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

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# **CHAPTER 7**

## **CONCLUSIONS**

This concluding chapter summarizes the main findings of the study which investigates student interaction in a Jigsaw class in Indonesia. It then puts forward the theoretical and pedagogical implications of the findings. After pointing out the study limitations, the chapter offers some recommendations for further research to help extend our knowledge in the area of peer learning and our insights on the implementation of Jigsaw in Indonesia.

### **7.1 Summary**

In Indonesia the encouragement to change the classroom setting – leaving some space of the teacher’s stage in the classroom to the students – has been triggered by the implementation of the Competency-based Curriculum which is student-oriented. This encouragement entails a paradigm shift in education in general and in foreign language education in particular. The paradigm shift – “a move away from the tenets of behaviorist psychology and structural linguistics and toward cognitive, and later, socio-cognitive psychology and more contextualized, meaning-based views of language.” (Jacobs & Farrell, 2001:3; 2003:8) – has been accompanied by innovative teaching learning approaches one of which is cooperative learning, an instructional paradigm receiving considerable attention in the educational literature.

The seating arrangement to cluster students in cooperative learning groups is then an option. Unlike in a teacher directed class where the discourse involves a three-phase model: a teacher’s elicitation (the Initiation move), a student’s response (the Response move), and a teacher’s feedback (the Feedback move) thus forming the common IRF classroom discourse, in a cooperative learning group, the students are implicitly expected to be involved much more. 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. When small groups are formed, the students are involved more in group interaction where they can get more moves.

To attain the maximum result of group interaction requires the maintenance of the essential components of cooperative learning (Bejarano, 1994; Felder, 2005; Johnson &

Johnson, 1989, 1994a,b; 1999; Kagan & Kagan, 1994; Male, 1994; Tinzmann et al., 1990; Totten et al., 1991). They include Individual Accountability – to prevent students from ‘hitchhiking’, Positive Interdependence – to make students realize they are positively interdependent from one another, Face-to-Face Interaction – to make students promote each other's success by helping, assisting or sharing resources or knowledge in order to achieve the group goal, Interpersonal Skills – to make students develop important team work skills that help them function in a group setting, and Group Processing – to enable students to identify actions or behavior to continue or change.

Maintaining the components of cooperative learning implies among others that student interaction should be well-structured and that grouping should be well-designed so that the students are really involved in the expected manner. Assigning roles to students is one way to help the group function and work together more efficiently (Cohen et al., 1994); it is also one way to ensure Positive Interdependence (Male, 1994). Preparing group task to promote student interaction in trying to understand a text is needed so that the students interact not only at a basic factual knowledge but also in high-level discourse in order for higher order thinking and learning to take place (Cohen et al., 1994; King et al., 1998; Sapon-Shevin et al., 1994). Putting students with different levels of ability in a cooperative group is greatly recommended (Bejarano, 1994; Coelho, 1992; Johnson & Johnson, 1985; Kagan & Kagan, 1994; Sapon-Shevin et al., 1994; Tinzmann et al., 1990; and Totten et al., 1991) to allow students to help or learn from one another or, in other words, to scaffold one another.

One of the most promising cooperative learning techniques is Jigsaw (Aronson, 2005, 2008). In a Jigsaw class, students are put in two small groups known as expert teams and home teams. They interact among themselves in the expert team to study a sub-part of the material – to obtain their expertise; they can also prepare some questions to take to their home team later as a tool to check home team members’ understanding of their sharing. They then interact in the home team to ‘teach’ their expertise. Numerous Jigsaw studies have been carried out in non-language classes and some in language classes. However, little attention has been given to the investigation of the group work after the students are provided models of group work for cooperative behavior as most studies are short-term implementations of Jigsaw. Furthermore, more investigation on student interaction in the implementation of Jigsaw which is used as the application of a new technique in traditional Indonesian classrooms is needed. This study then focuses on student interaction

in the implementation of the Jigsaw technique in one EFL classroom in Indonesia. The following specific questions have structured our study:

1. To what extent are students involved in group interaction?
  - 1.1 To what extent are students involved with regard to the whole group interaction?
  - 1.2 To what extent are students involved with regard to the common pattern of Initiation-Response-Feedback discourse?
  - 1.3 To what extent are students with different levels of ability involved in group interaction?
  - 1.4 To what extent is the impact of assigned roles on students' involvement?
2. What types of information do students use in order to understand a text?
3. How do students help one another in group interaction?
4. To what extent do students with different levels of ability ask for assistance and get assisted?

The students in the investigated language class are involved in a reading comprehension instruction where a 'no one best method' perspective is maintained. The students are involved in a teacher-centered instruction. Moreover, they are put in small groups including in expert teams and home teams to give them opportunities to interact among themselves or to help one another to understand a text. The key informants' verbal interaction in their expert team is the center of investigation. More specifically, four transcripts from four successive class sessions when the key informants work in their expert team are used to address the research questions.

With regard to the first question associated with the students' involvement in group interaction, it is initially found that the students are involved much in discussing the substantive topic in finding the meanings of words, implied information or main idea(s) of a text. They also address the reading task procedures such as describing what the group members should do related to a certain task. In other words, they are engaged much more in the on-task oriented discussion which is strictly relevant to the subject content than in the off-task one where they talk about issues which bear no (apparent) relation to the content of the text. The dominance of on-task discussion suggests that peer learning is found to be very much on-task oriented. The off-task interaction found – though a very limited occurrence – indicates that student interaction is likely to enhance affective relation as they work repeatedly from one session to the other sessions.

The considerable on-task oriented involvement further suggests that student interaction in a reading class may have potential for students' understanding the text discussed. It may be a means for promoting language learning in general and reading comprehension in particular.

As for the students' involvement with regard to the pattern of classroom discourse, the investigated data give evidence that students' involvement in small group interaction possesses or demonstrates the interaction pattern which is far more complex than the common Initiation-Response-Feedback classroom teaching structure. The extended version of IRF found in our data suggests that genuine student-student interaction has occurred. The students are involved in initiating and responding one another as they are really seeking for information resulting in the infrequent occurrence of students' providing feedback to one another.

With regard to different levels of ability, this study reveals that student-student interaction is akin to the one in teacher-student whole-class instruction. In teacher-student whole-class instruction, the teacher, who can be characterized as a high achiever, dominates the classroom interaction. Meanwhile, in student-student interaction, high achieving students similarly tend to dominate the interaction leaving little space for low achieving students to be involved.

Addressing the issue of students' involvement with regard to the roles assigned, our study indicates that the role of *captain* assigned to low achievers can increase their involvement in student interaction despite the fact of or in contrast to their overall low involvement. The roles of non-captain, i.e., *secretary*, *time keeper*, and *speaker*, can also, to a certain extent, prevent high achievers from dominating the interaction. It appears that the types of role do not affect the participation of middle achievers. They can be the most involved though assigned non-captain roles.

The investigated student interaction in this study shows that when given the opportunity to set their own types of information to discuss a reading text, the students account for more implied information than factual information found in the text. Briefly, their interaction is more inference-oriented or in high-level discourse, which is likely to indicate a deeper level of understanding, and which further suggests students' autonomy in developing an appreciation for the knowledge to be gained via reading.

Concerning the helping behavior in student interaction, the results of the investigation indicate that the students assist one another by showing the need of assistance as well as

providing assistance. The students make use of not only simple referential questions but also clarification requests and confirmation checks to get assisted. The students make use of both simple assertions and other types of assertions including further clarifications, feedback assertions and extended explanation to provide assistance to one another. They correct one another and they even help peers by checking comprehension – though infrequent use of these scaffolding categories is detected.

The findings that the students use scaffolding categories in their interaction and that the students are involved in genuine interaction (the answer to the first research question) seem to suggest that the students learn cooperative skills – the ones that will serve them well in their future academic careers and in other life aspects. This leads to the insights of learning as a life long process rather than something done to prepare for an exam. This also suggests that peer interaction is beneficial with respect to language acquisition opportunity.

With regard to the last research question, the study finds that there are three patterns emerging when students of different levels of ability ask for assistance and get assisted. High achievers scaffold as much as middle achievers do. High achievers and middle achievers scaffold much more than low achievers do. Low achievers scaffold the least in group interaction – an indication that they are much involved in one of three stages of language acquisition process, namely the pre-production stage (Krashen & Terrell, 1983). Though it is clearly indicated that low achievers scaffold the least, it is still a good idea to put these students with their more proficient peers in one group. Students will come to appreciate the value of working with people of varied abilities – indirectly leading them to build their insights about learning resources, i.e., receiving assistance from peers not just from the teacher. Diversity with regard to ability level among students working in groups should not be seen as an obstacle but as a strength in a learning environment.

As elaborated in Chapter 6, the findings of our study are in some respects similar and in some dissimilar to others. Our finding is congruent with Rulon & McCreary's (1986), Lim's (2000) and Liang's (2002) with regard to students' involvement in group interaction. Without the teacher's assistance, students in a small group can cover as much content as are students working in a large one which is teacher-fronted. Our finding substantiates the finding in that the student interaction in understanding a small part of a text tends to be inference-oriented. Implied meaning becomes the core in the interaction. This study finding is also similar to Doughty & Pica's (1986) in that there is a tendency for more

proficient students to be involved more than the less proficient ones. Our finding also substantiates this particular finding in that the captain role can increase low achievers' involvement and that the non-captain roles can decrease high achievers' involvement. Our study finds that learners working together in meaning-centered interaction spontaneously attend to form – a similar finding as Williams' (1999). Our findings also correspond to a major theme in constructivism stating that the construction of knowledge does exist as a social entity, as has been argued by Ellis (2009), Hertz-Lazarowitz et al. (1992), Mercer (1995), Lantolf (2000), Lantolf & Pavlenko (1995), Gass & Selinker (2008), and Williams & Burden (1997). Our study yields quite frequent use of meaning negotiation – a finding which does not support Foster's (1998) study that found a low occurrence of negotiation in L2 classroom.

The answers to all minor research questions above then ultimately bring us to the answer to our major research question: The Jigsaw technique is applicable in the reading instruction in particular and in the Indonesian EFL class instruction in general.

## **7.2 Theoretical Implications**

A theoretical implication of this study is associated with the benefits of cooperative learning in general and Jigsaw in particular. The data in this study show that student-student interaction in an attempt to get, for instance, the main idea of a text, provides the opportunity for the students to come up with a better formulated main idea. As Johnson and Johnson (1999:72) put it, "Cooperative learning, furthermore, results in process gain (i.e., more higher-level reasoning, more frequent generation of new ideas and solutions) ... ." Our data also indicate that students are actively involved in asking for assistance, and providing assistance by, among others, supplying further explanations, making repetitions of confirmed ideas; students are involved in such interaction referred to as collaborative dialogue, "a dialogue in which speakers are engaged in problem solving and knowledge building." (Swain, 2000:102) or 'exploratory talk' (Mercer, 2004:146) in which students engage critically but constructively with each other's ideas. The findings, though based on a very small sample, show how language learning is advantaged in cooperative learning as there is a students' potential that can be developed as a source of knowledge for their peers and themselves – a similar claim pointed out earlier by Pica et al. (1996).

In accordance with the theory stating that it is through interaction that input is made comprehensible (Ellis, 1990), the appearance of the frequent use of scaffolding categories of ‘Clarification request’ and ‘Confirmation check’ found in this study suggests that student interaction in a small group has its significance in providing students with comprehensible input which is, Ellis (1990) further claims, required for successful language acquisition – a similar proposition argued earlier by Long (1981). The frequent use of clarification requests and confirmation checks also suggests that student interaction in the classroom can be rich, incorporating negotiation – the one likely to account for learning to happen, as spelt out previously by Long & Porter (1985).

The data in this study indicate that the task structure which is designed to make the students prepare questions in the expert team provides the opportunity for the students to focus on form. As illustrated in Excerpt 6.6 in Chapter 6, the students are indirectly pushed to focus on form while dealing with the task of making comprehension questions. The value of this study is then in revealing how student interaction structured by the task to prepare questions provides students with the opportunity to produce form-focused output that is, Swain (1995) claims, beneficial for successful language learning. In turn, this implies that the implementation of Jigsaw along with the task procedures exemplified in our students’ worksheets (Appendices 2-5) can indirectly engage students in meaningful interaction believed to promote opportunities for language learning.

As it is argued that language acquisition emerges through interaction with other human beings within a social context (de Bot, Lowie & Verspoor, 2007), and that any social environment in which language is used as a tool for communication is a potential environment for the acquisition of language (Seliger, 1983), our study – although not related to language development – somehow reflects the opportunity for language acquisition to take place in assigning students to work with peers through meaning negotiation in student interaction.

### **7.3 Pedagogical Implications**

The students whose interaction transcripts are analysed in this study seem to have been able to help one another to achieve the group goal or, to be more theoretical, to provide some scaffolding to one another as scaffolding categories are obviously perceived in their interaction. The students are able to ask for assistance by using the three types of



questions, i.e., simple referential questions, clarification requests, and confirmation checks more or less equally. Nevertheless when it is time to provide assistance to one another, they do not use the scaffolding categories consistently. They can discuss a particular issue intensively since ‘Further assertion’ appears frequently – even the most among the scaffolding categories used. They however do not constantly use the other functions. As found in the data, they do not use as many comprehension checks and corrections as the other functions. Their scaffolding is not yet maximal. As seen in Excerpt 6.8 when a student asked the meaning of ‘reviving’, the scaffolding “Where is it?” and/or “Let’s go back to the text and see if we can guess the meaning from the context there” – the one which is used by a teacher or a real expert in scaffolding – does not appear there.

The lack of finely tuned scaffolding categories in student-student interaction exemplified in the previous paragraph can somehow be used to argue for keeping the classroom setting which is designed in this study. Initially, the model group work sessions can be maintained as it is the time when the students are explicitly taught how to work in groups – a special preparation for cooperative behavior before the students work on their own. Secondly, the various teaching techniques implemented – both teacher-fronted and student-fronted – can also be sustained. It is then the sessions of teacher-fronted instruction that can be supportive. The teacher can indirectly provide models of somewhat more advanced scaffolding. Another possibility is to assign students to reflect on a teacher-centered session they join to see how their teacher assists in the whole group interaction.

Our study shows a positive impact of role assigning on the students’ involvement. It is essential though to note that our interpretation is based on a very small sample and that a longitudinal study is needed to make such a claim.

As found in our data the low achiever in this study only highlights the assistance she gets from her peers. She does not say anything about her share in providing assistance. It is then likely that students can benefit from examining samples of typical interaction such as the one illustrated in Excerpt 6.6. The teacher can underscore the strengths and weaknesses of group interaction to come up with important discourse processes such as elaborating ideas, posing questions, and evaluating progress. At the same time the teacher can – as an encouragement for low achievers to be involved in the interaction – accentuate that a piece of contribution, however rudimentary, can assist the discussion to ‘grow’ resulting in a better solution of a problem.

As interpreted in Chapter 6, positive interdependence and individual accountability are likely to be the important factors contributing to the accommodating interaction found. Providing students with an incentive (see “Special reward ...” in Appendix 6) increases the likelihood that group members interact cooperatively. It is then not pointless to maintain the way to enforce the two essential components in cooperative learning to encourage students to put forth maximum efforts in group work. As group composition and well-organized task structure appear to be the other reasons for the finding of cooperative interaction, the study then implies the need to maintain the use of the sociometric method in group forming and the use of well-organized task procedures.

#### **7.4 Limitations of the Study**

The obvious limitation of this study is its lack of generalizability due to the small sample size. The transcribed data come from only one group of five key informants. We are able to analyse student interaction obtained only four times of the same key informant group, while more repeated observation would have certainly enabled us to draw more comprehensive insights of actual student interaction. Though this study reveals students’ involvement in their content-oriented discussion and students’ scaffolding categories, there is no measurement of their impact on learning achievement thus indicating that this study is not aimed at measuring effectiveness. Because of time restrictions, this study limits its qualitative analysis leaving some valuable insights still concealed in the data.

Although this study involves a small sample size, it has reflected natural peer discussion as the study design has been set in such a way that the student interaction which is investigated may have been the students’ typical performance in everyday classroom work (see [4.4.11]). To the best of our knowledge, it is the first study of this type conducted in Indonesia, and we hope that more studies will follow, which may contribute to a better understanding of EFL instruction in Indonesia. To conclude, this study has attempted to provide some insights into the complex nature of student interaction in language classrooms, and it does provide some.

#### **7.5 Recommendations for Further Research**

Our investigated data, to some extent, reveal that low achievers get the most input from peers (in this study it is shown that the low achiever produces about 13% output and

this implies that at the same time she receives about 77% input from the middle achievers and high achievers together). On the basis of this consideration, further studies can therefore focus more on how students with different levels of ability interact in addressing the input, output, and feedback needs. To be more specific further studies can attempt to investigate more the scaffolding categories of 'Further assertion', 'Feedback assertion', and 'Extended explanation'. Doing so might give more insights on, for instance, the extent low achievers get input which is modified to enhance comprehensibility from their more proficient peers since the low achievers are seemingly the ones deserving more attention.

This study has left some obtained data uninvestigated. As mentioned before, the additional scaffolding categories covering 'Nomination', 'Positive Group Maintenance', 'Negative Group Maintenance' are not analysed more. When these data are analysed further, they might reveal more insights with regard to the affective aspect of interaction. As for 'Erroneous explanation', the data could have given more insights toward how erroneous the explanation is in the students' attempt to understand a text and whether it is solved or not in the discussion, who does it and why it occurs. As for 'Direction Maintenance' which is also disregarded, it might, if analysed further, reveal who keeps members on task and if the roles assigned to the students also account for that function. Further analyses on students' scaffolding categories can also be carried out to see, for example, if 'Further assertion', 'Feedback assertion', 'Other assertion', and 'Extended explanation' appear as the solicited assistance (help given when it is requested) or unsolicited one. Further studies are evidently worthwhile in order to get more insights on scaffolding categories used in student-student interaction.

Regarding the task designed to enforce face-to-face interaction, our study has produced an unexpected result. The students were somehow misled in their discussion concerning the task to find important factual information to take to their home team (as an illustration, see Data 4, T. 152-61). When replication studies are conducted, it is then important to keep this as a reminder. The teacher needs to ensure that the task to find different types of information in the text is not to be interpreted as finding 'which is which' but that it should lead the students to come to 'what is important' to share in the home team. This then entails another recommendation that the task structure represented in our students' worksheets (Appendices 2-4, 7-8) can be modified further.

This study has focused on student interaction only in the expert team due to time limitations. With such a title 'Student Interaction in the Implementation of the Jigsaw

Technique', this present thesis should have covered the analyses of the interaction in both expert and home teams. Further studies are obviously advisable in order to be more conclusive with regard to the interaction occurring in the home team. More comprehensive insights regarding Jigsaw implementation will then be revealed.

As stated in Chapter 6, Indonesian students seem to be open to change regarding the new learning paradigm. What about the teachers? Larger scale implementation in Indonesian educational system is worth considering to determine the teachers' perceptions on the intended curriculum hence on the paradigm shift and to uncover the factors affecting their implementation activities in the classroom hence revealing how the language curriculum is interpreted at the grass-roots level.

When it is found that the teachers are not yet ready to change as they are not sufficiently equipped with the resources for implementation, considerable challenge is now posed by the need of in-service training program to assist the teachers to obtain professional competence of cooperative learning. This in turn necessitates the sustainability of the program by having, for example, non-evaluative classroom observation in which peer coach and expert coach are available to make the teachers' learning more effective. As the teachers have opportunities to observe each other, they can provide essential support to ensure that they continue to develop new strategies tailored to their own situations – an encouragement for further studies on teachers' professional development over time. Eventually, meeting the challenge of paradigm shift suggests another need of a large scale study on the effectiveness of the implementation of classroom peer learning thus the need of collaboration among teachers and methodologists for the vitality of TEFL in Indonesia.

