The jigsaw method: The use of cooperative learning in a grade 7 English second language lessons – A Namibia school case study

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Abstract
This paper reports on the use of cooperative learning technique – Jigsaw - that describes the use of small groups to enable learners to increase their own responsibility in learning and that of their peers. As a strategy that support Learner Centred Education which was adopted as a framework for teaching and learning in Namibia in 1990, cooperative learning is very compatible to Communicative Language Teaching (CLT) which are both highlighted in the new basic education national curriculum as strategies for teaching languages in Namibian schools. To develop responsive practices to the learner-centred approach this study investigates the role of cooperative learning activities in learning English second language and the influence it has on teaching and assessing learners. An expansive route was taken to engage learners in a Jigsaw activity, in an English Second Language lesson. The findings revealed that participants of the study perceived cooperative learning instructional to be generally a positive experiences which provide an effective method of learning in groups and it enhance learners' achievement. Cooperative learning may help learners to acquire and develop four language skills at the same time and with easy as concepts are interlinked. Learners in the jigsaw classroom reported stronger intrinsic motivation, greater interest in the topic, and more cognitive activation and involvement.

Keywords: cooperative learning, Jigsaw activity, positive interdependence, English second language, motivation

Introduction
Cooperative learning is a concept based on group work in which learners are responsible for others' learning as well as their own learning (Gillies, 2007). The significant feature of cooperative

learning involves learner to learner interaction in the process of promoting successful learning. Moreover, learners in cooperation encourage and greatly support each other, take responsibility for their own and other's learning, in employing groups to work together and do group reflection and assessment at the end of the task.

As a teaching strategy, cooperative learning has been avoided by English second language teachers who feels that it is time consuming and it leads to an uncontrolled noise level in the classroom. Marsh (2000) emphasized about the noise level that is mostly high during the formation of groups and during discussion among teams. She investigated that though learners' discussion requires them to view their opinion verbally, it then become a problem if not well managed by teacher and could cause unproductive cooperation. Moreover, Slavin, (1995) and Johnson and Johnson (2009) both maintained that cooperative learning has been so hard and uncertain to implement because the way learners perceive and participate in lessons highly depends on how the lesson is presented to them in accordance to which the teaching strategy is used by the teachers.

Jigsaw activity is designed so that students can work together on a common topic or project, where each student is responsible for a certain portion of the project and are also responsible for helping and communicating with their project members (Johnson, Johnson, 1999). Kagan & McGroarty (1993) explains that in order to be productive, cooperative learning groups should be structured according to 5 elements i.e. individual accountability, positive interdependence, face to face promotive interaction, interpersonal and social skills and group processing. These elements indicates that cooperative learning does not simply require students to work in groups but it is an exercise that includes the whole development of a learners and a social being. By doing this, it creates the opportunity that stimulates the motivation for learners to learn. Significantly, when proper activities are designed in cooperative learning classroom learners have the potential in ensuring the higher self-efficacy that opportunity of being achieves more in learning.

Currently in Namibia, there are still teachers who fail to teach English through communicative language teaching strategies and just use group works which do not lead to any effective improvement in learner's communicative competence. In these groups, learners

are given little or no time to communicate and thus the classroom activities are often teacher centered rather than being executed by learners through meaningful and properly designed social interaction. This study then looks at the implementation of the jigsaw activity in the grade 7 English second language classroom in order to investigate the effect the activity has on both the teachers and learners learning and teaching English.

The questions for the study are as follow:
a.   How is the teaching and learning process achieved during the employment of the jigsaw activity in the grade 7 English Second Language lesson?
b.   What impacts do the jigsaw activity has on learners' learning of English Second language?

Conceptual framework of the study
Bandura's Social learning theory (McLeod, 2011) defines collaborative learning as a process of peer interaction that is mediate and structured by the teacher. Bandura posits that people learn from one another, via observation, imitation and modeling. Therefore, cooperative learning instruction involves students to work in teams to accomplish a common goal. Vygotsky's Social –cognitive theory (Lee & Smagorinsky, 2000) supports the use of cooperative learning by maintaining that when learners 'work closely with one another' they develop their level of proximal development. That means through help from more knowledgeable individuals, learners can potentially gain knowledge already held by other learners. Vygotsky (1978) understands learning as a social process that take place in a context that allows for social interactions and communication which eventually leads to the construction of knowledge and cognitive development. In addition, Johnson and Johnson (2015) considers social-cognitive theory in learning as it provide support for the use of cooperative learning considering learners with different abilities. Therefore, cooperative learning method provides learners with maximal opportunity for them to experience and resolve cognitive conflicts through social interaction. Cooperative Learning not only affords students the opportunity to use the language but it also allows them to discover it, learn the vocabulary and the grammatical aspect of the language and learn how to manipulate the both spoken and written language for the learning purposes.

The Jigsaw method

Aronson, Blaney, Stephan, Sikes and Snapp (1978) defined the jigsaw as a method where learners are grouped in team of six learners where the tasks are broken into different pieces for investigation, discussion and then reporting. In this method each learner becomes a specialist of a particular activity that he/she teaches others in a group. Each team member reads his/her section and later members of different teams who have studied the same sections meet in expert groups to discussion their section. After mastering the material each expert learners return to their teams and take turn teaching their team mates about their sections (Apple, 2006). This idea is good because the only way learners can learn sections other than their own is by listening carefully to their team mates. Learners are motivated to support and show interest in one another's wok and it also promote interdependence. This fosters Vygotsky idea of scaffolding (1978) whereby learners learn by helping others to develop and extend their knowledge as a team. In this method different interpersonal and group learning skills are assisted such as sharing of ideas, listening carefully, organizing, peer-learning, creativity of information and asking for explanation.

Johnson and Johnson (1994) have identified three types of groups, formal, informal and base groups for cooperative learning. Informal groups have a very short lifespan. These groups are typically used for assignments that are meant to last for only a limited amount of time, such as one class period. Johnson and Johnson recommend using these groups to focus students' attention on the material being discussed. Informal groups can very often be seen in language classes where students are meant to work on together on short tasks such as content questions from short articles and grammar exercises. Formal cooperative groups usually last longer than one class period; they can even last for a few weeks. These groups have a more specific purpose as they must complete a set task. Formal groups can be used in language teaching, e.g. with project based work or tasks centered around specific reading material.

Five basic elements considered in applying the Jigsaw as a cooperative learning strategy

According Slavin (1995, p. 122), cooperative learning situations are designed with five components namely; positive interdependence, individual accountability, promotes interactions, collaborative skills

and group processing. These components are what Smith, as quoted by Barkley, Cross & Major (1996, pp. 74-76) identified as the basic elements for successful cooperative learning groups.

a.   Positive interdependence

Positive interdependence is an outcome of positive interaction in which learners encourage and assist each other's efforts to learn. Learners mainly focus together on increasing their own achievement and of their group. Team members are obliged to rely on one another to achieve the goal. If any team member fails to do their part, everyone suffers the consequences (Johnson and Johnson, 1994). Positive interdependence enables learners to construct their own meaning building on previous knowledge and experience.

b.   Individual accountability

Subsequently to positive interdependent a variable solution mediating the effectiveness of cooperative learning is a sense of responsibility to the groups' goals. All students in a group are held accountable for doing their share of the work and for mastery of all of the material to be taught (Savage, Savage & Armstrong, 2012). This ensures that all members do their reasonable share of the work, which varies to see each learner contribute to the group's efforts, to increase their motivation to perform well. This means that learners are being responsible to completely share the task and help others to work in the group and this decreases the delaying their effort toward achieving the group's goals. In addition, individual got the chance to involve and increase creativity and gives opportunity for shaping leadership skills.

c.   Face-to-face promotive interaction

Group members provide one another with feedback, challenging reasoning and conclusion, and most importantly encouraging one another. Learners assist and support each other's efforts to achieve the goal. Further, they motivate each other to strive for mutual benefits by communicating accurate information through verbalization and become so confident about the worth of their ideas and information.

d.   Interpersonal and social skills

Students are encouraged and helped to develop and practice trust–building leadership, decision-making, communication and conflict

management skills. They are likely to encounter disagreements and problems with cooperating with each other in teamwork groups. This is the skill which is all about teamwork in cooperative learning and this is often directly emphasized and in the end assessed through task rubric.

e. Group processing

Team members set group goals, periodically assess what they are doing well as a team, and identify changes they will make to function more effectively in the future. This requires them to work cooperatively with others and group processing in which group members reflect on how well they are working together, interact appropriately with each other and how their effectiveness as a group may be improved.

Methodology

The research design for this study is qualitative through case study methodology (Creswell, 2013). It sought to investigate use and implementation of cooperative learning in the English second language classroom at the upper primary phase. 86 total participants, i.e. 82 learners and two English teachers were selected at a school in Oshana region, in Namibia. The participants of the study were purposefully chosen among the grades 7 who were learning English Second Language. The participants in this study actively participated in the teaching-learning using the Jigsaw method and were then observed. A double lesson was prepared to teach learners using the Jigsaw activity. The observation took place in the two English lessons during the school hours. I was a non-participant observer whereby I observed and recorded behaviors but did not interact or participate in the life of the setting under study (Gay et. al, 2011). Field notes were taken during observation noting the use of the cooperative learning strategy and the engagement of learners and the teachers. Second, I used an in-depth interview (Springer, 2010) with the two teachers and a focus group interview (Newby, 2010) with learners. The purpose of both interviews was to get an overall reflection on the use of jigsaw activity and the impact it has on the participants' learning and teaching of English. The interviews were audio taped recorded and transcribed. In this study a qualitative data analysis which consisted of data triangulation and organization data into major themes was used. These themes summarized and narrowed into smaller groups.

Description of the plan and implementation of the jigsaw activity

Together with the two English teachers, I organized and planned a jigsaw activity which integrates all four language skills, i.e. receptive skills –listening and reading and productive skills – speaking and writing. This was done because a language skill cannot be taught in isolation. As the focus of learning, the lesson targeted the speech writing and presentation. Teaching and learning media such as the computer and a projector, Pictures of some of the world leaders, Sheets of information about the world leaders and Cue cards were used. Learners were divided to work in home groups of 6 members each of, in which each member was assigned a task and they were also given the rules of the activity.

At introductory phase, the learners watched and listened to some of the video/audio clips extracted from the speeches made by several world leaders and the documentary made of those. In viewing and listening, they were expected to answer questions about the speeches in their individual capacities. The following steps were followed in implementing the jigsaw activity.

Step 1: Home group member's activity
Learners were divided into the home groups. Each home group member received a picture of a person who is found to be a leader (those that they have watched and discussed in the introductory phase) and a short story (biography or an extract based on the particular leader's work) to read on their own, and carry out a research about that person's personality, leadership skills, and qualities. Each group member was expected to write a short summary of the findings in the note form and prepare a report at the expert group. Learners were advised to take off the afternoon and go in the computer lab and search on Encarta 2013, and/or browse on www.google.com/ (...*the full names of the leader...*), and gather any information they can get about the leader's leadership roles. The following grid was used for self-assessment.

Group assessment criteria/grid
The group members were given the grid below (Figure 1), to assess how they have worked together to reach a consensus. They were given instructions to rate each item (5 points for every 'True' answer,

2 points for every 'Partly True' answer, and 0 points for 'Not True' answer). And then add up the points in each of the three columns to calculate a total out of 35 points for their group.

Evaluation of group	True (5)	Partly True (2)	Not true (0)
Each person was able to express his/her views			
Everyone listened when one person spoke			
Members of the group were willing to compromise			
People were polite and did not shout at one another			
The group devised some sort of system (e.g. voting/elimination/etc.) in order to reach a decision.			
The group worked well together and did not end up fighting.			
We managed to reach a consensus and all members were happy with the choices			
Points allocated			
TOTAL (OUT OF 35)			

Figure 1. Evaluation Grid

Step 2: Expert group activity
The home groups were divided into the expert groups where members with the same paper (same leader) will have to *join and discuss their research findings*. Here, they had to agree and disagree on the collected information in order to reach a consensus and then make proper notes that can be useful when they get back to their home groups.

Step 3: Report and mind mapping
The home groups will met again and this time each member presented or reported his/her findings to the rest of the group. After that the groups will form/write a mind map on *the most influential world's leaders*, deducing the information from the one discussed about each individual member in the expert groups.

Step 4: Writing a speech

Reflecting back on the work done during home and expert groups, learners were tasked to write a speech titled "I have a dream', using the suitable information discussed in their home groups.

As an example, they were given a short caption of Martin Luther King, classic speech, his famous, *I have a dream* in order to listen to his original voice and then the full written copy the speech, to read together and briefly discuss the main points that they could consider using when writing and presenting their group's speech reflecting on their own personal dreams and ambitions as well as the dreams and ambitions they have for their community. Learners were also give the assessment grid in order to familiarize themselves with the way the speech points will be allocated. The assessment grid below was used for the speech preparations and presentations.

Rating Code	Rating	Marks %
1	Outstanding achievement (You did exceptionally well)	80 – 100
2	Very good achievement (You did very well)	66 – 79
3	Moderate achievement (You did well)	50 – 65
4	Below average achievement (You have some difficulty with this)	36 – 49
5	Not achieved (You need help with this)	0 – 35

Assessment grid: Prepared Speech 'I have a dream'	1	2	3	4	5
1. The speech has been planned and well prepared.					
2. The speech has all the parts: Introduction, Body and Conclusion					
3. The speaker uses cue cards effectively					
4. Non-verbal cues are used appropriately:					
• Intonation, volume, pitch, emphasis and tempo					
• Articulation and projection					
• Emotion					
• Body language and gestures					
• Eye-contact with audience					
5. Some figures of speech have been used effectively					

6. Language has been used accurately: grammar and structure					
Points allocated					
TOTAL (OUT OF 50 X 2 = 100)					

Figure 2. Assessment grid: speech preparations and presentations

Findings and discussion

Reflection on the outcome of teaching and learning process through the use of the jigsaw activity

Strength

The design of the lesson allowed the teachers to teach many components of the syllabus, within one topic, i.e. viewing and responding, reading and summarizing, writing and presenting speech. All the four language skills (speaking, listening, reading and writing) were successfully integrated, including the sub-skill of viewing. Therefore, the flow of the activities went smoothly, by which all the learners' attention and full participation was enhanced through the collaborative tasks given.

Learners were working co-operatively and harmoniously together, no bullying or teasing was observed, and this is because each one had a task to execute. Their positive interdependence was enhanced, by the activities given, decision making process on who should do what... I believe this has encouraged them to use their individual accountability and take responsibilities entrusted to them. The audible voices and the pictures of the leaders served as an effective simulation for learners' keen interest to discover more about those leaders. This in return has enhanced their listening and investigating skills. The teachers were amazed to see that for the first time, learners were able to carry out the research on the internet; some even went to the public libraries and collected a variety of information about the leaders. The assessment rubrics allowed learners time to reflect and discuss how the group had operated. It was a great motivation for each learner to contribute. The cue card facilitated learners organizing skills of what to say and when to say it. These enhanced learners speaking skills and they helped develop learners' oral presentation skills. The learners were

really motivated by the leadership roles assigned to them, which also develop a sense of ownership which encourage them to lead one another successfully towards the achievement of one common goal.

Weaknesses
Dividing a big class of 42 learners into groups was not easy, because of the working space for learners to operate in home groups which is limited (due to the class size) and also managing and facilitating learners from one group to another was not easy for one teacher to handle. Therefore, it was a bit difficult for the teacher to monitor the learners' progress and move from one group to another, and thus it was not easier to pick up errors and help learners where possible. The activities were time consuming, it took the teachers three periods (120 minutes) to complete in addition to the research period given to the learners the previous day. This activity was set in formal cooperative groups (Johnson & Johnson 1994) and this means that time period of more than three period is considered normal for the task to be conducted because the groups do a series of specified tasks in order to complete the activity. Therefore, teachers have suggested to plan shorter activities, which will then be divided into shorter chunks of information that could be easily exploited by students in a normal double lesson. Some of the leaders i.e. Kwame Nkrumah and Mahatma Gandhi, were unknown to learners, and this led them to complain that it is hard for them to gather information about them. The teacher explained to learners that, they need to learn about those people that they do not know and it was the purpose of the task to create awareness of leaders, including those that have already passed on. Some reading text given by the teacher were too short, this led to learners complaining that it was not fair, the teacher explained to them about the advantages of getting longer text, that longer the text provides diverse information which can be helpful but shorter text will open way for further self-investigation and research. She also advised them to use other sources of information to collect information about those leaders, such as the internet and libraries.

The impact of the Jigsaw activity to the learners
Learners were working hard at both individual and group capacity. They were able to take the pictures of different leaders presented to them, read and scrutinize them to be able to interpret them to

their pairs. Learners had some positive disagreement over the task, and thus they were all willing to participate. From assessment of the learners' interview all agreed that they willingly participated in group activities. They stated that the method was very useful, and the process of teaching and learning was enjoyable. Besides, all participants have stressed that the activities improved their writing skill (as they have investigated and then had examples of written speech to guide their writing). They also has improved their speaking skills due to the speech clips they have listened to and the cue cards that aided the spoken language structures.

Learners have pointed out that they found this method interesting, effective, amazing, lively, and different from their normal/usual group activities. Good and positive communication skills between team members during discussion increase contribution of the task and the promotion of their interpersonal skills to succeed. These findings are supported by Jacob, Rottenberg, Patrick and Wheeler (1996) who states that cooperative learning creates the opportunity that stimulates the motivation for learners to learn. It was discovered that learners' accomplishment is based on the team work spirit after the completion Jigsaw method. The members of the group indicated they have all become friends with one another. As noted cooperative learning's principles such as positive interdependent, in which bonding and interaction among team members effectively encourage learners to achieve the expected and common goal (Johnson & Johnson, 2005) and social skills that includes handling disagreement and problems during teamwork were perceived to be expose within the execution of the task.

The impacts of cooperative learning to the English teachers
The teachers indicated that they do not employ cooperative learning strategy in ESL, but only arranged learners in groups by informing them to rotate, turn and face their neighbors. One of the main reason for not employing the cooperative methods is the class size and the large number of students in the class. The study indicates that this is a problem on the implementation of the principle because when I check in other grades, learners are more than 40 learners in a class. In this way teacher's responsibility should be to influence learners' motivation to learn by using cooperative learning strategies that can impact on their attitudes toward language learning (McCafferty, Jacobs & Iddings, 2006) otherwise she will not be capable to teach

it effectively. Cooperative strategies may even be used to improve minimizing the noise level which is mostly high during the group work as indicated in Massach (2002) since learners are all working hard in both their individual or group capacities in order to achieve learning.

Teachers indicated that providing ESL learners with graphic and sensory supports materials motivated them to succeed, increase achievement, sense of responsibility, and develop social skills, active participation in the classroom, which is a rare thing to find. These findings have been supported by Johnson and Johnson (2005) who indicated that learners can work as a team working on a common goal where individual learner is responsible for a task and for helping and communicate with their group members. As noted in theory of social constructivism people learn from one another, via observation, imitation and modeling (Bandura, 2011, as cited in McLeod, 2011), this underlines the true core of cooperative learning in which learners would be taking greater responsibility for their own learning.

Finally, Ghaith (2002) stated that learners learn much better when in working in together rather than in isolation. There seems to be an improvement in learners' social skills since it forces them to practice team and social group communication skills. Johnson and Johnson (2005) noted that learners in cooperation encourage and greatly support each other, take responsibility for their own and other's learning, in employ team connect social skills and asses the group's progress. Therefore, I concur with the participants and the literature that cooperative learning emphasized active participation, and individual accountability.

Conclusion
In this paper, I have come to understand why Aronson (1970) implemented the jigsaw method for the first time to a normal sized class of 26-33 students. This number of students in one can easily be divided in manageable groups. Unlike in our current situation in Namibia whereby learners are in class sizes of 40-50, and the classroom space is too small, that creates overcrowdings in the classroom. This paper recommend that the teacher should organize small pieces of information to be employed by learners in groups at a time and devise the activities in such a way that learners use the

information from their own surroundings as they are familiar with it. This research concludes that the jigsaw activity help learners develop self-confidence and a better understanding of the world in which they live. It develops learners' proficiency in English, in particular to enable learners to communicate effectively in speech and writing and to think critically using higher order thinking skills in exploring their life's roles and their future hopes and dreams. Significantly, when proper activities are designed in cooperative learning classroom learner has the potential in ensuring the higher self-efficacy that creates an opportunity to achieve and learn English.

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