Chapter Two

Literature Review

This chapter reviews literature on the linguistic features of English RCs and acquisition of this complex construction by EFL/ESL learners. Section 2.1 generally describes English RCs in terms of their structural and functional properties. Section 2.2 presents previous empirical studies on variables that have been found to influence English RC acquisition, in particular, L1 interference and universal factors.

2.1 General Descriptions of English Relative Clauses

This section gives a brief overview of English RCs with respect to their structure and function. The descriptions are presented in general terms, since an extensive linguistic analysis of the construction is not intended here. Only those aspects of English RCs that serve as the basis of materials for the present study are discussed, including (1) the syntactic dimensions of English RCs as a post-nominal, clause-size noun modifier; and (2) the functional dimensions of English RCs as a referent-tracking strategy, an information-adding interpolator, and a backgrounding device.

2.1.1 Syntactic Dimensions of English Relativization

In transformational terms, the relative construction in English has for a long time been viewed as being formed via the process of relativization, in which the input is a simple sentence and, with such rules applied as relative marker substitution and

relative marker fronting, the output is a post-nominal RC as a clause-size noun modifier within a noun phrase (NP) (Givon, 1993: 107). Syntactically, it is a subordinate clause which is embedded inside an NP in another higher-order or superordinate clause in such a manner that it becomes part of the main clause as a complex adjectival construction[1]. Take sentence (3) below for example:

(1) The woman *who is standing next to the door* is my teacher.

In (3), the RC *who is standing next to the door* is closely associated with the NP *the woman* in the main clause in that they together form a complex NP: *the woman who is standing next to the door*, where the RC is incorporated into another superordinate clause and functions much like an adjective. Without the relative construction, one would not have other ways of expressing the same proposition than coding it in two independent clauses, as shown in (4):

(2) The woman is my teacher. She is standing next to the door.

(Or: The woman is my teacher and she is standing next to the door.)

The RC is so called because it is related to the matrix clause by virtue of the co-referential relationship held between its antecedent in the main clause and an anaphoric element, either overt (e.g. relative pronouns and determiner: *who*, *whom*, *which*, *whose*) or covert (e.g. the subordinator/complementizer *that* and the zero

[1] This embedding nature of English RCs applies to restrictive ones only. In a strict sense, non-restrictive RCs are not considered embedded clauses as they are often separated from head NPs by an intonational break (or a comma in writing).

relative Ø), in the embedded clause (Huddleston et al., 2003: 1034). Take sentence (3) above for example. The overt anaphoric marker *who* is interpreted as co-referential with the NP *the woman* as it is used to replace the same NP *the woman* in the RC, as can be illustrated in (5):

(3) The woman〔*who is standing next to the door*〕is my teacher.

＞The woman〔~~*the woman*~~ *is standing next to the door*〕is my teacher.

Normally, the choice of the anaphoric element or relative marker in English RCs depends on the following three factors (Quirk et al., 1985: 1247-1248): (1) the relation of the RC to its antecedent—whether it is restrictive or non-restrictive (e.g. the complementizer *that* and the zero relative Ø cannot be used in non-restrictive RCs); (2) the animacy of the antecedent—whether it is human or nonhuman; and (3) the grammatical function of the relative marker—whether it functions as a subject, an object, a prepositional complement, a predicative complement, a determiner, or an adverb.

With regard to relativization sites—namely, which grammatical roles of a co-referent noun in the embedded clause can be relativized—English RCs can syntactically be divided into seven types: subject, direct object, indirect object, prepositional object, predicative complement, possessive determiner, and adverb, each exemplified in the following sentences:

(4) Subject: They are delighted with the person *who has been appointed*.

(5) Direct object: They are delighted with the person *who we have appointed*.

(6) Indirect object: They are delighted with the person *who we gave a call to*.

(7) Prepositional object: They are delighted with the person *who we spoke to*.

(8) Predicative complement: She is the perfect accountant *which her predecessor was not*.

(9) Possessive determiner: The woman *whose daughter you met* is Mrs. Brown.

(10) Adverb: 1950 is the year *when I was born*.

When taking into account the syntactic position in the matrix clause of NPs being modified by RCs, one then has a greater variety of English RCs.[2] Part of this diversity is well illustrated in Table 1:

[2] For the sake of research focus, the scope of the present study is limited to those prototypical, fully-fledged RCs as in examples (6)-(12) above, as opposed to such variant RC types as reduced RCs (i.e. prepositional, participial, or adjectival phrases), free (headless or fused) RCs, cleft RCs, or non-finite RCs, as in examples (i)-(iv) below, respectively:

(i) Reduced RC: The woman *standing next to the door* is my teacher.

(ii) Free RC: *What happened then* was strange.

(iii) Cleft RC: It was Kim *who wanted Pat as treasurer*.

(iv) Non-finite RC: We found someone *to fix the roof*.

However, among the seven RC types, classified in terms of relativization sites, predicative complement and adverb RCs are excluded from the study due to the low frequency of the former and the interchangeability of the latter with prepositional object RCs—for instance, 1985 is the year *in which I was born* is synonymous with 1985 is the year *when I was born*.

Table 1: Example sentences for various relative clauses in English (adapted from Celce-Murcia & Larsen-Freeman, 1999: 579)

	Function of identical (i.e. relativized) NP in relative clauses				
Function of head NP in main clauses	*Subject*	*Direct object*	*Indirect object*	*Prepositional object*	*Determiner*
Subject	The girl *who speaks Basque* is my cousin.	The man *that you met* is my teacher.	The man *that I gave the book to* is over there.	The place *which you spoke about* is Denver.	The man *whose wife just died* is sad now.
Direct object	I know the girl *who speaks Basque*.	I know the place *that you mentioned*.	I know the man *that you gave the book to*.	I know the place *which you spoke about*.	I know the man *whose wife just died*
Indirect object	We gave the boy *who broke the window* a warning.	I sent the boy *that Mary saw* a letter.	I told the boy *that you gave the book to* a story	I gave the boy *that you were talking about* the book.	I gave the man *whose wife just died* a call.
Prepositional object	I talked with the girl *who speaks Basque*.	I worked for the man *that you met*.	Mary knows about the boy *that I gave the book to*.	I know of the place *which John spoke about*.	I talked with the man *whose wife just died.*
Predicate noun	Mr. Thomas is a teacher *who prepares his lessons*.	Latin is the subject *that Mr. Thomas teaches*.	He's the boy *that I gave the present to*.	Denver is a place *which you will want to go to*.	Mr. Thomas is the man *whose wife just died*

2.1.2 Functional Dimensions of English Relativization

English RCs can be categorized as either restrictive or non-restrictive,[3] depending on whether they serve the function of tracking down a referent or adding a parenthetical assertion. Since restrictive RCs represent the prototype of RCs, we

[3] As indicated by Morris (1969), different terms have been proposed for the same restrictive—non-restrictive distinction of English RCs, such as defining—non-defining, restrictive—descriptive, restrictive—continuative, restrictive—amplifying, and restrictive—parenthetical. In this paper, we shall retain the terms "restrictive" and "non-restrictive," since they have wider currency in the linguistic literature.

will first expound their functional aspects.

2.1.2.1 Restrictive Relative Clauses as a Referent-tracking Strategy

Semantically, restrictive RCs (henceforth RRCs), as their name suggests, serve to restrict the denotation of an NP they modify to a smaller subset (Quirk et al., 1985: 1239). That is, they have the effect of further delimiting the domain of reference of an NP, thereby specifying to the hearer exactly which one(s) or what type/kind is meant by the speaker. Consider:

(11) The runners *who reached the finishing line* were hailed by the crowd.

In (13), the RRC functions to narrow the whole set of runners down to a smaller group of runners—i.e. *only* those runners who had reached the destination were cheered by the crowd, whereas the unsuccessful others were not. Without the modification supplied by the RRC to single out a limited subset of runners, the hearer of (13) would have difficulty knowing which runners are being referred to by the speaker.

Functionally, RRCs serve to furnish essential information to assist the hearer in tracking down a referent in question as either a known entity or a particular type (Givon, 1990, 1993, 2001). In tracking down a referent, RRCs at the same time serve to establish in the hearer's mind a coherence relation for it (i.e. referential coherence). More specifically, RRCs also function to make a referent relevant to the

hearer at the particular point when it is mentioned by grounding—or relating—it to his/her pre-existing knowledge base or abuilding mental text-structure.

According to their scope of referent-tracking (i.e. a known entity versus a particular type) and direction of referential grounding (i.e. anaphoric versus cataphoric), English RRCs can be further divided into two functional subtypes: identifying RRCs and characterizing RRCs[4].

2.1.2.1.1 Restrictive Relative Clauses that Identify Definite NPs

Most typically, RRCs are used to help the hearer identify an already known referent in his/her current knowledge base. According to Givon (1993: 108), the common communicative context for using RRCs is "when the speaker assumes that a referent's identity is accessible to the hearer—i.e. definite—but not easily accessible," that is to say, the hearer needs some *reminding* so as to track down the known referent. Therefore, to aid him/her in successfully identifying the referent, the speaker further provides a proposition depicting an event/state presumably familiar to the hearer in which the referent participated as subject, direct object, indirect object, etc. This explicit cuing proposition is then manifested syntactically as an RRC which carries presupposed (i.e. old) information to modify a definite NP (i.e. with the definite

[4] This functional categorization of RRCs is based on Givon's (1990; 1993; 2001) comprehensive accounts of English RRCs, and for ease of reference, the researcher here adopts two terms, "identifying" and "characterizing," to refer to the two functional subtypes. The two terms in effect correspond to "grounding" (or "anchoring") and "description," respectively, employed by Fox and Thompson (1990) in their classification of RRC functions.

article *the*). To illustrate this point, sentences (14) and (15) are given:

(12) The woman *who is standing there* is my teacher.

(13) The woman *I told you about* is now my teacher.

In order for these RRCs to fully assist the hearer in identifying the referent of *the woman*, the speaker must assume that the hearer of (14) has somehow noticed the woman sitting there and that the hearer of (15) still remembers what the speaker previously told him/her. This is so because if the hearer is not familiar with the event/state coded in an RRC, he/she in turn has no way of identifying a particular participant involved in that event/state.

Obviously, this identifying type of RRCs typically partakes in an anaphoric grounding, making a definite referent cohere (i.e. relevant to) with the hearer's readily-available mental storage of past experience. They, in conjunction with the definite article *the*, overtly prompt the hearer to launch a mental search for the referent in his/her "episodic–text memory or speech situation model" (Givon, 1993: 114).

2.1.2.1.2 Restrictive Relative Clauses that Characterize Indefinite NPs

The characterizing type of RRCs, on the other hand, is used to provide a description or qualification of a new referent (either logically referring or hypothetically referring) in order to "alert the hearer as to what the new referent is

like as a type." (Givon, 1990: 647) In contrast to identifying RRCs, characterizing RRCs typically track down a referent that is not previously known to the hearer, and code a proposition assumed by the speaker to be completely new information (but not asserted) to the hearer. Accordingly, the head NP of such RRCs tends to be indefinite, either non-referring or referring. Below are examples of RRCs with non-referring-indefinite and referring-indefinite head NPs (from Givon, 1993: 110-117):

(14) Non-referring: Anybody *who marries my sister* is asking for trouble.

(15) Non-referring: I know no man *who would do this*.

(16) Non-referring: Women *who love too much* are often disappointed.

(17) Referring: A man *who had no shoes on* collapsed in the bread-line.

(18) Referring: I know a woman at work *who you'd enjoy meeting*.

For RRCs with a non-referring-indefinite head NP, as in (16), (17), and (18), the information contained is not presupposed but assumed to be new to the hearer. Specifically, these RRCs "always fall under some non-fact modality, either irrealis or the habitual" and "code hypothetical states/events" in which their non-referring head is a participant (Givon, 1993:115). Accordingly, such RRCs as (16)-(18) express a conditional relationship with their non-referring head, as is illustrated by their semantic equivalents of (21), (22), and (23), respectively:

(19) If there is a man *who marries my sister*, he is asking for trouble.

(20) If there is a man *who would do this*, I do not know him.

(21) If there are women *who love too much*, they are often disappointed.

In a strictly logical sense, the heads of these RRCs are indeed non-referring; however, in pragmatic terms, they can be regarded as referring to a hypothetical individual verbally established in the universe of discourse.[5] Therefore, RRCs with a non-referring-indefinite antecedent serve to signal to the hearer what kind of hypothetical (non-)individual is being referred to by the speaker.

The referential grounding of these RRCs can be either anaphoric or cataphoric, depending on the referential status of their participants (Givon, 1993: 116). For instance, the RRCs in (16) and (17) contain the previously introduced participants *my sister* and *this*, thus grounding their heads anaphorically to the preceding discourse; the RRC in (18) contains no such participants, thereby establishing for its head some cataphoric coherence with the subsequent discourse.

For RRCs with a referring-indefinite head NP, as in (19) and (20), the information status of these RRCs is just as new as that of their main clauses. Since the event/state depicted in such RRCs is not presupposed as old information, it would be counterintuitive to expect the hearer to be able to identify a participant from the

[5] As Givon (1993: 213-214) argues, reference in language is not a mapping from linguistic expressions to individuals in the Real World, but rather to individuals in some universe of discourse.

event/state he/she does not know. Therefore, their head NPs are marked as indefinite, and these RRCs mainly serve to present the hearer with a salient mental representation of a new referent that cues the hearer as to what kind of entity—in (19) and (20), for example, what kind of man or woman—is being referred to.

Regarding their referential grounding, these RRCs ground a referring-indefinite referent catephorically to the hearer's abuilding mental structure of text, rather than his/her memory-stored past experience. In other words, they instruct the hearer to establish a coherence relation for the referent with the incoming—or yet-to-be transacted—discourse (Givon, 1990: 647-648).

It is worth noting that characterizing RRCs can often be exploited as a useful presentative device. To be precise, when occurring in the beginning position of a discourse unit, RRCs with indefinite NPs, besides characterizing, further serve to introduce a thematically important, new referent into the discourse (Chen, 2004). To illustrate this point, text (24) is given:

(22) From the outset, the Grameen Bank was built on principles <u>that ran counter to the conventional wisdom of banking</u>. It sought out the very poorest borrowers, and required no collateral. At first, Yunus offered loans to men because they, typically, were the bread-winners. But men frequently would gamble or drink away the money, he learned. Women turned out to be far more reliable borrowers, and unlike their husbands, they invested their money in food, clothing, and education for their children. Across cultural and geographical boundaries, these facts have held true, and most micro-lending organization now target women.

--"Poorest Women Gaining Equality"

(from Chen, 2004: 35)

In text (24), the underlined RRC helps present the new NP *principles* as the topic for the following discourse in two aspects. On the one hand, the RRC marks the NP as the discourse topic by giving it a salient initial description that facilitates subsequent reference (Givon, 2001: 177). On the other, the RRC also paves the way for the development of this discourse topic by coding information about it that is going to be further discussed (Chen, 2004: 36), which is evident from the rest of the text explaining how the principles of the Grameen Bank are different from those of traditional banks.

With such a discourse function in topic construction, RRCs are often used as an extra predication attached to a presentative clause with either existential *there* or such verbs as *be*, *live*, *come in*, *appear*, *get*, *have*, *know* (Givon, 1993: 206-209; 2001: 209-210), as exemplified in (25) and (26):

(23) Clause with existential *there*: There is a man here *who wants to see you*.

(24) Clause with a presentative verb: A man came in yesterday *who lost his wallet*.

In some sense, presentative RRCs, in comparison with their main clauses, carry foreground information (as opposed to background information), i.e. important information that contributes to the development of the discourse—a contradiction to Givon's (1979: 55) claim that in English, foregrounding tends to be realized

syntactically as main clauses, and backgrounding, subordinate clauses. Normally, these presentative RRCs act as the main focus of the whole sentence, namely, the significant part of what the speaker has to say. Compare sentences (27) and (28) with (25) and (26) above:

(25) ?There is a man here.

(26) ?A man came in yesterday.

Without the original RRC predication, the resulting sentences (27) and (28), though grammatically correct, are pragmatically odd in that there is little, if any, information value in the two semantically bleached sentences. The facts that there is a man here and that a man came in yesterday are not in themselves sufficiently newsworthy to be worth saying, that is, they are something that would, in many contexts, "go without saying." However, with the addition of RRCs, they provide a piece of relevant and important information that advances the discourse and serves as the locus of information in the sentences (Zhao, 1989, cited in Kamimoto et al., 1992). This information-focusing, associated with presentative RRCs, may well explain the motivation for extraposing an RRC when it serves as a presentative device, as in (26), since the focused information more often than not occurs at the end of a sentence.

2.1.2.2 Non-restrictive Relative Clauses as an Information-adding Interpolator

Semantically, English RCs are regarded as non-restrictive when they do not

denote a specification of a subset of a larger set of referents, but merely supply additional, incidental information to further elaborate on the head NP,[6] information that is non-essential to the identification or characterization of the head. An instance of English non-restrictive RCs (henceforth NRRCs) is given in sentence (29), which is the same as (13) above, except for commas that separate the RC from the main clause:

(27) The runners, *who reached the finishing line*, were hailed by the crowd.

In (29), the NRRC plays no role in singling out a restricted domain of reference of the NP *the runners* but rather just elaborates on it as a whole with extra information—i.e. the runners were all hailed by the audience and they made it to the finishing line.

In thematic terms, the information contained in NRRCs "is presented as separate from, and secondary to, that encoded in the remainder of the superordinate clause[7]," whereas the information contained in RRCs "forms an integral part of the message conveyed by the larger construction" (Huddleston, 1984: 399) in that such information is needed to define a given subset of the set denoted by the NP they

[6] According to Celce-Murcia and Larsen-Freeman (1999: 595), in terms of their antecedent, English NRRCs can be subdivided into appositive, where NRRCs refer to and elaborate on an NP in the main clause, and commentary, where NRRCs (always with the relative pronoun *which*) refer to and comment on the entire preceding main clause (cf. RRCs can only modify NPs, not clauses). The two types of NRRCs are represented by (i) and (ii), respectively:

(i) Mr. Wang, *who is a dentist*, likes to talk with people around him.

(ii) My favorite baseball team has won the game, *which is something to celebrate*.

[7] The low integration of information between NRRCs and their main clauses may explain why they are often set off from each other by commas or other punctuations. This is because according to the theory of iconicity, the weaker the semantic bond is between two propositions, the farther will they be from each other in their linguistic manifestations, and vice versa.

modify. Take (13) and (29) again for example. Were the RC in (29) omitted, one would still be able to understand the meaning of the remaining sentence; however, in the case of (13), one would not be able to do so because he/she would be left wondering exactly which runners are being referred to.

English NRRCs always modify referring (including definite and indefinite) NPs, but not non-referring ones, as in (30) and (31):

(28) *Anybody, *who marries my sister*, is asking for trouble.

(29) *I know no man, *who would do this*.

This is so because pragmatically, it is unnecessary to elaborate on a non-existent referent. Moreover, being only amplifying, i.e. non-limiting, NRRCs tend to modify referentially accessible NPs, namely, NPs whose referents are well established in context in such a way that further restriction on the domain of their reference is superfluous (Frank, 1972: 281). These referentially accessible NPs include (1) NPs which are definite by virtue of the prior discourse; (2) NPs which are definite by virtue of the speech situation; (3) NPs which are narrowly specified with extra modifications; (4) NPs which refer to the entire class, rather than part of it; (5) NPs which refer to a particular class or category of people or things; (6) personal pronouns, proper NPs, and one-of-a-kind NPs, all of which are referentially identifiable due to their lexical connotations of "uniqueness" or "being the only one." Examples of

NRRCs with these NPs are respectively given in the following sentences:

(30) Linguistically definite NPs: Late in the evening, I went out to the store for a cup of coffee. The coffee, *which had been boiling for a long time there*, tasted rather rancid.

(31) Situationally definite NPs: This novel, *which I finished reading yesterday*, has a really interesting plot.

(32) Narrowly specified NPs: My new Oriental rug, *which was handmade in India*, has a contemporary design.

(33) Whole-referring NPs[8]: I taught English to some children today. To my surprise, all the children, *who were only 9 years old*, were really quiet and attentive during the class.

(34) Generic NPs[9]: Elephants, *which have a long nose*, can easily pick up heavy things.

(35) Personal pronouns[10]: I, *who you all know*, will speak now.

Proper NPs: Many people congratulated William Faulkner, *who had just*

[8] Whether an NP refers to the entire class or part of it should depend on context. Compare (35) with sentence (i), where the NP *children* refers to a subset of the whole group:

(i) I took some children to a playground for different games. As soon as we arrived, children *who wanted to play soccer* ran to an open field while the others just stayed nearby to play basketball.

[9] Many NPs can be used as either common NPs or generic NPs, depending on context. Compare (36) with sentence (i), where the same NP *elephants* is used as a common NP and thus modified with an RRC:

(i) Elephants *which are kept in the Taipei Zoo* can easily pick up heavy things.

[10] The personal pronoun, *he*, in particular, can be used with RRCs to refer to people in general, as in (i) below:

(i) He *who laughs last* laughs best = People *who laugh last* laugh best.

won the Nobel Prize for literature.

One-of-a-kind NPs: Mary looked up at the moon, *which was very bright that evening*.

Functionally, English NRRCs carry the communicative intent of "parenthetical comments or afterthoughts" (Radford, 1988), conveying supplementary information that serves to amplify the ongoing discourse. As Givon (1990: 649; 2001: 179) argues, the pragmatic condition for using NRRCs is when the speaker considers that some additional information may somehow be useful to the hearer, though the information conveyed is indeed less central to the discourse topic under discussion. This incidental information then surfaces syntactically as NRRCs, which typically carry propositions that are not presupposed but asserted as new information to the hearer.

Echoing Givon's view of NRRCs as interpolating parenthetical assertions are Tao and McCarthy (2001), who examined the use of NRRCs in British and American spoken data. In the light of their spoken corpus evidence, it is concluded that NRRCs generally fall into three broad functional subtypes, each of which can be thought of as reflecting the parenthetical nature of NRRCs. The first subtype is expansion: "the addition of information offered by the speaker as topically relevant, i.e. about the same person or object, or as a projection of the information needs of the

listener" (p. 663). Consider:

(36) (Speaker 2 is on the phone checking seat allocations with speaker 1, an airline employee, for a forthcoming plane trip)
Speaker 1: What we've got is E and G, *which is aisle and next to it*.
Speaker 2: Yeah.
Speaker 1: On the window side
Speaker 2:Yeah.
Speaker 1: But not the window seat.
Speaker 2: Mm. (p. 664)

In example (38), there seems to be a clear motivation for the addition of information coded in the NNRC *which is aisle and next to it*, since speaker 1 assumes that speaker 2 may not know what the abbreviations *E* and *G* mean and thus provides extra information to help his/her listener to better understand the sentence.

The other two functional subtypes of NRRCs pertain to evaluation—the addition of "the speaker's attitude, opinion or stance toward the message of the immediately preceding utterance(s)" (p. 662)—and affirmation—the addition of the speaker's confirmation of "an event or action referred to in the previous utterance" (p. 655). Examples of these two subtypes are shown in (39) and (40), respectively:

(37) And I, it was really, I read the whole thing, *which is pretty rare*. (p. 663)

(38) I was asked if I would work as a co-auditor with them, *which I did do*. (p. 665)

Regardless of the fact that they serve not to track down a referent but to insert a parenthetical assertion, NNRCs still function to ground a referent to some context in

order to make it relevant to the hearer at the juncture of the discourse where it is mentioned. Their referential grounding can be either anaphoric, with definite head NPs, or cataphoric, with referring-indefinite head NPs (Givon, 1993: 119), as shown in (41) and (42), respectively:

(39) The woman, *who was standing next to the door*, pull a gun, and…

(40) A good friend of mine, *whom I hope you'll meet some day*, just called and said….

Parenthetical assertions by nature, English NRRCs are typically separated from their matrix clauses by an intonational break (or commas[11] in writing), and can semantically be paraphrased with coordination or subordination (though there would be a different focus) (Quirk et al., 1985:1258-1259), as illustrated in the following sentences, where the NRRC in (43) has the semantic equivalents of the coordinate

[11] It may be worth a mention in passing that in written English, the presence or absence of commas in RCs does not always signal a restrictive—non-restrictive distinction in semantic terms of sets and subsets. As remarked by Sopher (1999: 256), where context makes it clear whether an RC is restrictive or non-restrictive, or where there would be no marked differences in RC meanings, stylistic considerations may determine the use or nonuse of commas, as shown in (i), in which a comma would disrupt the rhythmic pattern of the sentence, though (i) is in effect non-restrictive:

(i) Where Lear, such a short while since, sat in his majesty, there sit the Fool and the outcast, with Kent *whom he banished beside them*.

Huddleston et al. (2003: 1064-65) point out, further, that the use or nonuse of commas in RCs sometimes has to do with information packaging, rather than with whether RCs give distinctive, contrastive properties of the class denoted. For example, in (ii):

(ii) The father *who had planned my life to the point of my unsought arrival in Brighton* took it for granted that in the last three weeks of his legal guardianship I would still do as he directed.

the RC is actually non-restrictive but no comma is present. This is so because the information coded in the RC is treated as an important and indispensable part of the message that explains why the father took it for granted that the son would do as he directed. The restrictive—non-restrictive distinction (i.e. the concept of subsets) is irrelevant here.

Though these two additional factors, stylistic considerations and information packaging, may govern the use or nonuse of commas in English RCs, they after all account for very marginal cases. Therefore, the present study will limit itself to examining the use of commas in RCs in relation to the restrictive—non-restrictive distinction.

clause in (44) and the adverbial clause in (45):

(41) My brother, *who has lived in America since boyhood*, can still speak fluent Italian.

(42) My brother can still speak fluent Italian, *and he has lived in America since boyhood*.

(43) My brother can still speak fluent Italian *although he has lived in America since boyhood*.

2.1.2.3 Relative Clauses as a Backgrounding Device

Putting aside the aforementioned functional differences[12] between RRCs as a referent-tracking strategy and NRRCs as an information-adding interpolator, both types of RCs (except for those presentative RRCs, which tend to foreground important information) indeed have in common the discourse function of backgrouding—they serve to add specificity or contextual information to assist in the interpretation of the central ideas. According to Hopper and Thompson (1980: 280)[13], information units in a discourse can broadly be classified into two types on the

[12] For more detailed differences between English RRCs and NRRCs, refer to Huddleston et al. (2003: 1058-66). Basically, they recapitulate the differences in terms of the degree of integration of the RC into the matrix clause in prosody (or punctuation), syntax, and meaning. First, NRRCs are usually marked off from the rest of the sentence with a separate intonation contour and pause in prosody or with a comma in punctuation (or stronger punctuations, such as a dash or parenthesis), as is not the case with RRCs. Second, RRCs function as an essential part of a nominal group, i.e. combining with their head NPs to form larger NPs, whereas NRRCs are rather loosely incorporated into the main clause in that they themselves do not form constituents of any NPs. Last and foremost, the information of RRCs is presented as an integral part of the meaning of the sentence containing them (one information unit); that of NRRCs, in contrast, is felt to constitute another notional unit independent of the matrix clause (two information units).

[13] Originally, they introduced the terms "foregrounding" and "backgrounding" to distinguish between

basis of information status or value they carry in relation to the main communicative intent of the speaker:

> That part of a discourse that does not immediately contribute to a speaker's goal, but which merely assists, amplifies, or comments on it, is referred to as background. By contrast, that material which supplies the main points of the discourse is known as foreground…. The foregrounded portions together comprise the backbone or skeleton of the text, forming its basic structure; the backgrounded clauses put flesh on the skeleton, but are extraneous to its structural coherence.

More specifically, foreground information is more important, serving to push forward the development of the central ideas that the speaker wants to express, whereas background information is only secondary, serving to provide supportive, amplifying, or evaluative material—or to borrow Goodin and Perklins' (1982) term, "asides"—on the ongoing discourse. With respect to their manifestations, such syntactic embedding as relativazation has been considered one of the powerful means for marking background information (Reinhart, 1984: 791; Matthiessen & Thompson, 1988: 279). Consider the following examples:

(44) The boy *who stole Peter's bicycle* beat Mary.

(45) John, *who stole Peter's bicycle*, beat Mary.

In both sentences, the main proposition is about the boy's or John's beating Mary, most likely with the subsequent discourse continuing to develop or explicate this event. The content coded in the RCs here is minor in information value in relation to

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narrative and non-narrative portions of a given text.

that in the main clauses. They merely provide background information about the agent of the main event: one identifies the agent *the boy*, whereas the other elaborates on the agent *John*. Were the main proposition about the boy's or John's stealing Peter's bicycle, the original sentences would be rewritten as (48) and (49), respectively:

(46) The boy *who beat Mary* stole Peter's bicycle.

(47) John, *who beat Mary*, stole Peter's bicycle.

With this discourse function of backgrounding, English RCs, both restrictive and non-restrictive, can serve to package information properly in proportion to its communicative status or importance so that one can readily follow the flow of information in the discourse.

2.1.3 Summary

In this section, we have discussed the syntactic and functional properties of English RCs. Structurally, English RCs are complex adjectival clauses which post-nominally modify an NP in the matrix clause, within which they are embedded; they are anaphorically related to the main clause by means of relative markers, which replace the relativized element in the embedded clause. Functionally, English RCs are typically associated with backgrounding to maintain textual coherence, whether they serve to track down a referent in question as either a known entity (identification)

or a particular type (characterization), i.e. RRCs, or to interpolate parenthetical assertions considered useful to the hearer in a number of ways, i.e. NRRCs. With these general descriptions of English RCs in mind, we proceed in the next section to probe into those aspects of the RC construction which may cause difficulties for ESL/EEL learners.

2.2 Variables in Acquisition of Relative Clauses by ESL/EFL Learners

This section concerns itself with previous empirical studies on how English RCs are used by ESL/EFL learners. It begins with a survey of relevant RC research on L1 interference, emanating from the framework of the Contrastive Analysis Hypothesis. This is then followed by a review of RC studies intended to establish a universal order of difficulty based on three predictor hypotheses: the Parallel Function Hypothesis, the Perceptual Difficulty Hypothesis, and the Noun Phrase Accessibility Hierarchy Hypothesis.

2.2.1 L1 Interference

Although the development of RCs has been investigated in various SLA contexts, the case of Chinese learners of English is particularly of interest to researchers in that English RCs are typologically different from their Chinese counterparts not only in their syntactic manifestations but also in their pragmatic/discourse functions.

2.2.1.1 Differences Between English and Chinese Relative Clauses

According to Gass (1980), there are five main dimensions along which RC formation varies among the world's languages. The first dimension is adjacency to the head NP. Although English and Chinese both require RCs to appear immediately next to the head NP, extraposed RCs, namely, those placed at the end of the main clause, are permissible only in English, especially for considerations of syntactic complexity or for achieving a presentative function in discourse (Givon, 1993: 148-150), as is illustrated in (50) and (51), respectively:

(48) He bought a rug from his uncle's estate *that cost him a small fortune that he couldn't really afford but went ahead and spent anyway*.

(49) A spot was materializing *that had pretty ominous look*.

The second dimension has to do with the position of the RC with regard to the head NP. English, a right-branching (or head-initial) language, requires RCs to follow the head NP as post-nominal modifiers, whereas Chinese, a left-branching (or head-final) one, forms RCs pre-nominally, i.e. to the left of the head NP. Such a difference is clearly demonstrated in (52):

(50) mai hua de nei ge nuhai hen qiong
sell flowers COM[14] that CL[15] girl very poor
'The girl that sells flowers is very poor.' (Cheng, 1995: 14)

The third dimension relates to how RCs are marked. English employs variable relative markers, e.g. *who*(*m*), *which*, *whose*, *that*, to indicate what follows is an RC;

[14] COM is the abbreviation for complementizer.
[15] CL is the abbreviation for classifier.

Chinese instead uses only one invariable marker between the head NP and the RC, namely, the complementizer[16] *de*, which is not only used uniquely for RC marking but also occurs in various structures of nominal modification in Chinese.

Fourthly, RC formation also differs in relative marker retention from language to language. Unlike English relative markers, which are optional as long as they are in the object position, the Chinese complementizer *de* is obligatory in all positions.

The last dimension involves the retention or omission of a pronominal reflex in the process of relativization. The pronominal reflex refers to a resumptive pronoun present in the RC that is co-referential with the head NP. English RCs disallow such a resumptive pronoun. In contrast, pronominal reflexes are allowed in Chinese RCs, depending on the position being relativized. Generally speaking, Chinese RCs tend to adopt the gap method[17] when relativizing out of the subject position, as in (52) above, but the resumptive pronoun method when relativizing from such positions as indirect object and prepositional object (Cheng, 1995), as shown in (53) and (54):

(51) zhangsan song ta hua de nei ge nuhai
Zhangsan send her flowers COM that CL girl
'the girl that Zhangsan sends flowers to her' (p.18)

[16] The syntactic status of *de* in Chinese RCs has long been debated. *De* is not a pronominal element, and thus cannot be treated as a relative pronoun like *who*(*m*), *which* in English. *De* has been thought of as either a nominalizer (Chan, 2004a) or a complementizer (Keenan, 1985). In order to make a direct comparison with English RCs, where *that* serves as a complementizer, *de* is treated in this paper as a complementizer in Chinese relative constructions.

[17] The gap method is one of the universal relativization strategies employed in RC formation, in which there is one empty slot left in the embedded clause without any NP or resumptive pronoun found to coindex with the modified RC head in the matrix clause.

(52) zhangsan gen ta zhuzai yiqi de nei ge ren
Zhangsan with he live together COM that CL person
'the person that Zhangsan lives with him' (p.18)

Another difference in RC formation across languages, not pointed out by Gass above, is the permissibility of structural reduction of RCs (Li, 1996: 174). English RCs can be reduced to participial phrases, prepositional phrases, adjectival phrases, or *to*-infinitive phrases, while such reduction is disallowed in Chinese RCs, as can been seen in (55):

(53) Eng.: visitors from London
Chi.: lunden lai de keren
London come COM visitors
'visitors who are from London'

Besides these structural differences, English RCs exhibit some pragmatic/discourse functions not served by their Chinese counterparts. The most obvious difference in function may be that the distinction between RRCs and NRRCs in English does not exist in Chinese (Li, 1996). To put it another way, the primary and sole function of Chinese RCs is to identify or characterize the head NP, specifying which one or what type is meant by the speaker (i.e. restrictive); they do not serve to supply parenthetical comments or afterthoughts (i.e. non-restrictive). Non-restrictive RCs in English therefore have no RC correspondents in Chinese. For the same function performed by English NRRCs, Chinese tends to use independent clauses instead, as illustrated in (56):

(54) Eng.: The Browns, *whose house has been burgled five times*, never go on

holiday now.

Chi.: bulang jia zaiye bu qu du jia le
Brown family again never go on holiday marker
tamen de fanzi bei dao guo wu ci
they GEN[18] house be burgled tense five times
'The Browns never go on holiday now. Their house has been burgled five times.' (Li, 1996: 173)

According to Zhao (1989: 109, cited in Kamimoto et al., 1992), who conducted a discourse analysis of RCs in English and Chinese, besides those serving to provide additional information, there is another type of English RCs which normally correspond to independent clauses in Chinese. Different from their prototypical functions of identifying or characterizing, this type of English RCs, she claims, serves to focus information. Three instances of such information-focusing RCs in English are identified in her study. The first instance is represented by (57):

(55) RCs as the main assertions for sentences low in information value:
Eng.: China is a country *that is behind Canada in technology and a number of scientific disciplines*.
Chi.: zhongguo zai jishu he yixie kexue xueke
China in technology and some science discipline
fangmian shi luohou yu jianada de
aspects is behind preposition Canada particle
'China is behind Canada in technology and a number of scientific disciplines.'

The English RC in (57) acts as the locus of information in the sentence and is often rendered into Chinese as an independent clause by the "*shi*…*de*" construction (a kind of nominalization), which is used to express and emphasize an established fact.

[18] GEN is the abbreviation for genitive.

Another instance is given in (58):

(56) Extraposed RCs:

Eng.: A man came in *who wore very funny clothes*.

Chi.: jin lai le ge ren, ta chuanda hen qiguai
come in tense one man he wear very funny
'A man came in; he wore very funny clothes.'

Eng.: A girl is studying with me *who has an IQ of 200*.

Chi.: wo you ge nu tongxie, ta de zhishang wei 200
I have one girl classmate she GEN IQ is 200
'I have a female classmate; her IQ is 200.'

The two English RCs in (58) can only be translated into Chinese as independent clauses serving as comments on their main clauses, which functions as topics. The third instance of information-focusing RCs in English is seen in (59), in which the equivalent structure in Chinese is an independent clause:

(57) RCs introduced by existential *there*:

Eng.: There were certain aspects of China *which I was very interested in examining*.

Chi.: wo dui zhongguo de mouxie wenti you xingqu
I about China GEN some aspect have interest
jinxing kaocha
carry out examining
'I was very interested in examining certain aspects of China.'

It is noteworthy that the RCs in (57), (58) and (59) are all an extra predication attached to a presentative clause. Apparently, what Zhao refers to as an "information-focusing" RC is in effect a "presentative" RC, which serves to introduce a thematically important, new referent into the discourse, as previously discussed in Section 2.1.2.1.2.

2.2.1.2 Previous Empirical Studies on L1 Interference

In the light of these cross-linguistic discrepancies in RC structure and function, one would not be surprised to find that considerable SLA research on English RCs has been devoted to investigating the influence of L1 interference on EFL/ESL learners' RC acquisition. These studies are in and of themselves the exponents of the Contrastive Analysis Hypothesis (CAH), predominant in the field of SLA. The CAH claims that the principal barrier to second language acquisition comes from interference of an L2 learner's mother tongue with a second language system being acquired, especially when these two structurally differ to a great extent, and that a systematic analysis between the two languages in question can yield a taxonomy of linguistic contrasts which enables one to predict or explain difficulties an L2 learner will encounter (Ellis, 1996: 23-27; Brown, 2000: 207-210). Emanating from such a theoretical backdrop, many researchers (e.g. Schachter, 1974; Schachter et al., 1976; Bley-Vroman & Houng, 1988, cited in Kamimoto et al., 1992; Zhao, 1989, cited in Kamimoto et al., 1992; Li, 1996; Wei, 1997; Gisborne, 2000; Yin, 2001; Chan, 2004a, b) have strongly asserted that L1 transfer is the overriding and sole factor that determines the success of RC acquisition by ESL/EFL learners. Their findings are discussed in great detail below.

To begin with, Schachter et al. (1976) attested L1 influence on L2 learners'

inter-language by eliciting grammaticality judgments on English sentences containing RCs from 100 high-intermediate and advanced ESL students of five language backgrounds—Chinese, Japanese, Arabic, Persian, and Spanish. In this task, the subjects were presented with both native English RCs and malformed (non-native) English RCs which corresponded to those RCs in the subjects' L1. The results indicated that although the subjects identified sentences with native RCs as grammatical, they also tended to identify as grammatical sentences with their L1 form of non-native RCs. For example, the Chinese group tended to identify as grammatical those English RCs lacking relative pronouns in the subject position. Schachter explains this phenomenon as the consequence of L1 transfer, citing the non-occurrence of English relative pronouns in Chinese RCs.

Positive evidence of L1 interference is also provided by Wei's 1997 study, in which 131 Taiwanese EFL learners—roughly representing beginning, intermediate, and advanced levels — were tested on English RCs in comprehension and sentence-combining tasks. She found that contradictory to Flanigan's findings (1994) that the influence of L1 background was minimal on relativization, her subjects, especially those of lower proficiency, were still occupied by their previous linguistic repertoire, their RC errors indeed exhibiting L1 interference—including the use of resumptive pronouns and lack of relative pronouns, both of which are typical of

Chinese RCs— as well as resembling those errors commonly committed by native speakers of English. Given the existence of negative L1 transfer, she suggests that L2 learners acquiring English RCs cannot completely reset a new parameter value (e.g. from head-final in Chinese to head-initial in English) without being influenced by their L1.

Further landing support for L1 interference are Gisborne (2000), Yin (2001) and Chan (2004a, b). Drawing on the Hong Kong database for the International Corpus of English, Gisborne and Yin examined RC variation phenomena in Hong Kong English (HKE) and identified some idiosyncratic features of RCs in HKE. Among them, zero subject relatives (i.e. RCs lacking a relative pronoun in the subject position) and blurring of the restrictive/non-restrictive contrast were claimed to be the outcomes of Chinese' influencing RC formation in HKE. In a similar vein, Chan conducted a contrastive analysis of noun phrases in English and Chinese with 387 tertiary and secondary students of ESL in Hong Kong. Based on a corpus of authentic data collected in a research project, she concluded that most English RC errors committed by her subjects resulted largely from L1 transfer, such as inappropriate relative pronouns (due to the absence of relative pronouns in Chinese), missing relatives (due to the serial verb construction[19] in Chinese), resumptive

[19] The serial verb construction is typical of Chinese, referring to two or more verb phrases or clauses juxtaposed without any marker indicating what the relationship is between them.

pronouns, (due to this requirement in indirect and prepositional object RCs in Chinese), and head-last RCs (especially among lower-proficiency learners, who tend to adopt a word-for-word translation strategy), as illustrated in the following:

(58) *She is my mother *which is the most important person in my life*.

(59) *You are the first person *came to Hong Kong*.

(60) *There is one thing *which I can remember it very clearly*.

(61) **I wear the dress* is very cute.

L1 interference manifests itself not only in L2 learners' knee-jerk error making, as revealed by the aforesaid studies, but also in their behavior of avoidance. Kleinmann (1977) has argued for avoidance of a given structure as indicating areas of difficulty, predictable on the basis of a contrastive analysis of the target and native languages. In her classic paper on this issue, Schachter (1974) examined English free compositions written by both native Americans and 50 intermediate and advanced ESL learners, whose L1s were Chinese, Japanese, Arabic, and Persian (no detail given for how this task was administered). She found that while the Arabic and Persian learners produced as many RCs as their native American counterparts, the Chinese and Japanese learners produced far fewer, though obtaining a significantly lower error rate than the former two language groups. Schachter attributes this avoidance phenomenon or strategy to L1 interference: because the structural

differences between Chinese/Japanese (head-final) and English RCs are greater than those between Arabic/Persian (head-initial) and English RCs, it would be more difficult for Chinese and Japanese learners to acquire English RCs, and the increased learning difficulty would in turn lead to their tendency to avoid using English RCs in their writing, especially when they feel unsure of getting the target structure right.

Based on the premise that L1 interference operates on the discourse as well as the syntactic levels, other researchers, such as Bley-Vroman and Houng (1988, cited in Kamimoto et al., 1992), Zhao (1989, cited in Kamimoto et al., 1992) and Li (1996), have attempted to put forward alternative explanations for the underproduction of English RCs by the Chinese subjects in Schachter's (1974) study. They all contend that the low frequency rate of RCs in the English of Chinese learners results not so much from structural interference of L1 with L2 as from pragmatic transfer of the RC frequency, distribution, and function patterns in L1 to L2—namely, L2 learners may know the grammatical structure of RCs, but may not know when to use it in English.

To challenge Schachter's (1974) purely structural view of RCs, Bley-Vroman and Houng (1988, cited in Kamimoto et al., 1992) set out to examine relative frequencies of English and Chinese RCs by comparing the first five chapters of the American literary work *The Great Catsby* and its published Chinese translation. They found that only one-third (32/93) of the original English RCs were translated

into the Chinese version, as shown in Table 2:

Table 2: Frequency of RCs in the first five chapters of *The Great Catsby* and the number of those clauses translated as RCs in the Chinese version (adapted from Bley-Vroman & Houng, 1988: 96, cited in Kamimoto et al., 1992)

RC types in English	*The Great Catsby*	Rendered as RCs in Chinese translation*
Restrictive	50	21 (42%)
Non-restrictive	43	11 (25%)
Total	93	32 (34%)

*Figures in this column indicate only the number of English RCs of both types rendered as RCs rather than other structures in Chinese. There is no formal distinction between restrictive and non-restrictive RCs in Chinese.

Based on this lower RC density in Chinese, Bley-Vroman and Houng reason that Chinese learners are likely to under-produce RCs in their English, inasmuch as they do not use RCs frequently in their own native language and may transfer the preference for non-relative structures (e.g. independent clauses or adverbial clauses) in Chinese over to English for contexts in which RCs are normally used to achieve the same communicative purposes.

By examining both English writings on impressions of China by Chinese Americans and Canadians and their Chinese translations, Zhao (1989, cited in Kamimoto et al., 1992) also concludes that Chinese indeed makes less use of RCs than does English, as indicated in Table 3:

Table 3: RCs in English text and their Chinese translation (adapted from Zhao, 1989: 107, cited in Kamimoto et al., 1992)

RCs in English	RCs in Chinese	RCs in English =RCs in Chinese	in English only	in Chinese only
124	91	59 (48%)	65	32

More importantly, her study revealed that there are two types of English RCs which have no RC equivalents in Chinese due to their special functions not performed by Chinese RCs, namely, adding parenthetical assertions and focusing information (e.g. presentative RCs with extraposition or existential *there*), as previously noted in Section 2.2.1.1. Such functional differences between English and Chinese RCs, Zhao claims, not only provide hard counterevidence for the implicit anglocentric view in Schachter's (1974) study that the way RCs function in English also holds true for those in other languages, but also offer explanations for the relatively low production rate of English RCs by her Chinese subjects: the subjects may have transferred the limited range of RC functions in Chinese to English, thereby employing RCs merely for identification or characterization in their English writing.

Further refining Schachter's (1974) avoidance theory, Li (1996) propounds a differentiation between conscious avoidance, as portrayed by Schachter, and subconscious underproduction, a situation where a learner under-produces a certain structure mainly because he/she lacks a full understanding of the common contexts for using it (i.e. he/she may not be aware of all the functions it can serve). Li's study involved 11 Chinese ESL learners of Hong Kong (intermediate and advanced) in definition questions (e.g. *What is a clock?*), Chinese-to-English translations (some of which were adapted from Zhao's examples of English RCs with special

pragmatic/discourse functions not served by Chinese RCs), and individual retrospection interviews. In line with Schachter's findings, her Chinese subjects were indeed observed to employ RCs with low frequency. Nonetheless, in their individual interviews, most of her subjects denied having deliberately tried to avoid using English RCs because of the perceived gross structural differences between English and Chinese RCs. Moreover, her subjects were quite successful in producing all the English RCs in the translation test, except for those that served to add parenthetical information or to focus information (i.e. to present a topical referent). Based on the results, Li contends that Chinese learners' sporadic use of RCs in their English writing may be explicable in terms of their failure to discern the subtle pragmatic differences between English and Chinese in RC function. That is, under the influence of L1 transfer, Chinese learners often use English RCs as a pure noun modifier, as they do with Chinese RCs, and tend to lose sight of the additional functions RCs can serve in English; as a result, they subconsciously produce fewer RCs in their English writing.

It is worth pointing out that the foregoing RC studies on L1 interference may be tainted by two weaknesses in their research methodology. One weakness concerns the nature of elicitation tasks. Most of the studies above employed elicitation tasks that imposed a high degree of control over L2 learners' output production, including

grammaticality judgments, comprehension questions, sentence-combining, and translation. As a result, learners' true competence in the target structure may not have been shown. The translation task, in particular, is more problematic in that the extent of L1 interference may have been aggravated by directly inviting the use of L1 in producing English RCs. Moreover, even though free writing, a more spontaneous task, was adopted by Schachter (1974), the task suffers from lack of control as well as lack of methodological detail in the data collection procedure (i.e. how she collected her writing samples is left unknown). Her use of this unconstrained elicitation format certainly begs the question as regards whether her subjects may have truly been forced to reveal facets of their inter-language under investigation (Corder, 1973). This is so because Schachter gave little consideration for the nature and topic of her writing task (no detail given for what topic was chosen), not placing limitations on her subjects (e.g. requiring them to follow specific instructions or pictorial prompts) that would prompt the use of English RCs in their compositions.

The other weakness relates to the failure to consider the effect of L1 interference observed in relation to L2 proficiency. In these previous studies, with the exception of Wei (1997), little is said about the role of L2 proficiency in their subsequent data analysis. Instead, they tend to make a general conclusion without making allowance for the very fact that L2 proficiency may well play a part in intervening and

determining the degree to which L2 learners' RC performance is influenced by L1 transfer.

2.2.2 Universal Factors

With all empirical support for L1 interference from studies on English RC acquisition, there has as well been counterevidence yielded from researchers working in the same field. For instance, Liu (1998), in an inquiry into English RC acquisition by Taiwanese junior high students, found the influence of L1 to be minimal on her subjects' error patterns. Moreover, using such measures as grammaticality judgments, sentence-combining, free writing, and comprehension questions to elicit English RC data from L2 learners of diverse native languages, Ioup and Kruse (1977), Gass (1980), and Sadighi (1994) all found non-significant differences between groups based on language background, thereby refuting the dominant role of L1 interference in English RC acquisition. They even strongly argue against L1 transfer being at the root of such common errors as resumptive pronouns or inappropriate deletion of relative pronouns, asserting that these RC errors are universally committed by L1 and L2 learners alike. Chen (2003) and Liu (2005) further point out that in addition to L1 interference, the major causes of L2 learners' RC errors include such learning factors as overgeneralization, simplification, ignorance of rule restrictions, incomplete application of rules, and carelessness.

Furthermore, on the issue of avoidance, or underproduction, of RCs, Bertkau (1976) explains the same phenomenon as reflecting not L1 interference but rather a common learning strategy on the part of L2 learners to simplify the target language by substituting simple constructions for complex ones (e.g. using independent clauses in place of complex RCs). Similarly, Chiang (1980) suggests that L2 learners' overall language proficiency may be a better predictor of frequency of RC production (though it only accounted for 10 % of the variance in his study) than is native language background. Given these arguments against the significance of L1 interference, there may be universal factors, as well as language-specific ones, at work in determining RC acquisition by ESL/EFL learners.

2.2.2.1 Three Universal Hypotheses for English Relativization Difficulty

Different hypotheses have been proposed to account for the relative ease and difficulty of various RC types, regardless of L2 learners' native background. Among them, three universal hypotheses in particular have stood up well in the SLA literature. They are the Parallel Function Hypothesis, the Perceptual Difficulty Hypothesis, and the Noun Phrase Accessibility Hierarchy Hypothesis, all based on different rationales and predicting different difficulty orders for English relativization.

The Parallel Function Hypothesis (PFH), posited by Sheldon (1974), is based on a cognitive-processing interpretation of the relationship between the grammatical

function of the head NP in the matrix clause and that of the relative pronoun in the embedded. In examining the difficulty order in the comprehension of four RC types —SS, OO, SO, and OS[20], as categorized in terms of the syntactic functions of the head NP and its co-referential relative pronoun—by children learning English as their first language, Sheldon found that these children understood RCs better when the functions of the head NP and the relative pronoun were the same. Hence, he formulated the PFH, which claims that RCs with a non-parallel function (SO/OS) are more difficult than those with a parallel function (SS/OO).

A second predictor hypothesis of English RC difficulty is Kuno's (1974) Perceptual Difficulty Hypothesis (PDH). Deriving its validity from perceptual considerations of the constraints on human short-term memory, the PDH essentially states that RCs involving center-embedding[21] pose greater difficulties than those involving left-[22] and right-embedding, since in the former, there is interruption in the processing of the matrix clause. Compared to Sheldon's PFH, Kuno's PDH is concerned only with the position of the RC in the matrix clause—whether it is

[20] The first alphabet refers to the grammatical role of the head NP in the main clause, the second, that of the relative pronoun in the embedded clause, as exemplified in the following:
(i) SS: The dish *that fell on the floor* broke in half.
(ii) OO: The child ate the cookies *(that) the neighbors baked.*
(iii) SO: The candy *(that) Billy gave me* tasted good.
(iv) OS: The little girl is looking for the cat *that ran away*.

[21] Center-embedded RCs are those which are embedded in the matrix subject position whereas right-embedded RCs, in the matrix object position. According to Kuno (1974: 119), sentence (i) below is perceptually more difficult than sentence (ii) in that the first involves center-embedding, which reduces the comprehensibility of the sentence:
(i) Center-embedding: The cheese *that the rat that the cat chased ate* was rotten.
(ii) Right-embedding: The cat chased the rat t*hat ate the cheese that was rotten.*

[22] Left-embedding does not exist in English relative constructions.

center-embedded or non-center-embedded—rather than the functions of the head NP and the relative pronoun. The difficulty order predicted by the PDH for the four RC types in the PFH is thus as follows: SO/SS sentences are more difficult than OS/OO sentences.

The last, and arguably the most influential, predictor hypothesis is put forward by Keenan and Comrie (1977). They examined different RC formations among more than 50 languages in the world regarding syntactic functions relative pronouns can serve and based on the typological markedness obtained, proposed the Noun Phrase Accessibility Hypothesis (NPAH). The NPAH claims that the ease with which RCs are formed follows a particular hierarchy of ordering in terms of the grammatical functions of their relative pronouns, as is indicated in (64):

(62) Subject > [23]Direct Object > Indirect Object > Object of Preposition[24]

> Genitive > Object of Comparison[25]

Among these six RC types, subjects are universally easier—or more accessible—to relativize than direct objects, which are more accessible than indirect objects, which are in turn more accessible than prepositional objects, and so on. In contrast to the

[23] > means "more accessible than."

[24] Keenan and Comrie (1977) use the term "Oblique Object" in place of "Object of Preposition" in English.

[25] Object of Comparison is included only for the sake of completeness, since such sentences as (i) and (ii) are marginally rare in English and even native speakers of English are unsure of their grammaticality.

(i) ?The man *who Mary is shorter than* is my brother.

(ii) ?The man *than whom Mary is shorter* is my brother.

first two hypotheses, the NPAH focuses primarily on the relative clause itself, with no attention given to the matrix clause, and predicts another different difficult order for the four RC types aforementioned: SO/OO sentences are more difficult than SS/OS sentences (though this difficulty order is not explicitly stated in the NPAH but deduced by reason only for a direct comparison with the PFH and the PDH).

Figure 1 below summarizes the three universal hypotheses in terms of their predicted difficulty order of English RCs:

Predictor Hypothesis	Prediction	Order Predicted
The Parallel Function Hypothesis (PFH)	Difficulty is predicted where the grammatical function of the head NP does not equal the grammatical function of the relative pronoun; ease of acquisition is predicted where there is parallel function of the head NP and its co-referential relative pronoun.	SS/OO＞OS/SO
The Perceptual Difficulty Hypothesis (PDH)	Difficulty is predicted where there is center-embedding of the relative clause, thus interrupting processing of the matrix sentence; ease of acquisition is predicted where there is right- and left-embedding, in which the relative clause is processed either before or after the main clause, and the main clause is processed without interruption.	right- and left-embedding ＞ center-embedding or OS/OO＞SS/SO
The Noun Phrase Accessibility Hypothesis (NPAH)	Difficulty is predicted where the grammatical function of the relative pronoun in the relative clause is at the marked or less accessible end of the	SU ＞ DO ＞ IO ＞ OPRE ＞ GEN ＞ OCOMP or

	NPAH; ease of acquisition is predicted at the accessible end of the hierarchy.	SS/OS＞OO/SO

Figure 1: Three hypotheses for English relativization difficulty (adapted from Doughty, 1991: 438)

Disparate as these three hypotheses may seem at first glance, their predictions are all grounded on the relative psychological ease or difficulty of processing of various RCs. Specifically, they are in line with Slobin's (1973) universal operating principles, which claim that "interruption" or "rearrangement" renders sentence processing difficult. For instance, though originally motivated by typological markedness, the NPAH is also processing-based, with certain psychological validity. As Keenan and Comrie (1977) suggest, RCs formed in the lower position of the hierarchy are more difficult, because they become harder to process, with their underlying word order being more susceptible to rearrangement in the surface structure.

2.2.2.2 Previous Empirical Studies on the Three Universal Hypotheses

A productive paradigm of research on English RCs has been inspired by the three universal hypotheses. Its focus is mainly on testing the validity of the three theoretical claims by investigating whether the accuracy order of ESL/EFL learners' performance of various RC types actually corresponds to the difficulty hierarchy as predicted by the three. Generally speaking, studies on the three predictor hypotheses, particularly the PFH and the PDH, are characterized by mixed results.

Notwithstanding preliminary support from his own study (1974), in which significant differences in L1 children's comprehension were observed between English RCs with non- and parallel function to head NPs, Sheldon's PFH has been directly countered by evidence from L2 studies (e.g. Gass & Ard, 1980; Flanigan, 1994). Flanigan (1994) found that his L2 child subjects encountered even greater difficulties with SS relativization than with OS in both comprehension and sentence-combining tasks, thereby refuting the parallel function of heads and relativized nouns as a relevant factor determining the difficulty order of English RCs and suggesting that other factors such as center-embedding play a more important role in learning relativization.

Likewise, Kuno's (1974) PDH has not found consistent empirical support in the SLA literature, albeit positive findings from, among others, Cook (1973), Ioup and Kruse (1977), Schumann (1980), Kubota (1993), and Izumi (2003). Ioup (1983), for example, used a different elicitation measure—a sentence-combining task—but failed to replicate her earlier findings in 1977, which substantiated the PDH. Wei (1997) also provides counter-evidence from her study, in which right-embedded RCs (OS/OO) appeared to pose greater difficulties than did center-embedded ones (SS/SO) for L2 learners in comprehension.

As opposed to conflicting findings regarding the PFH and the PDH, L2 studies

on Keenan and Comrie's (1977) NPAH have uniformly yielded positive results. Table 4 on page 52 summarizes representative SLA studies on English RCs in terms of their support for the three universal hypotheses. As indicated in Table 4, the NPAH is supported by the majority of SLA research, followed by the PDH and then the PFH.

As a valid predictor of the difficulty order of English relativization, the NPAH also serves as an alternative explanation for L2 learners' errors involving the use of resumptive pronouns and their behavior of avoidance, both of which have long been held as resulting from L1 interference. In view of the fact that pronoun copying (resumption) is found in L2 learners whose L1 does not employ nominal reflexes in RCs and even in native speakers of English, resumptive pronouns can be viewed as a universal initial strategy with which to reduce processing difficulty[26] inherent in structural complexity (Pavesi, 1986). The extent to which resumptive pronouns are used is claimed to concur with the NPAH (Keenan & Comrie, 1977; Gass, 1979,1980; Flagnigan, 1994). That is to say, the lower is a noun to relativize on the hierarchy, the harder is it to process the resulting RC on that position, and the more likely is one to employ an overt resumptive pronoun to make up for the increased processing difficulty. The psychological validity of the NPAH also manifests itself in

[26] Keenan (1988: 37) argues that resumptive pronouns facilitate processing of RCs because they allow the logical structure of an embedded clause to be preserved, thus obviating the need to reconstruct the relation between the antecedent and the trace of the *wh*-movement.

accounting for L2 learners' underproduction of RCs, especially those lower on the accessibility hierarchy, e.g. prepositional object and genitive relatives (Gass, 1979, 1980; Gass & Ard, 1984; Eckman et al, 1988; Yip, 1991).

Strictly speaking, the disparities in empirical support for the three predictor hypotheses, as revealed in Table 4, need to be interpreted with some caution, as they may have been a consequence of methodological differences. For one thing, studies on universal factors often vary in their research focus. Most of them do not investigate all the three hypotheses. Instead, often assuming that the support for one hypothesis would indirectly falsify the other two, they tend to examine only one particular hypothesis with little consideration for the others. For another, these studies differ to a great extent in their participants' L2 proficiency and their elicitation measures. Some included advanced learners or employed productive tasks (e.g. sentence-combining, free writing, speech production), whereas others, intermediate learners or receptive tasks (e.g. comprehension questions, interpretation tasks, grammaticality judgments). It can be argued that different proficiency levels and testing instruments may yield different results concerning the validity of a particular hypothesis.

Table 4: Summary of previous SLA studies on English relative clauses in terms of their support for the PFH, PDH, or NPAH (adapted from Izumi, 2003: 293-294)

Study	Subjects	Data elicitation method	Hypothesis confirmed
Cook (1973)	ESL adults(level unspecified), L1 children	Oral imitation task	PDH
Ioup & Kruse (1977)	ESL adults(level unspecified)	Grammaticality judgment task	PDH
Gass (1979, 1980)	ESL adults(advanced and intermediate)	Sentence-combining task Free composition	NPAH
Shumann (1980)	ESL children, adults and adolescents (level unspecified)	Naturalistic speech data	PDH
Ioup (1983)	ESL adults(level unspecified)	Sentence-combining task	none
Gass and Ard (1984)	ESL adults(level unspecified)	Sentence-combining task	NPAH
Eckman et al (1988)*	ESL adults(intermediate)	Sentence-combining task	NAPH
Doughty (1991)*	ESL adults (intermediate)	Grammaticality judgment task Sentence-combining task Picture-cued speech production	NPAH
Yip (1991)	ESL adults(advanced)	Written production data	NPAH
Wolfe-Quintero (1992)	ESL adults(beginning, intermediate, advanced), L1 adults	Guided written production with oral cues	NPAH
Kubota (1993)	EFL adults (level unspecified)	Grammaticality judgment task Sentence-combining task Free composition.	PDH, NPAH
Flanigan (1994)	ESL children (three levels)	Sentence-combining task Comprehension questions	PDH, NPAH (PFH rejected)
Sadighi (1994)	ESL adults (level unspecified)	Comprehension questions	PFH, PDH
Wei (1997)	EFL adolescents (three levels)	Sentence-combining task Comprehension questions	NPAH (PDH rejected)
Izumi (2003)	ESL adults (level unspecified)	Grammaticality judgment task Sentence-combining task Picture-cued interpretation task	PDH, NPAH

*Studies which specifically examined the effect of instruction on English RC acquisition.

2.2.3 Summary

This section has so far explored two potential sources of difficulties encountered by ESL/EFL learners in acquiring RCs: L1 interference and universal factors. On the one hand, some researchers, especially those following the paradigm of the contrastive analysis (e.g. Schachter, 1974; Schachter et al., 1976; Bley-Vroman & Houng, 1988, cited in Kamimoto et al., 1992; Zhao,1989, cited in Kamimoto et al., 1992; Li, 1996; Wei, 1997; Gisborne, 2000; Yin, 2001; Chan, 2004a, b), have pointed out L1 interference as a significant or even the sole cause of RC error patterns and underproduction (either conscious avoidance or subconscious underuse) by L2 learners. They argue that L2 learners whose native language employs different relativization processes or has different RC distributions and functions often experience great difficulty acquiring English RCs. The validity of these studies on L1 interference, however, suffers from problems in their experimental design. Moreover, the significant role of the native language on RC acquisition has been disaffirmed by counterevidence (e.g. Berkau, 1976; Ioup & Kruse, 1977; Chiang, 1980; Gass, 1980; Sadighi, 1994; Liu, 1998; Chen, 2003; Liu, 2005). As an alternative to L1 transfer, others (e.g. Cook, 1973; Ioup & Kruse, 1977; Gass, 1979,1980; Schumann, 1980; Gass & Ard, 1984; Yip, 1991; Wolfe-Quintero, 1992; Kutoba, 1993; Sadighi, 1994; Flanigan, 1995; Izumi, 2003) have approached the same

issue from the point of view of universal factors. Specifically, L2 learners' difficulty with English RCs, regardless of their L1 background, is universally attributable to processing problems posed by structural complexities of RC constructions. Underlying these processing problems are three major hypotheses—Sheldon's (1974) Parallel Function Hypothesis, Kuno's (1974) Perceptual Difficulty Hypothesis, and Keenan and Comrie's (1977) Noun Phrase Accessibility Hierarchy Hypothesis—each predicting a different difficulty order for acquisition of various RC types. Empirical support for the three predictor hypotheses varies, with the NPAH enjoying the most endorsement from SLA researchers, followed by the PDH and then the PFH. These mixed results may in effect be a direct consequence of differences in research methodology.

It should be pointed out that the aforementioned literature on English RC acquisition by L2 learners on the whole has centered on the syntactic aspects of RC acquisition only (with the exception of Bley-Vroman & Houng, 1988, Zhao, 1989, and Li, 1996, all of whom studied the pragmatic differences between English and Chinese in their RC functions): while some studies examine RC structural difficulties afflicting L2 learners from a cross-linguistic point of view (e.g. right-branching in English as opposed to left-branching in L1), others investigate RC structural complexities confronting L2 learners from a universal processing-based perspective

(e.g. center-embedding versus right-embedding). Furthermore, all these studies are limited in scope to the case of restrictive RCs. The issue of how L2 learners acquire (or use) non-restrictive RCs is rarely touched upon.

To put the matter simply, the review of the previous literature suggests that although a great deal of effort has been made to shed light on EFL/ESL learners' RC acquisition from different perspectives, what seems to be still lacking is further research (1) which inquires into L2 learners' acquisition of NRRCs, the marked type of RCs in English; and (2) which probes into the functional aspects of RC acquisition, namely, the issue of how effectively L2 learners are able to employ English RCs for such pragmatic/discourse functions as identifying, characterizing, presenting, interpolating, and backgrounding. It is mainly to fill in these two gaps in RC research that the present study is conducted.