

University of Groningen

Student interaction in the implementation of the jigsaw technique in language teaching

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Document Version

Publisher's PDF, also known as Version of record

Publication date:

2011

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Tamah, S. M. (2011). Student interaction in the implementation of the jigsaw technique in language teaching. Groningen: s.n.

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CHAPTER 2

REVIEW OF RELATED LITERATURE

The argumentation of the study is generally based on the elaboration of the following two concepts:

1. Interaction with others is an essential part of any learning process, especially language learning.
2. Peer learning is at the center of foreign language learning.

Four theories are reviewed in this chapter: constructivism, social interactionism, interaction components in language learning, and classroom discourse. An elaborate review is given on cooperative learning. Two separate sections on the Jigsaw technique and previous Jigsaw studies are provided. This chapter ends with a summary.

2.1 Constructivism

The study under report is fundamentally rooted in the perspective that knowledge is essentially constructed by individuals rather than transmitted from one person to another.

Constructivism is one of the ‘approaches’ or ‘movements’ in cognitive psychology which is concerned with the way in which humans think and learn. Constructivism, asserted by Williams & Burden (1997), emphasizes the ways in which individuals try to bring a sense of personal meaning to their worlds. For this particular review the dominant figure is Jean Piaget, a Swiss psychologist whose theories have been the most influential.

There are two types of constructivism: Cognitive and Social constructivism – occasionally termed as Piagetian and Vygotskian constructivism respectively. Cognitive constructivism is based on the work of developmental psychologist Jean Piaget. Piaget’s theory of cognitive development suggests that humans cannot be “given” information which they automatically understand and use. They must “construct” their own knowledge. They have to build their knowledge through experience (Kaplan, 2002).

Social constructivism is the theory developed by Lev Vygotsky (Kaplan, 2002). For social constructivists, education is associated with social transformation and value is placed on the sociocultural context indicating that constructivism reflects a theory of human development that puts the individual within a sociocultural context. Individuals develop through social interactions within which cultural meanings are shared by the

group and eventually internalized by the individuals. Social constructivists claim that with the assistance from teachers, adults or more advanced peers, students can grasp concepts and ideas that they cannot understand on their own (this particular notion is discussed more in section [2.2]).

Contrasting constructivism with behaviorism results in a kind of polarization. Unlike behaviorists whose view of learning is focused on the transmission of knowledge, constructivists view learning as the transformation of knowledge which requires students' active participation, largely in collaborative small groups (Nunan, 1999 referring to Kohonen, 1992). Moreover, constructivists, unlike behaviorists, believe that the learning process is initiated by the learners themselves. Learners construct knowledge for themselves. Learners individually construct meaning as they learn. Nobody else can 'plant' – using Sumarsono's (2004:58) term – this knowledge into the learners; they are to do it themselves.

Learners construct new knowledge based on the existing knowledge already possessed by them (Brooks & Brooks, 1995 in Epstein, 2002; Kaplan, 2002). It is not possible, constructivists claim, to absorb new knowledge without having some previous knowledge to build on. It recognizes the construction of new understanding as a combination of prior learning and new information.

The previously mentioned notion of knowledge construction is parallel with the educational model of experiential learning. Synthesizing the model of experiential learning formulated by a general educator, Kolb (1984), Nunan (1999) asserts the importance of some immediate experience for knowledge construction to happen in language instruction. New knowledge can be obtained through the process of making sense of some immediate experience and going beyond the immediate experience through a process of transformation. Put simply, language learners move from the known to the new knowledge through a process of transformation of knowledge.

Another principle of constructivism concerns the role of interaction in the construction of knowledge. Learners learn by interaction with others. Learning is claimed to be intimately associated with connections with other human beings – teachers, peers, family, as well as casual acquaintances. Related to this particular notion, Mercer (1995) suggests strongly that knowledge exists as a social entity and not just an individual possession.

In the next section, we will deal with this particular notion of interaction as this study is focused on student interaction and rooted in the interactionist-driven view which recognizes that knowledge constructions always occur within specific contexts, mainly as a result of social interactions.

2.2 Social Interactionism

The basis of social interactionism is, as implied in [2.1], the work of the Russian psychologist Vygotsky. His contributions have been widely reviewed in the literature of cooperative learning and interaction (see, for instance, Bunts, 1999; Richard-Amato, 1988), of sociocultural theory (see, for instance, Lantolf, 2000; Lantolf & Pavlenko, 1995; Lantolf & Thorne, 2006; Gass & Selinker, 2008) and of constructivist theory (see Williams & Burden, 1997). The most well-known and largely adopted theory of Vygotsky is *zone of proximal development* (henceforth, ZPD). ZPD is, as claimed by Williams & Burden (1997), an important concept in social interactionist theories.

Vygotsky's ZPD theory is similar to Piaget's assumptions about learning and development. However, unlike Piaget who stressed *biology* in universal stages of development, Vygotsky places more emphasis on *society*, the social context of learning (Mercer, 1995; Richard-Amato, 1988). ZPD refers to 'the layer of skill or knowledge which is just beyond that with which the learner is currently capable of coping' (Williams & Burden, 1997:40). Reviewing Vygotsky's (1978) theory, Lantolf & Pavlenko (1995) and Williams & Burden (1997) refer to the two levels of development in ZPD: the *actual* development level and the *potential* development level. The *actual* development level refers to the individual's ability to perform certain activities independently of another individual. In the *potential* level the individual can perform the activities when help or support is given. The difference between the two levels is the ZPD which Vygotsky (1978:86) defines as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance of and in collaboration with more capable peers."

Similarly, Lantolf (2000:17) synthesizing Vygotsky's ZPD theory puts forward that ZPD is "the difference between what a person can achieve when acting alone and what the same person can accomplish when acting with support from someone else and/or cultural

artifacts.” Vygotsky introduced the concept of ZPD within the context of, pointed out by Ellis & Barkhuizen (2005:233), ‘the gradual internalization of shared sociocognitive activities’ namely that social activities entail cognitive ones. In fact, Vygotsky's work put emphasis on the importance of having students work with one another in addition to receiving instruction from adults.

The ZPD theory consequently results in a fundamental issue in language teaching and learning. How can a learner’s potential development level be shifted to his or her actual development level? In other words, how to help learners move into and through their *zone of proximal development* is of particular importance. This entails the interactionist-driven view of (language) learning.

Learners are socially interactive (Ellis, 2009). They are not to be considered as “an associative network, a mechanistic processor of information, relatively unembodied, unconscious, monologic, unsituated, asocial, uncultured, and untutored” (Ellis, 2009:12). This old-fashioned perspective – which Ellis (2009) coins as GOP standing for Good Old-fashioned Psycholinguistics – is necessary, but not sufficient when discussing language. Instead, MAP standing for Modern Augmented Psycholinguistics – another term coined by Ellis (2009) – is needed. Unlike the perspectives of GOP, the ones of MAP assume that learners are in fact communally interactive (Ellis, 2009).

In a social interactionists’ perspective, language is learned by using the language and interacting meaningfully with others (Hertz-Lazarowitz, Kirkus & Miller, 1992; Williams & Burden, 1997). To this, Ellis (2009) asserts that language learning is socially scaffolded – emerging on the dynamic play of social interaction. Adopting a constructivist stance which is seen as operating within an interactional perspective, Ellis (2009), Hertz-Lazarowitz et al. (1992), and Williams & Burden (1997) all claim that learning is made possible as it is carried out within a *social context*, and through *social interactions*.

Similarly, arguing for the social perspective of learning, Wells (1981) whose idea is also quoted by John-Steiner, Panofsky & Smith (1994) writes that learning requires the contribution of *both* parties – the learner himself or herself and his or her interlocutors as the more skilled participant emphasizing mutuality and reciprocity in meanings that are constructed and negotiated through talk. Mercer (1995) highlights the essence of talking to others. He more particularly argues: “The essence of human knowledge and understanding is that it *is* shared. Every generation in every society builds upon the cultural foundations

of previous ones, and every new discovery only really comes into existence when it is communicated” (Mercer, 1995: 67).

John-Steiner et al. (1994:38) put forward a similar stance: “Because of our individual contextedness, situatedness, we can never *be* the Other, but because of our social contextedness, situatedness, we can use the Other(s) to help us negotiate meanings from a dialogic stance.” John-Steiner et al. (1994) further assert that an interactionist stance refers to the central role of social interaction in the development of language. Any social environment existing either in the classroom or outside in which language is used as a tool for communication is a potential environment for the acquisition of language (Seliger, 1983).

The arguments above implicitly signify that learning occurs through interaction with other people. Another implication is that social interaction is considered central to language development or language learning. In the classroom context, there should therefore be a consistent attempt for student interaction to occur maximally or an effort to assist a learner to reach his or her potentials through interaction. To this essence of interaction, Ellis (2009) adds that it is not just social interaction that is needed, other perspectives on dynamic interactions at all levels, among others, Dynamic Systems Theory (de Bot, Lowie, & Verspoor, 2007) which claims similarly that language acquisition emerges through interaction with others within a social context, are too.

The discussion to date has revealed the underlying theory related to learning in general. As this study is language related, the discussion ought to deal with more explicit issues related to second language learning. The next section then deals with more issues on interaction in the process of second language learning.

2.3 Interaction Components in Language Learning

From the interactionist standpoint, a body of research – primarily the one concerned with second language conversational interactions – has emerged. At the centre of this research is Krashen’s (1980) Input Hypothesis and Swain’s (1985) Output Hypothesis. This section will then focus on input and output which are – pointed out by Swain (2000) – the components of interaction. Finally, feedback – also claimed as one of interaction components by Tarone (2009) – is also reviewed.

Input

The concept of input might initially be connected with a behaviorist perspective in which the language to which learners are exposed plays a crucial role. To behaviorists, learning a language involves imitation – imitating the language exposed (the input) to them. Input is therefore an essential issue. Although the importance of input has long been acknowledged, it is only recently that it becomes the major focus of study. Gass & Selinker (2008) point out the reason of its doom: as behaviorism fell into disfavor, research interest in input did too. It started gaining popularity in 1980s when Krashen's (1980) notion of 'comprehensible input' depicted in his Input Hypothesis was extensively discussed.

A distinction between *input* and *intake* is initially worth pointing out. Input refers to the language which learners hear or read. Intake refers to what is internalized or taken in (Corder, 1967). Implicitly intake is input which is taken in; thus not all input can be taken in to the learner language system. While input "goes in one ear and out the other" (Gass & Selinker, 2008:305), intake, in a way, goes in one ear and stays with the learner.

To interactionists, interaction has its role in second language learning by providing and modifying input which is defined as "the language that is available to learners; that is, exposure" (Gass & Selinker, 2008:518) or 'ambient speech' (Gass, 1988:200). This idea has its origin in Krashen's (1980) Input Hypothesis – the assumption that second language acquisition can take place because of input that is understood by learners. The emphasis is then on the comprehensibility of input. How can input be made comprehensible?

In his Input Hypothesis, Krashen (1980) defines comprehensible input in a particular way. Comprehensible input is the language that contains elements a bit ahead of learners' current level of competence. In order for language acquisition to take place, input received by learners has to be, Krashen (1980) argues, comprehensible at the level of $i+1$ where i refers to learner's current state of knowledge and $i+1$ the stage just beyond. Input can then, to answer the question previously posed, be made comprehensible by first of all knowing the current level of learners and then adding something a bit beyond that current level.

Mentioning the study of MacNamara (1972), Krashen (1980) further argues for the necessity of understanding meaning – not form – prior to acquisition. He more specifically puts it "... a necessary condition to move from stage i to stage $i+1$ is that the acquirer understand input that contains $i+1$, where 'understand' means that the acquirer is focused on the meaning and not the form of the utterance" (Krashen, 1980:170).

It is generally assumed that in the discourse of native-nonnative speakers (NSs-NNSs), comprehensible input is available when there is modification in speech made by NSs when addressing NNSs of the target language. Consequently, another issue worth highlighting is ‘foreigner talk’ (introduced by Ferguson) – a simplified speech “which is used by speakers of a language to outsiders who are felt to have very limited command of the language or no knowledge of it at all” (Ferguson, 1971:143). The notion of simplicity is essential as it may be related to language acquisition (Ferguson, 1971). Adapting Hatch’s (1983) foreigner talk features, Gass & Selinker (2008) make a summary of foreigner talk features some of which are: fewer reduced vowels for clearer articulation (in terms of pronunciation), high frequency words (in terms of vocabulary), short and simple sentences (in terms of syntax), and tag questions (in terms of discourse).

Comprehensible input has also been closely associated with caretaker speech or, referring to Ferguson (1971:143), ‘baby talk’ – talk which is used by adults in talking to young children. Caretaker speech is comprehensible in the sense that it is aimed at comprehension with among others the ‘here-and-now’ concept and ‘simpler’ speech (Krashen, 1985).

In addition, comprehensible input is strongly associated with teacher talk. Corder (1978) points out that sensitive teachers will normally modify their speech when interacting with language learners – hence the term ‘teacher talk’ appears to initially refer to ‘the language of classroom management in second language classes’ (Krashen, 1985:8). Teacher talk shares common features with foreigner talk since teachers are, Boulima (1999) argues, confronted with the problem of conveying information that is accessible to the learners. Chaudron (1988), for example, points out important features of teacher talk as follows: slower rate of speech, frequent and longer pauses, simplified pronunciation, more basic vocabulary, lower degree of subordination, more declaratives and statements compared to questions, and more self-repeat. Teacher talk is frequently characterized by simplifications and restructuring of the information to attune to the needs of L2 learners.

Long (1983) proposes that one way to make input comprehensible is through interactional modification. There should be a sort of modification to learner’s input as a consequence of the signal of lack of comprehension in interaction. To this, Ellis (1990) asserts that it is through interaction that input is made comprehensible. Long (1983) further argues that acquisition is enhanced when learners are allowed to negotiate for meaning whenever there is communication breakdown or, in other words, when learners

need to interrupt the flow of interaction in order to understand. Meanwhile Gass & Selinker (2008) argue for modified input instead of comprehensible input. Modified input is characterized by restatement, repetition & elaboration.

Krashen's Input Hypothesis is not without its criticisms. One argument against it is that simplified input may hinder rather than facilitate acquisition. Referring to White (1987), Ellis (1990) exemplifies that learners exposed to simple sentences are deprived of crucial input. Another criticism concerns the difficulty to measure the current level of a student. Yet, the argument against Input Hypothesis does not indicate the insignificance of it for language pedagogy. Ellis (1990:106-7) more specifically puts it, "It provides a statement of important principle, namely that for successful classroom acquisition learners require access to message-oriented communication that they can understand."

In other words, input provided to L2 learners should be comprehensible – using Ellis's (1990) confirmation, 'message-oriented' – so that it can be comprehended for the sake of their language learning (thus the term of 'comprehended input' introduced by Gass, 1988:204). What constitutes optimal input for language learning is then characterized as the language data which are modified in such a way that comprehension or understanding is facilitated. Although understanding is not a guarantee that learning occurs, it does, Gass & Selinker (2008) argue, set the scene for learning to happen.

Output

The role of input has been discussed above as a necessity for second language development. It is Swain (1985) however who claims that second language development depends not merely on comprehensible input, as claimed by Krashen (1985), but also, more essentially, on comprehensible *output*. It is the opportunity given to the learners to produce language through interaction that will result in successful language learning. Swain (1995) simply refers to the proverb 'practice makes perfect' as an initial trigger for her hypothesis.

Krashen has in fact touched upon the role of output but he deemphasizes as he puts it, "[s]peaking ... 'emerges' on its own as a result of building competence via comprehensible input" (Krashen, 1985:2). Meanwhile Gass & Selinker (2008:325-326) point out, "Input alone is not sufficient for acquisition, because when one hears language one can often interpret the meaning without the use of syntax. ... It is not the case with language production or output, because one is forced to put the words into some order."

With output, learners get more encouragement. The following citation shall explain the encouragement learners get due to output: "... output pushes learners to process language more deeply (with more mental effort) than does input. With output, the learner is in control. By focusing on output we may be focusing on ways in which learners can play more active, responsible roles in their learning" (Swain, 1995:126). It is then implied that when output is emphasized, the students are encouraged to be more responsible for their learning. We might then refer to it as the pedagogical function of output.

Swain in her Output hypothesis claims that producing language serves second language acquisition in some ways. Three functions are consistently presented. First, output promotes 'noticing'. Learners may notice the existence of a linguistic problem or gap between what it is that they want to say and what they can say. By noticing a problem, learners are pushed to make modification hence forced into a more syntactic processing mode (Swain, 1985, 1995, 2000; Swain & Lapkin, 1995). Rephrasing Swain's idea, Gass & Selinker (2008:326) write, "What is meant by this concept is that learners are "pushed" or "stretched" in their production as a necessary part of making themselves understood. In so doing they might modify a previous utterance or they might try out forms that they had not used before."

The second role of output is related to hypothesis testing – "producing output is one way of testing hypothesis about comprehensibility or linguistic well-formedness" (Swain 1995:126). One way to test a hypothesis or simply to know what works and what does not is to say or write something (Swain, 1995, 2000). Referring to the work of Pica et al. (1989), Swain & Lapkin (1995) assert that hypothesis testing engages learners in internalization of new forms.

The third role of output is metalinguistic in nature. It is a particular role which is referred to as 'negotiation about form' (Swain, 1995:132). The output represents its metalinguistic function when it is used to reflect on language form allowing learners to control and internalize it. In order that output can reveal this metalinguistic function, it is suggested that tasks be structured so that learners are focused on language form while still being oriented to meaning.

Feedback

Besides input and output, feedback is also essential. Referring to an unpublished manuscript of Mackey & Gass (2006), Tarone (2009) puts forward the tenet of the

interactionist approach which argues for the link between learning and three major components of interaction: exposure (input), production (output), and feedback. Gass & Selinker (2008) argue more specifically for the importance of interactional feedback as a source of information. It is the role of feedback learners get that provides them with information about, Gass & Selinker (2008) reason, the success or, more likely, lack of success of their utterances and thus provides more opportunities for the learners to focus on production or comprehension.

Input-Output-Feedback

To sum up, the exposure students get in terms of the availability of comprehensible input in language learning is not sufficient without the chance of their using the language or their producing output. Moreover, another significant element, i.e., feedback should be present after the production of language for the healthy development of students' language learning.

As the notion of Long (1983) – interactional modification in the sense of negotiation of meaning – is taken, small group work is of importance as studies (like Pica & Doughty, 1985 and Porter, 1986) have indicated that learners get more chance to negotiate for meaning when they work in small groups than in whole-class teacher directed activities. Consequently, the tendency for group work to present modified interaction means that input-output-feedback is made available in the group work.

The nature of input-output-feedback association is implicitly related to the common classroom discourse of Initiation-Response-Feedback (IRF) which is initially teacher-controlled classroom discourse – categorized as pedagogic discourse (Ellis, 1990). The next section is presented to review IRF as it is the 'bridge' to investigate the students' involvement in their group interaction – one particular issue in our research question.

2.4 Initiation-Response-Feedback in Classroom Discourse

The common structure in classroom discourse – claimed as 'the most common pattern of classroom discourse at all grade levels' (Cazden, 1988:29) – consists of 3 moves (the term 'move' is initially coined by Bellack et al. (1966:4) when they introduced 'pedagogical moves'). The structure is widely known as IRF – which stands for Initiation-Response-Feedback exchange (Sinclair & Coulthard, 1975), QAR which stands for Question-Answer-Reaction pattern (Voeten, 1985), or IRE – following Cazden (1988) and

Mehan (1979) – which stands for Initiation-Response-Evaluation. Among the three, ‘IRF’ and ‘IRE’ are commonly quoted (in this study, we preferably use ‘IRF’ – avoiding especially the word ‘Evaluation’ as students might not want to ‘evaluate’ one another, but they would rather provide ‘Feedback’).

The three moves in this basic functional structure of teaching exchanges usually succeed one another. They have a clear cut function. ‘Initiation’ starts the exchange, ‘response’ is a reply to the preceding ‘initiation’, and ‘feedback’ evaluates the preceding ‘response’, and terminates the exchange. For this basic structure of IRF, Boulima (1999) uses the term ‘non-negotiated interaction’. In the common discourse, the teacher’s slots are in the Initiation and Feedback moves while the students’ slot is in the Response move only. Since this study centers on student interaction, the three IRF moves are used to reveal the extent the students are involved in interacting with peers without the teacher’s presence.

The basic structure of IRF has been reviewed – resulting in the extended versions termed ‘sequence’ in Boulima (1999:106), ‘improvisation’ in Griffin & Mehan (1981:205), or ‘complex exchanges’ in Sinclair & Brazil (1982:87). An extended sequence frequently appears as the expected response of initiation does not occur. Boulima (1999:10, 107) provides some examples of a sequence – a discourse unit larger than the basic exchange – possessing a ‘complex’ structure. One of them looks like the following: I [R (F)]ⁿ (I) (R) (F) (note: the parentheses indicate an optional element; ⁿ indicates that the element could be a number of occurrences).

IRF is used in various forms accommodated in statements which are simple, repeated and/or extended. They can be questions in various types: referential and interaction-sustaining questions like comprehension checks, confirmation checks and/or clarification requests. They can also cover acceptance or correction (the elaboration of this issue is postponed until Chapter 5 is presented – when the categories for the data analysis are depicted).

Implicitly, it is the insights of the above literature, especially constructivism, social interactionism, and interaction components in language learning that provide the psycholinguistic arguments for cooperative group work. This particular topic is the focus of the next section.

2.5 Cooperative Learning

Some authors like Brown (2001) and Oxford (1997) distinguish between the terms cooperative and collaborative. Both of them agree that cooperative learning tends to be more structured. It is “dependent on the socially structured exchange of information between learners” (Brown, 2001:47). Meanwhile, Richards and Rodgers (2001) making no distinction between the two point out that cooperative learning is merely a part of a more general instructional approach known as Collaborative Learning. No distinction will be made between the two terms in this study, and “cooperation” will be used interchangeably with “collaboration”.

Various terms have been coined to refer to cooperative learning. In the literature of the 1980s, the terms used are ‘peer involvement’, ‘peer-led activity’, ‘peer-mediated activities’ (Gaies, 1985), and ‘peer interaction’ (Webb, 1989). In the 1990s, they are ‘peer tutoring’ (Kagan & Kagan, 1994), ‘peer grouping’ (Bobrink, 1996), ‘peer-teaching’, ‘peer-directed small group learning’, ‘peer-directed learning’, ‘mutual peer tutoring’ (King, Staffieri & Adelgais, 1998), simply ‘peer learning’ (Bunts, 1999), ‘small group for instructional purposes’ (Johnson & Johnson, 1999), and simply ‘group work’ (Slavin, 1999). In the last decade, they are ‘peer tutoring’ (Aronson, 2005, 2008), and ‘collaborative learning’ (Gallardo et al., 2003).

Small group work and cooperative tasks have been employed as classroom practice since the early part of the twentieth century. In other words, cooperative learning is not a new idea (Lazarowitz et al., 1985 citing Sharan et al., 1980 and Slavin, 1983). Similarly stated, cooperative learning has been regarded “as a standard part of educational practice, not as an innovation” (Slavin, 1999:74). It commences with Deutsch’s (1949) theory about cooperation and competition which has become a foundation for research on cooperation in education. Some other noted educators like Dewey (1915), Kilpatrick (1918), and Meil (1952) have written about cooperative learning (Totten et al., 1991).

Since the efforts of individuals who are recognized leaders of cooperative learning like Aronson (2005), Johnson & Johnson (1975), Kagan & Kagan (1994), Slavin (1985), and Webb (1989), numerous cooperative learning strategies have been developed, field tested, and researched. In their annotated bibliography under the rubric of ‘cooperative learning’, Totten et al. (1991) list 811 entries related to cooperative learning materials including cooperative learning strategies, articles, research projects, book reviews, films,

videos, games published between the late 1960s and the latter half of 1990. This implicitly indicates that cooperative learning has in fact been discussed and put into practice a lot. It is also in line with what has been stated previously by Lazarowitz et al. (1985) and with what is claimed by Cohen (1994) stating that cooperative learning has gained increasing acceptance as a strategy – or ‘method’ referring to Johnson, Johnson & Stanne (2000) and Sharan (1994), or ‘procedure’ referring to Johnson & Johnson (1999) – for, among others, producing learning gains, the development of higher order thinking, social behavior, and interracial acceptance. Cooperative learning is, in fact, one of the most completely researched instructional strategies (Dörnyei, 1997 citing Johnson, Johnson & Smith, 1995; Hertz-Lazarowitz et al., 1992; Johnson et al., 2000; Totten et al., 1991 quoting Slavin (1989/1990)). One reason is that cooperative learning is clearly based on theory. The other reasons are that it is validated by research and that it is operationalized into clear procedures to employ.

Cooperative learning is derived from the principle that students work together to induce learning and that each student is responsible for both his or her own learning as well as that of his or her classmates’ learning (Johnson, Johnson & Holubec, 1998 in Gallardo et al., 2003; Slavin, 1990 in Jacobs, Lee & Ball, 1996; Totten et al., 1991). It is an attempt, argued by Newmann & Thomson (1987) in Totten et al. (1991), to find an alternative to ‘frontal teaching’ – the teacher teaching the whole class at once, or an alternative to the ‘lockstep’, using Gaies’ (1985) and Long et al.’s (1976) term.

Highlighting the rights and obligations of students in cooperative learning, Cohen et al. (1994) point out that the students have the right to ask other students for assistance and that they have the duty to assist other students who ask for help. Referring to Slavin (1990), Jacobs et al. (1996) put forward that cooperative learning requires students to work together to learn and to be responsible for their fellow students’ learning as well as their own. Implicitly, this sort of cooperation requires that students are prepared for the new learning paradigm.

The learning paradigm depicted above implies that cooperative learning is related to learner-centeredness. This is in line with the claim of Nunan (1999) who asserts that constructivist view of knowledge is in harmony with learner-centeredness. Coelho (1992) equally notes that cooperative learning is an education approach which is based on the philosophy that education should be learner centered and learner directed, that learners can

be teachers, and that teachers are guides and facilitators rather than the source of all knowledge and direction.

2.5.1 Benefits of Cooperative Learning

Numerous research reports published over the past three decades also demonstrate the benefits of cooperative learning. A complete review of cooperative learning research findings is beyond the scope of this particular section. Moreover, those studies are not very closely-related to the Jigsaw technique of cooperative learning – the main concern of this study. However, representative studies will be pointed out briefly to illustrate the benefits revealed in the field.

Cooperative learning, pointed out by Kessler (1992) who refers to Olsen's (1984) argument, offers ways to organize group work to enhance learning and increase academic achievement. Widely recognized as a teaching strategy, cooperative, small-group learning, Cohen (1994) argues, promotes learning and socialization. Further, the implementation of cooperative learning assists students to learn various skills. Slavin (1994:1) puts it: "Cooperative learning methods are practical classroom techniques teachers can use everyday to help students learn any objective, from basic skills to complex problem solving." Similarly, Nurhadi (2004) implicitly points out that learning conditions are maximized to attain learning objectives when cooperative learning is implemented.

McGroarty (1989) as quoted by Kessler (1992), identifies six major benefits of cooperative learning for students acquiring English. First, cooperative learning increases frequency and variety of second language practice through different types of interaction. Second, there is a possibility for development or use of the first language in ways that support cognitive development and increase second language skills. Third, cooperative learning gives teachers opportunities to integrate language with content-based instruction. Fourth, cooperative learning also gives opportunities to include a greater variety of curricular materials to stimulate language as well as concept learning. Next, it provides freedom for teachers to master new professional skills, particularly those emphasizing communication. The last one is that it gives opportunities for students to act as resources for each other, thus assuming a more active role in their learning.

The quantitative study of Stevens & Slavin (1995) conducted in elementary schools revealed the benefit of cooperative learning in improving students' achievement. The students were significantly better in vocabulary, reading comprehension, language

expression, and math computation than their peers in traditional schools were. Besides, there were better social relations. Their study also revealed that gifted students in heterogeneous cooperative learning classes had significantly higher achievement than their peers who studied in a non-cooperative learning class. To this last finding, they argued that gifted students seemed to benefit from becoming the students who provided elaborate explanations to classmates – an essential process to learning.

In their meta-analysis, Johnson et al. (2000) found a consistent result indicating the effectiveness of cooperative learning methods in increasing academic achievement. An early review (Slavin, 1980) supported the implementation of cooperative learning techniques in general for positive interracial relations, mutual concern among students, student self-esteem besides increasing students' academic achievement. Reporting on their previous studies of 1983 and 1989, Johnson and Johnson (1994b) put forward that the use of cooperative learning, compared with competitive, individualistic, and traditional instruction, promotes considerably better social relations among students. Reviewing the studies of Hunt et al. (1994) and Putnam et al. (1996), Gillies (2003) concluded that cooperative learning also benefited children with multiple and severe disabilities.

The reviewed studies imply that the use of cooperative learning as a teaching strategy revealed various positive results – increasing cognitive as well as affective domains of learning. In fact, Johnson et al. (2000) claim that there may be no other instructional strategy that simultaneously achieves such positive outcomes.

This section has highlighted the advantages of cooperative learning as it yields positive or 'good' results. What about the 'negative' or 'non-significant' results of cooperative learning studies? This issue will be presented in the next section.

2.5.2 Drawbacks of Cooperative Learning

The results of some early studies indicated that cooperative learning was simply as good as the more traditional forms of instruction and not necessarily superior. Again, only a few representative studies will serve as an illustration.

Reviewing cooperative learning studies in the field of mathematics, Davidson (1985) found significant differences in favor of cooperative versus traditional methods of instruction only in a third of the studies; the remaining studies showed no significant differences. In another analysis of studies examining the effect of helping behavior in group work on the students' achievement (conducted between 1979 and 1982), Webb

(1985) pointed out that research relating student interaction and achievement in small groups appears to be inconsistent as some cooperative groups did no better than the control groups. The pilot studies which will be presented in the next chapter found no positive effect for the implementation of Jigsaw, one of the cooperative learning techniques.

Richard-Amato (1988) points out one particular drawback of cooperative learning. If it is used extensively at the beginning to intermediate levels, there is a possibility of early language fossilization. Low-achieving students do not provide adequate models for each other. In fact this becomes one of the concerns for language teachers when assigning students to work in groups or pairs – that they may provide each other with incorrect advice concerning the target language form; a concern often expressed by students as well. A similar idea is pointed out concerning this particular concern – that students will ‘reinforce’ each other’s errors and that teachers will not get a chance to correct them (Brown, 2001).

Still another drawback commonly cited is related to the issue of learning style (Brown, 2001; McDonough & Shaw, 2003). Cooperative learning is not the right choice as some learners prefer to work alone because that is, Brown (2001) writes, the way they have operated ever since they began their school. The last drawback to list is that one student can do harder work for the whole group taking the "thinking roles" (Slavin, 1999:74) in group activities while others take merely passive ones.

In Indonesia, though cooperative learning has gained increasing acceptance throughout the country, it is still frequently pointed out that small group learning makes teachers unable to control all groups at once. Small group might tend to have more *off-task* interactions which bear no (apparent) relation to the learning material. The respective teachers then worry about being seen as less effective by parents, principles, or supervisors. Another worry is related to the use of native language instead of target language in second language instruction. When used especially in EFL classes, cooperative learning – which is basically a group work – is not a good option to pick as students will covertly use their native language. The previously illustrated worries pointed out by some teachers who are afraid of implementing group work are then often considered as the drawbacks of cooperative learning.

Simply stated, cooperative learning is not without its weaknesses. Nevertheless, it does not mean, Richard-Amato (1988) continues, that peer grouping should be avoided.

Brown (2001) strengthens the need of careful planning and management. What in fact matters is the lack of additional effort or essential conditions related to the characteristics that make cooperative learning different from common group work. This particular issue which is actually the effort to obtain more productive group work so that the drawbacks previously exposed can be minimized will be the focus of the next section.

2.5.3 Essential Components of Cooperative Learning

The review of the cooperative learning literature (Bejarano, 1994; Felder, 2005; Johnson & Johnson, 1989, 1994a,b; 1999; Kagan & Kagan, 1994; Male, 1994; Tinzmann et al., 1990; Totten et al., 1991) reveals that five essential components of cooperative learning are consistently mentioned. They are not to be ignored when aiming at well-structured cooperative learning lessons. Among the five, the most widely reviewed components are Individual Accountability and Positive Interdependence – claimed as two critical components in cooperative learning (Kagan & Kagan, 1994; Tinzmann et al., 1990 who cite Davidson, 1985 and Johnson & Johnson, 1989; Totten et al., 1991 who refer to Newmann & Thomson, 1987, and Slavin, 1989). The other three components include Face-to-Face Interaction, Interpersonal & Small-Group Skills or Social Skills, and Group Processing (Felder, 2005; Johnson & Johnson, 1989, 1994a,b, 1999).

Individual Accountability

Individual Accountability is, Kagan & Kagan (1994) point out, making each student in the group accountable for his or her own learning. This individual accountability should be enforced to reduce the tendency of some students to ‘hitchhike’. The idea of working together in small groups should not lead students to lose sight of each student’s responsibility for his or her own learning. This can be achieved, Bejarano (1994) exemplifies, by giving an individual test to each student, by a whole-class discussion or role play in which students are required to contribute their expertise individually – to show they understand what they have previously learned or discussed in the group.

Positive Interdependence

Positive Interdependence, claimed by Kagan & Kagan (1994) as the most basic principle in cooperative learning, is created whenever an achievement of one group member means an achievement of another while a failure of one member means a failure

of another. The students realize that they are positively interdependent from one another in the learning group – that everyone in the group sinks or swims together (Kagan & Kagan, 1994), and that “no one is successful unless everyone is successful” (Male, 1994:270). Briefly, every student must see himself or herself as positively dependent one another to enable him or her to take a personal responsibility for working to achieve group goals.

Male (1994) mentions some types of interdependence. *Goal interdependence* is introduced when the teacher, for instance, says, “You’re not finished until everyone in the group can explain how a computer works.” When the teacher says, “Each of you will be an expert on a different aspect of the story – one on the setting, one on the characters, and one on the plot. Then decide together how to retell the story”, *task interdependence* is employed. In *resource interdependence*, the teacher gives only one sheet to the group rather than one sheet for each student so that they work together to record on that one worksheet, for example, the group’s predictions of what questions will be asked on the quiz after they read the text. Related to *reward interdependence*, the typical teacher’s encouragement is: “If everyone on the team scores at least x , then you will get y bonus points for your own grade.” Using *role interdependence*, the teacher may say: “Each of you will have a job; one of you will be a checker, for example, to make sure that everyone can explain how an answer is obtained.”

Cohen et al. (1994) argue that roles are assigned to encourage interaction and discussion and to help the group function and work together more efficiently and that it is not intended to represent a division of labor that permits group members to split off the group. Each member in the expert team is assigned a different role to strengthen positive interdependence in order that duties are, Sherman (1994) argues, shared in a predetermined way. It is therefore essential to ensure the distribution of responsibilities within the group; role assigning is of a vital issue to take care.

When students work in group, they need to have a leader so the group can work better. Aronson (2005, 2008:31) puts it, “Leaving the groups leaderless creates problems” The leaderless group will have trouble getting organized and accomplishing the task. Some other roles that can be assigned vary. Cohen et al. (1994) putting forward some widely used roles such as *facilitator*, *materials manager*, and *recorder/reporter* confirm that many of these roles are the ones the classroom teacher commonly plays. Discussing kinds of roles in pair work and group work under the heading of ‘group procedure’, Kaye & Rogers (1968) introduce 2 simple roles: *leader* and *members*.

Sherman (1994) suggests the roles of *principal investigator*, *materials manager*, *recorder*, and *spokesperson* to include in science class. The *principal investigator* who is in charge of the group coordinates the activity or experiment. The *materials manager* collects, as its name suggests, the materials the group needs. The student assigned to this role may be supplied with a list of materials to gather from a general supply area, or collect preassembled materials packets for the activity. The *recorder* is responsible for writing down the group observations. The *spokesperson* reports the group's findings to the class and ensures that each member understands the material and can explain what has been done. The *timekeeper* keeps the group working within the assigned time period, while the *gatekeeper* tries to have each member participate equally. The *checker* makes sure that each group member understands the task and agrees with how the group arrives at its conclusions. The *encourager/praiser* looks for individual contributions that deserve praise and rewards those contributions with positive comments. Jacobs et al. (1996) put forward some possible roles – *time-keeper*, *noise monitor*, *encourager*, *reporter*, *secretary*, and *checker* – to maintain smooth functioning groups.

Cossette & Saba (2000) suggest similar roles like *checker*, *time keeper*, *encourager*, *recorder* and finally, as the idea of integrating information and communication technologies into a classroom is introduced, the role of *TechExpert*. This *TechExpert* role can be assigned to the group member whose job is to operate the technology by working on the keyboard, scanning, using the internet etc.

Face-to-Face Interaction

Face-to-Face Interaction is actually the result of structuring situations cooperatively. It is an essential element where students promote each other's success by helping, assisting or sharing resources or knowledge, supporting, encouraging, and praising each other's efforts to learn and complete tasks in order to achieve the group goal (Johnson & Johnson, 1994a,b, 1999). Other cognitive characteristics covered in this interaction are, among others, teaching one's knowledge to classmates, connecting present with past learning, providing constructive feedback, challenging other members' reasoning and ideas while keeping an open mind, acting in a trustworthy manner, and promoting a feeling of safety to reduce anxiety of all members. To obtain meaningful face-to-face interaction, the teacher should consider a group size of 2-4 members and discourage the passive students

telling them that if they are uninvolved, they are not contributing to the learning of others as well as themselves (Johnson & Johnson, 1994a, 1999).

Enhancing face-to-face interaction can then be performed by carefully structuring students' activities realized in a group task which has well-planned directions and procedures. Coelho (1992:131) argues, "The task must be structured in such a way that it would be better done by the group than by any individual; each member of the group depends on every other member for some aspect of the task." Cohen (1994) points out that student interaction must be structured to an extent that students engage in high-level discourse to enable higher order thinking and learning to take place. King et al. (1998), who refer to the studies of Britton et al. (1990), King (1990, 1992, 1994), Pressley et al. (1987), and Spires, Donley & Penrose (1990), indicate that if student interaction is left unstructured, students tend to interact only at a basic concrete knowledge – retelling level. Similarly, Sapon-Shevin et al. (1994) assert that the participation of all group members is more likely to occur when teachers carefully structure the group task. However, overstructuring can, Cohen (1994) warns, hamper students' search for understanding and problem solutions. As a consequence, a delicate balance is needed.

Hertz-Lazarowitz (1989) cited in Cohen (1994) makes the distinction between high- and low-cooperation group tasks. In low-cooperation group tasks, students simply share materials or information or divide the labor so that each person's contribution can be joined together as a final product. In high-cooperation tasks, students must interact as they work together to discuss planning, decision making, and division of labor as well as substantive content.

Cohen (1994) similarly talks about two sorts of task which she coins as "well-structured" and "ill-structured" tasks. Well-structured tasks refer to those that have a correct, fixed answer. With this type of task, interactions tend to be limited to exchanging information, providing explanations, or requesting assistance. Meanwhile, when a group engages in "ill-structured" tasks which are more open and discovery-based where there are no correct answers, group members show high levels of cooperation as they share ideas and information and discuss how they will work together as a group.

Interpersonal or Small-Group Skills

Interpersonal or small-group skills are required for the success of a cooperative effort. These skills include the following social skills: leadership, decision-making, trust-

building, communication, and conflict-management skills (Felder, 2005; Johnson & Johnson, 1994a, 1999). Oxford (1997) mentions the following skills to be included as the social skills: asking for clarification, checking for understanding of others, explaining, paraphrasing, acknowledging contributions, asking others to contribute, praising others, verifying consensus, and mediating conflicts. Placing students in a group and telling them to cooperate does not, Johnson & Johnson (1994a, 1999) argue, guarantee that students will be able to do so effectively. They must be taught to do so.

Group Processing

Group processing exists when students discuss how well they are achieving their group goals and maintaining effective working relationships. Groups need to expose which actions are helpful and unhelpful or what has been conducive to completing the tasks, and make decisions about what behaviors to continue or change. Students need to identify changes they will make to function more effectively in the future. “List three things your group is doing well today and one thing you could improve” (Johnson & Johnson, 1994b:5) is an example to realize this group processing.

In a classroom instruction – let alone in small group work, there is almost always a mixture of *on-task* interactions which strictly pertain to the subject content and tasks of the lesson on the one hand, and *off-task* interactions which bear no (apparent) relation to the learning material on the other hand. To keep more on-task interactions in small group work requires additional efforts – making the five elements previously elaborated present in cooperative learning instruction so that the expected result is attained. To be more specific, Johnson & Johnson (1999:73) put it: “They [the five elements] are a necessity for the healthy social and psychological development of individuals who can function independently.”

The basic elements – individual accountability, positive interdependence, face-to-face interaction, appropriate use of interpersonal skills, and periodic group processing – that make cooperation work are incorporated in this study (Chapter 4 shall reveal when and how each element is incorporated: individual accountability in [4.4.11.1]; positive interdependence in [4.4.7], [4.4.9] and [4.4.11.2]; face-to-face interaction in [4.4.5], [4.4.9] and [4.4.10]; interpersonal skills in [4.4.10] and [4.4.11.2] and group processing in [4.4.10]).

2.5.4 Grouping Considerations

Cooperative learning researchers like Bejarano (1994), Coelho (1992), Johnson & Johnson (1985), Kagan & Kagan (1994), Sapon-Shevin et al. (1994), Tinzmann et al. (1990), and Totten et al. (1991) have focused specifically on the issue dealing with the effectiveness of heterogeneous versus homogeneous group composition. Most of them suggest a heterogeneous group composition. This heterogeneity consideration is meant for the social and academic opportunities for peer tutoring and mutual assistance (Bejarano, 1994), for optimum learning (Coelho, 1992), and for positive peer tutoring and an aid to classroom management (Kagan & Kagan, 1994).

Some research on cooperative learning concerning group composition reveals the importance of heterogeneity. Nijhof & Kommers (1985) report that they found a significant effect on employing heterogeneous grouping. Most research findings suggest that heterogeneous grouping benefits especially the low achievers. In studies of collaborative work, Swing & Peterson (1982) in Cohen (1994), for instance, found that students of low achievement benefited from participation when they were put in heterogeneously composed groups. They became better on achievement in comparison to those put in homogeneously composed groups. Simply put, proponents of cooperative learning are consistent in their support of a heterogeneous grouping.

However, King et al. (1998) found in their study that same age peers of equal ability can learn to scaffold each other's learning. This implicitly indicates that heterogeneity is not a must.

A few studies suggest both heterogeneous and homogeneous group compositions to be considered. Kagan (2002) argues for heterogeneous teams (mixed sex, ethnicity, and ability) since heterogeneous teams maximize the probability of peer tutoring. Nevertheless, Kagan (2002) suggests occasional break outs into homogeneous teams and random teams for the sake of variety to create interest and enhance learning. Kagan & Kagan (1994) likewise point out that teachers need to learn the usefulness of a range of team-formation methods and to choose the most appropriate for the objectives at hand.

Grouping consideration also covers the issue of group size. Discussing group size, Coelho (1992) asserts that groups of four are very flexible, because they can easily be regrouped into pairs for some activities. Jaques (2000) mentions that six is a critical number. Johnson & Johnson (1975) put forward that six to ten member-groups have been

successful for cooperative tasks. McDonnell (1992) sharing his experience suggests teachers to form groups of three or four as they allow for maximum participation. Meanwhile, Olsen & Kagan (1992) state that a group preferably consists of four members.

Another thing to consider in grouping students concerns group cohesiveness. A method that can be used to measure the emotional structure of a group is sociometric analysis or sociometry (Hopkins, 2008). Sociometric patterns – the subtle relationships of friendship and antipathy (Jaques, 2000) – have an important influence on group activities. Put simply, the use of sociometric method is expected to result in the following group composition: at least one student in the group is a liked one. Each student can be asked to list three or four members of the class with whom they would like to work (Stanford & Raork, 1974 in Jaques, 2000). With the list obtained, the teacher can then form the groups where the students know each other and realize that they are peers. In other words, cohesive groups can function better.

2.5.5 Cooperative Learning Techniques

Cooperative learning is operationalized using several techniques – which are termed differently by cooperative learning advocates. Kagan & Kagan (1994) popularize the terms ‘cooperative learning strategies’ and ‘cooperative learning structure’. Lazarowitz et al. (1985) make use of the term ‘cooperative learning approach’, meanwhile Slavin (1994) introduces two terms, namely ‘team techniques’ and ‘cooperative learning methods’. Implicitly, in the cooperative learning literature five terms are used interchangeably to refer to the types of cooperative learning. Listed alphabetically, the compatible terms are: approach, method, strategy, structure, and technique (the last term ‘technique’ is used in this thesis).

As stated in section [1.2], two cooperative learning techniques are employed in the classroom where the data are collected. They are Learning Together and Jigsaw – which are two of the extensively employed cooperative learning techniques in classroom instruction.¹⁾ Although the main data in this study are taken from the implementation of Jigsaw, a discussion on Learning Together is needed here, though in

¹⁾ For a more comprehensive review on cooperative learning techniques, see Felder (2005), Jacobs et al. (1996), Kagan (1999), Lie (2002), and Nurhadi (2004); also visit www.KaganOnline.com where numerous cooperative learning techniques developed by Dr. Spencer Kagan and his associates at Kagan Publishing and Professional Development are introduced.

brief. Listed as the first modern method of cooperative learning (Johnson et al., 2000), Learning Together, which is initially presented by Johnson & Johnson (1975), is defined as an approach to cooperative learning that is characterized by four elements (highlighted in Johnson & Johnson, 1994a). The first three are formal cooperative learning, informal cooperative learning, and cooperative base groups. The last one is the result of the first three elements.

In Learning Together formal cooperative learning is employed. Students work together for one class period to several weeks. Besides, informal cooperative learning is incorporated. Students work together temporarily. Cooperative base groups are also applied. They are heterogeneous, long-term, stable groups that last for at least a year. They provide a context in which students can support one another academically and personally. Eventually, Learning Together is also characterized by the five essential components of cooperative learning, namely: Individual Accountability, Positive Interdependence, Face-to-face Interaction, Interpersonal Skills, and Group Processing (as these components have been elaborated in [2.5.3], they will not be discussed further here). The lesson and classroom routine which is cooperative becomes another element of Learning Together (Johnson & Johnson, 1994a). This last element is the consequence of the previous ones. Learning Together requires the alteration of the organizational structure of schools: the competitive/individualistic structure is changed into a cooperative team-based one.

When Jigsaw is implemented, groups of 4–5 students (more popularly known as home teams) are formed. Each home team is assigned a part of the material to learn and then to teach to the other members in the group. Since Jigsaw as the cooperative learning technique is at the core of this thesis, it will be discussed further in a separate section below.

2.6 Jigsaw

In the cooperative learning literature, the word ‘Jigsaw’ sometimes stands alone, but it is often paired, or defined, most frequently with or as *approach*, *method* or *technique*. Clarke (1994) uses ‘method’, ‘approach’, ‘activity’, and ‘process’ interchangeably to pair with Jigsaw. Cohen (1994) calls it Jigsaw ‘procedure’. Lazarowitz et al. (1985) define Jigsaw as one ‘method’. Meanwhile, Slavin (1985) uses the word ‘techniques’ and

‘methods’ interchangeably to refer to Jigsaw. Kagan & Kagan (1994), however, coin the word ‘design’ as they categorize Jigsaw as one type of ‘Lesson Design’ – the term which is not commonly used to refer to Jigsaw. In this study “Jigsaw” is used interchangeably with “the Jigsaw technique”.

Jigsaw, initially introduced by Aronson in 1978, is one of the earliest of the cooperative learning techniques that are documented (Slavin, 1994). It is generally characterized by students’

working in two teams: home teams and expert teams (or ‘home groups’ and ‘focus groups’ respectively – using Clarke’s (1994) terms, or ‘Jigsaw group’ and ‘counterpart groups’ respectively – using Lazarowitz et al.’s (1985) terms).

A student is put firstly in the expert team with the expectation that at the end of the expert team discussion the student becomes, as the name implies, the expert of a particular material. The student is then put in the home team to share his or her expertise with the home team members. To these characteristics, Clarke (1994) puts forward four generic stages in Jigsaw: (1) introduction, (2) focused exploration, (3) reporting and reshaping, and (4) integration and evaluation.

Jigsaw is therefore based on systematic group work. Groups of 4–5 students are formed. Each group member is assigned a sub-part of material to learn and to teach to his group members. To assist in the learning, students having the same sub-part of the material get together to decide what is important and how to teach it. After learning together in these expert teams, the students go to their original groups – the home teams. They are expected to teach one another sharing their expertise. Related to this work division, Jigsaw is named as ‘division-of-labor structure’ (referring to Oxford, 1997:446).

Aronson (2005) lists the benefits of Jigsaw. Students have the opportunity to teach themselves, instead of having material presented to them. The technique fosters depth of understanding. Students have practice in peer teaching, which requires that they understand the material at a deeper level than students typically do when simply asked to produce on an exam. Each student has a chance to contribute meaningfully to a discussion, something that is difficult to achieve in large-group discussions. Each student develops an expertise and has something important to contribute. This implies that students themselves – not only teachers – can be contributors of knowledge. Aronson (2005, 2010:2) puts it: “This “cooperation by design” facilitates interaction among all students in the class, leading them to value each other as contributors to their common task.” Aronson

(2005, 2008) further claims that Jigsaw is an efficient way of learning. It is even more beneficial as the process in the implementation of Jigsaw encourages listening, engagement, and empathy.

In a reading class where Jigsaw is implemented, all home teams formed can have the same reading text to discuss. The reading text is divided into equal sections – usually four or five. Each group member gets one different section and therefore is responsible for the respective section. The students having the same section of the text then form their expert teams. In the expert team students assist one another to become the expert of the respective section. The students at last return to their home team. In the home team each shares his or her expertise and at the same time each learns the whole text from one another (further illustration on the implementation of Jigsaw in a reading class is in Chapters 3 and 4).

2.7 Previous Related Studies on Jigsaw

Most Jigsaw studies are, as stated in [1.1], not performed in language classes. Special attention will be on the review of studies which are carried out in language classes. Prior to this special focus, however, two studies conducted in science class will be reviewed to provide an example of the non-language Jigsaw-related study.

Lazarowitz et al. (1985) performed three experiments in which a Modified Jigsaw (MJ) technique was used to teach high-school science. Aronson's original Jigsaw was modified in 4 ways: (1) the Jigsaw technique became the students' only experience in the class for at least two weeks, (2) the students in the expert team learned a large quantity of material for three or four entire class sessions, (3) the students learned by using an inquiry approach, seeking information and knowledge, and (4) the teachers removed themselves almost completely from the student activities. Their experiments involving poorly motivated students to study science were conducted to investigate the effects of the MJ technique in students' achievement, interest in science and self-esteem. They found that both MJ technique and individualized learning were equally effective. In two of their projects, they found significant gains in students' self-esteem. However, they were cautious about this particular finding as they realized they might have captured strong feelings about self with their measure of self-esteem rather than permanent changes in self-concept. The students who had learned to accept responsibility for their learning

performed well in cooperative learning activities, but the students who were accustomed to the teacher-centered class did not. They eventually argued that both cooperative and competitive techniques were essential for student growth.

A study of Carlson & Stuple (1982) reviewed by Lazarowitz et al. (1985) revealed the effect of Jigsaw which was implemented in junior high social-studies classes. The study indicated the Jigsaw students gain in self-esteem. The students began to understand and accept others not previously included in their social group. However, some negative effects were revealed. After six weeks of Jigsaw, the junior-high students expressed a less favorable attitude toward working with other students on projects, discussions, and class presentations, and activities involving teacher-student interactions (the students eventually preferred teacher-dominated class).

Graves and Graves shortly report a study on Jigsaw concerning retention in learning. They write, "In a bilingual school, the use of six questions about a film studied in Jigsaw groups was shown to be more effective in students' retention of interaction than the same questions studied individually." (Graves and Graves, 1985:432).

Some Jigsaw studies have been carried out in language classes. Sannia (1998) conducted a quasi-experiment study on the effect of cooperative learning using the Jigsaw technique in a senior high school in Surabaya, Indonesia. In her study, the idea of Jigsaw was taken. Each student was given a small portion of the text to learn but the students were not grouped in expert teams. Only home teams were formed. The students were given their individual part to learn and teach to the other home team members. It was found that there was an improvement in the students' reading achievement after the students were taught to use the Jigsaw-like technique.

Another study worth revealing is written by Harlim (1999). In her thesis, she presented a technique to teach listening comprehension by taking the idea of Jigsaw since she believed that Jigsaw could improve students' listening comprehension. In brief, she provided three models of teaching Listening by using Jigsaw to senior high school students.

Another study is by Kurnia (2002) who conducted a quasi-experimental study on the effect of Jigsaw in a senior high school in Surabaya, Indonesia. She found that there was an improvement in the students' reading achievement after the Jigsaw technique was applied in their English class.

Rossiana (2007), in her study on the implementation of Jigsaw in teaching reading to senior high school students, found that Jigsaw did not show the beneficial effect expected. The students taught using Jigsaw did not have better reading achievement than those taught using the Grammar Translation Method.

Varied results are obtained from earlier studies of the Jigsaw technique in language teaching. As far as achievement outcomes are concerned both positive and negative results occur. Some studies find Jigsaw to be more effective than conventional whole-class techniques. Some others reveal no effect when the contrast is made between the experimental Jigsaw group and the control teacher-centered group. Yet it is indicated that the affective domain of students' behavior is better realized in (more) cooperative learning systems of instruction. Some students become consistently more social and have increased self-concepts after being involved in cooperative learning.

2.8 Summary

In this chapter the literature which forms the base of our study has been presented. First, constructivism which stresses, among others, the role of interaction in the construction of knowledge is put forward. What follows is the discussion on the notion of social interactionism which idealizes social perspective of learning through interaction. Then literature on the input-output-feedback issues in language learning is discussed. The review on Initiation-Response-Feedback classroom discourse is presented next. These classroom discourse moves are reviewed briefly to be the 'bridge' before further elaboration is presented in Chapter 4 related to data analysis classification and categories. Cooperative Learning comes next as the idea of both constructivism and social interactionism entails the use of small group discussion in classroom instruction. The last set of literature which forms the core of our project – Jigsaw – follows. Eventually, another section on previous studies ends the main discussion in this chapter. In the next chapter the pilot studies are presented before we go on with the main study itself.