3	-.889*	.272	.006	-1.566	-.212
2	1	1.689*	.284	.000	.982	2.396
	3	.800	.352	.084	-.076	1.676
3	1	.889*	.272	.006	.212	1.566
	2	-.800	.352	.084	-1.676	.076

Measure: Manner only Verb-framed

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	.844*	.196	.000	.357	1.332
	3	.711*	.200	.003	.213	1.209
2	1	-.844*	.196	.000	-1.332	-.357
	3	-.133	.184	1.000	-.592	.325
3	1	-.711*	.200	.003	-1.209	-.213
	2	.133	.184	1.000	-.325	.592

Measure: Path tokens Verb-framed

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	6.511*	.686	.000	4.804	8.218
	3	5.267*	.649	.000	3.651	6.883
2	1	-6.511*	.686	.000	-8.218	-4.804
	3	-1.244	.518	.061	-2.533	.044
3	1	-5.267*	.649	.000	-6.883	-3.651
	2	1.244	.518	.061	-.044	2.533

Measure: Satellite tokens Verb-framed

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound

Measure: Path types Verb-framed

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	1.867*	.243	.000	1.261	2.472
	3	2.178*	.285	.000	1.469	2.887
2	1	-1.867*	.243	.000	-2.472	-1.261
	3	.311	.267	.753	-.355	.977
3	1	-2.178*	.285	.000	-2.887	-1.469
	2	-.311	.267	.753	-.977	.355
1	2	-4.889*	.678	.000	-6.577	-3.201
	3	-5.022*	.595	.000	-6.503	-3.541
2	1	4.889*	.678	.000	3.201	6.577
	3	-.133	.519	1.000	-1.425	1.158
3	1	5.022*	.595	.000	3.541	6.503
	2	.133	.519	1.000	-1.158	1.425

Measure: Satellite types Verb-framed

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	.956	.433	.098	-.123	2.034
	3	1.089*	.357	.011	.202	1.976
2	1	-.956	.433	.098	-2.034	.123
	3	.133	.386	1.000	-.828	1.094
3	1	-1.089*	.357	.011	-1.976	-.202
	2	-.133	.386	1.000	-1.094	.828

Appendix K4 RBS Pairwise comparisonsSatellite-framed participants

Measure: Manner verb tokens Satellite-framed

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	-5.273*	.992	.001	-8.119	-2.426
	3	-4.818*	1.650	.046	-9.555	-.081
2	1	5.273*	.992	.001	2.426	8.119
	3	.455	1.253	1.000	-3.142	4.051
3	1	4.818*	1.650	.046	.081	9.555
	2	-.455	1.253	1.000	-4.051	3.142

Measure: Manner verb types Satellite-framed

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	-1.909*	.547	.017	-3.479	-.339
	3	-1.273	.634	.217	-3.092	.546
2	1	1.909*	.547	.017	.339	3.479
	3	.636	.801	1.000	-1.662	2.935
3	1	1.273	.634	.217	-.546	3.092
	2	-.636	.801	1.000	-2.935	1.662

Measure: MPBC Satellite-framed

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	-3.727*	.864	.005	-6.208	-1.247
	3	-4.455*	1.098	.007	-7.607	-1.302
2	1	3.727*	.864	.005	1.247	6.208
	3	-.727	1.362	1.000	-4.638	3.183
3	1	4.455*	1.098	.007	1.302	7.607
	2	.727	1.362	1.000	-3.183	4.638

Measure: MPnonBC Satellite-framed

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	-2.000*	.647	.034	-3.856	-.144
	3	-1.364	.887	.466	-3.909	1.182
2	1	2.000*	.647	.034	.144	3.856
	3	.636	.636	1.000	-1.190	2.463
3	1	1.364	.887	.466	-1.182	3.909
	2	-.636	.636	1.000	-2.463	1.190

Measure: Manner only Satellite-framed

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	2	.364	.664	1.000	-1.543	2.270
	3	.818	.483	.363	-.567	2.204
2	1	-.364	.664	1.000	-2.270	1.543
	3	.455	.434	.959	-.791	1.700
3	1	-.818	.483	.363	-2.204	.567
	2	-.455	.434	.959	-1.700	.791

Measure: Path tokens Satellite-framed

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c]	
					Lower Bound	Upper Bound
1	2	5.091*	1.261	.007	1.472	8.710
	3	1.909	1.604	.784	-2.694	6.512
2	1	-5.091*	1.261	.007	-8.710	-1.472
	3	-3.182	1.182	.068	-6.574	.210
3	1	-1.909	1.604	.784	-6.512	2.694
	2	3.182	1.182	.068	-.210	6.574

Measure: Path types Satellite-framed

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b] Lower Bound	Upper Bound
1	2	1.909	.667	.051	-.005	3.823
	3	.909	.780	.812	-1.329	3.147
2	1	-1.909	.667	.051	-3.823	.005
	3	-1.000	.820	.752	-3.354	1.354
3	1	-.909	.780	.812	-3.147	1.329
	2	1.000	.820	.752	-1.354	3.354

Measure: Satellite tokens Satellite-framed

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[c]	95% Confidence Interval for Difference[c] Lower Bound	Upper Bound
1	2	-4.545*	1.048	.004	-7.552	-1.539
	3	-6.455*	1.510	.005	-10.788	-2.121
2	1	4.545*	1.048	.004	1.539	7.552
	3	-1.909	1.004	.259	-4.791	.973
3	1	6.455*	1.510	.005	2.121	10.788
	2	1.909	1.004	.259	-.973	4.791

Measure: Satellite types Satellite-framed

(I) RBS	(J) RBS	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b] Lower Bound	Upper Bound
1	2	-2.000	.714	.056	-4.048	.048
	3	-1.000	.505	.227	-2.448	.448
2	1	2.000	.714	.056	-.048	4.048
	3	1.000	.798	.716	-1.290	3.290
3	1	1.000	.505	.227	-.448	2.448
	2	-1.000	.798	.716	-3.290	1.290

Appendix L1 Shortest participant narrative (Input group)

RBS1 Placement test =34 (B1) L1 Arabic Participant 4

1. It was a Christmas .A boy was asleep in his room.
2. The boy saw a robot dreamily, the robot got out of his box.
3. The robot went in the wardrobe and jumping and dancing.
4. The robot fell over on his head.
5. The robot flew over buildings.
6. Robots were everywhere and they gathered in an area.
7. The robot went home. His wife called him.
8. His wife went out and asked him to bring bees.
9. His wife followed him.
10. The robot saw two dogs and bees, they were waiting for hime.
11. The robot opened the door and entered.
12. He talked to them.
13. The bees followed the robot.
14. His wife was standing behind him.
15. The robots took the bees to another place.
16. They went upstairs.
17. The robot **jumbed in**a taxi.
18. The taxi took him to home.
19. He droped off at home.
20. He opened the door of the wardope.
21. He went up by the wardope.
22. He came back to the room.
23. He went in the box where was inside and closed the box.
24. The dream ended and the boy woke up.

.

1. The big robot was in the wardrobe. He saw a toy box.
2. The small robot come out of the box.
3. The robot walked out of the room while a boy ran up the stairs.
4. The boy walked into his room and found the small robot laying over the floor.
5. The boy liked the robot.
6. The boy took the robot .
7. The another robot crawled out of the window.
8. The robot felt into a bin.
9. The robot jumped out of a bin.
10. He fell into a truck.
11. At a station there was a cyclist on the road.
12. the cyclist stole their toy .
13. The robot jumped out of the truck .
14. The robot walked in the street.
15. A boy hasn't got his toy.
16. The robot he was follow the man.
17. The bird stole a bag with the toy robot.
18. The bag went into the back of the truck.
19. The truck stopped at a traffic light.
20. The robot jumped out of the truck .
21. The robots climbed a pipe to window.
22. The boy ran up stairs and the robots were in the room.
23. One of the robots walked back into the wardrobe and the other went to the box
24. The boy held the robot again and was happy.

RBS3 **Participant 4**

1. It was Christmas. A boy was asleep in his room.
2. A robot got out of a box.
3. The robot walked into the wardrobe.
4. There was a hole inside the wardoobe. The robot fell through it.
5. He fell into a building where there is a helicopter and every thing is automatic.
6. He walked towards some other robots.
7. He walked to his girlfriend's house.
8. His girlfriend got out of the house.
9. She followed him.
10. He walked on the street to another building.
11. He walked into that building.
12. He got in the building where there are a dog and bees.
13. The two bees flew out of the building following him.
14. His girlfriend followed him.
15. She helped her boy friend and took the bees into a building.
16. He walked upstairs and the bees flew upstairs behind him.
17. He jumped onto a taxi aircraft.
18. The taxi took him to home.
19. He jumped out of the aircraft.
20. He walked into the elevators.
21. He said goodbye to his girlfriend.
22. He climbed up wardrobe.
23. He walked to the box and his girlfriend climbed after him.
24. The boy woke up.

Appendix L2 Average length Participant narrative (Input group)

RBS1 Placement test =44 (B2) L1 Korean **Participant 12**

1. It was Christmas. A boy was asleep in his room.
2. In the middle of the night, a robot which was a boy's present tried to get out of a box.
3. The robot was excited because he was about to go back home.
4. In order to go home**, he jumped into a hole** which is located in wardrobe.
5. At the time he arrived in town, it was a rush hour.
6. On the way home, he saw a coffee shop and some people was drinking a cup of tea.
7. His mom waited for him and took a rest drinking coffee.
8. The robot forgot to meet his teacher together at home. When he saw two cups on the table he realized.
9. He run away and his mom chased.
10. He found a good place to hide. It was dog's house.
11. He went into dog's house quickly.
12. He was shocked on the grounds that there were two bees.
13. He managed to run away from bees.
14. His mom found him by accident and called him. However he couldn't stop running.
15. Luckily the robot found a door and his mom decided to let him go.
16. He kept running and climbed some stairs as fast as he could.
17. He was so lucky that he could catch a taxi quickly.
18. This taxi was heading toward a boy's house.
19. The taxi arrived in front of the elevator.
20. There was nobody in an elevator and he went into elevator alone.
21. His mom worried about him and she just kept watching on him.
22. The robot came back a boy's house without any difficulties.
23. The robot was going to into the box as if he didn't go out.
24. In the morning, the boy woke up and the robot's mom felt relieved because he arrives home.

1. The big robot was in the wardrobe. He saw a toy box.
2. The big robot helped the small robot to get out of the toy box.
3. The young boy walked up to the room. The small robot saw the young boy in the room.
4. The robot hided under the bed and the small robot was lying on the floor when the young boy walked into the room.
5. The young boy picked up the small robot.
6. The young boy run out of the room holding the small robot.
7. The big robot tried to climb out of the window. He was falling into a bin using a drainpipe.
8. He ended up succeeding in falling into a bin.
9. The big robot crawled out of the bin. He saw a lorry and there were the young man and his mother.
10. The big robot climbed into the lorry.
11. A thief was riding a bike heading toward the lorry. Young boy's family got out of the lorry.
12. The thief stole the small robot in the lorry. The big robot saw him.
13. The thief run away from the lorry. The big robot jumped out of the lorry to catch him.
14. The small robot was in thief's backpack. The big robot chased the thief.
15. Young boy's mother drove out of ^ ^the ^ ^ gas station.
16. There was a bird in the sky. The big robot asked the bird to help him rescue the small robot.
17. The bird snatched the small robot from thief's back.
18. The bird dropped the small robot off the lorry.
19. The lorry stopped because of the traffic signal. The big robot jumped into the lorry.
20. Robots walked out of the lorry before young boy's family got out of the lorry.
21. Robots walked on the drainpipe to go into the room.
22. Robots arrived in the room. The young boy walked up the stair.
23. The small robot was lying on the floor when the young boy got into the room. The big robot walked into the wardrobe.
24. The small boy smiled and huged the small robot.

RBS3 **Participant 12**

1. It was Christmas. A boy was asleep in his room.
2. A robot climed out of a Christmas box.
3. The robot went into the wardrobe and was about to jump into a wardrobe.
4. The robot jumped into a hole which was in a wardrobe
5. The robot got out of the hole and arrived in the new city.
6. He walked into a coffee shop. There were many robots.
7. The robot saw his mother. She was drinking a cup of coffee.
8. He walked into the house. There were two cups on the table.
9. The robot run away from mother. She chased him
10. He found an animal conservation center.
11. He run into the animal conservation center.
12. He was hidden in the center with 2 bees and a dog.
13. The robot run out of the center because two bees started to attack him
14. His mom saw the robot running away from two bees.
15. The robot run into the door to avoid two bees.
16. The robot climbed up to the stairs
17. He found a taxi as soon as he jumped out of the door.
18. The taxi driver drove a taxi heading toward a boy's house elevator.
19. The robot jumped out of a taxi.
20. He walked into the elevator.
21. His mom kept looking at him and he flew into the hole.
22. The robot crawled out of the hole to get into the room.
23. The robot walked into the Christmas box again.
24. The boy woke up in the morning and the robot's mum said good bye to his son.

Appendix L3 Average length Participant narrative (Output group)

RBS1 Placement test =33 (B1) L1 Japanese Participant 59

1. It was Christmas. A boy was asleep in his room.
2. The robot was coming out from the box.
3. The robot tried to escape into a closet hole.
4. It was successful. **<u>He jumped into hole.</u>**
5. The hole was connected to a toy land.
6. There were many robot friends.
7. Finally he saw a lovely lady inside café.
8. When she came out, she was falling in love in first sight.
9. But he didn't want to meet her because she was so big than him.
10. He just ran out from her, he saw the dog in the shop.
11. He directly entered into an animal shop.
12. There were two birds. He wanted help them to escape from a cage.
13. The birds followed to him.
14. But he didn't like that because he thought the birds annoyed him.
15. He ran away again from them while the lady robot was watching that situation.
16. He found some stairs but he didn't know where there was the end of stairs.
17. He catched a taxi the end of stairs.
18. He wanted come back to home by that taxi.
19. He was happy when he arrived the door which it can go back home.
20. He entered into the door.
21. When he came back home , she missed him.
22. Finally he arrived in his home.
23. He returned into the Chrismas box.
24. But he didn't know that she followed to

1. The big robot was in the wardrobe. It saw a toy box.
2. The lady robot opened a toy box. She found him.
3. One girl came into the house.
4. The girl came into the room.
5. The girl saw that the robot was outside of the box. She picked up the robot.
6. The girl went out of the room with the robot.
7. The lady robot hung out of a window while was in the room.
8. But she fall into the bin.
9. The lady robot went out of the bin.
10. After the lady robot jumped into the truck.
11. The car parked in front of the petrol station.
12. A boy who was riding a bicycle on that road stolen the robot from car.
13. The lady robot took into another truck to catch him.
14. She ran to him.
15. The girl saw that situation on the car during they went back to home.
16. The lady robot asked a bird to help.
17. Finally the bird caught the robot from a boy. The robot fell into the truck first.
18. She ran into the truck.
19. She jumped into the truck too.
20. When they arrived nearby house. They jumped out of truck quickly.
21. They climbed into the house through pipes.
22. At that time, the girl ran into the house too.
23. The lady robot left the robot alone in the room. She ran into the wardrobes again.
24. The girl felt happy when she found her robot in her room.

1. It was Christmas. A boy was asleep in his room.
2. A robot was getting out of a box.
3. He found one hole which could go out of somewhere.
4. He was jumping into the hole.
5. He was falling down from the sky.
6. He was walking in the street.
7. He saw a lady robot who was drinking a cup of coffee inside the café.
8. When she also saw him, she was getting out of the café.
9. But he was running away from her.
10. He found the animal shop in the street.
11. He was going into the shop.
12. As soon as he was going into the shop. He opened the door which there are two birds inside.
13. He was running out of the shop with birds.
14. At that time, the lady robot saw that situation.
15. The robot was running into the door.
16. He was running on the high stairs.
17. He was climbing out of the window and caught a flying taxi.
18. He arrived at home by the flying taxi.
19. He was jumping out of the taxi.
20. He was going into the elevator which could go back house.
21. At that time, she saw him while he was going into the hole.
22. Finally, he arrived at home and was going into the box.
23. She also followed him at the same same through the hole.
24. Suddenly, a girl who was sleeping in the bed was getting up.

Appendix L4 Longest Participant narrative (Input group)

RBS1 Placement test =31 (B1) L1 French Participant 15

1. It was Christmas. A boy was asleep in his room.
2. its remind me the last christmas. I was very tired and I slept faster, and I make a funny dream
3. I offered a similar toy to my nephew but he didn't like it and put it in the cupboard.
4. when I opened the cupboard's door, I found the toy and broken
5. I took it and I put it with my older toys in the attic
6. I didn't know what happened after but there were strange sounds and all toys began alive and made their new life.
7. they could walk, phone and use things. We would say real human beings.
8. I saw the male toy wanted to drink the tea with the female toy, who smiled.
9. I think that they fell in love one of the other one and happy
10. After the man came back at his home, there were his two dogs which waited him for.
11. he opened the door and one the dog disappeared.
12. He spoken with other one dog while by the window they were a plane's war or bees wanted to entry inside the house.
13. the dog was disappointed and the men went out the room, however he was followed by bees.
14. an impressive tall man met him in the street and showed him that he was followed by two bees.
15. This strange smiling taller man said to him: " don't worry they like you"
16. he came back at home and went up staircases; Always with this two bees and began to think about a new way
17. He **jumped over** his window and **jumped in** a taxi by air.
18. He arrived in front of his own door home with a big ^^happy^^ smile
19. He **jumped outside** the taxi and left towards the front door of the house.
20. He entered the elevator and made up (composed) the code
21. He saw by the glass windows beautiful things but he forgot stopping the elevator and it was very dark and dangerous above it a and his mother was very worried
22. Finally he came back ^^ and down ^^ at his first place where it was, that is in the bottom of the cupboard.
23. He heard a noise and hid, but also wanted to see who arrived. He saw a person putting down an enormous gift in the room
24. It was the day of christmas and the boy woke up with a bautiful smile because he saw his christmas present and the toy was happy that he knew this boy liked it.

1. The robot was in the wardrobe. It saw a toy box.

2. The big robot ran to the box to help the other robot small robot.

3. The boy ran upstairs.

4. He ran into his room. The one robot was next to the box.

5. He picked up that robot.

6. He ran out of the room with the small robot.

7. The big robot climbed out of the window.

8. He fell into a water container.

9. He jumped out of the container

10. and into the back of the truck. The boy and his mum were going away.

11. They arrived at a petrol station and went into the shop without the toys.

12. The robots were alone in the truck and a thief robbed the truck.

13. The thief took the small robot but the big robot saw that.

14. The big robot chased the thief to save his friend.

15. When the boy returned to the car, he was confused because he couldn't find his toy.

16. The big robot ran after the thief and called a bird for help.

17. The bird flew down and got the thief backpack.

18. The bird dropped the backpack into the truck.

19. At the traffic lights, the big robot jumped into the back of the truck.

20. When they arrived at home, the robots jumped out of the car.

21. They ran up the wall of the house.

22. They wanted to climb into the bedroom. The boy ran into the house to check his toys.

23. The boy ran up the stairs and ran into his room where he found his small robot which it was left it.

24. This was their happy ending.

RBS3 **Participant 15**

1. It was Christmas. A boy was asleep in his room.

2. Last Christmas, my nephew was sleeping and a toy woke up in the box.

3. the robot toy climbed out of the box and hid in the cupboard.

4. When it opened the cupboard's door, it fell down because there was a black hole.

5. On the other side there was a new life waiting for him.

6. the robot began to visit the wonderful city

7. the robots were like real human beings and a female was drinking tea.

8. I saw the male robot wanted to drink the tea with the female toy.

9. They were falling in love outside the café.

10. the male robot went home because his dogs waited him for.

11. He went into the house to see his pets.

12. But bees flew into the house

13. The robot went out of the house, but he was followed by the angry bees.

14. the female robot saw that he was followed by two bees.

15. The woman told him the bees are friendly. (I think she was lying)

16. At home he ran up staircases to find a new way.

17. He jumped out of a window and jumped into a flying taxi.

18. He arrived home and he was happy.

19. He jumped out of the the taxi and went into the front door of the house.

20. He went into the elevator and put in a code to go up.

21. He looked out the elevator The female robot mother was very worried

22. Finally he came back in the bottom of the cupboard.

23. He went into the boy’s gift in the room

24. At christmas the boy woke up with a smile because he saw his present.