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Cooperative Learning and Second Language Acquisition: Learner Empowerment in the UAE

التعلم التعاوني واكتساب اللغة الثانية: تمكين المتعلم في دولة الإمارات العربية
المتحدة

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Dedication

I dedicate this work to all my near and dear ones who have played significant roles in my life's journey:

To my vibrant father who has instilled in me a thirst for lifelong learning.

To my adorable mother for her unconditional love and support.

To my splendid Late father-in-law who had firm faith in my ability to achieve.

To my dynamic mother-in-law who motivates me to persevere whenever I experience self-doubt.

To my amazing husband who is the pillar of strength and support in my life.

To my marvellous son who always appreciates my efforts and cheers me on.

To my fantastic sister and brother-in-law who have always been my staunch supporters.

To my fabulous brother who lends me an ear whenever I need someone to listen to my problems.

To my wonderful sisters-in-law and brothers-in-law for being there for me whenever I need them.

To my charming nieces and lively nephews whose animated conversations have enlivened my learning journey.

I thank God for my lovely family and for clearing all the hurdles on the path leading to my goal. I could not have attained this or anything else in my life without your blessings and support.

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TABLE OF CONTENTS

Section	Title	Page
	Dedication	i
	Acknowledgement	ii
	Abstract in English	v
	Abstract in Arabic	vi
	List of Tables and Figures	vii
	List of Abbreviations	vii
	List of Appendices	viii
1	Introduction	1
1.1	Statement of the Problem	1
1.2	Rationale for the Study	3
1.3	Research Questions	5
2	Literature Review	6
2.1	Sociocultural Approach and Cooperative Learning	6
2.2	Cognitive Approach and Cooperative Learning	13
3	Rationale for the Choice of the Jigsaw II strategy	19
4	Methodology	24
4.1	Research Design	24
4.2	Gaining Access to a School for the Study	25
4.3	The sample Population of the Study	25
4.4	Instruments of Data Collection	25
4.5	Test Validity and Reliability	26
4.6	Ethical Considerations	26
4.7	Data Collection Procedure and Data Analysis	26
4.8	Qualitative Study	32
5	Results and Discussions	34
5.1	Social Interactions and Second Language Acquisition	34
5.2	Modified Conversations	34
5.3	Attentional Processes	40
5.4	Thinking Processes and Co-construction of Knowledge	46
5.5	Critical Thinking Skills and Second Language Acquisition	53

5.6	Discussions	56
5.7	Questionnaires	59
6	Conclusion	61
6.1	Summary of Findings	61
6.2	Limitations of the Study	61
6.3	Professional Suggestions	62
6.4	Suggestions for Future Research	63
6.5	Conclusion	63
6.6	References	65-74
	Appendices	75-91

Abstract

The goal of this small scale study was to determine whether the Jigsaw II strategy, a cooperative learning methodology, could empower learners in the UAE by equipping them with the requisite skills for second language acquisition. The cooperative learning methodology has been much lauded for being in possession of a wide variety of beneficial features and various studies have identified this mode as an ideal route for learner empowerment. As this mode of learning has found favour with both sociocultural and cognitive approaches to learning, this study was designed to gauge its effect from the viewpoint of both these approaches. The participants in the study were 32 Grade 5 students from a private school in Dubai.

A combination of quantitative and qualitative methods was used for data collection and analysis. While the qualitative analysis of the data provided evidence for the activation of the learners' attentional processes, the independent samples *t* test did not reveal any significant effect of the variation in group type on activation of these processes. The qualitative analysis further revealed that the Jigsaw II strategy's tasks encouraged both negotiation of meaning and peer support instances, fostering modified conversations, culminating in co-construction of knowledge.

The paired *t* test revealing a statistically significant improvement in critical thinking abilities assessed by the open-ended questions and the positive results derived from the qualitative analysis of the data regarding the learners' thinking processes, suggest that this strategy could be an effective technique to activate both basic and higher-order thinking skills. Although the paired *t* test related to the activation of critical thinking abilities assessed by the multiple-choice questions disclosed a mean increase in scores post-test, this was considered statistically insignificant. However, based on the evidence indicating that this small improvement is especially due to the low-achievers, the Jigsaw II strategy merits further investigation as to its effectiveness in this area.

Key Words: Cooperative Learning, Second Language Acquisition, Jigsaw II Strategy, Critical thinking skills, Attentional processes, Negotiation of meaning, Peer support, Modified conversations, Co-construction of knowledge, Thinking processes

ملخص

كان الهدف من هذه الدراسة الصغيرة هو تحديد ما إذا كانت استراتيجية جيقساو 2 و منهجية التعلم التعاوني يمكنها تمكين الطلاب المبتدئين في دولة الإمارات العربية المتحدة من خلال تزويدهم بالمهارات اللازمة لاكتساب اللغة الثانية. ان منهجية التعلم التعاوني يثني عليها كثيرا لجمعها بين مجموعة واسعة من الميزات المفيدة، وحددت الدراسات المختلفة هذه الطريقة باعتبارها الطريق الأمثل لتمكين الطالب المبتدئي. كما ان هذا النمط من التعلم يعتبر مفيدا مع كلا النهجين الاجتماعيين والثقافيين المقاربات الادراكية للتعلم، وقد تم تصميم هذه الدراسة لقياس تأثيرها من وجهة نظر كل من هذه المقاربات. وكان المشاركون في الدراسة 32 طالب من الصف الخامس 5 من مدرسة خاصة في دبي.

تم استخدام مزيج من الأساليب الكمية والنوعية لجمع البيانات وتحليلها. حيث ان التحليل النوعي للبيانات قدمت دليلا لتفعيل عمليات الانتباه لدي الطلاب المبتدئين، عينات اختبار تي المستقلة لم تكشف عن أي تأثير كبير من الاختلاف في نوع المجموعة عند تفعيل هذه العمليات. أظهرت نتائج التحليل النوعي كذلك أن المهام الاستراتيجية لاستراتيجية جيقساو 2 شجعت كلا من

اسلوب المناقشة حول المعنى وحالات دعمالرفاقو تعزيز
المحادثات المعدلة بلغت ذروتها في التشارك في بناء المعرفة.

اختبار تي المقترنكشف عن تحسن ملحوظ إحصائيا في قدرات التفكير
النقدي المقيمة بأسئلة مفتوحة والنتائج الإيجابية المستمدة من
التحليل النوعي للبيانات بشأن عمليات التفكير لدي الطلاب
المبتدئينوالاشارة إلى أن هذه الاستراتيجية يمكن أن تكون تقنية
فعالة لتنشيط كلا من مهارات التفكير بنسب عالية او اساسية .
على الرغم من أن اختبار تي المقترن ذات الصلة بتفعيل قدرات
التفكير النقدي المقيمة من بأسئلة باختيارات متعددة كشفت
زيادة متوسط في درجات ما بعد الاختبار ، وتم اعتبار اهمية
ذلك من الناحية الإحصائية. ومع ذلك و استنادا إلى الأدلة
والتي تشير إلى أن هذا التحسن الطفيفهو بسبب التحصيل
المتدني علي وجه الخصوص، ان مزايا استراتيجية جيقساو
2عززت من التحقيق حول مدى فعاليته في هذا المجال.

الكلمات الرئيسية: التعلم التعاوني، اكتساب اللغة الثانية، استراتيجية
جيقساو 2،مهارات التفكير النقدي،عمليات الإنتباه، المناقشات
حولالمعنى، دعم الأقران، المحادثات المعدلة ، بناء المعرفة،
عمليات التفكير.

List of Tables and Figures

Table	Title
1	Expert Group Discussions
2	Jigsaw Group Discussions
3	Independent Samples T-Test --- Attentional Processes
4	Activation of Attentional Processes ---- Sample 1
5	Activation of Attentional Processes ---- Sample 2
6	Activation of Attentional Processes ---- Sample 3
7	Activation of Attentional Processes ---- Sample 4
8	Thinking Processes ---- Sample 1
9	Thinking Processes ---- Sample 2
10	Summary of Coded Levels of Thinking Processes
11	Paired T-Test – Multiple-Choice Questions
12	Paired T-Test – Open-Ended Questions
	Students' Responses regarding Cooperative Learning
Figure 1	Attentional Processes

List of Abbreviations

CL	Cooperative Learning
KHDA	Knowledge and Human Development Authority
SLA	Second Language Acquisition
UAE	United Arab Emirates

List of Appendices

Appendix A	Sammy's Wish Passage & Questions
Appendix B	Ray and his Kite Passage & Activity sheets
Appendix C	Horatius at the Bridge Passage & Questions
Appendix D	Questionnaire
Appendix E	Informed Consent Form
Appendix F	Coding Table for Social Construction Interactions (Hull & Saxon 2009)

Chapter 1

1 Introduction

Learner empowerment is the focal-point in education today. Long (2000) maintains that empowering pupils through promoting intrinsic motivation in them for sustained learning is the vital aim of education, while Slavin (2009) alludes to self-regulated learners who are not only aware of successful approaches to learning but also understand how to use them constructively. KHDA's (Dubai) inspection guidelines (2014-2015, p27) specifies that learners would be considered as displaying outstanding learning skills when they, “--- are motivated and eager participants in their learning” and “are actively involved in their own learning.” Empowering second language learners with the necessary skills required in language acquisition would permit them to take control of their learning and subsequently pave their way towards success. The mode of cooperative learning (CL), with its ability to empower learners to manage their own learning, could ensure accomplishment of this goal.

1.1 Statement of the Problem

KHDA (2014-2015) has specified certain criteria for rating learning skills as outstanding which includes the potential in students to present themselves as competent thinkers and learners through collaborative interactions with their peers, by way of exchanging ideas and displaying active listening skills, in order to attain a collective objective. The importance which KHDA (2010, p3) gives to cooperative learning is further visible in its statement in respect of Al Wasl Primary School, “[s]tudents’ learning during group work was particularly successful and students’ willingness to share ideas and understand almost always resulted in high quality collaborative learning.” However, in most schools in the UAE the CL methodology is not much in evidence as observed in the report by Nazzal (2014, p1) who claims that many schools follow the traditional mode of teaching with teacher-centred methods and that there is “lack of collaboration and group learning”, referring to Abraham Prakash the principal of Indian High School, Dubai, asserting that, “ [i]n order to be successful in tomorrow’s work

places, they have to acquire the 21st-century skills, especially collaborative problem-solving and decision-making” (Nazzal 2014, p1).

On the other hand, Zaman (2014) alludes to Edward Murtaugh, manager of inspection and monitoring at the Abu Dhabi Education Council, claiming that most schools still lack the capability to provide challenging curricula to their students, a criterion considered crucial for high performing schools. The annual report (2009) of Dubai Schools Inspection Bureau had identified certain deficiencies in the educational system in Dubai such as lack of good quality education in most Dubai schools out of which 75% were private and absence of exceptional public schools. The report claimed that assessments in these underperforming schools relied mainly on testing learners’ abilities to recall crucial facts, “rather than more open-ended tasks and challenges.” (p22) It had also asserted that generally for all the Grades the learners’ reading and writing skills in the English language were weak while all aspects of English were weak in Grades 10 to12, with emphasis on year end assessments at Grade 12, “rather than equipping them with conversational fluency in English” (p 46). In contrast its findings regarding some outstanding private schools disclosed teachers asking “demanding questions, which require students to think rather than just recall facts” and that they “generally employ a wide range of strategies, including getting students to work successfully together in groups”, where the learners are expected to take care of their own learning. (p21)

According to the Dubai Chronicle (2015, p1), in spite of the education sector in Dubai growing rapidly, “the annual inspections reveal slow progress for Dubai schools in terms of quality of education.” and as per the latest report released by the KHDA about fifty percent of the private schools are either, “acceptable” or “unsatisfactory”. The above crucial reports reveal that the education in the UAE is not found up to the mark which could be attributed to the insufficient activation of higher- order thinking skills, negligence to develop discourse abilities in English and focusing more on teacher-directed activities rather than on adoption of a variety of learning strategies. CL is considered to play a pivotal role in activation of higher-order thinking skills as well as in second language acquisition and as it is also a mode favoured by the educational authorities in the

UAE, it is felt that this crucial learning strategy should be progressively adopted by the schools operating in this region.

1.2 Rationale for the study

CL strategy has been credited with manifold benefits. In an interview Johnson (1987) (cited in Brandt 1987, p16), claims that, “If there’s any one educational technique that has firm empirical support, it’s cooperative learning”.

This methodology has had evidence of twenty-five years of successful implementation and has been found to be effective from elementary school to high school level and has been deemed to be a beneficial and suitable approach for younger learners (Bruffee 1995, cited in Hennessey & Dionigi 2013), while Dotson (2001) asserts that this method has been found to display favourable outcomes at all levels, from pre-school learning to post-graduate courses.

Vygotsky (1981) (cited in Doolittle 1995, p 16) declares that, “[a]ny higher mental function was external because it was social at some point before becoming an internal, truly mental function”, emphasizing on the crucial role social interaction plays in development of higher-order thinking skills.

Various studies have identified CL as a model route for ensuring development of learner autonomy as it facilitates learners to take charge of their own learning. (Macaro 1997; Freeman& Freeman 1994; Van Lier 1996, cited in Jacobs & McCafferty 2006).

Richards (2002) contends that while teacher dominated lessons neither acknowledge the differences in the learners’ needs and abilities nor give credit to their contributions, the CL mode presents a favourable environment boosting student talk, increased modifications in conversations, resulting in a greater amount of comprehensible input and concurrent motivation to learn. Iddings (2006, p62) confirms the above views with her observation that she has personally discovered that “a highly interactive, cooperative classroom

environment, with its focus on the development of individual accountability through interdependency, provides an excellent context for L2 development”.

Davidson and O’Leary (1990, p 44) assert the adaptability of CL tasks to suit the different levels of Bloom’s taxonomy, with proven success in activation of higher-order thinking skills and confirm that “ “[c]operative learning shows the power of divergent thinking and learning” while Jacobs, Lee and Ng (1997) profess social and affective objectives over and above the academic goals for these groups and complement the above observations by stating that most studies reveal the superiority of CL to other instructional strategies as regards to higher level tasks.

A study undertaken by two professors of the Zayed University, Dubai, to ascertain the learning styles of Emirati students, revealed the verbal style of learning as the most popular indicating that dialogue-oriented forms of learning could prove advantageous (Ahmed 2010) and the CL groups present a familiar environment where learners are able to exchange their ideas without inhibition (Shachar & Sharan 1994).

However, the Dean of the College of Education at the Zayed University, Dr Peggy Blackwell, emphasises on the significance of conducting local research to ascertain the effectiveness of these strategies, explaining that although research abounds in the Western countries their findings may not be applicable to the UAE learners, while the Vice Chancellor of the Emirates College for Advanced Education in Abu Dubai, Professor Ian R. Haslam, asserts that, “ [t]here is a dearth of research on teachers and teaching methods adopted in the classroom and a lot needs to be done” (Ahmed 2010, p1).

In view of the innumerable benefits of CL detailed above and also as an informal study engaged in by this researcher using the Jigsaw II strategy, a cooperative learning mode, in the recent past indicates this to be a promising area for further investigation, this research proposes to examine the impact of this strategy on second language acquisition and stimulation of critical thinking skills, thereby contributing towards learner empowerment. Moreover, to the best of this researcher’s knowledge, there is not much evidence of investigation on the effects

of this strategy in the above areas in the UAE. It is hoped that this study will pave the way for the incorporation of the CL methodology as a crucial mode of instructional strategy, with concurrent reduction in emphasis on teacher-centred learning mode, and thereby empower learners to assume responsibility for their own learning.

1.3 Research Questions

The CL methodology has been shown to support both the sociocultural and the cognitive approaches to learning. In view of this it has been decided to investigate the impact of CL in the areas supported by these approaches with the aid of the following questions:

1) Does the cooperative learning strategy of Jigsaw II grouping facilitate second language acquisition, through social interactions, in the UAE context?

The main question will be investigated in three parts:

- a) Modified conversations resulting due to both negotiations of meaning and peer support.
- b) Thinking processes displayed by the learners and co-construction of knowledge.
- c) Attentional processes displayed by the learners.

2) Does the cooperative learning strategy of Jigsaw II grouping facilitate second language acquisition, through activation of critical thinking skills, in the UAE context?

The main question above will be investigated in two parts:

- a) Critical thinking skills displayed during response to multiple-choice questions.
- b) Critical thinking skills displayed during response to open-ended questions.

Chapter 2

2. Literature Review

Examination of literature was undertaken in order to comprehend the perception of CL from the perspectives of both sociocultural and cognitive approaches to learning and to understand how these views could assist this study.

2.1 Sociocultural Approach and Cooperative Learning

The Second language acquisition domain has been subjected to widespread studies focusing on gaining insight into the process of acquisition as well as the areas which could contribute to successful acquisition. There has been considerable debate among various theorists regarding the process of language acquisition. While the Nativist approach believes in the inherent ability of humans to acquire language naturally in an inevitable cycle and argue that it is not susceptible to pedagogical intercession, the constructivist approach takes a contradictory stand by accrediting nurture with the function of language acquisition, where social interaction plays a crucial role. Vygotsky, who believed social interaction to be a crucial aspect in cognitive development and language acquisition, posited the concept about the zone of proximal development (ZPD) focusing on the pivotal role played by adults and more capable peers in scaffolding a learner in his/her journey towards knowledge acquisition and this provided a strong foundation for cooperative learning.

“Vygotsky’s strategy was essentially a cooperative learning strategy. He created heterogeneous groups of children (he called them a collective), providing them not only with the opportunity but the need for cooperation and joint activity by giving them tasks that were beyond the developmental level of some, if not all, of them” (Newman & Holtzman 1993, cited in Abdullah & Jacobs 2004, p 4). A relatively new approach, termed as the community of practice approach to learning, is related to Vygotsky’s ZPD concept whereby new recruits work alongside experts and acquire their expertise in the process (McCafferty, Jacobs & Iddings 2006).

Abdullah and Jacobs (2004, p 5) state that Vygotsky's sociocultural theory considers humans as "culturally and historically situated" and that actual learning takes place when the learners use both linguistic and non-linguistic resources to not only learn the language but also about themselves and "[i]n this way, the social, the symbolic, the physical, and the mental space combine, and all must be taken into consideration."

The Humanist Psychology field led by Maslow (1968) (cited in McCafferty, Jacobs & Iddings 2006) and his hierarchy of needs stipulated that the satisfaction of basic needs was vital before one could gain self-realization. The basic needs encapsulated interpersonal needs of acquiring a sense of belonging while the cognitive needs were addressed higher up. Rogers (1979) (cited in McCafferty, Jacobs & Iddings 2006) has emphasized on the strength learners derive from constructive relationships and the significance of their roles in their psychological development. Cooperative learning has been found to satisfy the learners' need to belong, develop self-esteem and address their cognitive needs. Although humanists emphasize on uniqueness of each individual, this unique perspective could contribute towards the common group goal and through exposure to thinking processes of their peers augment their own thinking skills (Daniels 1994; Ruddock 1991, cited in McCafferty, Jacobs & Iddings 2006).

Olsen and Kagan 1992 (cited in Oxford 1997, p 443) define CL as "a group learning activity organized so that learning is dependent on the socially structured exchange of information between learners in groups and in which learner is accountable for his or her own learning and is motivated to increase the learning of others" while Slavin (1988) highlights the crucial role this method plays in second language acquisition programs as well in enhancement of racial relations.

Bandura's (2001, p13), social interdependence theory, emphasizes on the interdependence between the individual and the society. He claims that, "[p]eople do not live their lives in isolation. Many of the things they seek are achievable only through socially interdependent effort. Hence they have to work in coordination with others to secure what they cannot accomplish on their own", while Gillies (2007) claims that children's sense of personal agency or control as

learners is intensified by CL experiences, which provide them with a supporting scenario by exposing them to situations to take control of their learning, interact with others through exchange of views and aid others in their knowledge acquisition.

The aforementioned theory supports the idea of positive interdependence proposed by experts promoting CL. Johnson & Johnson (2009) affirm that CL structure is erected on the base provided by the social interdependence theory, where positive interdependence results when team members work together through promotive interaction towards common goals. Global education supports CL by emphasizing on the positive interdependence between the learners and other species occupying our planet and takes the learners out of the classroom and connects them to think critically and creatively about issues concerning the world (McCafferty, Jacobs & Iddings 2006).

Certain crucial hypotheses enlighten the process of second language acquisition. Krashen's theory of Input Hypothesis I plus 1, specifies that knowledge is gained when the learners understand new information which is slightly advanced than their present level of knowledge (Jacobs & McCafferty 2006). Krashen and Turell (1983) (cited in Jacobs & McCafferty 2006, p19) claim that as the interlanguage learners use develops their communicative competence, interactions should be encouraged despite chances of their being exposed to inaccurate language forms. They contend that "----- our experience is that interlanguage [intermediate forms of the L2] does a great deal more good than harm, as long as it is not the only input the students are exposed to. It is comprehensible, it is communicative, and in many cases, for many students it contains examples of I plus 1", while Gass and Varonis (cited in Long & Porter 1985, p 218) claim that "--- the input will be more meaningful to the learners because of their involvement in the negotiation process".

Abdullah and Jacobs (2004, p3) cite the Interaction Hypothesis whereby the learners increase the size of their comprehensible input by interacting with the interlocutors through negotiation for meaning for which they quote Pica's (1994) definition as "the modification and restructuring of interaction that occurs when

the learners and their interlocutors anticipate, perceive, or experience difficulties in message comprehensibility”. The authors profess that contribution of information by team members could be more appealing to learners and easily interpreted, due to their vocabulary development being at similar levels. Varonis and Grass (1985) (cited in McCafferty & Jacobs 2006) have reported more negotiation of meaning occurring in interactions between a pair of non-native speakers than between a pair where one was native and the other non-native.

Abdullah and Jacobs (2004) also claim that CL, by presenting the learners with a motivating environment with consequent reduction in anxiety, promotes acquisition of comprehensible input. The authors state that this presumption corresponds with the Affective Filter Hypothesis cited by Krashen (1981) as interaction within a small informal group provides a stress free situation in comparison to talking in front of the whole class dominated by an authoritarian figure. Rulon and McCreary (1986) (cited in McCafferty & Jacobs 2006, p 19) also believe that groups promote negotiation for meaning because “the more intimate setting provides students with the opportunity to negotiate the language they hear, free from the stress and the rapid pace of the teacher-fronted classroom.”

Doughty and Pica (1984) discovered that the percentage of total talk in teacher directed lessons was lower, which they attributed to learners’ unwillingness to display their incomprehension by seeking clarifications.

However, the CL scenario provides an informal arena for relaxed discussions. Barnes (1973) (cited in Long & Porter 1985, p211) observes as below:

[a]n intimate group allows us to be relatively inexplicit and incoherent, to change direction in the middle of a sentence, to be uncertain and self-contradictory. What we say may not amount to much, but our confidence in our friends allows us to take the first groping steps towards sorting out our thoughts and feelings by putting them into words. I shall call this sort of talk exploratory.

The authors declare that the relief derived due to lack of emphasis on production of accurate work, supported by an encouraging environment small groups

provide, promotes a positive affective climate leading to communicative competence. Long and Porter (1985), as well as Magee and Jacobs (2000), have established the increase in amount of learner talk in group work than in teacher-fronted classrooms.

The above observations assert the significance of the need for a comfortable and unthreatening environment for learner motivation, which is found in the CL setting.

It has been posited that input related to second language is absorbed only when it is noticed. Harmer (2001, p78) argues that “[c]omprehensible input is not enough in itself, unless there is some language study or some opportunity for noticing or consciousness-raising to help students remember specific language.” The Noticing Hypothesis was formulated by Schmidt 1990, 2001(cited in Schmidt 2010) based on his belief that until awareness about the input is consciously raised it does not become intake, supported by the hypothesis “noticing the gap” where the learners were required to make conscious comparisons between their language production and the input they received from the target language and correct their errors. Ellis (1997) believes that this process signifies the conversion of explicit knowledge into implicit knowledge, where it becomes part of the learner’s interlanguage and is evidenced in his/her communication activities. Hence, noticing is considered to play a crucial role in second language acquisition by connecting the two processes of acquisition and learning. Discussions and elaborations among group members during cooperative learning has been alleged to facilitate noticing, making input comprehensible and promoting production of output (Pica, Kang & Sauro 2006).

While Critical Period Hypothesis by Lenneberg (1967) (cited in Selinker 1972) insists that language acquisition is practically impossible after a certain age due to the maturation process decreasing the brain’s ability to absorb new knowledge, it is also believed extensively that the right hemisphere of the brain plays a crucial role in second language acquisition among learners who had crossed the critical period. Cook (cited in Saville-Troike 2012, p76) claims that, “[t]he

variation in right hemisphere involvement may be due to the lack of a single route to L2 knowledge: second languages maybe learnt by many means rather than single means found in L1 acquisition and consequently may have a greater apparent hemisphere spread.” CL methodology could be a feasible route facilitating second language acquisition beyond the presumed critical period.

CL methodology’s role in the production of comprehensible output has been considered crucial too. The Output Hypothesis developed by Swain (1985) (cited in Jacobs & McCafferty 2006) posited that communicative competence could only be developed if the learners are able to produce comprehensible output through speech and writing. He emphasized that increasing meaningful language use could contribute more to SLA than the role played by comprehensible input in isolation.

Although it has been opined that learners were indifferent to form and made more errors in unsupervised language production, studies have contradicted this view. Pica and Doughty’s (cited in Long & Porter1985) study confirms learners’ performances revealing the same level of grammatical accuracy in unmonitored group work as in teacher-directed lessons while Porter (1983) (cited in Long & Porter 1985) has established that the level of accuracy in an interchange remained unchanged when the native speaker in a pair was replaced with a non-native speaker. Increase in the variety of language functions, over and above increase in output, was observed in group performance. Freeman and Freeman (1994) have maintained that as language evolves when put into actual use, teachers should provide opportunities for the learners to use it effectively.

Long and Porter (1985) confirm the CL setting promoting occasions of individual learner language use, as compared to teacher dominated method, as well as enhancing quality of learner utterances. The authors claim that the immediate rectification of the learners’ mistakes would lead the learners to believe that the message is less important than the way it is conveyed and that this is, “ --- unlikely, however, to promote the kind of conversational skills students need outside the classroom, where accuracy is often important but where communicative ability is always at a premium” while in CL, face-to-face

interactions enable learners to assume various roles and, “ practice a range of language functions associated with these roles ---” (Long & Porter 1985, p 209).

Grouping of learners, based on their age or aggregate scores derived from proficiency tests, has been found unsuitable for addressing their individual needs. “--- as any experienced teacher will attest, aggregate scores often conceal differences among students in specific linguistic abilities” (Long & Porter 1985, p210). However heterogeneous grouping, a main feature of CL, facilitates differentiated learning due to varied abilities among the group members.

Gardner (1999, p172), whose Multiple Intelligences theory illuminates the different learning styles of the learners, confirms the significance of CL by stating that “[m]any people learn effectively, however, in a group setting, where they can assume different roles, observe others’ perspectives, interact regularly, and complement one another.” Kagan and Kagan (1998) posit that inculcation of interpersonal intelligence skills would enable the learners to appreciate the diversity amongst them and promote interactions based on mutual respect. Moreover, “[s]caffolding can be provided to second language students by teachers, more capable peers, and even by students at or below that student’s current level” (Abdullah & Jacobs 2004, p5). Wood, Bruner and Ross (1976) claim that the focus is now on the support peers displaying comparable knowledge could give one another. Orlich et.al (2013, p267) corroborate this by pointing out that “----- all students have areas of lesser and greater abilities” and that “[c]ooperative learning allows students to share their diverse talents and learn new skills”.

Oxford’s (1997, p 450) learning styles influencing second language acquisition augment this approach and she claims that “[i]ndividual learners have a composite of at least 20 style dimensions” and hence interactions between learners involve interactions between multiple learning styles. She suggests that the educator’s ability to provide activities catering to the different styles could help to promote successful interactions.

Coughlan and Duff’s (1994) study observed that the task perception differs from learner to learner, based on their attitude towards the particular task which is

susceptible to change at a future time. This observation emphasises on the multiple perspectives available in a group for discussions and brainstorming, facilitating promotion of language acquisition.

Moskowitz (1978) (cited in McCafferty, Jacobs & Iddings 2006, p16) stresses that the main goal of humanistic second language learning activities is “to help build rapport, cohesiveness, and caring ---- to help students to be themselves, to accept themselves and to be proud of themselves” while Prapphal (1991) observes that CL plays a cognitive as well as an emotive role in the learning process. Jacques and Salmon (2007, p149), on the other hand, point out that “--- a lot of teaching is done in courses by the students themselves – perhaps more than many teachers would wish to recognise”.

McConnell (2000), lauds the benefits of computer supported learning, and declares that CL proclaims our own learning as well as the group’s learning to the world and this aspect affirms its social essence. He emphasizes that CL makes our learning accessible to all so that those facets of learning which are “blind, hidden and unconscious become clear, open and conscious” (McConnell 2000, p12).

There exists a concurrence in the crucial role interaction plays in SLA, despite the process of its acquisition remaining a debatable issue. Modifications in conversations, which are believed to occur during discussions, could increase the amount of comprehensible input, aiding learners to accommodate novel information into their existing repertoire to arrive at a state of equilibrium.

2.2 Cognitive Approach and Cooperative Learning

Piaget, who believed that cognitive development occurred in a systematic way appropriate to their developmental stages, also emphasized on the significant role environment played in providing opportunities for children to subsume and adapt themselves when they encounter novel data.

CL methodology has been accredited by a variety of studies with having the power to activate critical thinking skills. Vygotsky (1978, p.57), whose concepts

laid the foundation for the interrelation between CL and higher-order thinking skills, asserts that:

[e]very function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals.

Slavin (1987) claims about studies confirming learners in cooperative groups displaying better achievement than students learning independently. He affirms the positive influence of CL on initialization of basic skills as well as skills related to higher order thinking such as reading comprehension, problem-solving and creative writing.

Critical thinking, encompassing logical thinking and reasoning, is deemed to be a higher-order thinking skill related to the left brain. Enabling learners to think critically has become the prime concern in the pedagogical field in order for them to operate optimally in a revolutionized society which stresses on versatility and life-long learning. "Increasingly, educators are realizing that teaching students to think is essential in this rapidly changing world" (Jacobsen, Eggen & Kauchak 2006, p215).

Slavin (2009, p249) asserts that "[s]tudents cannot be said to have learned anything useful unless they have the ability to use information and skills to solve problems." He maintains that teachers can facilitate knowledge acquisition by providing support in the learners' quest for discovery but the learners must perceive and convert intricate knowledge by themselves if they need to claim it as their own. He contends that "[t]eachers give ladders that lead to higher understanding yet the students themselves must climb these ladders" and that "Piaget and Vygotsky ---suggested the use of mixed-ability learning groups to promote conceptual change" (Slavin 2009, p231). He cites Pontecarvo (1993) claiming that constructivist approaches to teaching, adopting the ideas regarding cognitive development posited by Piaget and Vygotsky, utilize CL widely on the

surety that demanding abstract ideas could be discovered, comprehended and applied through cooperative discussion of issues by learners and Brooks and Brooks (1993) as maintaining that interactions between learners provide them with the cognitive scaffolding considered a crucial aspect to attain superior level of learning.

“Cognitive psychology is the study of how people perceive, learn, remember and think about information” (Sternberg & Sternberg 2012, p3). While the authors give an account of various studies over time which have influenced the perception of how thinking works such as Wilhelm Wundt’s structuralism, John Dewey’s pragmatism, Thorndike’s associationalism, Skinner’s Behaviourist approach and Bandura’s social cognitive theory, the perceptions about the thinking processes have evolved further in the present day.

Whereas Costa (1996) (cited in Jacobs, Lee & Ng 1997), who emphasized on the importance of observation of learners’ capability to produce knowledge than just reproduce it, believes that thinking is visible not only in a learners’ ability to respond to questions but also in their ability to adapt if they are unable to respond, Tittle (2011, p 4) maintains that “----- critical thinking is judicious reasoning about what to believe and therefore, what to do”. She refers to Brown and Keeley’s (1997) view that critical thinkers know why they are right in not accepting a particular notion and that they find gratification in rejecting it.

Meanwhile, Facione (2011, p4) defines critical thinking as “--- thinking that has a purpose (proving a point, interpreting what something means, solving a problem), but critical thinking can be a collaborative, non-competitive endeavour”. He considers self-regulation as the most remarkable cognitive skill due to its ability to strengthen the learners’ thinking process. He claims that liberal education is about being able to think independently as well as with others in the process of learning and maintains that people whose critical thinking remains undeveloped could not be considered as “liberally educated” despite their educational qualifications.

Bransford, Pellegrino and Donovan (1999, p234) assert that “[t]he brains of a child is a product of interactions between biological and ecological factors. Mind is created in the process”. They maintain that children take birth with an inherent capacity for learning and the environment provides a supporting role by supplying the required data and shaping the data suitably for intake. They cite research evidence confirming changes in both the developing as well as the mature brain due to knowledge acquisition. Ability to use their acquired knowledge in novel areas demonstrate the learners’ capability to adjust to changing conditions and an in-depth understanding of the subject matter could facilitate such transfer than just memorization of information. Securing proficiency in the basic concepts, they believe, could lay the foundation for further exploration. They declare that “[t]he teacher’s goal is to develop student’s understanding of a given topic, as well as to help them develop into independent and thoughtful problem solvers” (Bransford, Pellegrino & Donovan 1999, p239).

Cognitive psychologists, Craik and Lockhart (1972) (cited in Joel Saegert 1979) developed the depth of processing concept proposing that an in-depth processing of presented material facilitates better comprehension and retention in memory than superficial processing. Based on this proposal, it could be argued that the ensuing elaborations during group discussions ensure preservation of information in memory. Brandt (1987) supports this theory by claiming that the mental processes which are set into motion when people share information with others, helps its retention in long-term memory.

Bloom’s (1956) (cited in Johnson & Lamb 2011) cognitive area involves evolution of learning skills beginning with the basic skills of fact recall, comprehension and application of the knowledge followed by higher level skills. Orlich et.al.(2013, p79) declare Bloom’s taxonomy as being hierarchical, “with learning at higher levels depending on the prior attainment of prerequisite knowledge and skills at lower levels”.

Bruner (1973) (cited in Wood, Bruner & Ross 1976) confirms that skills are acquired in children in a hierarchical manner whereby constituent skills are

blended into higher-order skills through suitable guidance, to enable the learners to tackle more complicated tasks while Wood, Bruner and Ross (1976) stress the importance of understanding the problem solution procedure to enable the learners to solve it independently. The above observations have been corroborated by Saville-Troike (2012, p.78) who affirms that “[i]t is only after we have automatized the lower-level skills that our processing capacity is freed for higher-order thought”.

Jacques and Salmon (2007) allude to CL as an avenue for development of higher-order thinking skills through the group members presenting their ideas for group discussions, leading to extension of their thinking processes and subsequent consolidation as well as in-depth processing of their ideas and in the process promoting acquisition of excellent communication and teamwork skills, which could develop in them an intrinsic motivation for learning.

Oxford (1997) credits CL with the development of cognitive as well as social functions while Cohen (1994, p.3) states that productivity for CL could be defined in terms of “conceptual learning and higher order thinking”. She cites Noddings (1989) claiming researchers recommending small groups as they believe that operation in small groups promote growth of higher order thinking skills.

Marzano (1992) (cited in Jacobs, Lee & Ng 1997) suggests that cooperative groups could work more effectively than individuals on tasks demanding meaningful use of knowledge such as inquiry, problem-solving and decision-making, as joint application of knowledge and skills facilitates easy completion of tasks, while Bruner (1985) (cited in Gokhale 1995) claims that different perspectives of the learners while in a CL mode provide a challenging arena to grapple with problems and arrive at resolutions.

In heterogeneous groups, the high achievers benefit due to giving detailed explanations and the low achievers benefit by receiving them, while non-receipt of help when requested or just receiving the correct answer, without any supporting explanations, had a negative effect on achievement for receiver (Webb

1989; Webb 1991, cited in Cohen 1994). It is surmised that learners' perceive their peers' problems easily due to having similar background knowledge as them and hence manage better in clearing their doubts and claimed that in contrast to what some critics of cooperative learning fear, these explanations benefited both the receiver and the giver. Slavin (1987, p.4) declares that "[w]hen students have to organize their thoughts to explain ideas to teammates, they must engage in cognitive elaboration that greatly enhance their own understanding".

Tudge (1990) (cited in Cohen 1994) postulates that the reason low achievers gain through interactions with high achievers, in tasks demanding higher-order thinking skills, could be due to their gaining access to their peers' higher level thought processes, whereas Johnson and Johnson (cited in Brandt 1987) emphasize on the existence of positive peer pressure in CL, where both the high and the low achievers encourage each other promoting maximization of every member's potential.

Nicol (1997) (cited in Jacques & Salmon 2007, p67) praising the CL methodology, asserts that:

[i]t exposes students to multiple viewpoints which helps them to make connections amongst concepts and ideas; it provides opportunities for 'scaffolding' (students supporting each other's learning); it often results in students teaching each other; it involves shared goals which leads to increase in students' sense of responsibility and self-efficacy; [and] it provides a supportive atmosphere for learning.

The above observations provide an insightful account of what the concept of thinking encapsulates and the ways in which CL facilitates activation of both basic as well as higher-order thinking skills.

Chapter 3

Rationale for the choice of the Jigsaw II Strategy

This section discusses as to why the CL strategy of Jigsaw II grouping has been chosen for this study.

Empirical evidence on Jigsaw II way of grouping suggests that this mode incorporates all the essential elements required in CL and also carries the advantage of two-way information gap tasks.

Noticing is alleged to play a crucial role in SLA. While Schmidt (2010) claims that purposeful focus, leading to noticing, would be necessary in cases where second language learners do not notice inconspicuous signs or where they miss noticing signs requiring processing different from the first language, Thornbury (1996) believes that the noticing stage is essential to prove that the input equals the output or to emphasize the differences between them. Schmidt (1990) (cited in Saville-Troike 2012) cites certain crucial aspects which could raise awareness of such input, including instructional strategies that could facilitate such noticing. The CL strategy, where interaction between learners is a required necessity in order to accomplish group goals, facilitating discussions about the input could help raise awareness and assist in transferring it to long term memory, resulting in intake and later facilitate output.

Communication failure during interactions is professed to promote negotiation for meaning occasions. Gass and Selinker (1994) (cited in Foster & Ohta 2005) state that negotiation for meaning takes place when the conversational flow is interrupted in order to comprehend the message being conveyed, while Long (1996) (cited in Foster & Ohta 2005, p 406) claims that this process promotes acquisition as “it connects input, internal learner capacities, particularly selective attention, and output in productive ways.”

Information- gap tasks are tasks which require certain information for successful completion of the tasks. Ellis (2003) claims that these tasks involve trading of special data held by each participant with one another to reach a common goal.

There are two types of information- gap tasks, one-way and two-way tasks. Richards and Schmidt (2010, p 409) define one-way tasks as, “an information gap task in which one participant holds all the information and the information flows in only one direction during the task”. It could be observed from the above definition that one-way tasks, rather than generating exchange of information, give total control over information to one party. Doughty and Pica (1986) claim that tasks which did not require information exchange ended with fewer checks for understanding and fewer solicitations for explanations, all of which were crucial for second language acquisition.

Long and Porter (1985) state that one-way tasks give control of all the information to one person making it difficult for the other participants to shape the conversations through negotiations, which then affects comprehension of information received. They claim that the two-way tasks necessitate information trading due to exclusivity of information in the possession of each member. Due to their reliance on the non-native speakers for the information, the native speakers adjust their linguistic input by rephrasing and simplifying it in numerous ways to make it interpretable to the non-native speakers, ensuring that they have understood their requirements.

Doughty and Pica (1986) call these tasks as required information exchange tasks, to focus on the compulsory nature of exchange and to avoid confusion, as the interchange which happens here is multi-directional when groups are involved. They refer to Long (1981) claiming that such activities present a conducive atmosphere for learners to modify their interactions, to present comprehensible input facilitating SLA.

Their study confirmed that these tasks generated greater adaptations during discussions, enabling them to establish that the task type was the most crucial aspect in SLA. Their study also confirmed group and dyad interactions facilitating better SLA than teacher-directed mode, providing support to Long &

Porter's (1985, p.224) suggestion that "---- it appears to be the combination of small-group work (including pair-work) with two-way tasks that is especially beneficial to learners in terms of the amount of talk produced, the amount of negotiation work produced, and the amount of comprehensible input obtained".

Moreover, based on the output hypothesis, it was important that learners' "meaningful input and communicative experiences" be supported with occasions for them to "produce and modify their output" so that their production becomes grammatically perfect and hence there was need for "activities, materials and strategies that can be applied simultaneously to meet these needs. Information gap tasks, in their fundamental structure and purpose show great promise in these areas" (Pica, Kang & Sauro 2006, p.308). They assert that the inception of these tasks in the educational field render them beneficial for classroom research studies, where interaction and intercession play a crucial role in language acquisition.

Jigsaw grouping strategy facilitates usage of information gap tasks and moreover two-way or multidirectional tasks, as each member in the group holds a unique piece of information which needs to be exchanged between the members to gain understanding of the entire task. Pica, Kang and Sauro (2006) confirm that the Jigsaw tasks, by way of encouraging negotiation for meaning and subsequent recasting of information and in the process focusing on form, stimulate communication and noticing which are crucial for second language acquisition.

Allport's (1954) Contact theory (cited in Slavin & Cooper 1999) was formulated to facilitate racial integration and it specified three crucial elements for successful group interactions which were, equal status of members in a group, common group goals and that their group work be authorized by an authority. The authors refer to Aronson.et.al (1978) creating the Jigsaw grouping methodology incorporating all the above elements. Aronson.et.al (1978) describe this method (cited in Sharan 1980, p243) as follows:

[t]he material to be learned was divided into as many parts as there were group members. Each student learned only one part of the total material and was, in turn, responsible for

teaching his part to his groupmates. However, each group member was responsible for learning all the curriculum material for testing.

The exclusive information each member holds gives each of them equal status and sharing of that information was essential to realize their common goal and this group activity was undertaken under the supervision of teachers, the official authorities for learning (McCafferty, Jacobs & Iddings 2006). Sharon (1980) affirms that the Jigsaw strategy, by giving each child unique information, necessitates the high-status learner to interact with the low-status learner to gain that information and thus equalizes the status of all members although conversely she also claims that “---, this interdependence in means does not entail cooperation in goals since the interdependence does not extend to the construction of a group product” Sharon (1980, p 263). Johnson (2003) contends that a fusion of goal and reward interdependence promotes learner success than goal interdependence alone while Johnson, Johnson and Stanne (1989) have discovered that positive resource interdependence on its own did not generate beneficial results (Jacques & Salmon 2007).

Slavin (1988, p32) has also indicated that “[t]his method has not generally been instructionally effective” and has suggested two crucial elements which would promote success that are group rewards, which would motivate the team members, and individual accountability, whereby each member’s learning achievement decides the group’s success and would prevent certain members from enjoying the fruits of others’ labour. Slavin (1986) (cited in Slavin 1991) amended the original Jigsaw to include these two crucial aspects and created Jigsaw II, in which after following the steps of the original Jigsaw, performance of groups is assessed and rewarded, based on the performances of their members in individual tests.

Over and above the two crucial features of group goals and individual accountability, there are four important elements which are purported to predict the success of this method. They are positive interdependence, face-to-face promotive interactions, social skills and finally group evaluation, where the group members reflect on their functioning effectiveness. (Johnson & Johnson 1989).

Jacques & Salmon (2007) state that positive interdependence and individual accountability are the crucial aspects of CL which sets it apart from other group activities while Gillies (2007) claims that the extent to which the group members are interconnected for mutual success decides the existence of positive interdependence.

Ghaith and Kawtharani (2006, p84) justify their choice of Jigsaw II strategy by stating that, “--- it enables students to experience active listening and speaking as they read and discuss the assigned material in their expert groups and then return to their home teams to teach their home team members.” Moreover, the participants in Al Murshidi’s (2014) study about cooperative learning in general, faced some challenges such as inequality in work distribution, irresponsibility in doing the allotted task, some members displaying shyness while others controlling speech, which the Jigsaw II strategy could overcome.

Therefore, Slavin’s (1986) (cited in Slavin 1988) modified Jigsaw II strategy, incorporating additionally the concepts of individual accountability and group rewards based on the individual performances of their members as well as embodying the ideas proposed in Contact theory generated by Allport, encompassing the important features required in CL and carrying the benefits of successful two-way or multidirectional information-gap tasks, is proposed to be used as the CL strategy in this study.

Chapter Four

4 METHODOLOGY

This chapter discusses the research design as well as the other crucial features related to data collection and analysis.

4.1 Research Design

This study has used a mixed-method research design, combining quantitative approach with the qualitative approach to gain an insight into the problem being investigated. Creswell (2008) states that this method presumes to gain a better comprehension of the research problem than by either method in isolation. While quantitative study generates numerical data facilitating statistical analysis, qualitative study gains us access to the personal views of the participants involved in the study, providing us with rich material. When we combine these two approaches of research study, “-- we have a very powerful mix” (Miles & Huberman 1994, cited in Creswell 2008, p 552).

Creswell (2008) claims that this approach is also used when a quantitative investigation is required to be supported with a qualitative element. He gives an example of “[a]n experimental study in which the experiment yields useful information about outcomes, but the additional collection of qualitative data develops a more in-depth understanding of how experimental intervention actually worked” (Creswell 2008, p 553).

This researcher has conducted an experimental investigation to answer the second research question, by way of multiple choice and open-ended questions based on reading comprehension passages. Additionally, conversations engaged in by the learners have been recorded to gain an understanding about the second language acquisition process. This has been followed by questionnaires administered to the learners, incorporating both quantitative and qualitative queries, supported by informal conversations with a few learners to find out their views about the Jigsaw grouping,

4.2 Gaining Access to a School for the Study

Although this researcher was finally able to locate a school which was ready to accommodate her requirements, she was only able to secure permission for a period of two weeks as a period longer than this was expected to cause disruption to their regular school activities. Moreover, data collection had to be frequently rescheduled as the learners were engaged in rigorous practice for the Sports Day.

4.3 The Sample Population of the Study

The participants of the study were from a private primary school in Dubai of Grade 5 age group. There were two classes, 5A and 5B, with 19 and 18 students respectively. Out of these, 16 students from each class were selected on the basis of the pre-test and were segregated into groups of four. The remaining students did the tasks individually and at other times were suitably kept engaged by their class teachers.

4.4 Instruments of Data Collection

The study focused on the effects of the Jigsaw II Strategy, a methodology under CL, on SLA and activation of critical thinking skills. Data were collected by way of a pre-test and a post-test related to reading comprehension passages to assess the activation of critical thinking skills. The test for SLA carried 2 open-ended questions where the learners' discussions were recorded to assess their thinking processes. The modified conversations and co-construction of knowledge which ensued during the passage discussions, in their expert and Jigsaw groups, were recorded. This was followed by a group task to test their attentional processes based on Pica, Kang and Sauro's (2006) study, which the 5A learners performed in pairs within their Jigsaw groups and the 5B learners performed in their Jigsaw groups of four. A cloze passage test was given to them after the above tasks to check the activation of their individual attentional processes. Qualitative study, through questionnaires, was used to gain an additional insight into this approach, followed by informal conversations with a few students. (**Appendices A, B, C & D**)

4.5 Test Validity and Reliability

The pre-test and the post-test passages as well as the questions based on them were validated by two experts in this field and by two English language teachers. The suggestions made by them were duly incorporated. Thereafter, both the tests were piloted with a small group of learners of similar age group as that of the participants in the study and certain irregularities noticed, in the process, were duly rectified.

4.6 Ethical Considerations

Blaxter et al. (2001) (cited in Bell 2005, p) declare that “[r]esearch ethics is about being clear about the nature of the agreement you have entered into with your research subjects or contacts. --- Ethical research involves getting the informed consent of those you are going to interview, question, observe, or take materials from”. Hesse-Bieber and Leavy (2006) (cited in Creswell 2008) claim that ethics should head the list of activities to be undertaken and that the researcher should contemplate about ethical issues throughout the course of the study. As such, this research began after ensuring that all the necessary ethical issues were addressed. Informed consent was taken from the Principal of the school, who was advised of the nature of the study and its potential benefits for the learners. She was assured of the maintenance of anonymity for all the participants and her signature was taken on the consent form. (**Appendix E**). The learners who were given the questionnaires to fill in and return were advised not to write their names in order to protect their identities.

4.7 Data Collection Procedure and Data Analysis

After securing permission from the school authorities and ensuring that the necessary ethical issues were taken care of, a pre-test was administered to the learners in order to discover their existing ability levels to facilitate their grouping in heterogeneous groups for the procedure. After the pre-test, the learners were initiated into the Jigsaw grouping procedure by way of reading

comprehension passages, with simultaneous inculcation of social skills for seven days.

Johnson and Johnson (1989-1980) maintain that learners, when placed in groups, will not automatically understand the process of working together and detail the crucial role social skills play in promoting successful CL. They claim that instilling of interpersonal skills would activate critical thinking skills and promote knowledge retention. Cohen (1994) claims that research evidence on the success of such interventions proves this to be a worthy investment to develop group productivity. While Shindler (2010) suggests choosing one or two skills crucial to the task requirements and to teach these abstract skills during task execution, Orlich.et.al (2013, p 249) highlight the crucial role communication process plays in successful interactions by stating that the “[s]tudents must be taught and encouraged to listen to what each person is saying and to respond appropriately”. As the skills of active listening, complemented by questioning and seeking clarifications, on one hand and checking for understanding on the other, are considered crucial for the successful functioning of this strategy, consequently promoting SLA, it was decided to focus on these two crucial skills.

The learners were grouped heterogeneously based on their abilities, gender and ethnicity. Cohen (1994) (cited in Jacobsen, Eggen and Kauchak 2006) posits that in order to accommodate diversity it is important to create heterogeneous groups, providing variations in gender, ethnicity and ability. Sharon (1980, p.244) has suggested that the “groups be composed on the basis of academic heterogeneity, both sexes, different ethnic background, and pupils who are neither best friends nor worst enemies”.

Heterogeneous grouping of the learners is a crucial aspect of CL and several studies (Webb 1992, cited in Kam-wing 2004; Slavin 1987; Augustine, Gruber & Hanson 1989-1990; Cohen 1994) have confirmed the improvement in achievement of low-ability learners, including mainstreamed learners, when their doubts are clarified in detail by the high ability learners which in turn develops their own metacognitive abilities. Cohen (1994, p 3) claims that a way of defining productivity for CL could be “in terms of prosocial behaviours such as being

cooperative or being friendly towards students of a different ethnic or racial group". While she recommends heterogeneous grouping to accommodate diversity, she also suggests that an equal percentage composition of race or gender in each group should be avoided.

Slavin (1987) confirms the normal composition of a group being four members, consisting of a high and a low achiever along with two average achievers. Accordingly, the learners were grouped into groups of four, with a blend of abilities, gender and race. Johnson and Johnson (1994) encourage creation of a group identity by using an exclusive name or motto, which could foster positive identity interdependence. After the construction of groups, each group was given a colour code and asked to choose a name rhyming with the colours or blending well with the colour names. Thereafter, each member of the group was given a letter card from A to D and was asked to write his/her group name on the cards. The comprehension passages, to practice on and tested, had been divided earlier into four parts from A to D. The respective pages were given to the members holding that particular letter card in every group. After reading their respective passages for ten minutes, the learners grouped together in expert groups which consisted of members handling the same passage, to gain an in-depth understanding of it. Additional care was taken to ensure that the expert groups also had a similar composition in abilities as the original groups. Therefore, if part A of the passage was given to a high-achiever in group 1, the same part was given to an average or low achiever in the 2nd group and so on.

After the expert groups returned to their original teams and shared with each other the knowledge they had gained about their respective passages and comprehended the entire story in the process, each of them individually answered the multiple-choice and open-ended questions based on these passages. To assess the extent of employment of critical thinking skills after the incorporation of the Jigsaw grouping strategy, a post-test was conducted. Both the pre-test and the post-test consisted of 10 multiple-choice and 2 open-ended questions.

The post-test total scores of each group were divided by 4 to form the group scores. Certificates were decided as group rewards in consultation with the class

teachers, with awarding of three positions and the third position to be shared by the two low scoring groups. However, certificates were to be awarded to the groups based not only on their group scores but also for the social skills exhibited by them. Cohen (1994) proposes that cooperative behaviour needs to be rewarded, along with achievement of group goals, in order for the learners to understand its importance.

The multiple-choice questions had direct, inferential and critical thinking options, to evaluate the learners' thinking processes. Paul and Nosich (1992) (cited in King, Goodson & Rohani, p 76) claim that multiple-choice questions could be used to investigate "micro-dimensional critical thinking skills, like identifying the most plausible assumption, recognizing an author's purpose, selecting the most defensible inferences and such like". Although factual recall questions are considered necessary in some contexts, Orlich et al. (2013, pp196 & 214) claim that learning is not just recall of facts and that "---higher-level questions invite and encourage higher levels of critical thinking in students" and point out that multiple-choice items "– can measure both knowledge and higher-level learning outcomes". Ozuru et.al (2013) profess that although multiple-choice questions are supposed to be considered easier to respond due to prominent cues in the answer options, presenting easy recall of relevant information from the text source, they could be constructed in a way that defies familiarity. This could be done by either, "a) minimizing the match of surface features i.e. orthographic features between the target and source information in the text and b) maximizing the conceptual and surface features overlap between the target and distractor options" (Graesser et.al 2010; Magliano et.al. 2007, cited in Ozuru et.al 2013, p216). The authors' advice regarding the construction of the answer options representing the targeted answer and three misleading choices, which include near-miss distractors depicting similar ideas, thematic distractors containing feasible but misleading details and unrelated distractors which have no relation to the passage theme or are hugely implausible, has guided the construction of the multiple-choice options for the questions in this study.

While Slavin (2009, p255) claims that "[e]xamples of critical thinking include identifying misleading advertisements, weighing competing evidence, and

identifying assumptions or fallacies in arguments”, Salmon (2007, pp3-4) declares that while providing proof and ascertaining if it validates or subverts claims are two elements of critical thinking “it also involves other abilities: thinking coherently, comprehending instructions and advice, ----- and deciding how to make the best choices from those available”. Therefore, in case of multiple-choice options, the learners would be required to activate their critical thinking skills in order to segregate the correct answer from the challenging, misleading options by assessing the credibility of the various options and eliminating the improbable ones.

Two questions were open-ended as they were purported to assess a different type of cognitive processing (Ozuru et.al 2013). Slavin (2009, p255) claims that “[e]ffective teaching of critical thinking depends on setting a classroom tone that encourages the acceptance of divergent perspectives and free discussion”, while Jacobsen, Eggen and Kauchak (2006) assert that open-ended questions activate thinking skills and could support any teaching mode. Open-ended or divergent questions encourage a variety of responses through stimulating conversations and affirm that there could be multiple solutions to a presented problem, which fact is confirmed by Badger and Thomas (1992, p1) who assert that these questions direct focus on the process rather than the final product and that “-- the quality of the reader's argument or justification becomes most important”.

The data collected from the pre and post -test were subjected to analysis via a Paired *t* test. The scores derived for the multiple-choice and open-ended questions have been analysed separately.

The group discussions, related to the second reading comprehension passage, were studied to understand whether these tasks generated more negotiation of meaning or peer support instances among group members, and whether they led to modified conversations and co-construction of knowledge. (Pica, Kang, & Sauro 2006; Foster & Ohta 2005). The same Jigsaw grouping was followed and the group members’ discussions during expert grouping, followed by the process of information sharing by these experts with their original team members were observed and recorded. Due care was taken to ensure that the learners were not

familiarized with the comprehension passage in advance to prevent the practice-on-task effect which could have reduced the need for clarifications, consequently reducing the modified conversations (Doughty & Pica 1984). The discussions related to the open-ended questions, based on the passage, were also observed and recorded to assess the thinking processes displayed by the learners.

Samples of data secured from the transcription of recordings were analysed in detail. The data obtained from the discussions in expert and Jigsaw groups were analysed following guidance from Foster and Ohta's (2005, p 404) study to separate the modified conversations resulting from negotiation for meaning, considered internal mental processes of SLA by Foster, and those resulting from peer assistance, considered inter-mental (between-people) processes by Ohta. The data derived from the discussions involving the open-ended questions were analysed using the coding table for social construction interactions created by Hull and Saxon (2009). (**Appendix F**).

After the discussions, the learners were given two versions of mixed-up sentences from the passage, Version A and B, where one word in either one of the versions was substituted with another to test their attentional processes. While Long (1991) (cited in Doughty & Williams 1998, p3) claims that focus on form – “--- overtly draws students' attention to linguistic elements as they arise incidentally in lessons whose overriding focus is on meaning or communication”, Ellis (2001) (cited in Laufer, 2005) insists that the term 'form' includes grammatical features and lexical items and that encouraging learners to focus on forms could be planned or could happen coincidentally. After consultation with their class teachers, an assortment of grammar-based features such as adjectives, articles, pronouns, determiners, verbs and so on, which had been introduced to the students but not yet mastered by them, were substituted with other words in the sentences. They were used in a manner that was either incompatible with the sentence meaning or with the original passage (Pica, Kang & Sauro, 2006).

The learners were first instructed to rearrange the mixed-up sentences in proper sequence in the two versions, Versions A and B. Thereafter they were asked to identify the differences in the sentences between these two versions and tick the

sentence carrying the word they found not only suitable but also appearing in the original passage as well as give reasons for their selection. This activity tested them not only on their recalling ability but also on their ability to validate their choice of words. Pica, Kang and Sauro (2006, p 312) confirm that, “the need to locate, compare, and then choose between phrases and sentences sets up conditions for noticing a form as an item unto itself as well as for noticing differences among the forms that encode function and meaning in these phrases and sentences” and that the interactional process the learners engage in would facilitate the noticing of the gap between “the accuracy and appropriateness of the sentences they choose and those they reject.”. The above activity was undertaken in their Jigsaw groups of four in 5B while 5A worked in pairs within their Jigsaw groups. This was done to find the variation in achievement, if any, due to the variation in grouping. This was followed by a formal test, where the students were required to complete a cloze passage by filling in the blanks in the passage with the original words from the story to test the display of their individual attentional processes. Pica, Kang and Sauro (2006, p 331) profess that this avenue ‘provides a record of their attentional processes’ in the event the learners fail to articulate their ideas.

The data derived from the sequencing and noticing activities undertaken above were analysed with the help of graphs and the cloze passage scores were compared using Independent Samples *t* test, to assess the impact of group and pair work on individual attentional processes.

4.8 Qualitative Study

The post-test was followed by administering of questionnaires to all the participants to ascertain their opinions about the Jigsaw grouping they had experienced.

Woods (2006) maintains that qualitative research questionnaires consist of a combination of closed-end questions seeking facts and unstructured questions to generate qualitative data, while McLeod (2014, p1) offers that “[q]uestionnaires can be thought of as a kind of written interview. They can be carried out face to

face, by telephone or post ----. Often a questionnaire uses both open and closed questions to collect data. This is beneficial as it means both quantitative and qualitative data can be obtained”. Walonick, (1993) professes that as respondents of questionnaires often want to qualify their answers, providing sufficient space could ensure that, facilitating a qualitative study. Rubin and Babbie (2009, p 94) state that “[o]pen-ended questions can be used in interview schedules as well as in self-administered questionnaires”. They claim that if further details are needed they could be explored through interviews.

Semi-structured questionnaires, consisting of a closed-end question and an open-ended question, were administered to the participants. The closed-end question was delivered in the form of a rating scale, which Peterson (2000, p 61) defines as a “closed-end question whose answer alternatives are graduated or organized to measure a continuous construct, such as an attitude, opinion, intention, perception or preference” and that a rating scale has all the benefits and drawbacks of closed-end questions.

As the target participants of the researcher’s study were primary school learners the “smiley faces” rating scale was administered to them. Peterson (2000) states that this scale was developed to facilitate easy understanding and was especially created for young children and the illiterate. (**Appendix D**)

While the closed-end rating scale with pictures would make it easy for the learners to understand and respond, with an activity of colouring embedded in it which children enjoy, the open-ended question would generate qualitative data providing insightful information regarding the Jigsaw II mode of cooperative learning, which could facilitate improvement in future implementation. However, an informal interview with a few students ensued after this to gain a deeper understanding about the procedure, since all the questionnaires were returned with positive feedback. The data derived from the questionnaires and the interviews were analysed qualitatively.

CHAPTER 5

5 Results & Discussions

This chapter addresses the results derived from the analysis of the collected data and the discussions based on these results.

5.1 Social Interactions and Second Language Acquisition

The first research question addressed the effectiveness of the Jigsaw strategy on SLA through social interactions. The answer to this research question was investigated in three parts as detailed below. While the discussions related to the second comprehension passage have been analysed qualitatively, a combined quantitative and qualitative investigation has been undertaken for the assessment of display of attentional processes.

5.2. Modified Conversations

The participants in the study were 16 learners from 5A and 16 learners from 5B with a blend of abilities, gender, race and first language. They were organized into groups of four wherein they were involved in an activity based on the Jigsaw procedure as detailed before. While the Jigsaw procedure involves a multi-way information gap task necessitating negotiation of meaning, cooperative learning involves interactions between learners where it is posited that assistance extended to each other by the learners promotes SLA. (Foster and Ohta 2005). This study investigates the role each of this plays in the process of SLA.

Table 1 **Expert Group Discussions**

Name	Utterances	Observations
1st student	He is odd boy. He like play with friends but he find one new game he like more.	Initiates discussions
2nd student	No, no, one more. He like to sit under dark tree, it will give shade no?	Co-construction of knowledge by sharing

	He like to daydream or read fairy tale. Right?	new information/Support / Correction
1 st student	But mostly he like fly kite.	Reiterates the point made by him earlier -Confirmation check
3 rd student	What?	Clarification request
1 st student	He like to play kite. One day when flying kite, he think no? Yeah he just think if it is night, it is very dark we cannot see. If we attach torchlight to kite, we can see.	Modified conversation with additional information/ Support
4 th student	If colour of kite dark, we attach torchlight to kite we can see.	Shares new information. Co-construction of knowledge.
3 rd student	If colour of kite is black cannot see.	Confirmation check
1 st student	He decide to do it night.	Shares new information. Co-construction of knowledge
2 nd student	No, no, he decide to do it that night	Correction/ Support
4 th student	Night also dark. He decide to put torchlight so can see.	Shares new information. Co-construction of knowledge.
3 rd student	He like play night. His kite colour black.	Testing a new idea by combining two pieces of information. Co-construction of knowledge.
1 st student	Why you need to put torch in night?	Comprehension check/ Support
3 rd student	Night black colour	Displays understanding/ Support promotes elaboration
2 nd student	What Ray like do most?	Comprehension check/ Support

3 rd student	Play kite, he like.	Displays understanding/ Support promotes elaboration.
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The learners in the above sample were engaged in expert group discussions about the passage “Ray and his kite.”. The additional information supplied by the 2nd student to the 1st student could either be interpreted as support in the process of co-construction of knowledge or as correction to facilitate better comprehension. When the 3rd student, who is the low achiever in this group, expressed incomprehension, the 1st student substituted the word ‘play’ for ‘fly’ in his utterance and presented his modified conversation with additional information, which was better understood by the third student. This could be interpreted as support provided to the 3rd student by the 1st student to enable him to comprehend the story. Here the ‘what’ question could be also construed as a clarification request and negotiation for meaning, with the 1st student modifying his utterance for better comprehension. The 2nd student’s correction of the 1st student’s utterance by emphasizing on ‘that’ could be construed as support given by her in the course of co-construction of knowledge or a correction in the course of negotiation for meaning. The introduction of the word ‘night’ in his utterance by the 1st student triggers the 4th student’s response of a torchlight’s use at night while the 3rd child tests a new idea by combining the two pieces of information, both resulting in co-construction of knowledge.

Another instance of assistance is noted when the 1st student is asking the 3rd student “Why you need to put torch in night?” and the 3rd student responding with, “Night black colour.” This could be a comprehension check too. However, this instance could be interpreted as assistance as the 1st student’s question is unrelated to the previous statement made by the 3rd student and has been only asked to check his understanding. The same reasoning could be applied to the 2nd student’s question. As expert group members it was necessary that they secure a thorough understanding of their passage and the support given to the 3rd student by his team would enable him to narrate his part of the passage to his Jigsaw group with confidence. However, the comprehension checks serve the same

purpose too, although in a non-affective manner. The students were thus found to be engaged in co-construction of knowledge by gaining an in-depth understanding of their passage.

The extract given below is related to one of the Jigsaw group discussions in which the 3rd student, from the above expert group, is a member. Since his passage is A, he is required to share his information first. His interactions with his Jigsaw group, after returning from his expert group, is given below:

Table 2 Jigsaw Group Discussions

Name	Utterances	Observations
1st student	Ray is one boy. It is very light. Boy in the school. Ray go to the tree. Dreaming. Dreaming like----- [hesitation]	Initiating discussions
2nd student	What was he dreaming?	Clarification request/ Encouragement
1st student	Kite.	Shares new information. Co-construction of knowledge.
2nd student	About a kite?	Confirmation check/ Correction/Encouragement
1st student	Yes. He like the playing kite night. Ray put the light ---. [hesitation]	Confirms and shares new information. Co-construction of knowledge.
3rd student	Why he put light?	Clarification request/Encouragement
1st student	Late. Very black. Kite also black. Now tell. (to the 2nd student).	Modifies conversation and shares new information. Co-construction of knowledge.
2nd student	No one was talking. The boy was dreaming like a kite. She was trying—	Shares new information. Co-construction of knowledge.

4th student	He was.	Correction/ Support
2nd student	Yes, he was trying so much to go like touch the cloud. Then he try, try and he went and sit in the kite. Then he fly away. Ok your turn now (to the 3rd student).	Modifies conversation and shares new information. Co-construction of knowledge.
3rd student	There was thing in sky and there was three people each telling what each think. First telling comet. Second say not a comet, no tail. Third person say we will go and we will search what it is.	Shares new information. Co-construction of knowledge.
4th student	Ok my turn. Once there was three persons. They went to village. That time light go somewhere.	Shares new information. Co-construction of knowledge
2nd student	What light?	Clarification request
3rd student	Think that thing in sky.	Supports 4th student
4th student	Yes. People see light and see kite and went home. They tell no one.	Shares new information. Co-construction of knowledge.
3rd student	What they tell no one?	Clarification request
4th student	They see kite. They tell no one.	Modified conversation
2nd student	Why?	Clarification request
4th student	Then people laugh. Boy go home and his mother was like she should scold the boy or she laugh so mother tell that you go to the bed, sleeping time.	Modifies conversation and shares new information. Co-construction of knowledge

It could be observed that the 1st student was able to convey the crucial details of his passage to his Jigsaw team members based on the knowledge he had gleaned during his discussions with the expert team members. The 2nd student's query to the 1st student when he hesitates, could be considered a clarification request or an encouragement. Foster & Ohta (2005, p 422) claim that, "[h]esitation may be seen as an indirect request for assistance". The second instance when she says, "About a kite?" could be considered a correction, a confirmation checks or an encouragement to speak further. Foster & Ohta (2005, p 413) refer to the confirmation checks as 'continuers' which they interpret as the interlocutors repeating the utterances of the previous speakers "to show their interest and

involvement as conversationalists.” The 2nd student could be observed to rephrase her utterance by using the correct pronoun in response to the correction made by the 4th student. When the 2nd student makes a clarification request to the 4th student, the 3rd student is observed to assist her. Later the 3rd student could be seen to be making his own clarification request to the 4th student, followed by the 2nd student, and the 4th student elaborating on his utterances and modifying them in order to make them more comprehensible.

The expert group members were observed to provide support to the less able child to ensure that he understood the passage. Support was predominant here as all the learners were discussing the same passage in contrast with the Jigsaw group where the learners were dependent on one another to acquire knowledge about each other’s passages, in order to understand the entire story. So here more instances of negotiation for meaning occurred. This was also observed in Nakahama. et. al’s (2001) (cited in Foster & Ohto 2005) study which revealed the conversational task witnessing fewer occurrences of negotiation for meaning as compared to the two-way information-gap task. This is especially due to the inherent nature of information-gap tasks, where each member is in an exalted position with exclusive knowledge which he/she needs to share with the other members in order for all members to comprehend the entire story, necessitating negotiation for meaning in case of communication breakdowns. Here, peer support was presumed as being incapable of repairing the communication breakdown due to lack of knowledge of each other’s passages.

However, many instances of encouragement could be observed in the Jigsaw groups. Corrections were accepted and repairs were undertaken without the embarrassment usually experienced in whole class situations. Peer support was also observed to resolve communication breakdown, when the 3rd student having better understood the utterances of the 4th student could clarify the 2nd student’s doubt and in the process support the 4th student. The crucial matter here is that he was able to do so despite not having knowledge of the 4th student’s passage. Magee and Jacobs (2001, p73) observe that despite unequal participation there was energetic cooperation between members and that “[w]hen communication broke down, or someone could not understand certain words or concepts, there

was always someone in the group trying to keep the conversation going” while Foster and Ohta (2005) confirm that information exchange tasks are not essential for SLA. However, this study could indicate that the Jigsaw grouping, using information gap tasks, are not only suitable for negotiation of meaning but could also facilitate supportive social interactions, where learners assist each other and conversations are naturally adjusted and adapted without loss of face, which some have professed as a drawback of these tasks.

5.3 Attentional Processes

The learners’ display of attentional processes was assessed using a variety of activities. While class 5A worked in pairs within their Jigsaw groups, class 5B worked together in Jigsaw groups. The cloze passage test was used to assess the display of their individual attentional processes. Placed below is the graph depicting the attentional processes displayed by the two classes.

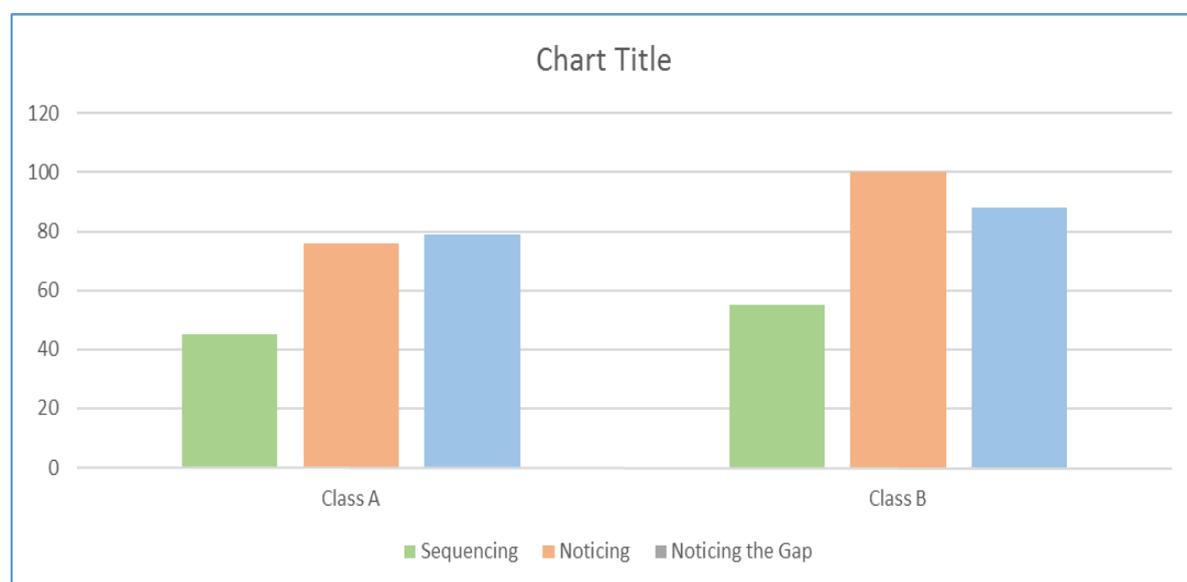


Figure 1 --- Attentional Processes

The class A pairs achieved 45% average score in sequencing of sentences while class B secured an average score of 55%. The noticing and noticing the gap activities also provide evidence of class B scoring better with 100% and 88% average scores respectively while class A displayed average scores of 76% and 79% respectively. Based on the above data, the learners who had worked in groups have displayed better scores than the learners who had worked in pairs. A previous study between groups and dyads, conducted by Doughty & Pica (1986, p 310), on the presumption that the “the face-threatening nature of the task would diminish as the number of interactants decreased”, promoting more modified conversations, found no difference in the modified conversations generated by both the dyads and the groups. The findings in this study could support the widely maintained conviction that cooperative learning groups provide an atmosphere conducive to the learners interacting harmoniously and as Barnes (1973) (cited in Long & Porter 1985, p211) observes “[a]n intimate group allows us to be relatively inexplicit and incoherent, to change direction in the middle of a sentence, to be uncertain and self-contradictory.”

After the learners completed the sequencing and noticing activities, they were individually tested through a cloze passage activity to assess whether the type of grouping affected the activation of their individual attentional processes. Based on their individual scores, the learners from 5A seemed to have fared better with an average score of 73% while class 5B secured a slightly less average score of 68%. Based on their average scores it could be assumed that those who worked in pairs displayed better individual attentional processes than those who worked in groups. In order to get a more accurate picture, the individual scores of the learners were subjected to an Independent Samples Test, the results of which are presented below:

Table3: Two-Samples T-Test -Activation of Attentional Processes

<u>Class</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev</u>	<u>SE Mean</u>
A	16	7.31	1.01	0.25
B	16	6.81	1.28	0.32
Difference = μ (A) - μ (B) Estimate for difference: 0.500 95% CI for difference: (-0.335, 1.335) <i>t</i> test of difference = 0 (vs \neq): <i>t</i> value = 1.23 p value = 0.230 df= 28				

The table provided in Greene & Oliveira (2006, p 200) gives critical values of *t* at various levels of probability (*t* test) and provides *t* value of 2.048 against df 28 and according to the table the value of *t* is significant if the derived value of *t* is equal to or larger than the value provided in the table. However, as the *t* value derived here is 1.23, which is less than the value of 2.048 given in the table, it cannot be considered significant. Balnaves & Caputi (2001, p 188) state that if the value 0 (the value of the difference between the means when the null hypothesis is true) is not contained in the confidence interval, we have supporting evidence to reject the null hypothesis. However, as the confidence interval of -.335 to 1.335 derived here contains the value 0, the null hypothesis cannot be rejected.

Therefore, it can be concluded that no statistically significant difference was found in the activation of attentional processes between Class A learners (7.31 +/- 1.01) and Class B learners (6.81 +/- 1.28) at 0.50 (95% CI, - 0.335 to 1.335), *t* (28) = 1.23, *p*= 0. 230.

These results could indicate that the type of group work did not have any special impact on their attentional processes. When the results were investigated for the activation of attentional processes on the whole, it could be seen that although the

Jigsaw strategy had worked effectively in respect of the noticing processes, it doesn't seem to have made enough impact on the sequencing process.

It could be observed that only 45 % from Class A and 55 % from Class B were able to sequence the sentences correctly. Fox and Allen (1983) claim that students who do not have sequencing experiences would begin a story where it had concluded, which Slavin (2009, p175) calls the “recency effect”, or from any part which they found interesting and that familiarizing them with sequencing activities could solve this problem. Most of the students, by placing the fascinating parts or the final parts of the story at the beginning, have signified their lack of experience in such sequencing activities, which fact has been confirmed by their teachers.

As regards noticing of form, noticing the difference and noticing the gap, the learners in both classes have fared well providing evidence that the information gap tasks have the ability to activate attentional processes. Placed below are a few samples:

Table 4 Activation of Attentional Processes Sample 1

Name	Utterances
1st student	One day when he was flying --
2nd student	Here write floating.
1st student	Floating kite in water? No it is flying.
2nd student	Ok. While Ray was enjoying his sport (reads rest silently) in a village.
1st student	I know what village. So ‘the’ village not ‘a’ village.
2nd student	Ok.

The above discussion ensued between two learners working together in pairs in 5A. When the 2nd student states ‘floating’, the 1st student connects it to ‘water’ and decides that a kite cannot ‘float’ in water but needs to fly. In the next option, the 1st student makes the choice of the word ‘the’ village and not ‘a’ village because according to him he knows the village mentioned in the passage. Although in the above sample only one of the pair is observed to notice the gap,

the explanations given by him could make the other student notice the gap too and in the process he would gain confidence to undertake the task individually. The above conversation gives evidence of the learners not only noticing the forms and the difference between forms, but also of their ability to identify the better suited form, giving valid reasons for their selection.

Table 5 Activation of Attentional Processes Sample 2

Name	Utterances
1 st student	This answer 'bright'.
2 nd student	cannot. Because he want to fly kite in night.
1 st student	so 'dark' correct.
2 nd student	Yes.

In the above sample, the first student's choice of the word 'bright' is refuted by the 2nd child who explains to him why 'dark' is the better choice, giving further evidence of the learners' ability to not only notice the difference in forms but also validate their choice of a particular form.

Table 6 Activation of Attentional Processes Sample 3

Name	Utterances
1 st student	Here 'dark' it is correct. We can't see anything the boy says. So it is 'dark'. Bright can see things.
2 nd student	Ok 'dark'. This one write 'beside' and your one write 'under'. 'Beside' not correct. Beside mean side so not correct. No shade.
1 st student	Ok, so 'under'. My sentence write 'familiar' here and yours say, 'strange' right? Which correct?
2 nd student	Think 'strange'. Strange mean not seen it. So they go check.
1 st student	Yes, right.

The above discussion in Class 5 A between pairs portrays both the learners playing an equal part in choosing the correct forms and giving valid explanations for their choices.

Table 7 Activation of Attentional Processes Sample 4

Name	Utterances
1 st student	How we should do?
2 nd student	What can it be?
3 rd student	See see here it is big firefly. Here shiny (shows his page.)
2 nd student	It's correct.
4 th student	what correct?
2 nd student	Big firefly. Shiny no. Why because if shiny and if so small the light which it got cannot be seen out from lantern but if it is big the light it got can be seen out.
4 th student	Ok.
1 st student	lantern is shiny no?
3 rd student	yes. See here beside the shade of tree. Correct?
4 th student	No this one correct (points to the word on his page) under. We get shade under tree.
2 nd student	Correct.

The above sample depicts the discussion among one of the groups of four children in Class 5B. The 2nd and 4th students are observed to be noticing the gap by validating their choice of words. The 3rd student is observed to be noticing the form and the difference between forms. However, he needs guidance regarding the correct form to be used. Although the 1st student does not appear to be participating actively, the observation made by her about the lantern itself being shiny in response to the 2nd student's elaboration, provides evidence of group interactions facilitating the noticing process (Pica, Kang & Sauro 2006).

These samples give us an insight into the attentional processes exhibited by the learners when working in pairs as well in groups. Although these tasks were not two-way or multi-way tasks, the knowledge the participants have initially gained to perform this task was during discussions related to an information gap task. Therefore, even if only half of the learners voice their opinions and the other half just listens, the peer elaborations would enable the listeners to connect this new

information to the information they already have about the passage and gain an in-depth understanding (Slavin 2009).

5.4 Thinking Processes and Co-construction of Knowledge

The Jigsaw groups were engaged in discussions about two open-ended questions based on the passage and their conversations were recorded. Hull & Saxon's (2009, p 632) coding table for social construction interactions, based on the Vygotskian theoretical framework, guided the coding of thinking process levels of the learners.

Two samples are given below:

Table 8 Thinking Processes Sample 1

Q1) Why do you think the men watching the kite didn't go and tell the villagers about it?

Name	Level/s	Utterances	Observations
1 st student	1 & 2	First he was flying the kite. In the dark time, dark night, dark night.	Initiating discussion and sharing new information
2 nd student	2	And also it has many holes.	Sharing new information
3 rd student	6	He thought that it could be a cloud or something like that but went so fast become fireball, could be cloud.	Testing new ideas
4 th student	4	But we are talking about something else. I think it because why he told he didn't want to share he know that.	Statement indicating dissonance

2 nd student	6	He could not confirm to villagers it was kite. They not be believing. The comet thing that he did not confirm that it is kite.	Testing new ideas
1 st student	5	He was watching kite. He could not say to villagers. Now he go and say it is kite no one believe it	Clarification of utterances made by 2 nd student.
2 nd student	3	The correct thing is that he did not confirm it is kite. He knew that it is kite.	Statement of agreement
4 th student	7	Yes, they laugh at him, it is kite only	Application of newly constructed knowledge to solve the problem.

Q2) How might people's feelings about Ray change by the end of the story?

Name	Level/s	Utterances	Observations
3 rd student	1&2	He think everyone believe also that it is fireball. After that he tell everyone it is kite, it is kite.	Initiating discussion and sharing new information
4 th student	2	Everyone think he be liar	Sharing new information
2 nd student	5 & 6	would be. Everyone think he would be liar. After that he become changed. By the end of story, he become changed	Clarification of above response and testing new ideas.
1 st student	4 & 6	But that is our opinion. What we think. We think if he told lies he have no friends.	Statement indicating dissonance as well as testing of new ideas.
2 nd student	4 & 6	It is what are we feeling about Ray. Some people think that he is, he is a liar. ----	Statement indicating dissonance as well as testing of new ideas.
1 st student	4 & 6	He is not a liar. He understand he tell lies he have no friends	Statement indicating dissonance as well as testing of new ideas.

3 rd student	5	There are many villagers in village. Some think different.	Clarification of response given by 2nd student.
2 nd student	3 & 7	Yes. Some people think he is liar. Some people think he is kid	Statement of agreement and application of newly constructed knowledge to solve the problem.

Table 9 Thinking Processes Sample 2

Q1) Why do you think the men watching the kite didn't go and tell the villagers about

Name	Level/s	Utterances	Observations
1 st student	1 & 2	They think it is very foolish. They think this is the boy fooled them.	Initiating discussions and sharing new information
2 nd student	3	Ok the boy fooled them.	Statement of agreement
3 rd student	6	They think it was trick to talk it to anyone.	Testing new ideas
4 th student	5	They think it was too silly to tell villagers.	Clarification of the above response
1 st student	6	Villagers laugh about them.	Testing new ideas
2 nd student	4 & 6	No, they cry.	Statement of dissonance as well as testing of new ideas
4 th student	3	Why they cry?	Clarification question
2 nd student	6 & 7	Because they scared. Don't know what it is. So cry	Testing new ideas and application of newly constructed knowledge

Q2) How might people's feelings about Ray change by the end of the story?

Name	Level/s	Utterances	Observations
1 st student	1	Before he is odd boy. Now?	Initiates discussions
2 nd student	6	He foolish. He made them fool.	Testing new ideas
3 rd student	5 & 7	He make others fool, so he clever no?	Clarification of the above response and application of newly constructed knowledge
4 th student	3	Yes, he clever.	Statement of agreement
1 st student & 2 nd student	3	Ok.	Statement of agreement

Table10: Summary of Coded Levels of Thinking Processes

Levels in respect of thinking processes exhibited during interactions	Results
1	4
2	6
3	6
4	5
5	5
6	11
7	4

The above table portrays the levels of thinking processes displayed by the Jigsaw group members, based on the two samples detailed above.

The concentration of thinking processes at each level was first examined followed by the investigation of the discussion patterns to ascertain the direction of flow of these processes.

The highest level, Level 7, of the thinking process shows four utterances at this level. Although the numerical value is low, this shows successful resolution by the groups of all the problems given to them.

The second highest level, Level 6, shows an impressive amount of 11 utterances, giving evidence to the ability of the cooperative learning methodology to activate higher-order thinking skills, resulting in generation of ideas more suitable for problem-solving. Brainstorming, considered a crucial avenue to higher order thinking skills is facilitated by the cooperative learning groups, where members are encouraged to pour out their ideas. Orlich.et.al (2003, p 254) claim that “[b]rainstorming is a simple and effective skill-building technique to use when a high level of creativity is desired.” This is also visible at Level 2, which shows a significant amount of six utterances, revealing divergent thinking. The five utterances at Level 4, dissonance, indicate independent thinking and an experience of conflict between their ideas and that of the conviction held by their team members. They also introduce the concept of argument the lack of which would halt the thinking processes and prevent generation of better ideas and solutions. Slavin (2009, p 233) affirms that arguing about the alternative directions to take as well as to “expose and challenge each other’s misconceptions” provide the “cognitive scaffolding” considered crucial “to higher-order learning.” Hull & Saxon (2009, p626) claim this to be the stage where the “--- contact between interpsychological states of the groups and intrapsychological states of the individual” lead to negotiation for meaning and co-construction of knowledge. The Level 2 showing six utterances displays the compliance exhibited by certain members. Although this surrendering nature may not encourage further production of ideas, the ability to come to an agreement is also a crucial part of group work. Similarly, the five utterances at Level 5 denotes the capacity of certain members to negotiate and reach a consensus rather than continue with disputes.

The above tabulation of utterances provides evidence of the Jigsaw strategy facilitating both lower and higher level thinking skills.

The discussion patterns revealed the flow of the thinking processes from the lower levels to the higher levels, but often making a U-turn to the lower levels necessitated by the need for resolution of conflicts or to reach an agreement, resulting in a non-linear progress.,

Sample 1

Q1) While the 1st student initiated the discussion, he concurrently shared his information. Further contributions were made by the 2nd and 3rd students. The 4th student contradicted the previous suggestions and guided his team members in the right direction as his understanding of the situation prevailed over that of his group. The 2nd student injected new ideas into the discussion, which were clarified to the group for better comprehension by the 1st student and this clarification was accepted by the 2nd student. The 4th student having gained a better understanding, in the process, resolved the problem by applying the knowledge he had gained. The 4th student has performed the roles of both the rebel as well as the problem-solver and the revelation of his thinking process would enable the other members to replicate it. The thinking processes began with the brainstorming of ideas, the introduction of conflict, negotiations undertaken, the generation of better ideas and finally a resolution of the problem presented. Although a few lower level thinking processes were introduced at a later stage they were necessary in order to comprehend the issue at hand and arrive at a consensus.

Q2) The discussions about the 2nd question began with the brainstorming of ideas, followed by clarifications requested for better comprehension, which was in turn followed by generation of new ideas. Although statements of dissonance were introduced by two members, they brought in better ideas, argued them out and arrived at a consensus with problem resolution as a finale.

Sample 2

Q1) The discussions began with the brainstorming of ideas, followed by an agreement, where after better ideas were tested, which was followed by an introduction of conflict and a divergent idea, clarification was requested and finally the presented issue was resolved.

Although here disagreement was introduced at a very late stage, it contributed positively to gain a deeper insight into the problem which was that as the men from the village had decided to hide the truth from the other villagers, the remaining villagers would continue to live in fear. A crucial factor here is that this observation was made by the 2nd student considered to be a slow learner and retained in the same grade for another year. Peer interaction provides the learners with an insight into the critical thinking skills of their peers and they internalize each other's knowledge as well as thinking skills and utilize these to develop their own cognitive performances (Tudge 1990, cited in Cohen 1994). This process was manifested by this student, who displayed the ability to arrive at an in-depth understanding of the problem presented. His response, albeit unrelated to the question, exhibits critical thinking.

Q2) Discussions began with new information supplied by the 1st student followed by the introduction of a credible idea by the 2nd student, who has again displayed the ability to apply internalized knowledge. Although the first part of his answer was appropriate, the inaccuracy of the second part was observed and clarified by the 3rd student who also resolved the presented problem, and the discussion culminated in an agreement on the solution by the other three children. Although here the level of thinking shifted down to Level 3 at the end of the discussion, this was necessary to arrive at a consensus.

It could be observed from the above that even though the level of thinking progressed from inferior to superior as the discussions advanced, it was also necessary to revert to the lower levels to secure clarifications, for negotiation of meaning or to reach an agreement. While higher-order thinking skills are necessary to resolve a problem, the lower level thinking skills are equally

essential to facilitate this process. Bransford, Pellegrino and Donovan (1999) assert that learners' securing proficiency in the basic concepts would lay the foundation for further exploration while Orlich et.al.(2013) allude to Bloom's taxonomy indicating acquisition of lower level skills as a requirement for attainment of higher level skills. The crucial point here was the ability of the learners to move towards a higher level of thinking as the situation demanded.

The above samples provide evidence of the divergent thinking styles exhibited by the team members to solve a problem and could be related to the Multiple Intelligences theory based on which every child is presumed to excel in a particular area. It could be observed from the samples above that there were some children who initiated the discussions boldly, while others were new information suppliers or creators of excellent ideas. The students who introduced conflicting ideas or contradicted other proposed ideas were invaluable contributors as they presented or encouraged generation of better ideas, while the learners with interpersonal skills were equally invaluable as negotiators who resolved conflicts and directed others towards a consensus. Orlich.et.al (2013) claim that while the higher ability students may lack social skills, the lower ability students may excel in interpersonal skills and that cooperative learning enables learners to display their skills as well as gain exposure to their peers' talents. Cohen (1994, p19) asserts that "[f]or higher order thinking skills, the interaction must be more elaborate and less constrained." Although the Jigsaw strategy itself is structured, there were no strict procedures to be observed during the discussions of the open-ended questions, which facilitated brainstorming and generation of superior ideas.

5.5 Critical Thinking Skills and Second Language

Acquisition

The second research question investigated the impact of the Jigsaw II grouping on the activation of critical thinking skills and thereby facilitating second language acquisition. This question was investigated in two parts and the data collected from the pre-test and post-test were analysed using the Paired Samples *t* test.

Table 11----Paired T-Test --- Multiple- Choice Questions

	<u>N</u>	<u>Mean</u>	<u>Std. Dev</u>	<u>SE Mean</u>
Post	32	6.844	1.322	0.234
Pre	32	6.406	2.564	0.453
Difference	32	0.438	2.063	0.365
95% CI for mean difference: (- 0.306, 1.181)				
<i>t</i> test of mean difference = 0 (vs ≠ 0): <i>t</i> value = 1.20 p-value = 0.239				

The paired samples *t* test to investigate whether there was a statistically significant change in scores between learners' display of critical thinking abilities in respect of multiple-choice questions, before and after the intervention of the Jigsaw II strategy, revealed the results as below:

Data are mean +/- standard deviation unless otherwise stated. Although the learners were found to display a better performance post-test after the intervention with a mean score increase of 0.438, the increase was found to be statistically insignificant at (6.844 +/- 1.322) when compared with the pre-test scores before the intervention (6.406 +/- 2.564), 0.438 (95% CI, - 0.306 to 1.181), $t(31) = 1.20$, $P > .005$ (.239), $d = 0.2$.

The table provided in Greene & Oliveira (2006, p 200) gives critical values of *t* at various levels of probability (*t* test) and provides a *t* value of 2.042 against df 30 and according to the table, the value of *t* is significant if the derived value of *t* is equal to or larger than the value provided in the table. However, as the *t* value derived here is 1.20, which is less than the value of 2.042 given in the table, it is not considered significant. Balnaves & Caputi (2001, p 188) state that if the value 0 (the value of the difference between the means when the null hypothesis is true) is not contained in the confidence interval, we have supporting evidence to reject

the null hypothesis. However, as the confidence interval derived here is -.335 to 1.335, containing the value 0, the null hypothesis cannot be rejected. The effect size is only 0.2, considered low and with a p value of >.005 at .239, the null hypothesis again cannot be rejected. Therefore, it can be concluded that the mean increase in scores related to learners' display of critical thinking abilities post-test, in respect of multiple-choice questions, was found to be statistically insignificant.

Table 12 -----Paired T-Test ---- Open-Ended Questions

	<u>N</u>	<u>Mean</u>	<u>Std. Dev</u>	<u>SE Mean</u>
Post	32	2.563	1.190	0.210
Pre	32	1.375	1.454	0.257
Difference	32	1.188	1.401	0.248
95% CI for mean difference: (0.682, 1.693)				
<i>t</i> test of mean difference = 0 (vs ≠ 0): <i>t</i> Value = 4.79 p-value = 0.000				

The paired samples *t* test to investigate whether there was a statistically significant change in scores between learners' display of critical thinking abilities in respect of open-ended questions, before and after the intervention of Jigsaw II strategy, revealed the results as below:

Data are +/- standard deviation unless otherwise stated. The learners displayed better performance in open-ended questions post-test after the intervention, with a mean score increase of 1.188 and this increase was found to be statistically significant at (2.563 +/- 1.190) when compared with the pre-test scores at (1.375 +/- 1.454), 1.188 (95% CI, 0.682 to 1.693), *t* (31) = 4.79, *p* < .005, *d* = 0.8.

The critical values of t at various levels of probability (t test) shown in the table in Greene and & Oliveira (2006, p 200) provides a t value of 2.042 against df 30 and they state that the value of t is significant if the derived value of t is equal to or larger than the value provided in the table. The t value derived here is 4.79 and is greater than the value of 2.042 given in the table and hence can be considered significant. Balnaves & Caputi (2001, p 188) state that if the value 0 (the value of the difference between the means when the null hypothesis is true) is not contained in the confidence interval, we have supporting evidence to reject the null hypothesis. The 95% confidence interval of 0.682 to 1.693 derived here does not contain the value 0 and therefore the null hypothesis can be rejected. Moreover, the effect size is 0.8 which is considered large. Hence, with a p value of $< .005$ at $.000$, the null hypothesis can be rejected. Therefore, it can be concluded that the learners' improvement in critical thinking abilities between pre and post-test, in respect of open-ended questions, was found to be statistically significant.

5.6 Discussions

Although the performance in multiple-choice questions did show an improvement after the intervention, this improvement was small and was not considered statistically significant. However, performance in the open-ended questions did show considerable improvement after the intervention and this improvement was also found to have statistical significance.

The first cause for this disparity could be the way the answers to these questions were graded. As multiple-choice questions are an objective means of testing and carry fixed marks, a wrong answer is awarded zero marks. However, open-ended questions encourage a wide variety of answers as long as they are sensible and related to the passage. Here the examiners could award marks to an answer they feel the learner deserves credit for, so long as they find reasonable justification. Moreover, this researcher has only focused on the critical thinking aspect and not on the grammatical accuracy of the answers given. Krantz (1999) (cited in Goodwin p34) claims that while multiple-choice questions are graded objectively, open-ended questions could be graded subjectively, while Roddick

and Spitzer (2010) assert that “[t]rue open-ended questions are questions with more than one correct answer” and that “the quality of the reader's argument or justification becomes most important” (Badger and Thomas 1992, p1).

The second cause could be the level of difficulty of the passages, as the passage used for the post-test was more difficult in text content than the one used for the pre-test. Although this problem was encountered during the piloting stage, it was decided to retain the passage in order to better assess the critical thinking ability of the learners and also because it was planned to introduce them to other passages with varying levels of difficulty during the intervention. Moreover, the options given in the questions for the post-test demanded scrupulous selection which could have affected their scores. In contrast, the pre-test options were less demanding.

Another crucial aspect could be that the knowledge gleaned by the team members during discussions for the post-test was superficial due to the difficult text content and this could have reflected in their answer choices.

Furthermore, the group discussions the learners had engaged in earlier related to the open-ended questions of ‘Ray and his Kite’, could have equipped them with the skills required to respond to these type of questions.

Orlich.et.al (2013, p 263) insist that cooperative learning, “----- ignores the fact that coping and social skills affect students’ academic performance and their performance can vary from day to day based on emotional factors.” While the ongoing sports practice at the school not only caused frequent disruptions but also left the learners highly-strung and not very receptive, the lack of time for thorough inculcation of social skills could have left them feeling ill-prepared to meet the requirements of this procedure. Therefore, the intervention with other passages may not have worked as far as multiple-choice questions were concerned. Schultz (1989/1980, p49) reasons that his students had “11 years of independent and competitive lessons to unlearn” especially “as they had been taught repeatedly to keep their eyes on their own papers, not to share homework and to be responsible for their own grades.”

Overburdening of their short-term memories with too many concepts simultaneously could be another factor. If there had been more time, this strategy could have been introduced gradually, in a manner facilitating easy assimilation.

Although the above reasoning could apply to all the learners, a fall in scores in respect of most of the average achievers could also be related to the claim made by Cohen (1994) that the average achievers perform better in homogeneous groups and do not show any improvement in mixed-abilities grouping, and Webb (1989, p 31) posits that this could be due to the fact that in heterogeneous groups the “highs and lows tend to form a ‘teacher-learner’ relationship” and in the process the average learners may be relatively neglected.

The low achievers, despite the above stated issues, have displayed appreciable improvement in the post-test, in both multiple-choice questions as well as open-ended questions. Credit for the slightly higher mean scores in the post-test for multiple-choice questions could be given to these learners. This improvement in performance has been alluded to in many previous studies which attribute this achievement to the exposure of these learners not only to external knowledge but also to the thinking processes of their more capable peers.

Tudge (1990) (cited in Cohen 1994, p11) also posits that while low achievers benefit from interactions with high achievers, “--- exposure to less-advanced reasoning in the course of interaction can have a negative effect on more developmentally advanced children”. Although, there is empirical evidence of high achievers benefiting due to the explanations they give to the low achievers, the above suggested possibility could have happened with the high achievers in this study, especially if they had secured high marks in the pre-test due to its easier text content.

5.7 Questionnaires

The final stage of this study was the administration of questionnaires, which was a combined quantitative and qualitative study. (**Appendix D**). The learners were advised not to write their names on the questionnaires to maintain anonymity. The quantitative study evaluated their liking for the Jigsaw grouping through the 'smiley faces' rating scale where the learners were asked to colour one of the three facial images displayed therein which would best suit their responses. The result was 100 % positive as all the questionnaires were returned with the happy faces coloured, indicating their enjoyment of the procedure. Moreover, all the answers for the qualitative question, "Why?" indicated enjoyment of the activities which were called 'fun' activities. Out of the 32 questionnaires, 17 of them directly pointed to the 'group work' as the source of enjoyment with comments such as, "I am like the group work. I am very enjoy", "I love group work. I want share everything to my friends." and so on while the rest indicated enjoyment of the group activities like "I enjoyed because it was fun activity". Only two of the learners mentioned their eagerness to receive the reward for their group work along with their liking for the activities. This indicates that although the desire for reward was present, most of the learners in this study were intrinsically motivated by the group-work and the activities involved. Davidson and Leary (1990) declare that learners are intrinsically motivated during group exploration.

Students' Responses Concerning the Jigsaw II Strategy

A	Girl student	Desires to work only with girls as she finds the boys very noisy.
B	Boy student	Prefers working with good friends. When it was suggested that he may not get to know the others in his class that way, he proposed a combination of two friends in each group.
C	Boy student	Wishes that the group members would share and help one another more.

Informal conversations with a few learners, to enquire about what could have been done better, elicited the above responses.

As regards the girl student's preference to work only with girls, there have been studies before which have found same gender groups working better together, with mixed gender groups displaying male dominance (Cohen 1994). The first boy student's desire for good friends in his group could be due to lack of support from his present group members while the second boy student has hinted at the lack of cooperation in his group. The above responses indicate the need for infusion of social skills long before the initiation of cooperative activities. Schultz (1989/1990, p43) asserts that "[t]eachers must give adequate attention to monitoring and teaching social skills if they are to introduce cooperative learning successfully."

CHAPTER 6

6 Conclusion

This section presents the summary of the findings, shortcomings of the study and provides some suggestions for the successful implementation of CL in the UAE schools and for future research.

6.1 Summary of Findings

The crucial goal of this study was to discover whether the Jigsaw II strategy, a CL methodology, could empower learners by equipping them with the skills required for SLA. This strategy has all the features deemed suitable for CL such as positive interdependence, through each member holding a unique piece of information and hence presenting equal status, encouragement of face-to-face interactions, group goals and group rewards, individual accountability and group evaluation. Therefore, the impact of this strategy on various aspects of SLA was investigated. The Jigsaw grouping promoted attentional processes, facilitated modified conversations from both negotiations for meaning and peer support as well as activated both lower and higher level thinking processes. Notable achievement was displayed by the learners in their post-test scores as related to the open-ended questions, considered crucial for activation of critical thinking skills. The setback experienced due to the statistically insignificant results in the post-test, related to multiple-choice questions, was unexpected. Nevertheless, the learners' mean scores were higher than the pre-test and with more time and a more propitious atmosphere, better results might have been obtained.

6.2 Limitations of the Study

This study experienced the following shortcomings:

- i) The small sample size limits the generalizability of this study.
- ii) Frequent rescheduling of data collection was required due to the rigorous sports practice for the Sports Day.

- iii) The tape recorders distracted some learners who were more interested in having their voices recorded than holding a proper discussion, resulting in artificial conversations. It was, therefore, decided to dispense with the tape recorders and resort to manual recording instead, which affected the quantity of data collected.
- iv) The grouping of the learners resulted in some of them being placed with learners who were hitherto strangers, resulting in interactions focusing on socialization rather than on task execution.
- v) Lack of time for thorough inculcation of social skills, a factor considered crucial in cooperative learning.

6.3 Professional Recommendations

Hennessey & Dionigi (2013) claim that CL has theoretical and empirical support but lacks support from the school management and not prominent in teacher training courses. Due to lack of training in this methodology, it is rarely used by teachers in schools and if they do have knowledge about it, they find it time consuming or just presume the superiority of traditional classroom discussions over other teaching methods. As seen before, in most UAE schools, teacher-fronted classrooms are the norm. In view of the above the following suggestions are made:

- i) The CL methodology needs to be given a crucial role in teacher training courses. This would enlighten the teachers as to its effectiveness and highlight it as a constructive route to empower learners.
- ii) The challenges faced in its implementation should be successfully addressed so that the teachers are not discouraged.
- iii) Learning circles could be organized where the teachers could share their positive and negative experiences as well as discuss feasible strategies which could facilitate CL.

6.4 Suggestions for Future Research

i) The impact of the Jigsaw II strategy needs to be investigated on a larger scale so that the results could be generalized. Moreover, the minor improvement observed in the post-test scores related to multiple-choice questions, although not statistically significant, warrants further investigation as to the effectiveness of these type of questions in activation of critical thinking skills.

ii) There is need for research about the views of the educators regarding the execution of the Jigsaw II strategy as well as the CL methodology as a whole.

iii) The performance of average achievers in homogeneous and heterogeneous groups needs further investigation in the UAE context.

iv) The second language acquisition, as related to attentional processes and modified conversations, has been analysed qualitatively in this study. Future researchers could undertake quantitative analysis in order to get a more accurate picture.

6.5. Conclusion

The CL methodology has been widely acclaimed as a strategy endowed with manifold benefits and has been well received by those advocating the social as well as the cognitive approaches to learning. The results derived in this study indicate this to be a viable methodology to be included in schools across UAE, especially as notable improvement in performance among low achievers has been realized.

Augustine, Gruber and Hanson (1989-1990) have found learners with a variety of abilities benefiting from the use of CL and hope that, “[i]f other educators believe as we do, that higher achievement, increased acceptance for differences, improved attitudes towards school, and enhanced self-esteem are valuable goals for all children, then we all need to promote the continued use of cooperative learning” (Augustine, Gruber & Hanson 1989-1990, p7).

CL, through promoting positive social interactions by creating links between learners which transcends racial, ability and cultural divisions, empowering them by enabling them to gain access to both lower as well as higher level thinking skills and in the process raising their self-esteem as well as having them take control of their own learning, could be considered an invaluable learning strategy in the field of second language acquisition.

This study concludes with the responses from two of the more fluent participants on the questionnaires, reproduced below, which embody all that cooperative learning is about: “It was very fun. We do ‘activitys’ and the ‘activitys’ are very fun. That’s why I like it.” and “because I really enjoyed it because I had fun with ‘co’perating’ with people who ‘i’ ‘dont’ even talk to”. These responses provide evidence of cooperative learning methodology’s potential to empower learners and equip them with the requisite skills for second language acquisition.

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Appendix A

Sammy's Wish

“Sammy, wake up!” shouted Dad from down the hall.

“I’m up,” grumbled Sammy, as he crawled from his warm bed and dragged himself to the bathroom.

Some days, Sammy wished he could just slide down the hall, like a giant boa. What a life! No walking, just slithering around. “I wish I could be a snake,” thought Sammy, as he finished brushing his teeth.

They had been studying snakes in Mr. Peabody’s class. Sammy had to choose a snake to write about for his project. He decided on the emerald tree boa. They had studied the rain forest, and Sammy thought the emerald tree boa was really cool. It was a bright green colour, and looked like a vine hanging in the canopy of the rain forest. Sammy would write a report and make a papier-mâché snake for his project.

Sammy was walking home from the bus stop when he heard a hissing sound. He looked around, but he didn’t see anything. “Hiss!” Sammy heard the sound again. Then, Sammy heard a noise in the bushes. He ran over to see what it was. It was an emerald tree boa! But how could that be? Sammy lived in a city, not a rain forest. Sammy went to catch the boa.

“Don’t touch me or I will squeeze you!” hissed the snake.

Startled, Sammy jumped back.

“YOU CAN TALK!” exclaimed Sammy.

“Hiss, yessss, that is one of my many talents,” answered the snake.

“But, but...” stammered Sammy.

“You humans are all alike. You see a talking snake and you get tongue-tied,” stated the boa. “I need you to do something for me,” it continued.

“What is that?” asked Sammy. “What do you want me to do?”

“I want you to scratch my back three times. If you do, the spell will be broken. Please, do not be afraid. I have been living as a snake for 25 years. My brother had a witch cast a spell on me.”

The snake went on to tell Sammy that he was once a prince in ancient Greece, but his brother had been envious of him. The prince’s brother knew the prince was afraid of snakes, so he told a witch to turn his brother into a big green snake. The only way the spell could be broken would be to have someone scratch the snake’s back three times. That didn’t seem like it would be a hard thing to accomplish, but the poor boa always scared people away, because they either were afraid of snakes in general, or were scared of him when he started to talk.

Knowing this, the snake said cautiously to Sammy, “Please, all you have to do is scratch my back three times, and the spell will be broken.”

Sammy thought it was a joke. He decided must be daydreaming or something. But there was the snake talking to him, as clear as day. “What the heck,” thought Sammy. “I have nothing to lose.”

“Sure, I will scratch your back,” said Sammy out loud. “One, two....”

As Sammy said “two,” the snake’s body began to shake. Sammy stopped scratching and stared.

The boas hissed, “Please, don’t stop! They always stop. I will not hurt you.”

“Okay,” said Sammy, and scratched the boa a third time. Poof! A cloud of smoke blinded Sammy for a minute. When the smoke cleared, there was an ugly old witch staring back at him.

“Where is the prince?” asked Sammy nervously.

“Prince?” echoed the witch. “Hee, hee...I have been trying to get someone to believe that story for 100 years. Now you will take my place!” The witch tapped Sammy on the shoulder. Sammy immediately fell to the ground. “I’m an emerald tree boa!” hissed Sammy. And off he slithered into the grass, realizing with surprise that his wish had come true.

And it had.

Sammy's Wish

1) What does the sentence, "Sammy crawled from his warm bed and dragged himself to the bathroom" mean?

- a) He imagined that he was a snake.
- b) He enjoyed waking up
- c) He did not like to walk upright.
- d) He moved slowly and reluctantly ()

2) What does the phrase, "really cool" in sentence 9 mean?

- a) Very cold
- b) Amazing
- c) Creepy
- d) Strong ()

3) Why did Sammy get startled when the snake spoke to him? He got startled because

- a) the snake was too long.
- b) the snake was an emerald tree boa.
- c) it was not normal for snakes to speak.
- d) he did not like snakes. ()

4) What does the phrase 'tongue-tied' mean?

- a) Tie the tongue with a string.
- b) To become speechless.
- c) To talk too much.
- d) To lie about something. ()

5) In reality the snake was a / an

- a) witch
- b) prince
- c) vine
- d) emerald tree ()

6) What did the snake want Sammy to do to break the witch's spell? It wanted Sammy to

- a) stare into its eyes.
- b) jump up and down.
- c) turn round and round.
- d) scratch its back three times. ()

7) Why did the people not help the boa? It was because

- a) they thought it was fun to be a snake.
- b) they thought the prince deserved the punishment.
- c) they were afraid of the boa.
- d) nobody cared. ()

8) What does the word 'cautiously' mean?

- a) recklessly
- b) rudely
- c) diligently
- d) warily ()

9) What happened when Sammy scratched the boa three times?

- a) It turned into a frog.
- b) It turned into a handsome prince.
- c) It turned into an ugly old witch.
- d) It remained a boa. ()

10) What happened to Sammy in the end?

- a) Sammy and the witch discussed about boas.
- b) The prince took Sammy to his palace.
- c) Sammy's wish came true.
- d) Sammy went back home to his parents. ()

11) Was the emerald tree boa speaking the truth? State two incidents in the story which proves this.

12) Do you think Sammy will be happy because his wish came true?

Appendix B

Ray and his Kite

Ray was thought to be an odd boy. You will think so too when you have read this story. Ray liked to play with the boys at school well enough; but he liked to be alone under the shade of some tree reading a fairy tale or dreaming daydreams better. But there was one activity that he liked as well as his companions; that was flying a kite.

One day when he was flying his kite, he said to himself, "I wonder if anybody ever tried to fly a kite at night. It seems to me it would be nice. But then, if it were very dark, the kite could not be seen. What if I should fasten a light to it, though? That would make it show. I'll try it this very night."

As soon as it was dark, without saying a word to anybody, he took his kite and lantern and went to a large, open lot about a quarter of a mile from his home. "Well," thought he, "this is strange. How lonely and still it seems without any other boys around! But I am going to fly my kite anyway." So he tied the lantern, which was made of tin punched full of small holes, to the tail of his kite. Then he pitched the kite, and, after several attempts, succeeded in making it rise.

Up it went, higher and higher, as Ray let out the string. When the string was all unwound, he tied it to a fence, and then he stood and gazed at his kite as it floated high up in the air.

While Ray was enjoying his sport, some people who were out on the street in the village saw a strange light in the sky. They gathered in groups to watch it. Now it was still for a few seconds; then it seemed to be jumping up and down; then it made long sweeps back and forth through the air.

"What can it be?" asked one person. "How strange." said another. "It cannot be a comet because comets have tails," said a third. "Perhaps it's a big firefly," said another. At last some of the men decided to find out what this strange light was—whether it was a hobgoblin dancing in the air, or something dropped from the sky. So off they started to get as close to it as they could.

While this was taking place, Ray, who had grown tired of standing, was seated in a fence corner behind a tree. He could see the men as they approached, but they did not see him. When they were directly under the light, and saw what it was, they looked at each other and said while laughing, "This is some boy's trick, and it has fooled us nicely. Let us keep the secret and have our share of the joke." Then they laughed again and went back to the village; and some of the people there had not yet found out what that strange light was.

Version A

Please rearrange the sentences below in a proper sequence to form the story you had read recently

- 1) “What can it be?” asked one person. “How strange,” said another. “It cannot be a comet because comets have tails,” said a third. “Perhaps it’s a big firefly,” said another.
- 2) As soon as it was bright, without saying a word to anybody, he took his kite and lantern and went to a large, open lot about a quarter of a mile from his home.
- 3) When the men had gone, Ray thought it was time for him to go, so he wound up his string, picked up her kite and lantern, and went home.
- 4) Ray liked to play with the boys at school well enough; but he liked to be alone under the shade of some tree reading a fairy tale or dreaming daydreams better. But there was one activity that he liked as well as his companions; that was flying a kite.
- 5) He could see the men as they approached, but they did not see him.
- 6) He tied the lantern, which was made of tin punched full of small holes, to the tail of his kite. Then he threw the kite, and after several attempts, succeeded in making it rise.
- 7) At last some of the men decided to find out what this strange light was – whether it was a hobgoblin dancing in the air, or something dropped from the sky.
- 8) One day when he was floating his kite, he said to himself, “I wonder if anybody ever tried to fly a kite at night. It seems to me it would be nice. But then, if it were very dark, the kite could not be seen. What if I should fasten a light to it, though? That would make it show. I will try it this very night.”
- 9) While Ray was enjoying his sport, some people who were out on the street in the village saw a strange light in the sky.
- 10) When they were directly under the light, and saw what it was, they looked at each other and said while laughing, “That is some boy’s trick, and it has fooled us nicely. Let us keep our secret and have our share of the joke.”

Version B

Please rearrange the sentences below in a proper sequence to form the story you had read recently.

1)“What can it be?” asked one person. “How strange,” said another. “It cannot be a comet because comets have tails,” said a third. “Perhaps it’s a shiny firefly,” said another.

2) As soon as it was dark, without saying a word to anybody, he took his kite and lantern and went to a large, open lot about a quarter of a mile from his home.

3)When the men had gone, Ray thought it was time for him to go, so he wound up his string, picked up his kite and lantern, and went home.

4) Ray liked to play with the boys at school well enough; but he liked to be alone beside the shade of some tree reading a fairy tale or dreaming daydreams better. But there was one activity that he liked as well as his companions; that was flying a kite.

5) He could see the men as they approached and they did not see him.

6) He tied the lantern, which was made of tin punched full of small holes, to the tail of his kite. Then he pitched the kite, and after several attempts, succeeded in making it rise.

7) At last some of the men decided to find out what this familiar light was – whether it was a hobgoblin dancing in the air, or something dropped from the sky.

8) One day when he was flying his kite, he said to himself, “I wonder if anybody ever tried to fly a kite at night. It seems to me it would be nice. But then, if it were very dark, the kite could not be seen. What if I should fasten a light to it, though? That would make it show. I will try it this very night.”

9) While Ray was enjoying his sport, some people who were out on the street in a village saw a strange light in the sky.

10) When they were directly under the light, and saw what it was, they looked at each other and said while laughing, “This is some boy’s trick, and it has fooled us nicely. Let us keep our secret and have our share of the joke.”

Cloze Passage

Please fill in the blanks in the below passage with the words from the story

Ray liked to play with the boys at school well enough; but he liked to be alone ---
----- the shade of some tree reading a fairy tale or dreaming
daydreams better. But there was one activity that he liked as well as his
companions; that was flying a kite. One day when he was -----
his kite, he said to himself, "I wonder if anybody ever tried to fly a kite at night.
It seems to me it would be nice. But then, if it were very dark, the kite could not
be seen. What if I should fasten a light to it, though? That would make it show. I
will try it this very night." As soon as it was -----without saying a word to
anybody, he took his kite and lantern and went to a large, open lot about a quarter
of a mile from his home.

He tied the lantern, which was made of tin punched full of small holes, to the tail
of his kite. Then he ----- the kite, and after several attempts, succeeded in
making it rise. While Ray was enjoying his sport, some people who were out on
the street in ----- village saw a strange light in the sky. "What can it be?"
asked one person. "How strange," said another. "It cannot be a comet because
comets have tails," said a third. "Perhaps it's a ----- firefly," said another.

At last some of the men decided to find out what this ----- light was,
whether it was a hobgoblin dancing in the air, or something dropped from the
sky. Ray could see the men as they approached, ----- they did not see him.
When they were directly under the light, and saw what it was, they looked at each
other and said while laughing, "----- is some boy's trick, and it has fooled us
nicely. Let us keep our secret and have our share of the joke." When the men had
gone, Ray thought it was time for him to go, so he wound up his string, picked up
----- kite and lantern, and went home.

Appendix C

HORATIUS AT THE BRIDGE

Once there was a war between the Roman people and the Etruscans who lived in the towns on the other side of the Tiber River. Porsena, the King of the Etruscans, raised a great army and marched toward Rome. The city had never been in so great danger.

The Romans did not have very many fighting men at that time, and they knew that they were not strong enough to meet the Etruscans in open battle. So they kept themselves inside of their walls and set guards to watch the roads. One morning the army of Porsena was seen coming over the hills from the north. There were thousands of horsemen and footmen, and they were marching straight toward the wooden bridge which spanned the river at Rome.

"What shall we do?" asked the white-haired Fathers who made the laws for the Roman people. "If they gain the bridge, we cannot hinder them from crossing, and then what hope will there be for the town?"

Now, among the guards at the bridge, there was a brave man named Horatius. He was on the farther side of the river, and when he saw that the Etruscans were so near, he called out to the Romans who were behind him.

"Hew down the bridge with all the speed that you can!" he cried. "I, with the two men who stand by me, will keep the foe at bay."

Then, with their shields before them and their long spears in their hands, the three brave men stood in the road and kept back the horsemen whom Porsena had sent to take the bridge.

On the bridge the Romans hewed away at the beams and posts. Their axes rang. The chips flew fast, and soon the bridge trembled and was ready to fall.

"Come back! Come back and save your lives!" they cried to Horatius and the two who were with him.

But just then Porsena's horsemen dashed toward them again. "Run for your lives!" said Horatius to his friends. "I will keep the road."

They turned and ran back across the bridge. They had hardly reached the other side when there was a crashing of beams and timbers. The bridge toppled over to one side and then fell with a great splash into the water.

When Horatius heard the sound, he knew that the city was safe. With his face still toward Porsena's men, he moved slowly backward till he stood on the river's bank. A dart thrown by one of Porsena's soldiers put out his left eye, but he did not falter. He cast his spear at the foremost horseman, and then he turned quickly around. He saw the white porch of his own home among the trees on the other side of the stream.

"And he spoke to the noble river that rolls by the walls of Rome: 'O Tiber! father Tiber! To whom the Romans pray, A Roman's life, a Roman's arms, Take thou in charge today.'"

He leaped into the deep, swift stream. He still had his heavy armour on, and when he sank out of sight, no one thought that he would ever be seen again. But he was a strong man and the best swimmer in Rome. The next minute he rose. He was halfway across the river and safe from the spears and darts which Porsena's soldiers hurled after him.

Soon he reached the farther side where his friends stood ready to help him. Shout after shout greeted him as he climbed upon the bank. Then Porsena's men shouted also because they had never seen a man so brave and strong as Horatius. He had kept them out of Rome, but he had done a deed which they could not help but praise.

As for the Romans, they were very grateful to Horatius for having saved their city. They called him Horatius Cocles, which meant the "one-eyed Horatius," because he had lost an eye in defending the bridge. They had a fine statue of brass made in his honour, and they gave him as much land as he could plow around in a day. And for hundreds of years afterwards, with weeping and with laughter, the story was still told about how well Horatius kept the bridge in the brave days of old.

Horatius at the Bridge

1) Who was Porsena? He was the/a

- a) king of Rome b) white-haired Father c) king of Etruscans d) guard ()

2) Why did the Romans stay inside their city? They did so because

- a) they did not like travelling b) they loved their city
c) they had guards d) they did not have the strength to fight wars ()

3) Why did the Porsena's army march towards the wooden bridge? They did so because

- a) they wanted to destroy the bridge
b) they could use it to cross the river.
c) they saw the Romans
d) they wanted to test its strength. ()

4) Why do you think the Romans chose the white-haired Fathers to make the laws?

They did so because

- a) they were strong
b) they were wise
c) they were tall
d) they were Etruscans ()

5) Who was Horatius?

- a) He was an Etruscan b) He was a white-haired Father
c) He was Porsena's guard d) He was a Roman ()

6) Why did the Romans cry out to Horatius and his two friends to come back and save their own lives? They cried out because

- a) they saw Porsena's horsemen attacking them.
b) they wanted them to return to Rome.
c) once the bridge collapses they will not be able to reach Rome.
d) they liked Horatius. ()

7) Why did Horatius move backwards till he stood on the river's bank? He did so because

- a) he wanted to brace himself for the attack by the Romans.
- b) he wanted to push the Romans into the river.
- c) he wanted to look at his home for the last time.
- d) he was preparing himself to escape back to his city. ()

8) Why did no one think they would ever see Horatius again after he jumped into the river? It was because

- a) he didn't know how to swim.
- b) he was a strong man.
- c) he was wearing his heavy armour
- d) the river was deep. ()

9) Why did Porsena's men cheer for Horatius? It was because

- a) they liked the way he defended his city.
- b) they were happy that he was not brave and strong.
- c) they didn't consider him an enemy.
- d) they were happy that they lost the war ()

10) Which detail from the passage best shows why Horatius is a hero to the Romans?

- a) He lost an eye.
- b) He is the best swimmer in Rome.
- c) He lives near Tiber.
- d) He comes up with a plan to stop the Etruscan army ()

11) Why did Horatius ask the Romans to hew down the bridge?

12) There were three men, including Horatius, who defended the bridge against the Etruscans but only Horatius has been honoured as a hero. Why?

Appendix D

Jigsaw Group Work Appraisal Form

Q1) Did you enjoy the Jigsaw group work? Please choose one of the faces below that best suits your answer and colour the same with any colour of your choice.



Enjoyed it very much!



It was ok!



Did not like it at all!

Q2) Why?

Appendix E



Informed Consent Form

- 1. Purpose of the Study:** Learner empowerment is the focal point in the pedagogical world today and the cooperative learning strategy has been widely acclaimed as having the power to empower learners to take control of their own learning. The purpose of this study is to assess the contribution, if any, of the Jigsaw II strategy, a mode of cooperative learning, towards learner empowerment by way of aiding second language acquisition skills and activation of critical thinking skills.
- 2. Statement of Confidentiality:** The participation of your school students in this study will be kept strictly confidential. As discussions among the participants are an integral part of the language learning process, the conversations are required to be recorded to facilitate accurate assessment. However, anonymity will be maintained at all times. In the event of a publication or presentation resulting from the research, no personally identifiable information will appear in any reports, articles or presentations.

You are requested to sign this form by which you acknowledge that you have read and understood the above information and consent to the above proposed study.

Thank you.

Authorizing Authority:

Date:

Person Obtaining Consent:

Date:

Appendix F

Coding table for social construction interactions (Hull & Saxon 2009, p632)

Code	Definitions	Indicators
1. Direct instruction(s) to the group	Initiating new activity for the group	a. statements that cause the group to undertake a discussion on a totally new subject b. statements that provide clarity to a previous instruction
2. Sharing new information	Information is provided that has not been previously discussed	a. a statement of observation or opinion b. a simple response to a question or instruction c. definition, description, or identification of a problem
3. Situated definition	Information is validated through a socially-shared, distributed consciousness	a. statements of agreement b. realization of agreement c. providing corroborating example(s) d. providing encouragement for a previously expressed idea e. basic questions of clarification
4. Intersubjectivity/dissonance	Inconsistency is discovered between a new observation and the learner's existing framework of knowledge.	a. identifying or stating areas of disagreement b. asking and answering questions c. restating someone else's position d. clarifying one's own position (without substantial changes to that position)
5. Negotiation/co-construction (semiotic mediation)	Higher mental functioning that attempts to bridge differences in situated definitions	a. clarifying someone else's position b. re-proposing an idea previously provided to the group c. statement that appears

		new but that may contain elements from others
6. Testing tentative constructions	Testing new ideas developed through the course group	a. “what-if” questions/statements b. proposed behaviors that incorporate newly constructed ideas
7. Reporting application of newly constructed knowledge	Behavior is provoked by course discussions resulting in reports about activities in which a participant engaged	a. statements indicating that new ideas are being tried b. reports (successful or unsuccessful) of attempts to implement a new concept or idea