The effects of Jigsaw as a Cooperative Technique in Improving Students' Reading Comprehension Ability

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Abstract. This paper presents a teaching innovation and research proposal that aims at examining the possible effects of implementing the Jigsaw strategy in guided reading lessons of the English as a foreign language subject. Cooperative learning is a teaching methodology that involves small groups of students working cooperatively as a team. Jigsaw is a cooperative learning strategy in which the materials are divided into as many pieces as members of the group, so, in order to obtain a high score, students depend on their teammates learning their part of the material. In a reading lesson using Jigsaw, the reading text is divided into pieces, each member of the group becomes an expert in their passage, once they have learnt their part, they do reciprocal teaching and, finally, students take a comprehension test individually. The expected results from this research proposal would provide enough evidence to support that Jigsaw helps students to improve their reading comprehension ability. These findings have some important pedagogical implications for foreign language teachers, who may decide to implement more cooperative strategies like Jigsaw in reading activities due to its positive effects on reading comprehension, as well as on attitudes, motivation, interpersonal skills or peer relations.

Key words: language teaching, English as a foreign language, cooperative learning, jigsaw strategy, reading comprehension

Resumen. En este documento se desarrolla una innovación docente y una propuesta de investigación que busca estudiar los posibles efectos de aplicar la técnica cooperativa del rompecabezas a las clases de lectura de la asignatura primera lengua extranjera (inglés). El aprendizaje cooperativo es una metodología de enseñanza en la que se divide a los estudiantes en pequeños grupos para que trabajen en equipo. A su vez, el rompecabezas es una estrategia de aprendizaje cooperativo que consiste en dividir el material en tantas partes como miembros de un mismo grupo, de manera que, si los estudiantes desean obtener buenas notas, deberán aprender su parte del material y dependerán de que sus compañeros lo aprendan también. En una clase de lectura en la que se utiliza el rompecabezas, el texto se divide en fragmentos, cada estudiante del grupo se especializa en su parte del texto, cuando se hayan aprendido su fragmento, se lo explican al resto de sus compañeros, y, finalmente, todos los estudiantes hacen un examen individualmente. Se espera que los resultados de esta propuesta de investigación confirmen que los estudiantes pueden mejorar su comprensión lectora gracias a experimentar el rompecabezas. Esta afirmación contiene importantes implicaciones para la enseñanza de idiomas, como que los profesores decidan implementar más estrategias cooperativas como el rompecabezas en el aula, debido a sus muchos efectos positivos en los estudiantes, como la mejora de su comprensión lectora, de sus actitudes en el aula, motivación por aprender y de las relaciones con sus compañeros.

Palabras clave: enseñanza de idiomas, inglés como lengua extranjera, aprendizaje cooperativo, técnica del rompecabezas, comprensión lectora

1. Introduction

The purpose of this master's degree final project is to present the importance of implementing Jigsaw as a cooperative learning technique into the guided reading lessons of the English as a foreign language subject, and how the implementation of Jigsaw can improve the students' reading comprehension ability. The paper is divided into five main sections: theoretical background, literature review, principles, research proposal and conclusions.

The first section offers and explanation of what cooperative learning, the Jigsaw strategy and the reading skill are. The literature review chapter provides the description and results of recent studies on the effects of Jigsaw in the students' reading comprehension ability. In the section of principles, I have presented the principles that are needed for any Jigsaw activity to be successful, as well as the methodological principles that can be applied in a Jigsaw activity. Moreover, the research proposal is the core section of this chapter, since it offers a detailed description of how to carry out a study on the effect of Jigsaw in improving the students' reading comprehension ability. This section includes the project rationale, the objectives and methodology of the lesson, the procedure to be followed in the classroom, a guide on how to collect data and evaluate the activity, and a discussion of the expected findings. Finally, in the last section, the conclusions to the whole paper are presented.

I decided to conduct a research on the effects of Jigsaw in the students' reading comprehension ability because, during my teaching practice, I observed some guided reading lessons and realized that students were not encouraged to read for comprehension. The main focus of these reading sessions was to learn vocabulary from the texts and literature read in class. I also noticed that the procedure of these lessons was mainly to read different passages out loud, so the students were only paying attention to the text when their turn was close. Therefore, I thought that implementing Jigsaw reading in these guided reading lessons would help to solve this problem and, mainly, would help the students to develop strategies to better comprehend texts in English. Unfortunately, since one of the principles for implementing the Jigsaw technique is face-to-face interaction, I could not carry out my research due to the COVID-19 situation. Therefore, in this paper, I will present a research proposal.

2. Theoretical Framework

In this section, relevant theory related to the subject matter of this final project will be introduced. As has been already stated above, the purpose of this paper is to review the effects of Jigsaw as a cooperative learning technique in the students' reading comprehension ability. Thus, cooperative learning, the Jigsaw strategy and the reading comprehension ability are the main theoretical concepts that will be presented in this chapter. Moreover, recent research studies on the effects of Jigsaw in reading comprehension and their findings will be also introduced in this theoretical framework. Finally, the last subsection of this chapter includes the main cooperative principles and methodological principles that teachers need to take into account for the design of Jigsaw activities.

2.1. Key Theoretical Concepts

2.1.1. Cooperative learning

There are three ways in which the teacher can structure and organize the classroom. These are a competitive system, an individualistic system and a cooperative system. In a competitive system, "students work against each other to achieve a goal that only one or a few students can attain […] which requires them to work faster and more accurately than their peers" (Johnson et al., 1994: 1). This is the system that has prevailed in education for so long and, if we observe the rewards, appraisals and mainly the students' behaviours in the classroom, we will probably discover that this system still predominates nowadays. For instance, at Spanish universities, there is a distinction called *matrícula de honor* which only the two or three best students of the class can obtain, even if there are more than three students with an outstanding grade. This kind of system promotes high competition and animosity between students, as well as conformism and loss of interest among the weaker students.

Learning individualistically involves that "students work by themselves to accomplish learning goals unrelated to those of the other students" (Johnson et al., 1994: 2). In this system, the goals of each student depend on their own level and abilities, so that each student "has a set of materials and works at his or her own speed, ignoring the progress of other students in the class" (Johnson et al., 1994: 2). Although this system does not foster competition, it teaches the students that they must only worry about their

own work and problems. So it may lead the students to adopt a self-centered attitude and to refuse to help their classmates if they need it.

On the other hand, in a cooperative system the students "are assigned to small groups and instructed to learn the assigned material and to make sure that the other members of the group learn the assigned material" (Johnson et al., 1994: 2). In this way, the students learn that they need each other's help and knowledge to learn and reach the objectives of the lesson. Therefore, cooperative learning promotes positive relationships between students, and it teaches the students to worry not only about their learning but also about their classmates' learning.

Moreover, Johnson, Johnson and Holubec (1994) state that many teachers have the wrong idea that cooperation can be promoted by simply designing an activity and assigning it to a group of students. He says that team projects can be done by only one or two responsible students of the group, while all the other students take credit for it. Johnson defends that not any activity that can be carried out in groups is necessarily cooperative. It is not cooperative to ask the students to complete an exercise while they sit around the same desk, and neither it is "having students do a task with instructions that those who finish first are to help the slower students" (Johnson et al., 1994: 8). In cooperative learning we as teachers must make sure that all the students in the small groups can and will contribute with knowledge and ideas to the activity or project. An activity is cooperative as long as students in the same group make sure that all the members of the group have learnt the assigned material. Thus, Slavin (2011: 344) defines cooperative learning as the "instructional methods in which teachers organize students into small groups, which then work together to help one another learn academic content".

Cooperative learning is based mainly on those theoretical perspectives that defend that social interaction leads to learning and the development of cognition. The main two theories that defend this idea are the theory of Cognitive Development by Piaget and the Social Development theory by Vygotsky (Nurbianta & Dahlia, 2018). Piaget's theory is "based on the premise that when individuals cooperate on the environment, sociocognitive conflict occurs that creates cognitive development" (Nurbianta & Dahlia, 2018: 73). On the other hand, according to Vygotsky (1978: 57), the functions "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)". Although Vygotsky only mentions the cultural development of

children, his theory also refers to cognitive development and learning in general. Therefore, Vygotsky's Social Development theory supports the idea that learning is mainly triggered by the students' interaction with their peers.

Johnson and Johnson (2014) analysed more than 600 studies on the different results obtained from the implementation of the three systems of learning (competitive, individualistic, cooperative) in terms of the students' achievement, attitudes and relations. It seems that cooperative learning produces better outcomes in all these three categories with respect to the other two systems of organization. Regarding accomplishment, "working together to achieve a common goal produces higher achievement and greater productivity than does working competitively or individualistically" (Johnson & Johnson, 2014: 843). Moreover, cooperation helped the students to reason better, to respond more quickly and efficiently to problems and provide solutions, and to apply what they have learned in the classroom to other aspects of their common lives.

Concerning attitudes, "working cooperatively with peers, and valuing cooperation, results in greater psychological health and higher self-esteem than does competing with peers or working independently" (Johnson & Johnson, 2014: 843). Since the students learned to respect their teammates, listen to their classmates' contributions, support each other, and mainly work together as a team, their self-esteem increased and they had a more positive view of their own capacities and knowledge after having experienced cooperation. According to Johnson and Johnson (2014: 843), "personal ego-strength, self-confidence, independence, and autonomy are all promoted by being involved in cooperative efforts with caring people, who are committed to each other's success and well-being".

Finally, with respect to the students' relationships with their peers, these improved considerably. Cooperation seems to work very well in heterogeneous groups, since it reduces animosity and prevents possible disputes between very different students. The improvement of the relations between peers also seems to have a positive effect on other aspects like less absenteeism, and more contentment among students due to the general achievement of their shared objectives. In addition, Johnson and Johnson (2014: 834) highlight that "cooperative learning has been demonstrated to be an essential prerequisite for successful ethnic integration and inclusion of handicapped peers".

2.1.2. Jigsaw strategy

Jigsaw is a Cooperative Learning Technique designed by Elliot Aronson and his students in 1971 in Austin, Texas. Jigsaw was created to mitigate the tension lived in Aronson's school due to the recent desegregation. Students belonging to different backgrounds and ethnic groups had to coexist in the classrooms and there was a growing feeling of mistrust and hostility among them. In order to avoid a worse situation, the school's headmaster asked Aronson whether he could find a solution for the problem with the help of his students. They observed that competitive learning was intensifying the aggravation of the situation. Therefore, they designed Jigsaw as a way to make the lessons more cooperative (Aronson, 2002: 216).

The Jigsaw strategy consists in dividing the whole class into small groups called "jigsaw groups". The teacher has previously divided the topic into pieces, as many pieces as members of the group. Each student of the group receives one piece of the topic, which they must research. Then, the students from each jigsaw group having the same topic meet in what they called "expert groups". In these groups they must share information, ideas, discuss and, eventually, become experts on their assigned topic. Later, the students will go back to their home groups or jigsaw groups to teach what they have learned in the expert groups to their teammates. Finally, the students take an exam on the whole topic to test whether they have learned from their teammates.

Since the whole purpose of implementing the Jigsaw strategy was to reduce discrimination and hostility among classmates, the teacher must organize the students in heterogenous groups, so that they realize that they need to cooperate with one another in order to learn, to complete the task and to earn a good grade. Aronson and his students observed that this strategy worked, because the results showed that students' aversion towards one another decreased, their relations improved and, in most cases, friendship replaced distrust.

The success of Jigsaw is noticeable, and it becomes evident when one reviews all the different versions of this technique that have been developed after its first implementation. Robert Slavin was the first educational researcher who redesigned Jigsaw. His version, Jigsaw II, was developed in the late 20th century and some changes were introduced. Students read the same passage instead of receiving different pieces from the same topic. Once they have read it, each member of the group is asked to become

an expert on one topic from the same reading. Then, they gather in expert groups to research on their topic and return to their home groups when finished. In the home/jigsaw groups, each student teaches the others about their topic. Finally, students must be tested individually on the whole content and the mean score of each small group is calculated so that the team with the highest score is rewarded (Slavin, 1991: 47).

Slavin's version of Jigsaw reinstates an element of competition, but instead of students competing against each other individually, they are supposed to do their best to make their team win. Therefore, there is a combination of both cooperation and competition in the process of learning. Moreover, it is easier for students to understand the whole topic because they do not receive a different piece of reading. Instead, they read the same extract, but are asked to research different topics from it.

In addition, Stahl (1994) designed another version of Jigsaw, Jigsaw III, by adding an element to Jigsaw II by Slavin. Stahl followed the same process that Slavin proposed, but instead of providing the students with a final test right after the reciprocal teaching stage, he added a brief review activity with the whole class before the test. This review previous to the individual exam was generally a whole class game like a quiz, a trivia game or any other game of questions and answers in which the whole class can participate. This new stage was introduced into the process to help the students internalize the information that they have learnt during Jigsaw, so that they can perform better in their final exam.

Holliday (1995) takes this internalization process to the next level by adding several quizzes on the material during the whole process of Jigsaw. He called this new version Jigsaw IV. Holliday conducted research on the worries of the students from experiencing Jigsaw, and he discovered that their main concern was that they were not sure whether the material that they taught to their classmates was correct. The students thought that they could misinterpret their piece of the material and, thus, they could be presenting their classmates with the wrong information. So in order to help the students understand better the topic of the material, Holliday added a brief introduction before the creation of the small groups. This introduction could be a brief lecture, a brainstorming activity, a discussion on the topic guided by the teacher, etc. Then, a quiz to test the students' knowledge on their topic was provided after the expert group stage, and another quiz again after the reciprocal teaching stage in the home groups. Finally, before the students take the exam on the whole material, the review activity proposed by Stahl is

also introduced in Jigsaw IV. Moreover, there is a last element added in Jigsaw IV which consists of a final lecture given by the teacher at the end of the whole process. By analysing the students' responses on both quizzes, the teacher determines those parts of the material that need clarification or further explanation due to the students' poor knowledge on certain topics.

The fifth version of Jigsaw was developed by Hedeen (2003), and is called Reverse Jigsaw. Timothy Hedeen observed a Jigsaw activity and decided to modify it in order to implement this strategy into a lesson where the students give their opinions and perspectives on different topics, instead of learning material and teaching it to their teammates. In this new version of Jigsaw, the home groups were formed by students who received different case studies, prompts or dilemmas. In these home groups, students, one by one, should read their questions or prompts to the rest of the group and they should discuss the topic by giving their different opinions. The students whose dilemma is being discussed must write down the different perspectives presented by their teammates. Once all the case studies have been presented and discussed, students from different groups with the same prompt meet in expert groups. Then, the experts must share their notes and they must determine which aspects of the topic raise more dispute, and with which aspects the majority of the class agreed. They should write a report with this information and, finally, a spokesperson from each group will present the report of the expert group to the whole class. Finally, the teacher may end the session by reviewing the topics, giving a brief lecture, or with some wrap-up activity that involves the participation of the whole class.

Lastly, the most recent version of Jigsaw is Subject Jigsaw, designed by Doymus (2007). This teacher decided to use cooperative strategies in his Chemistry lessons, more precisely, in a session on the three states of matter: gas, liquid and solid. Among the different cooperative learning techniques he chose Jigsaw, but he decided to introduce some changes into the process that would adjust better to the topic of the lesson. 18 students attended his class and he divided the group into three small groups of six people. Each group was in charge of learning and preparing a presentation about one of the three states of matter. After the presentations of all groups, four new groups were created. Group 1 was formed by two students from the solid group and two students from the gas group. Group 2 consisted of two students from the liquid group and two students from the solid group. Group 3 was formed by two members of the gas group and two members of

the liquid group. In group 4, two students from the solid group gathered with two members of the liquid group, and two students from the gas group. The reorganization of the teams appears better illustrated in the following figures:

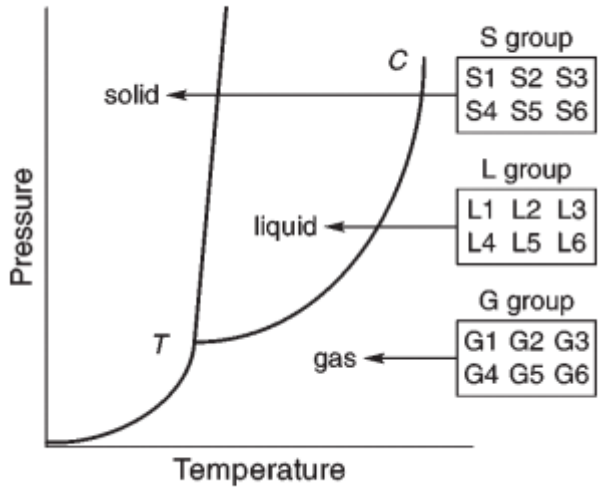

Figure 1. Organization of home groups in Subject Jigsaw activity.

(Doymus, 2007: 1858)

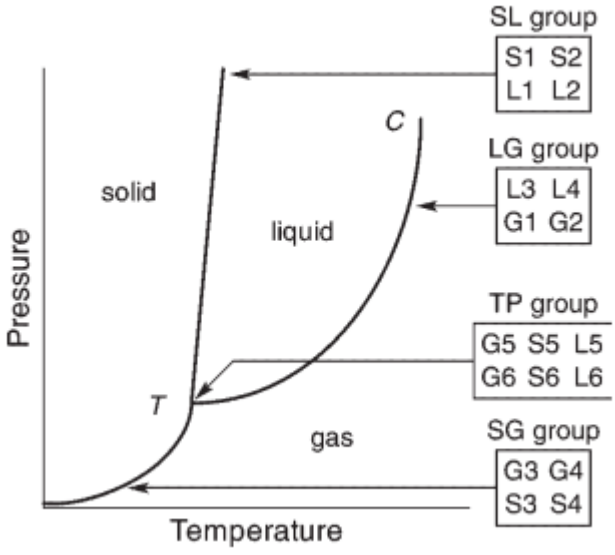

Figure 2. Organization of expert groups in Subject Jigsaw activity.

(Doymus, 2007: 1858)

In these new groups, students should collect data about the relations between the different states of matter that were presented in each group. For instance, students working with liquid and gas "prepared and presented material on evaporation and condensation—equilibrium pressure and heat where liquid and gas were together" (Doymus, 2007: 1858). After the oral presentations of all groups, all the students took an exam on the whole session individually.

2.1.3. Reading ability

Reading is one of the four basic skills of language together with listening, speaking and writing. Reading may be defined as "an 'interactive' process between a reader and a text [in which] the reader interacts dynamically with the text as he/she tries to elicit the meaning and where various kinds of knowledge are being used" (Alyousef, 2006: 64). Therefore, when we read, we try to decode the meaning of a text. As Alyousef states, there are several types of knowledge or skills involved in the process of reading. "In order to comprehend or assign meaning to a text, various linguistic, conceptual, reasoning, and metacognitive abilities must work efficiently and simultaneously within the reader" (Ahmed, 2015: 42). Ahmed (2015) divides these abilities into two groups: lower-level processing and higher-level processing.

In the lower-level processing group Ahmed includes "lexical access, syntactic parsing, semantic proposition formation, and working memory, [which help] the reader process written language from letters to words to meaning" (Ahmed, 2015: 42). While "in higher-level processing, the reader uses his schema, prior knowledge, and ability to make inferences about the meaning of the text" (Ahmed, 2015: 42). Moreover, she states an important difference between first language reading and second language reading regarding the use of lower and higher-level processing. This difference refers to the fact that "reading in one's second language relies more heavily on lower-level processing" (Ahmed, 2015: 42). This is because of the wider knowledge of its own vocabulary that a first language speaker has with respect to a second language speaker. Therefore, when we design reading activities, we must consider the level of our students before selecting the text, so that there is a low number of words in the text that the students do not know.

On the other hand, according to Paribakht and Wesche (1993: 9), "one major way in which second language learners acquire grammatical and other kinds of language knowledge is through exposure to and comprehension of the meaning of oral and written

texts in that language". The fact that foreign language students learn many linguistic aspects of the target language by practicing receptive skills like listening or reading demonstrates that the reading ability is very important for second language acquisition. In fact, some linguists and theorists like Stephen Krashen have affirmed that exposure to input leads to second language acquisition. Krashen (1989) strongly believed that input is sufficient for learning a second language, as long as it is comprehensible. Supporters of this viewpoint believed in the premise that "the mechanisms of L2 learning are essentially similar to the mechanisms of L1 learning: in order to build an L1 grammar, children only need to be exposed to the language" (Ortega, 2013: 60). Although input and comprehension are very important items in the process of learning a second language, exposure to input and, hence, reading comprehension is not the only aspect needed for second language acquisition. There are other necessary elements like output or interaction that are involved in second language learning.

Nevertheless, although being exposed to comprehensible input in the foreign language is not sufficient to learn that language, reading comprehension has a relevant role in second language learning and, in fact, the mastery of this ability has a positive effect on the student's general level of proficiency. AlKialbi conducted a study in 2015 "to address the issue of the role of reading comprehension in improving the proficiency level in the L2" (AlKialbi, 2015: 14). The participants of his study were 92 Arabic students of English with similar characteristics like their native language, their age, and the years they have been studying English. He provided the students with seven different tests on reading comprehension with multiple choice questions, which "intended to test various reading micro skills, such as scanning, understanding main ideas and drawing inferences" (AlKialbi, 2015: 15). In addition, the level of proficiency of the students was tested by providing the learners with a different exam on the four basic skills of language. The results obtained from the eight tests administered showed that reading comprehension is a very important skill involved in the process of second language learning. The findings indicated that "students who perform well on the reading sub-skills as well as the reading comprehension test (good readers) tend to attain higher levels of proficiency in the target language" (AlKialbi, 2015: 20). These findings have some implications in foreign language teaching. We as teachers should help our students to improve their reading comprehension ability, since it is a very important skill which

positively affects their achievement in all the other language skills and, in general, it has a positive effect on their level of proficiency.

2.2. Research studies on the effects of Jigsaw on reading comprehension

There are several studies on the effects of Jigsaw as a cooperative learning strategy in the students' reading comprehension achievement. All these studies aim to demonstrate whether cooperation in small groups and, more precisely, the use of Jigsaw in the reading classroom would help to improve the learners' reading comprehension ability with respect to the traditional method of individual, teacher-fronted reading classes. Although there are many studies on this subject going back decades, this review focuses on those carried out over the last decade, from 2010.

Meng (2010) investigated the effects of Jigsaw in guided reading lessons. Meng highlights the relevance of the reading skill in foreign language learning and complains about the fact that English education in China was failing to help the students improve their reading ability. She explains that some scholars have promoted the importance of focusing on speaking in the foreign language classroom and, thus, many teachers have dedicated plenty of time to training speaking, while reducing the amount of activities dedicated to reading comprehension. She also maintains that when reading is practiced in the classroom, most teachers prefer to address accuracy rather than comprehension. Therefore, she decided to investigate whether cooperative learning through the use of Jigsaw would improve the described situation. She also explains that she selected Jigsaw technique for her research because, in China, there have been some studies on cooperative learning, but there are almost no studies on the use of the Jigsaw strategy.

Meng postulates two hypotheses. She believes that Jigsaw will have a positive effect not only on the students' reading comprehension skill, but also on their willingness to learn English as well as their self-confidence and motivation. In order to test this hypothesis, she gathered 146 participants of 17 to 20 years old. They were students of Arts and belonged to two different classes of English. In addition, all of these students had been learning English for at least 6 years. The students in one class received reading instruction through the use of Jigsaw and, hence, they were called the experimental group. While the other class, the control group, performed reading individually with traditional methods. The process lasted a whole semester from March to July 2010.

In order to check the levels of proficiency of both groups before the experiment, the students completed a pre-test in March, which showed that the students in the control group had a higher level of reading than the students in the experimental group. On the other hand, a post-test was conducted in July, once the students took their guided reading lessons. The results of the post-test showed that the experimental group improved considerably, since they performed better than the students in the control group. Therefore, her study did demonstrate that students improved their reading comprehension ability through the use of Jigsaw as a cooperative technique.

Moreover, Meng explains the procedure that she followed both in the experimental group and in the control group. In Jigsaw, she added some changes with respect to the original Jigsaw by Elliot Aronson. When the students go back to the home group from the expert groups, they do reciprocal teaching as in the original Jigsaw, but then, they can read the whole material individually. Moreover, the teacher introduces some explanations for the better understanding of the text. On the other hand, in the control group, the students are asked to complete some pre-reading activities like analysing the title, and the teacher provides some information related to the topic of the text, so that the students have some background knowledge before reading it individually.

Kazemi (2012) performed a similar study in the University of Guilan (Iran). She started from the assumption that the cooperation involved in Jigsaw would allow the students to discuss together about the text and, eventually, decode the intentional message of the author. Kazemi intended to find out whether the Jigsaw technique would positively affect her students' reading comprehension ability, and, hence, she decided to focus on content, rather than on form.

The participants in her study were 38 students of around 18 years old at the University of Guilan. They were selected after being administered a TOEFL exam to test their level of English. These 38 students obtained a similar score which showed that their level of English was intermediate. In addition, their first language was Farsi and they were all students of English, although neither of them had ever been to any country where English is the main language.

The students were divided into an experimental group and a control group, and they all received 10 guided reading lessons. In the experimental group, the students experienced Jigsaw, while in the control group all students read the same text individually

and the class followed traditional reading methods, such as warm-up activities before the reading. However, in the experimental group, Kazemi introduced some new steps different from the original Jigsaw technique. Firstly, she gave a brief lecture on the topic and asked some questions related to the content of the text, in order to activate the students' background schemata on the topic. Then, in the home groups, although the students received a different passage from the text, they could read the title of the passages from their teammates, so that they had a more holistic perspective. As for the other steps of the process, she followed the original steps from Jigsaw. Finally, after the 10 sessions on reading, both groups were given the same post-test to examine their reading ability. The results of the test showed that Jigsaw improved the reading skill of the students in the experimental group, because this group obtained higher grades than the control group.

Kardaleska (2013) points out some benefits and weaknesses of the implementation of Jigsaw. She affirms that this technique is quite adaptable, since, although it is easier to be implemented into reading activities due to the division of the material, it can also be applied into many other different activities. Moreover, the author maintains that Jigsaw "contributes to the development of the higher order thinking skills, such as analysis, synthesis and evaluation as well as elements of argumentation and critical thinking" (Kardaleska, 2013: 55). In addition, not only does she claim that it is cognitively engaging, but she also affirms that Jigsaw contributes to the students' positive development of their social skills, such as the ability to create a good learning environment. Nevertheless, there is a negative aspect that the author notes about Jigsaw. Since the students must take control of their own learning, some students might be more responsible and might contribute with more ideas to the group than others, which would affect the whole process of Jigsaw. Therefore, she believes that it is very important that the teacher observes the activity and that he or she provides the students with different roles or instructions depending on how they perform in the groups.

Regarding her research, she does not specify the number of students that participated in the study. She implemented Jigsaw in the English course that she was teaching at the time in the Faculty of Political Sciences and International Relations, at the University of Skoplje (Republic of Macedonia). She divided the class into an experimental group, in which she applied Jigsaw in the reading lessons, and a control group, where she taught reading with traditional methods. The students did not take a pre-test before the experiment, because they all belonged to the same class and, therefore,

they had a similar level of proficiency in English. But they did complete the same exam after the sessions to test their reading comprehension.

She followed a procedure which was very similar to the steps described by Elliot Aronson, but she added the instructions that she considered necessary. Once the students were divided into home groups, they were given instructions to highlight the important information from their extract. They should also write down some notes to summarize the passage or create a conceptual diagram. Then, in the expert groups, they had to share and compare their writings to create a more complete summary of the text. Finally, they went back to their home groups to do reciprocal teaching. The test provided to both the experimental group and the control group was divided into two parts. Half the questions were explicit questions, while the other half were implicit. The experimental group obtained higher scores than the control group in both implicit and explicit questions, and the control group answered better the explicit questions than the implicit ones. This shows that, again, Jigsaw had a positive effect on the reading ability of those students that belonged to the experimental group.

Sabbah (2016) used that the use of Jigsaw in the English classes at the Community College of Qatar to solve the problem of the students' poor ability in reading comprehension. He affirms that when the students in the English course were presented with reading activities, they showed a general attitude of indifference and they participated less in these types of activities than in other activities, such as speaking. Sabbah aimed to find out whether cooperative activities like Jigsaw would "help CCQ instructors to engage students in reading activities and activate students' potentials to gain high achievement in reading" (Sabbah, 2016: 453).

He argues that there is enough evidence from other research to assert that cooperative activities in reading, like sharing different viewpoints of the same text, will lead the students to gain a more wholistic perspective of the text and comprehend it better. Therefore, his hypothesis defends that, if students are divided into an experimental group and a control group, the first group will improve considerably in their reading comprehension ability with respect to the latter group, thanks to the use of the Jigsaw technique. Nevertheless, he is aware of an important limitation in his specific study, which refers to the fact that only female students participated in the research, thus, his findings will not represent a class with mixed gender students.

The participants of the study were 26 female learners of English in the same grade at the Community College of Qatar. The class was divided into experimental group, where Jigsaw was implemented, and control group, where students read their texts individually. There were 16 students in the experimental class and 10 students in the control class. The period of the experiment lasted 8 weeks. He provided a pre-test before the study to demonstrate that the group was homogeneous in terms of level of proficiency, and their scores showed that their level of the English language was similar. However, the post-test provided after the reading lessons proved that Jigsaw helped the students improve their reading ability, since the students in the experimental group performed better than the students in the control group.

Hoerunnisa and Suherdi (2017) carried out the same study on Jigsaw and its effects on reading comprehension, but also, they decided to gather information about the students' opinions on the Jigsaw technique through a questionnaire. The participants of this study were 60 Indonesian students aged between 15 and 16 years old. The students were in the Seventh Grade of the Secondary Education, and they belonged to two different classes (30 students per class). Thus, one of these classes was the experimental group, while the other one was the control group. As in the studies mentioned above, the students in the control group read individually and with traditional methods, while learners in the experimental group received Jigsaw reading.

The researchers provided the students from both groups with a pre-test before the study to analyse the learners' level of proficiency. The exam showed that their abilities in reading were similar, since they all obtained very similar scores. But, on the contrary, the scores from the post-test conducted after the experiment showed that the students developed differently in both groups. The experimental group performed much better than the control group, which once again provides evidence that the implementation of Jigsaw in the guided reading lessons helps the students to improve their reading comprehension ability.

Regarding the questionnaire, Hoerunnisa and Suherdi wanted the students to describe their own experience with Jigsaw by pointing out what they considered to be positive aspects and the negative aspects of this cooperative activity. Among the positive aspects, the students mainly referred to the fact that this strategy was new to them, they thought it was different from what they usually did, and that it was interesting. In addition, they explained that they enjoyed working in groups because they could discuss the text

and they felt confident enough to talk in front of a small group, instead of the whole class. Moreover, they felt that they had an important role in their own learning, so they enjoyed active learning. Nevertheless, some students complained about the fact that teamwork is also exhausting, because it is not easy to concentrate when some students talk to each other during the activity and disrupt the proper functioning of the group. However, in general, most questionnaires revealed that the students shared a positive view on Jigsaw and working in small groups.

Finally, Nurbianta and Dahlia (2018) claim that a good level of reading comprehension is essential for language learning, because the students' success in the foreign language depends largely on their reading ability. "If their reading skill is poor, they are very likely to fail in their study or at least they will have difficulty in making progress" (Nurbianta & Dahlia, 2018: 71). Therefore, they decided to conduct research in an attempt to address the students' reading comprehension and try to help them improve their reading ability. They expected that the Jigsaw strategy would have a positive effect on the students' reading skill because it "promotes better learning, improves students motivation, and increases enjoyment of the learning experience" (Nurbianta & Dahlia, 2018: 71).

For their study, they gathered 30 Indonesian students of English in the Seventh Grade. Unlike the previous studies, they did not divide the class into an experimental and a control group. Instead, they implemented Jigsaw in the guided reading lessons and compared the results that the same students obtained in the pre-test with respect to the scores obtained in the post-test. They wanted to check whether Jigsaw would improve the students' reading comprehension ability. The final results confirmed that the Jigsaw technique positively affected these students' reading ability, since they all obtained higher scores in the post-test after the implementation of Jigsaw.

The studies reviewed in this section provide enough evidence to support the assertion that students perform better in reading comprehension when they can share opinions and discuss in small groups, than when they are told to read a whole text individually. It can be claimed, therefore, that these findings have some implications for foreign language teachers. Firstly, there is evidence that teachers focus too much on form and accuracy in the foreign language classroom and, although these are important aspects of language, we need to work on meaning, content and comprehension as well. Promoting reading for comprehension among our students is very important, because if they learn to

interpret and understand the meaning of any text, they will become more autonomous learners and they will gain enough confidence to search and learn about other topics that they may find more interesting.

Moreover, as has already been reported in some of the studies reviewed above, the Jigsaw technique can also increase the students' motivation towards learning and create positive attitudes in the classroom, since the students feel that they have an important and active role not only in their own learning, but also in the learning of their classmates. This feeling of importance also helps to increase their confidence and self-esteem, and the fact that they need each other to succeed helps to create a positive learning environment and improve peer relations. Nevertheless, these results can only be obtained if the teacher provides the students with very clear instructions of what they have to do in each stage of the process, and if the students are responsible enough to contribute to the groups, as well as to not disrupt the good functioning of the teams.

2.3. Pedagogical principles in designing Jigsaw activities

2.3.1. Jigsaw Principles

Before proceeding to explain my didactic proposal on Jigsaw, it is necessary to put forward some principles to be followed in the design of any Jigsaw activity. Johnson, Johnson and Holubec (1993: 8) set forth some principles for any group project or group activity to be cooperative: positive interdependence, face-to-face interaction, individual accountability, and interpersonal and group skills.

The first principle is called positive interdependence. In the traditional model of competitive learning, the students try to obtain the best results and, in order to achieve that, they depend on the other students' failure to reach this same goal. In contrast, positive interdependence implies that the students in the same group will not obtain the best results unless their teammates reach them as well. Also, the results of each group do not depend on the bad performance of the other groups. Moreover, the authors describe several ways to promote positive interdependence: goal interdependence, which consists in setting the same goal for the whole group; task interdependence by dividing the task into different parts; resource interdependence, which involves dividing the materials; role interdependence by giving the students different roles within the group; or reward interdependence, which consists in giving rewards like prizes or appraisals.

In addition, the authors maintain that face-to-face interaction and individual accountability are needed in cooperative learning. Since students in the same group depend on each other to achieve their goals, each student must be responsible, not only for their own learning, but also responsible for their teammates' learning, and this is what individual accountability refers to. In order for the students to ensure the learning of all members of the group, they must help each other and even use reciprocal teaching to interchange information, and face-to-face interaction facilitates this task.

The last principle that they set out is the promotion of interpersonal and small group skills. They argue that if students have no experience in cooperative learning, they will not possess the necessary social skills to successfully perform this type of task. Therefore, students need training in the social skills involved in cooperative work.

These principles have been proposed for the design of any small group cooperative activity. Although Jigsaw is a cooperative teaching method, some principles seem to better adjust to Jigsaw than other principles. Positive interdependence is clearly needed in the process of any Jigsaw activity. Among the different ways to create positive group interdependence, Jigsaw seems to use mainly resource interdependence, due to the fact that the materials are divided into as many pieces as members of the group. There are also some ways to reach positive interdependence that may be present in Jigsaw, depending on the version of Jigsaw that teachers decide to use. For instance, in Jigsaw II, Slavin (1991: 47) combines cooperative learning with an element of competition taken from traditional learning. The small groups compete between each other at the final stage of Jigsaw by combining their grades to obtain the average of each group, and the group with the best result receives an award. Therefore, in this version of the Jigsaw technique there is goal interdependence and reward interdependence.

Since the students will eventually complete a test on the whole topic and not only on the part of the material that they were given, individual accountability is another necessary element for Jigsaw to be successful. Students will not obtain good results in this test unless all the members of the group are responsible enough to learn their part of the material. In Jigsaw, if only one student of the group fails to learn their part, all the other students will be affected, and they will probably fail or obtain a lower score in the final test.

Regarding face-to-face interaction, although it may have an important role in Jigsaw, mainly in the expert groups stage and the reciprocal teaching stage, this principle may not be absolutely necessary in order for Jigsaw to work. Nevertheless, although it is possible to design a Jigsaw activity in which the students do not interact face-to-face, I think this type of activity would be more difficult for the teacher to create and for the students to understand and perform it. It depends largely on the resources of each educational institution. In my experience, I have observed that most public high schools are not prepared for online teaching because some students do not have the necessary resources for this, and the school cannot provide these electronic devices either. Even under these circumstances, it is possible to perform a Jigsaw activity without immediate face-to-face interaction, but the procedure would be different: it would take more time for the students to perform it (it would take days or even weeks, instead of one session, which is the period of time that Jigsaw was created for) and they should receive very clear written instructions.

In addition, I think that interpersonal and social skills are a must in any Jigsaw activity. We want that our students learn to create a safe working environment in which they respect each other, they listen to each other equally, they can share their ideas, they provide mutual support, and, mainly, an environment where they can communicate effectively. All these aspects mentioned are social and interpersonal skills and they are needed for any Jigsaw activity to be successful.

On the other hand, Kagan (1994) proposes similar principles for cooperative learning in small group activities. He includes the principles of positive interdependence, individual accountability, and social skills, which have already been mentioned above. But he includes three more principles which I think that are also relevant in the design of a Jigsaw activity. The first principle is heterogeneous groups, and it refers to the fact that the small groups should be as heterogeneous as possible. The groups should consist of very diverse people: there should be students of different genders, students with different abilities and different levels of proficiency, students from different cultural backgrounds, etc. Considering that Elliot Aronson created Jigsaw with the purpose of mitigating the tension between the students due to their differences, I think that we should take this principle of heterogeneous groups into account in the design of our Jigsaw activity.

Secondly, Kagan affirms that in a cooperative activity, teachers must ensure equal participation. As we already know, in Jigsaw, all the students must participate to learn their material well in the expert group, so that they can provide an explanation of their part later on when they come back to their home groups. Therefore, all the students must have the opportunity to participate in their groups. In order to ensure equal participation, we can tell the students that, in each group, they must respect turns to speak and discuss about the passage, and that all students should have the same amount of time to speak in their turn. Thus, we can give the students different roles like time manager or moderator.

Thirdly, the last principle is quite similar to the previous principle of equal participation. When we carry out cooperative activities like Jigsaw in which small groups work simultaneously, several students from different groups will be speaking and interacting at the same time. This might cause some students to lose concentration or it may affect students with educational needs like attention deficit disorder, in case we have learners with these characteristics in our class. Consequently, in order to reduce noise and distraction, we must guarantee that only one student per group speaks at a time.

Finally, it is important to mention another principle that applies to Jigsaw. Although this principle is not taken from the cooperative principles proposed by Johnson, Johnson and Holubec (1993) or from Kagan (1994), it refers to a common aspect that emerges from the research reviewed above. This principle could be called teacher control. Even though the students are responsible for their own learning and they work autonomously in small groups, the teacher must control the situation at any time. That is, the teacher must set forth very clear instructions to be followed both in the expert groups and in the home groups, so that the students focus on what it is important in each stage. In order to check whether the students actually follow those guidelines, the teacher will observe the activities and listen to the discussions and conversations that the students have in the small groups. If the students are doing something which is not relevant and does not correspond to their current stage, the teacher will interrupt their conversation and will guide the students towards the appropriate activity that they should be doing.

2.3.2. Methodological Principles

Having presented these principles for Jigsaw, we need to look for methodological principles that would allow us to transform this technique into a teaching methodology.

That is, we need to put Jigsaw principles into practice and, for that, it is necessary to find the most suitable teaching methodologies and curriculum design principles that fit into this kind of cooperative strategy. Therefore, I have reviewed the chapter on principles from the book *Language curriculum design* by Macalister and Nation (2019). Although these principles were proposed for the design of language curriculum and, hence, they are quite general and refer to the whole course, I have found that some of these principles refer to aspects that may be involved not only in a whole course, but also in a lesson or even in individual activities. As we will see, Macalister and Nation even pose specific examples for the application of some methodological principles that could be implemented into reading activities.

The authors claim that all principles mentioned in the chapter were proposed on the basis of the theory and research on language teaching and learning. Therefore, these are not unfounded and arbitrary principles that have no support, but rather they have been carefully studied. In addition, the authors classify these principles into three groups: content and sequencing, format and presentation, and monitoring and assessment. The first group refers to the subject matter of study and the distribution of this content throughout the course. The second group consists of the form of that content and the way in which it is presented in the classroom. Finally, the third group refers to what should be assessed in the language subject and how it should be assessed.

Within the group of content and sequencing I should mention three principles that adjust to cooperative learning and, more precisely, to the Jigsaw technique. These are autonomous learning strategies, language in context, and the use of previous knowledge. Macalister and Nation claim that not only should we teach our students the linguistic features of a language, but we should also teach them how to supervise their own learning and some strategies for language learning, so that they can use these methods and strategies autonomously in the future. Among the examples of autonomy learning strategies that they mention, they include predicting, looking for keywords, and deducing the meaning of the words from context, which are useful strategies in reading activities. Secondly, the principle of language in context refers to the way in which teachers should ensure that the target language of any lesson or activity must be connected to both previous and following sessions. Thus, the items that the students learn in the current lesson must be useful for them in the following sessions. The third principle within the group of content and sequencing is quite similar to the previous one, since it mainly

implies that the activities and lessons that we design should allow our students to use their previous knowledge of the language. For instance, if we organize a debate with advanced students of English about some controversial issue, the students will be able to participate using the expressions of opinion that they already know due to their level of proficiency. That is, the language objectives of the activity must be reachable for the level of the students.

On the other hand, within the group of format and presentation, there are four principles that can be considered more suitable to be applied in a Jigsaw activity. The most important one among these four principles is motivation. If we want our students to be willing to participate in a cooperative activity, we need to motivate these students. There are several ways of motivating the learners, but the authors claim that intrinsic motivation is the best option. Intrinsic motivation refers to the "influences that originate from within a person which cause a person to act or learn" (Bomia et. al, 1997: 3), rather than from external influences like rewards or appraisals (extrinsic motivation). Therefore, Macalister and Nation propose some ways to motivate the students to learn the language that may be used in a Jigsaw activity, such as trying to select interesting materials by conducting "surveys of wants and attitudes to gather information", or designing "tasks with clear outcomes and with a high possibility of the learners completing them successfully" (Macalister & Nation, 2019: 50-51). Secondly, comprehensible input is another required principle in our reading activity. The concept of comprehensible input was first proposed by Stephen Krashen and it is "that bit of language that is heard/read and that is slightly ahead of a learner's current state of grammatical knowledge" (Gass & Selinker, 2008: 309). Therefore, we must look for a text taking into account the level of the students for which it is aimed. The text should not be too easy for them, but should be a little more difficult than the students' current level of English. Thirdly, the authors defend that our activities and lessons should be always focused on improving the fluency of the learners, not only their fluency in production, but also in reception. They maintain that "in reading material this means that at least 85 per cent of the words […] should be very familiar to the learners" (Macalister & Nation, 2019: 55). Finally, the fourth and last principle of this group is that "learners should process the items to be learned as deeply and as thoughtfully as possible" (Macalister & Nation, 2019: 60), which is based on Craik and Lockhart's Levels of Processing Hypothesis. This principle basically establishes that a lesson should not consist of just simple exercises like matching columns or fillings gaps,

but it should contain activities to develop the students' higher order skills, like solving problems or analysing. The authors even pose a specific example of this principle for a reading activity:

> Before the learners read a text the teacher shows them the first sentence of each paragraph. The learners look at each sentence and discuss it in groups in order to anticipate what will come next in the paragraph. After guessing, they then read the paragraph. Reading thus becomes a more thoughtful and informed activity.
>
> (Macalister & Nation, 2019: 61)

Finally, within the group of monitoring and assessment, it is necessary to follow the principle of feedback in Jigsaw activities. The authors affirm that teachers should provide feedback considering the needs of their students and the ways in which we can help them improve their use of the foreign language. Therefore, feedback should never be used to reprehend the learners. The authors mention three kinds of feedback: self-feedback, peer-feedback and feedback provided by the teacher. All three types of feedback can be used in Jigsaw, but it can be argued that peer-feedback is more relevant, because Jigsaw is a cooperative activity in which the students must learn from one another and they need each other to succeed. For this same reason, process-oriented feedback is likely to be more important than product-oriented feedback, although the product will probably show whether the students worked together effectively during the process.

3. Didactic innovation and research proposal

3.1. Problem statement / Project rationale

This section presents an innovational design implementing Jigsaw as a cooperative technique in the guided reading lessons and a plan for carrying out a research study into its effectiveness. As I have already mentioned in the introductory section of this paper, I decided to use the Jigsaw technique in the reading sessions in an attempt to help the students improve their reading comprehension ability. In those classes that I could attend at the IES Conde de Orgaz during the teaching practice period in the first semester, I observed that the dynamics followed in the guided reading lessons were failing both to

motivate the students and to help them develop strategies to improve their reading comprehension. The procedure was mainly to read different passages out loud, so the students were only paying attention to the text when their turn was close. Once the students read their piece of the text, they lost contact with the class again.

Moreover, the main focus of these sessions was not that students read for comprehension and to understand the principal ideas of the text, but the focus was that the students learned the new vocabulary from the texts and literature read in class. Although I think that reading presents a good opportunity to work with vocabulary, I also believe that if teachers use most of the reading sessions to present new vocabulary, the students will not be encouraged to try to understand the meaning of the text. They will rather look for those words in the text that they do not know and their respective meanings, while ignoring the text as a whole and its message.

Nevertheless, the reading sessions were not always used to work with vocabulary. There were lessons in which the students had to read a passage from their textbook and, eventually, take the corresponding comprehension test. As I have explained, the students read out loud in turns. Before taking the test, the teacher asked them some questions to check whether they understood the reading. However, I observed that only a few students with a high level of proficiency answered the questions of the teacher because most students just paid attention to the paragraph that they were told to read. For this reason, I thought that it was necessary to implement some other strategy different from reading out loud in the guided reading lessons, in order to solve this problematic situation in which most students did not understand the content of the reading and, eventually, most of them found it difficult to answer to the comprehension questions. I do not consider reading out loud to be a good strategy because each student has their own pace of reading, and it forces them to follow a different pace.

I came to the conclusion that cooperative strategies may help to solve this problem. Dividing the class into small groups seems to be a good choice for working on reading comprehension, because the students can discuss about the main ideas of the text, and these discussions may help them to better understand the meaning of the reading. I decided to use Jigsaw because it allows the students to analyse the text piece by piece, since this technique consists in dividing the material into as many pieces as members of each group. I think that this will facilitate the task of reading comprehension, considering

that the students must work with only one passage, and they will do it groups, so they decode the extract with the help of the other experts in their group. More precisely I decided to use the original version of Jigsaw by Elliot Aronson because the authors of the other versions included more steps in the process which I do not think that are necessary in a session for reading comprehension. Moreover, since the students at my internship school had not experienced Jigsaw before, I thought that the original version was more suitable for students who have not been trained to work in cooperative activities like Jigsaw due to the clarity of its steps.

The original idea for this master's degree final project was to use Jigsaw in the classroom with my students during my teaching practice. Unfortunately, due to the situation of confinement caused by the COVID-19 crisis, I was not able to conduct my research on the effect of Jigsaw in improving the students' reading comprehension ability. Therefore, in this section, I am going to present a detailed didactic proposal on how to implement Jigsaw as a cooperative technique into the guided reading lessons based on the theory and literature reviewed, as well as on the cooperative and methodological principles introduced in the previous section.

3.2. Contextualization

The target audience of this educational innovation are 1st of Bachillerato students with an intermediate to upper intermediate level of proficiency in English, since the materials proposed for these guided reading lessons correspond to that level of the language. These learners attend a bilingual school in which students of Bachillerato are divided into two groups for their English as a Foreign Language classes: the advanced group and the ordinary group. This proposal is aimed at the second group of students, who came from the modalities of Science and Technology Social Sciences. Nevertheless, the procedure and assessment for reading comprehension that I am going to present in this paper can be also applied with students in different years, groups and with different levels, as long as the materials are replaced with other readings and tests that are suitable for the level of the students.

In order to test whether the materials are appropriate for the level of the learners, it is necessary to use a tool to measure the readability of the text. For my proposal, I used the online readability test tool WebFX (https://www.webfx.com/tools/read-able/), which

indicates aspects like the grade level of the text or the average age that the reader should have to understand the text, as shown in Annex 1. I used WebFX tool because it is free and it can be used online, but any other tool that measures readability can be used to ensure that the texts provided in the reading lessons are appropriate for our students. We can even choose to use the texts that already appear in the textbook of the English course. However, I decided not to use the readings in my students' textbooks because there were just a few questions after the text, and most of them only referred to the meaning of some underlined words, thus, comprehension was not properly addressed in the textbook.

3.3. Objectives and methodology

Since the main topic of the research proposal based on this innovation is to observe the effects of Jigsaw as a cooperative learning strategy on the students' reading comprehension ability, the main objective of the guided reading lessons that I am going to describe is to find out whether cooperation in the classroom through the use of the Jigsaw technique will improve the students' reading comprehension ability in the target language. However, there are also some other objectives which are more pedagogical rather than research-oriented, and which refer directly to the students. These learning objectives are the following:

- To interpret, comprehend and understand the meaning of different types of texts in the target language.
- To develop reading strategies that will help the students to become autonomous readers of English (e.g. looking for keywords).
- To learn how to make hypotheses and predict the message of a text by reading the first lines.
- To learn how to apply their previous knowledge of English in order to better understand the text (e.g. guessing the meaning of words from context)
- To cooperate effectively with their classmates in order to reach a shared goal.
- To learn how to manage teamwork and solve unexpected problems.
- To learn how to contribute to the group project in discussions with different perspectives and useful ideas, while respecting the ideas of others.
- To take responsibility for the work that they must do in the task.

In addition, the methodology used in this proposal is cooperative and, as explained in the theoretical background chapter of this paper, it consists in dividing the students into small groups and assigning each group a task, which can be completed only if all the students participate and work together to do the activity.

3.4. Procedure

Although the aim of the research study was to find out whether the Jigsaw strategy helps students to improve their reading comprehension ability, in the current circumstances it was not possible to divide the students into an experimental group and a control group as in most studies presented in the literature review section. Instead, the intervention follows a similar procedure to that which Nurbianta and Dahlia (2019) describe in their study. The class will first receive a guided reading lesson using traditional methods in which all the students read the whole test individually and take a comprehension test. Then, the same students will take part in a different reading session in which Jigsaw as a cooperative learning strategy will be implemented. After the students have read the texts using Jigsaw, they will also complete a test for comprehension individually. The first assessment will serve as a pre-test and the second one will be the post-test. The results of both tests will be compared in order to find out whether the implementation of Jigsaw improved the students' reading comprehension ability.

The procedure to be used in the traditional guided reading lesson is as follows. The texts used in this lesson and in the Jigsaw reading lesson were tested for readability using WebFX, in order to ensure that both texts were similar in terms of reading difficulty. The results obtained by the test tool confirmed that the texts were similar, since the tool indicated that both texts were aimed at students with the same grade level and average age.

The lesson is structured in three parts: pre-reading, while-reading and post-reading. In the pre-reading stage, the students are presented with some warm-up activities before they read the whole text individually. According to Williams (1987: 2), the pre-reading activities have mainly three objectives: "(i) to introduce and arouse interest in the topic; (ii) to motivate students by providing reasons for reading or helping them to specify their own reasons; (iii) to provide when necessary some language preparation for the text". The main objective of the pre-reading activities in this intervention is to activate

the students' background knowledge on the topic of the text, with the aim of getting the students to start thinking about aspects related to the reading. The text of this lesson deals with the topic of positive and negative feedback in the workplace, as it appears in Annex 2. Therefore, the first warm-up activity to start the lesson is a brainstorming of the meaning of feedback. The teacher asks the students what feedback means and encourage them to try to provide a definition for feedback in their own words. The keywords related to the meaning of the word that the students mention should be written down on the board. Once the students have made their contributions, the teacher will ask the whole class to compose a proper definition using the keywords that appear on the board. The final version of this definition will be added to the board and, finally, the teacher will show on the projector some definitions of feedback from dictionaries, so that the students can compare their own definition with the official ones.

Since the text deals with both positive and negative feedback, the second pre-reading activity will be to ask the students to imagine that they are in charge of a team project and that they must give their teammates positive and negative feedback regarding their work or the final results. In pairs, the students should write down three sentences for negative feedback and three sentences for positive feedback. In order for the students to complete this task, we can design a worksheet as illustrated in Annex 6. When the students finish this exercise, the teacher can ask for volunteers to read their sentences and comment on the way in which feedback is provided, so that they start reflecting on politeness, respect, appraisals, etc. Finally, the third and last pre-reading activity addresses that vocabulary from the text that the students may find difficult. It is a matching exercise which consists in looking for the possible definitions to the vocabulary presented. The students can complete this exercise in pairs again or do it alone if they prefer. Once they have matched the columns, the exercise will be corrected out loud and the teacher will provide the right answers. This exercise was designed by British Council (2019) as a pre-reading activity for the text and it appears in Annex 7.

Finally, the students will be asked to read the text individually and they will have the matching exercise with them in case they need to consult the meaning of some words. When all the students have finished reading the text, they will take a comprehension test (Annex 3), which corresponds to the final post-reading activity of this traditional guided reading lesson.

In the second reading lesson, Jigsaw is introduced as a cooperative learning technique. But first, if we are working with students who have not experienced cooperative activities and Jigsaw before, it is important to teach the students the dynamics of this type of activity. Thus, the students need to receive some training on Jigsaw. During the training period the Jigsaw strategy is used in the classroom at least one day per week, during four weeks before the guided reading lesson. This starts with shorter and simpler Jigsaw activities. For instance, in the first week, the students could practice a Jigsaw activity on vocabulary. The teacher should explain the steps of Jigsaw and ensure that all the students understand the procedure. Then, each student in the home group should be provided with a different word from the vocabulary of the unit. This word should be unknown to the students. In the expert group, they will receive a sheet with five sentences in which their word is used. The students then should hypothesize about the meaning of the word by paying attention to the other words in the sentence and trying to guess the meaning of the target word from context.

After they have discussed the possible meaning of their word, together they should write down a definition. The teacher should guide the students and make sure that all members of the expert group have understood the meaning of the word, because they will later provide their definitions to their home groups. Once they compose the definition, they should go back to their home groups to teach the other students the meaning of their words. During each student's explanation, the other members of the group should write down all the words and their definitions. Then, the students will have some time to read their notes and, finally, they will complete a test in which they are asked to write a brief essay using all the words. They will hand in their essays at the end of the lesson, so that the teacher can correct them and find out whether the students understood the meaning of the words. In the following weeks of this training period, the amount of material used in the Jigsaw activity can be increased, so that the students start working with words, then sentences, paragraphs and, finally, they can practice a reading comprehension lesson using Jigsaw.

Having finished this training, the guided reading lesson using the Jigsaw strategy can be carried out. As in the individual reading session, the lesson starts with some warm-up activities to activate the students' background schemata. The text of this lesson deals with spiders: their characteristics, their habitats and arachnophobia. Therefore, we should introduce the topic of spiders in the pre-reading activity. This warm-up activity consists

in a brainstorming activity in which the students are asked to write down 10 words related to spiders in groups of three. Later on, the groups will share their words with the rest of the class and the teacher will write down the words on the board.

For this lesson, I have selected the text in Annex 4 due to the variety of topics about spiders addressed, which makes the division of the text quite easy. Since, originally, I was going to implement the Jigsaw technique with a class of 30 students, I divided the text into five parts in order to create six home groups. Each passage corresponds to a different paragraph of the text because each paragraph deals with a different characteristic of spiders: their habitat, web, venom, etc. In addition, the group of students should be heterogeneous in terms of abilities, levels of English, gender and cultural backgrounds. Thus, the teacher should analyse the students' profile and create the groups before the lesson. Once the home groups are created, each student will receive a different paragraph from the text. Students with the same paragraph will gather in expert groups. Each expert group will receive some instructions, so that they receive guidance on how to work with their passages. The students should read the passage individually and then, follow these instructions. The first instruction is to discuss together the information that they have retained after the first reading. Secondly, they should read again more carefully and underline those sentences or words that they consider to be more important and relevant to the main topic of the paragraph. They should share these sentences with their teammates and discuss why they considered that information important. Then, together they should write down a summary of the paragraph in their own words regarding only the underlined information. Finally, in turns, they should practice the presentation of this summary. In order for the students to follow all these steps, the teacher may prepare a sheet with a list of all the instructions.

Once all the expert groups have completed the steps indicated in the sheet, the students will return to their home groups to do reciprocal teaching. The students will present the information from their passages to the other members of the group, and these can take notes and ask questions at the end of each presentation in order to clarify the possible doubts. When all the students have presented, they will be provided with a comprehension test addressing the whole topic of the text, which appears in Annex 5.

3.5. Data collection

The data collected from a study might be quantitative or qualitative. Depending on the nature of the study, the researcher will collect quantitative data, qualitative data, or even both types of data. Kabir (2016: 203) defines quantitative data as "numerical in nature and can be mathematically computed". He also explains that "quantitative approaches address the 'what' of the program. […] They produce results that are easy to summarize, compare, and generalize" (Kabir, 2016: 203). On the other hand, "qualitative data are mostly non-numerical and usually descriptive or nominal in nature" (Kabir, 2016: 202). Moreover, the author affirms that qualitative approaches deal with "the 'how' and 'why' of a program […] by providing information useful to understand the processes behind observed results" (Kabir, 2016: 202).

The data that would be collected from this study on the implementation of Jigsaw into the guided reading lessons is both quantitative and qualitative. The quantitative data would correspond to the final numerical grades that the students obtain from the comprehension tests, while the qualitative data would correspond to the observations of the students' actions, attitudes and relations during the process of completing the Jigsaw activity. In order to gather the quantitative data of the study, the scores from the students' reading comprehension tests must be computed. The easiest way to obtain an objective score would be to assign one point to each correct answer and zero points to each incorrect answer. Having added up all the points, we can use a simple calculation to obtain a grade out of ten. Once we have all the students' scores, both from the pre-test provided in the traditional reading lesson and from the post-test provided in the reading lesson with Jigsaw, we can calculate the mean score of the group in the pre-test and the mean score of the same students in the post-test. In a quasi-experimental study, we could compare the mean scores and provide a discussion on the results. However, if we need statistically significant results for our research, we should calculate *p*-value. McLeod explains what a null hypothesis is and how to calculate *p*-value. "The null hypothesis states that there is no relationship between the two variables being studied […]. It states the results are due to chance and are not significant in terms of supporting the idea being investigated" (McLeod, 2019). Therefore, in order to test this null hypothesis, we must obtain the *p*-value from the scores of the students in the comprehension tests. The *p*-value indicates whether the results of the study are statistically significant and, thus, they reject the null

hypothesis. On the contrary, if the results are not statistically significant, it means that our study does not show that Jigsaw improves the students' reading comprehension ability. According to McLeod (2019), "a *p*-value less than 0.05 (typically ≤ 0.05) is statistically significant [while] a *p*-value higher than 0.05 (> 0.05) is not statistically significant and indicates strong evidence for the null hypothesis".

Regarding qualitative data, Friedman (2012: 186) states that "the most common methods of qualitative data collection in SLA research include observations, audio or video recordings, and various form of data elicitation, such as interviews, open-ended questionnaires, and journals". Among these methods mentioned by Friedman, audio and video recordings seem to be the most direct ones. Nevertheless, in this case, collecting data by recording a Jigsaw activity may not be a good choice. In cooperative activities like Jigsaw in which students are divided into small groups, the students work in these groups simultaneously and, therefore, several students discuss and interact at the same time. Thus, it is not possible to capture all these simultaneous conversations in an audio or video recording.

The qualitative data collection method used in the study is observation. There are two main types of observer, the participant observer and the direct observer. Kawulich (2012) explains the difference between participant observation and direct observation. The former refers to "being in the setting under study as both observer and participant", while the latter involves "observing without interacting with the objects or people under study in the setting (Kawulich, 2012: 151). In a classroom setting, a participant observer could be both the teacher and the students, whereas a direct observer could be a third individual who does not participate in any aspect of the class.

Moreover, Kawulich distinguishes between two types of observation methods to collect data: field notes and observation guides. Field notes consist in writing down "everything that you see, paying particular attention to those aspects of the social setting that will provide information related to your topic under study" (Kawulich, 2012: 157). Observation guides consist of tables of content with different classifications that "help you collect data in a more organized fashion" (Kawulich, 2012: 158). There are several types of observation guides like time intervals, event sampling, checklists, rating scales and frequency counts. Among these types of observation guides, the checklist is the one that best suits this particular research which involves observing a Jigsaw classroom.

Checklists involve "listing possible activities you may observe in a particular setting" (Kawulich, 2012: 160). Finally, another written method to collect qualitative data is the questionnaire. "*Questionnaires* generally consist of open- or closed-ended questions or items that measure facts, attitudes, or values" (McClure, 2002: 17). Questionnaires are a very useful method to collect data from the students involved in the research. They allow the researcher to gather information about the students' opinions about the activities, their attitudes, aspects of the Jigsaw technique that they considered more important or that they enjoyed more, etc.

Among the methods of qualitative data collection mentioned above, the most useful ones for gathering information about the Jigsaw classroom are field notes, since we can take notes of everything we observe and consult this information later; checklists, because they are very visual documents in which we can observe those elements that successfully introduced in the activity as well as the missing elements; and questionnaires, in order to collect information directly from the subjects of the study. These methods of data collection can be designed purposely to observe our particular activity, or we may use tools that have been already designed. If you choose to design your own observation guides, you will need to validate these tools later. A method of data collection like a questionnaire can be validated either by an expert on the topic of the study or by conducting a pilot study. If, on the contrary, you decide to use tools that have been already designed and validated, such as the example of a checklist in Annex 8 and a questionnaire in Annex 9, both addressing the implementation of cooperative activities in the classroom.

Moreover, it is more recommendable to have a direct observer than a participant observer because, if the teacher is both the instructor of the lesson and the researcher, he or she may be biased when taking notes; and if the students are the participant observers, they must look out for both the activity and observe their teammates and the process, which may affect their own participation in the study as subjects. Therefore, there is a strong case the best option is bringing a third person to the class to act as a direct observer. Nevertheless, if we cannot count on a third individual to observe the class, the teacher should do it.

3.6. Assessment and evaluation

3.6.1. How to assess the students' work

As has been mentioned in the methodological principles chapter of this paper, it is necessary to assess not only the students' outcome, which, in this case, corresponds to their answers on the pre-test and post-test, but it is also necessary to assess their work progress and their effort in the process. Therefore, we should tell their students the grades that they obtained as well as provide some feedback regarding their performance. The data collected from observation will allow us to have plenty of information about the students' work.

The method of assessment that I recommend for evaluating the students' performance in Jigsaw is to collect data through observation not only from the guided reading lesson using Jigsaw, but also from the Jigsaw activities carried out during the training period. This way we have written evidence of the students' progress and we can provide feedback about the aspects that they have improved and those other aspects that they need to work on. Nevertheless, it is not possible to gather all this information from each student, since in Jigsaw all groups work simultaneously. In order to be able to observe the work of all students, we need to bring other teachers to the class. Ideally, the best way to gather this information would be to have as many teachers as small groups in the class, so that each teacher can observe one small group and fill in a rubric to assess the group's performance. There is an example of an evaluation rubric for cooperative activities in Annex 10. In addition, in cooperative activities like Jigsaw it is very important to address self-assesment and peer-assessment. Thus, an example of self and peer- assessment are attached in Annex 11 and Annex 12, respectively.

3.6.2. How to evaluate the activity

On the other hand, we may also want to evaluate the Jigsaw activity itself. The main purpose of evaluating activities is to find out which aspects of the activity went well and what other aspects did not work, in order to modify the steps, instructions or any other element of the activity to improve its future implementation. The data collected from observation and questionnaires already provide enough information for the evaluation of our activity. Those elements that we did not mark on the checklist or the responses of the

students in the questionnaire will tell us what aspects we need to change in order for the activity to better work in the future. For instance, if we did not mark the box of the checklist in Annex 8 regarding the students using social skills, we would include training on social skills before implementing Jigsaw. Moreover, the students' answers to the 21st question in Annex 9 should reveal whether the teacher must modify the guidelines and instructions provided, so that the students understand better what they have to do.

3.7. Expected results and discussion

Regarding the findings of this specific research, I would have expected the results of both the pre-test and the post-test to show that the implementation of Jigsaw in the guided reading lessons had the effect of improving the students' reading comprehension ability. This is based on the assumption that if we implement cooperative strategies like Jigsaw in the reading comprehension activities, the students will benefit from the small group discussions and work by internalizing the reading strategies that they must apply in the groups. Therefore, I would expect the results to show that students improved considerably in their comprehension tests from the traditional lesson to the reading lesson using Jigsaw. That is, I believe that the mean score of the group obtained from the post-test after implementing Jigsaw would be considerably higher than the mean score of the same group of students in the pre-test.

However, it is possible that cooperative techniques like Jigsaw involve many other elements that help the students improve their reading ability. Strategies such as looking for key information or summarizing the text using their own words help the students to become more autonomous learners, since they eventually internalize these strategies and use them autonomously in the future. Furthermore, that the reciprocal teaching stage plays a very important role in the students' improvement of reading, because, while trying to present the topic to their classmates as clearly as they can and solve their teammates' doubts, they reflect about the text in a deeper way, which would not be possible in individual reading. In addition, there is not a single interpretation of a text, but rather each reader interprets the same text in a different way. Jigsaw allows the students to share their different interpretations, and this helps the students to have a more holistic perspective on the topic and, hence, to better understand its message.

Finally, I would like to add that, even if the results did not show that Jigsaw improved the students' reading comprehension ability, implementing Jigsaw and other cooperative techniques into the foreign language classroom is important. By using these techniques, the students learn to work cooperatively in small groups, an ability which is highly demanded at work nowadays. The students might also develop some social skills that may help them to improve their relations in class and, hopefully, their relations outside the school. Furthermore, Balagiu, Pateşan and Zechia (2016) mention some other benefits of implementing cooperative strategies into the foreign language classroom. They maintain that, through the use of cooperative activities, students learn how to "organize themselves within the group, to divide the tasks equally among them, […] to rely on each other to come up with a final successful product. And what is most important they learn to be confident in their English competences" (Balagiu et al., 2016: 482).

4. Conclusions

In conclusion, in this paper I have introduced a teaching innovation and research proposal on how to implement Jigsaw as a cooperative learning technique in guided reading lessons, with a focus on the possible effects that Jigsaw may have on the students' reading comprehension ability. Moreover, theory on cooperative learning, Jigsaw technique and the reading skill have been presented for the better understanding of this methodology and the importance of reading in the foreign language classroom. In order to provide some support to the hypothesis that Jigsaw improves the students' reading skill, I have also introduced recent research studies on the same topic whose findings show that Jigsaw has a positive effect not only on the students' reading comprehension ability, but also on the students' attitudes, motivation and relationships with their peers.

Although the implementation of Jigsaw seems to have many positive effects on the students' reading comprehension ability and some other aspects like attitudes or social skills, the research study proposed in this paper has also some limitations. The original idea was to implement Jigsaw into the guided reading lessons during my teaching training period at my internship school and, hence, the study is limited to a brief period of time. For this reason, the procedure proposed consists of only two sessions to be compared, a reading session using traditional methods like individual reading and a reading session

using Jigsaw. This limits considerably the results obtained because there are many external elements that may affect both sessions, making one of them more profitable than the other. If we were to obtain more reliable results, we should compare more than one traditional session and more than one Jigsaw session, so that the study does not depend on two isolated cases. For instance, if the research could be carried out during a long period of time and we could collect data from different days, such as ten traditional sessions and ten Jigsaw sessions, the findings would be more reliable. Depending on the day, the students face different problems, have different attitudes, the texts used are different, etc. Therefore, the data obtained from different days is more varied and represents different classes instead of two isolated sessions.

Finally, this paper has reviewed the positive effects that Jigsaw as a cooperative technique has on the students' achievement, attitudes, motivation and interpersonal relationships. These findings about Jigsaw and cooperative learning have some implications for teaching. Viewing the many benefits that Jigsaw has for students, teachers should incorporate more cooperative activities like Jigsaw into the classroom, not only in reading comprehension activities, but also in other types of activities. As has been already explained, cooperative activities consist in dividing the students into small groups in which the students work to reach a shared goal. Therefore, this type of methodology allows to carry out different configurations and activities. Furthermore, as foreign language teachers we should provide the students with many opportunities to practice the target language and to use the language to communicate in the classroom. Since, in cooperative activities, students need to communicate effectively in the small groups in order to achieve good results, cooperative learning should be considered in language teaching curriculum design and cooperative strategies should be applied in the foreign language classroom.

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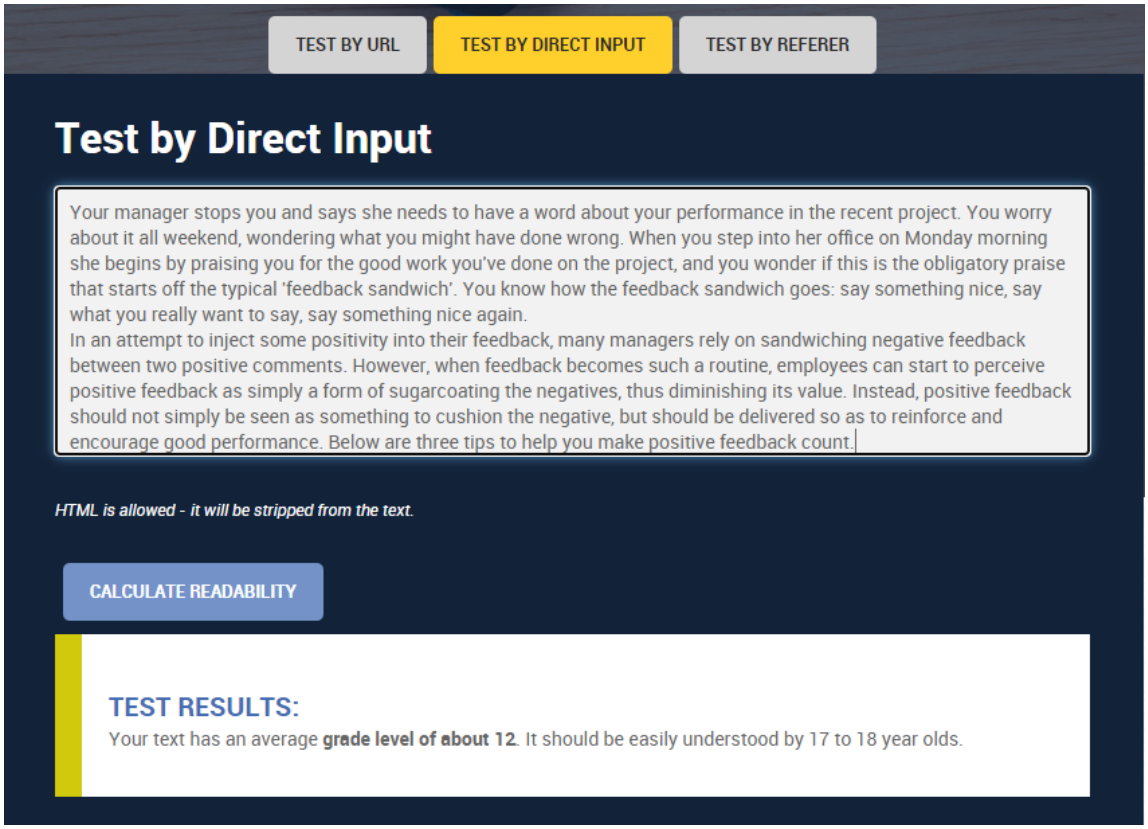
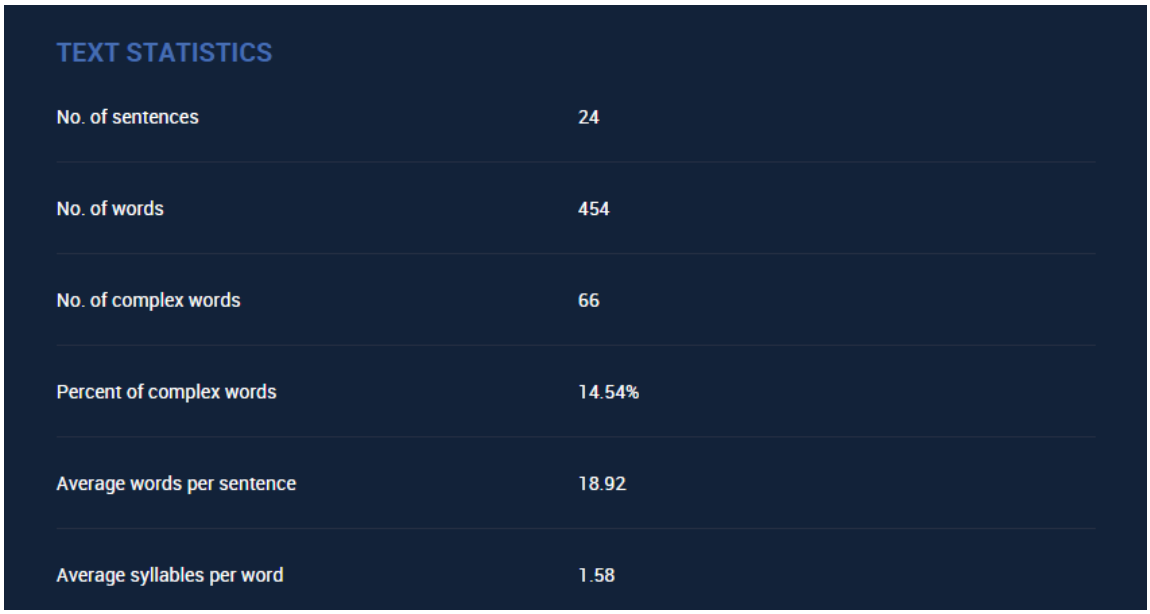
Annexes

Annex 1: WebFX Readability Test Tool





Annex 2: Reading text 1

GIVING AND RECEIVING POSITIVE FEEDBACK

Your manager stops you and says she needs to have a word about your performance in the recent project. You worry about it all weekend, wondering what you might have done wrong. When you step into her office on Monday morning she begins by praising you for the good work you've done on the project, and you wonder if this is the obligatory praise that starts off the typical 'feedback sandwich'. You know how the feedback sandwich goes: say something nice, say what you really want to say, say something nice again.

In an attempt to inject some positivity into their feedback, many managers rely on sandwiching negative feedback between two positive comments. However, when feedback becomes such a routine, employees can start to perceive positive feedback as simply a form of sugarcoating the negatives, thus diminishing its value. Instead, positive feedback should not simply be seen as something to cushion the negative, but should be delivered so as to reinforce and encourage good performance. Below are three tips to help you make positive feedback count.

1. Don't always follow positive feedback with negative feedback

When positive and negative feedback always appear to go hand in hand, the positives can become devalued and ignored. Ensure there are times when positive feedback is given for its own sake and resist the temptation to offer constructive criticism.

2. Cultivate a 'growth mindset'

Psychologist and 'growth mindset' proponent Carol Dweck spoke of the plasticity of the brain and our ability to develop skills and talents that we might not have been good at to start with. Many of us tend to focus our praise on the end result and seemingly innate talents, e.g. 'You really have an eye for details' or 'You have a real talent for organising events'. However, research suggests that by focusing on the process of how things are done – praising effort, experimentation and problem-solving strategies – we can encourage the development of new skills and the continued honing of talents.

3. Create a culture of offering positive feedback

Make giving positive feedback part of your team/department/company culture. Don't just wait for special moments like appraisals to give feedback. Offer informal positive feedback when making small talk or when walking down a corridor. Feedback doesn't have to only come from

the higher ranks either. Encourage peer feedback among team members and colleagues and actively ask them for positive comments on each other's performances on tasks.

It might take time to counter the effects of an environment where there is a cynical view of positive feedback, but in the long run, by embracing positive feedback, you can not only enhance working performance but also enrich the quality of life in the workplace.

(British Council, 2019)

Annex 3: Comprehension test 1

Task 1

Circle the best answer

1. What does the ‘feedback sandwich’ involve?

a. Giving positive feedback by accompanying it with negative feedback

b. Giving negative feedback by accompanying it with positive feedback
c. Creating a feedback culture in an organisation
d. Devaluing positive feedback

2. The writer believes that the ‘feedback sandwich’ …

a. can encourage good performance.
b. makes negative feedback more painful.
c. makes employees fearful of feedback.
d. is too predictable to be effective.

3. The ‘growth mindset’ idea is that ...

a. we can become good at things that we might initially not seem to have a talent for.
b. we should focus on honing the talents that we are born with.
c. the end result is more important than the process.
d. we must not tell people that they are good at certain things.

4. How can we create a culture of positive feedback?

a. By offering feedback only during informal occasions such as when walking down a corridor
b. By making sure that only positive and not negative feedback is given
c. By asking your employees to offer positive feedback to their colleagues
d. By not conducting appraisals for employees

5. A cynical view of positive feedback …

a. is irreversible.
b. can make the quality of working life richer.
c. can be healthy.
d. can be changed gradually.

Task 2

Are the sentences true or false?

1. In the story at the beginning of the article, the writer describes a scenario in which the employee assumes they are going to get negative feedback.

- True
- False

2. Overusing the ‘feedback sandwich’ can result in a mistrust of positive feedback.

- True
- False

3. We should not try to inject positivity in our feedback or we might devalue it.

- True
- False

4. We should never give positive feedback and negative feedback at the same time.

- True
- False

5. Carol Dweck believes that the brain is flexible and can be trained to learn new skills.

- True
- False

6. We should give positive feedback when employees make an effort and try new things.

- True
- False

7. You can improve the performance of your employees by embracing their mistrust of positive feedback.

- True
- False

(British Council, 2019)

Annex 4: Reading text 2

WHAT DO YOU KNOW ABOUT SPIDERS?

Spiders can be found on every continent of the planet except Antarctica. They are both hunters and hunted. They capture their prey in a variety of ways, either by spinning a web and waiting for their unsuspecting prey to fall into the trap, or jumping out of a hiding place onto a passing meal. Except for the plant-eating *Bagheera kiplingi*, these eight-legged invertebrates are serial carnivores: most love to snack on insects while others are tempted by lizards, birds, frogs, fish and the occasional snake. There are spiders that eat other spiders, and some female widow spiders eat their mates, even while they are mating. In turn, spiders are preyed on by lizards, birds, snakes and scorpions as well as some insects such as the mantis and a type of wasp that buries the arachnid alive! Spiders are also eaten by humans; they are a delicacy in some cultures of the South Pacific and a popular street food in South East Asia.

Spider venom is present in most species and serves the purpose of stunning or killing their prey rather than attacking humans. In fact, only 25 of the known spider species produce venom which can actually harm humans, and although spider bites can be painful, they are rarely deadly. Australia's notorious Sydney funnel-web spider has not produced any fatalities since anti-venom was developed in 1981. However, take care not to rub hairy spiders like tarantulas up the wrong way. When they feel in danger, they defend themselves by ejecting a cloud of urticating hairs. These irritating hairs then embed themselves in the skin or eyes of the attacker.

Despite having adapted to a range of habitats and temperatures, spiders rarely stray far from their home environment. Ballooning spiders are an exception as they can migrate fairly long distances by drifting through the air with air-filled balls of silk. Spiders tend not to favour significant changes in temperature, and tropical spiders such as tarantulas prefer warm surroundings and find many European climates a little nippy. Even the ones who hitch a ride to Britain by boat or plane from the tropics don't survive long.

Spiders can produce several different types of silk from their silk glands and nozzles, otherwise known as spinnerets. They range from stickier threads used to weave webs to capture their prey to incredibly strong threads which can support their own weight. The toughest spider silk is up to six times stronger than human bone, and that made by orb-

weaver spiders is on a par with the strength of steel. In fact, some experts suggest that spider silk would be more effective than Kevlar in bulletproof vests. However, harvesting the thread on spider farms is complicated as these territorial creatures prefer their own company and could end up killing each other. Nevertheless, having studied the complex nature of spider silk, scientists have managed to replicate the resilient fibres, which has enormous potential for developing a range of things from synthetic muscle tissue to high-performance sports clothing.

Arachnophobia, or the irrational fear of spiders, is among the most common phobias in the Western world. It is thought to date back thousands of years and might be the result of an instinctive response displayed in early humans. For a long time throughout Europe, spiders were wrongly believed to spread diseases such as the plague. However, out of all the known spider species on the planet, only around 2% are actually harmful to humans. Other cultures such as Native Americans depict them in a more favourable light as they believe spiders are lucky and consider them symbols of wisdom.

(British Council, 2017)

Annex 5: Comprehension test 2

Circle True or False for these sentences.

1. The web is every spider's preferred method of catching food.

- True
- False

2. Most spiders prefer eating insects to birds.

- True
- False

3. Female widow spiders sometimes eat the male spiders during reproduction.

- True
- False

4. A quarter of all spiders produce venom which can kill humans.

- True
- False

5. Bites from the Sydney funnel-web spider were more deadly before 1981.

- True
- False

6. Contact with tarantula hairs will probably make you want to scratch.

- True
- False

7. Most spiders migrate to warmer climates in winter.

- True
- False

8. Spiders produce different types of silk for different functions.

- True
- False

9. Some spider silk is stronger than steel.

- True
- False

10. Generally speaking, spiders are not sociable animals.

- True
- False

11. In the past, certain diseases were frequently transmitted to humans by spiders.

- True
- False

12. Not all cultures believe spiders bring good luck.

- True
- False

(British Council, 2017)

Annex 6: Pre-reading activity on positive and negative feedback

Exercise 1

Imagine that you are in charge of a very important project. In general, your teammates have done a good job. However, by the end of the process, you realize that there are some errors, some problematic issues or that they forgot to introduce some relevant information. Write down three sentences giving negative feedback to your teammates. You must consider politeness and that you do not use feedback to reprehend. Instead, you want your classmates to learn from their errors and improve.

Sentence 1:

Sentence 2:

Sentence 3:

Exercise 2

Now imagine that you are in charge of a different project. The members of the team have done a great job. You want to congratulate the teammates by giving them some positive feedback and mention their effort, the outcome of the project, the teamwork, or any other aspect of their job. Write down three sentences giving positive feedback.

Sentence 1:

Sentence 2:

Sentence 3:

Annex 7: Pre-reading activity on matching columns

Vocabulary	**Definition**
1. ..... to have an eye for something	a. to speak to someone in private
2. ..... innate	b. the capacity of the living brain for continuous alteration of the neural pathways in response to experience
3. ..... plasticity	c. to make something difficult or unpleasant sound more attractive and acceptable
4. ..... cynical	d. existing from birth and not learned or taught
5. ..... to have a word with someone	e. to be particularly perceptive about something
6. ..... to counter the effects	f. to develop a skill or talent by working hard at it
7. ..... to hone	g. distrusting the motives and intentions of others; believing the worst of others
8. ..... to sugarcoat something	h. to neutralise or reduce the bad effects of something by an opposite action

(British Council, 2019)

Annex 8: Checklist

SUCCESS FACTORS	CHECK
The teacher clearly understands the learning structure.	
The teacher has created a psychologically safe environment.	
The teacher has written expectations for how students should act, talk, and move while they perform the cooperative learning activity.	
Students have learned the expectations for how to act, talk, and move during the cooperative learning activity.	
Students have learned and use appropriate social skills to interact positively and effectively during the activity.	
The teacher has carefully considered the optimal makeup of each group of students.	
The teacher has given students sufficient time for each activity, without providing so much time that the learning loses intensity.	
Students have additional activities they can do if they finish their tasks before others in the class.	
The teacher has planned additional activities to use during the class if activities take less time than planned.	
The teacher has planned how to adjust the lesson plan if activities take more time than planned.	
The teacher uses an effective attention signal.	

(Knight, 2013: 6)

Annex 9: Questionnaire

Read the following and indicate your level of agreement or disagreement with the statements.

Questionnaire Key

SA – Strongly Agree
A - Agree
N - Neutral
D - Disagree
SD - Strongly Disagree

	SA	A	N	D	SD
8. When I work together I achieve more than when I work alone.	□	□	□	□	□
9. I willingly participate in cooperative learning activities.	□	□	□	□	□
10. Cooperative learning can improve my attitude towards work.	□	□	□	□	□
11. Cooperative learning helps me to socialise more.	□	□	□	□	□
12. Cooperative learning enhances good working relationships among students.	□	□	□	□	□
13. Cooperative learning enhances class participation.	□	□	□	□	□
14. Creativity is facilitated in the group setting.	□	□	□	□	□
15. Group activities make the learning experience easier.	□	□	□	□	□

16. Rate the extent to which lecturers use group activities.
□ Never □ Sometimes □Always

Please read the following items and answer accordingly.

17. Do you prefer working in large (7 or more persons) or small (4 or less persons) groups? Give a reason for your answer.

_____
_____
_____
_____

18. Do you prefer to work on your own rather than in a group? If so Why?

_____
_____
_____
_____

19. Would you prefer if your lecturers used more group activities/assignments? Please give a reason/reasons for your answer.

_____
_____
_____
_____

20. Name the course/courses in which you believe greater learning could be facilitated via group activities.

_____
_____
_____

21. Do lecturers give clear guidelines for the completion of group activities/assignments whether in/outside of the class setting? If yes, do these guidelines enable the task to be clearly understood and completed in the specified time?

_____
_____
_____
_____

22. If no, how are you able to complete your assignments?

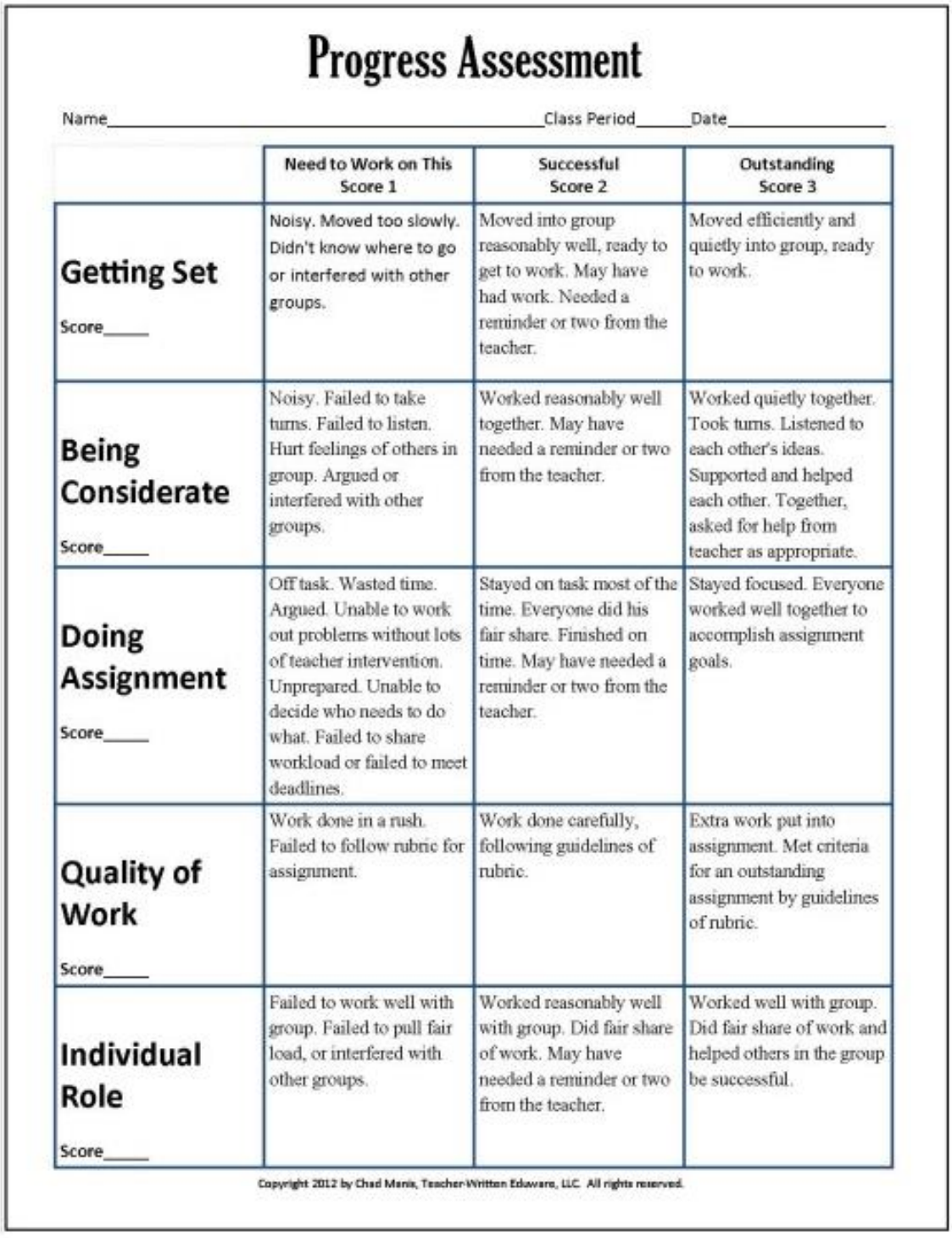
_____
_____
_____
_____

23. Would you be more comfortable if more group activities were incorporated in your course of study? Give a reason for your answer.

_____
_____
_____
_____

(McLeish, 2009: 77-79)

Annex 10: Evaluation rubric



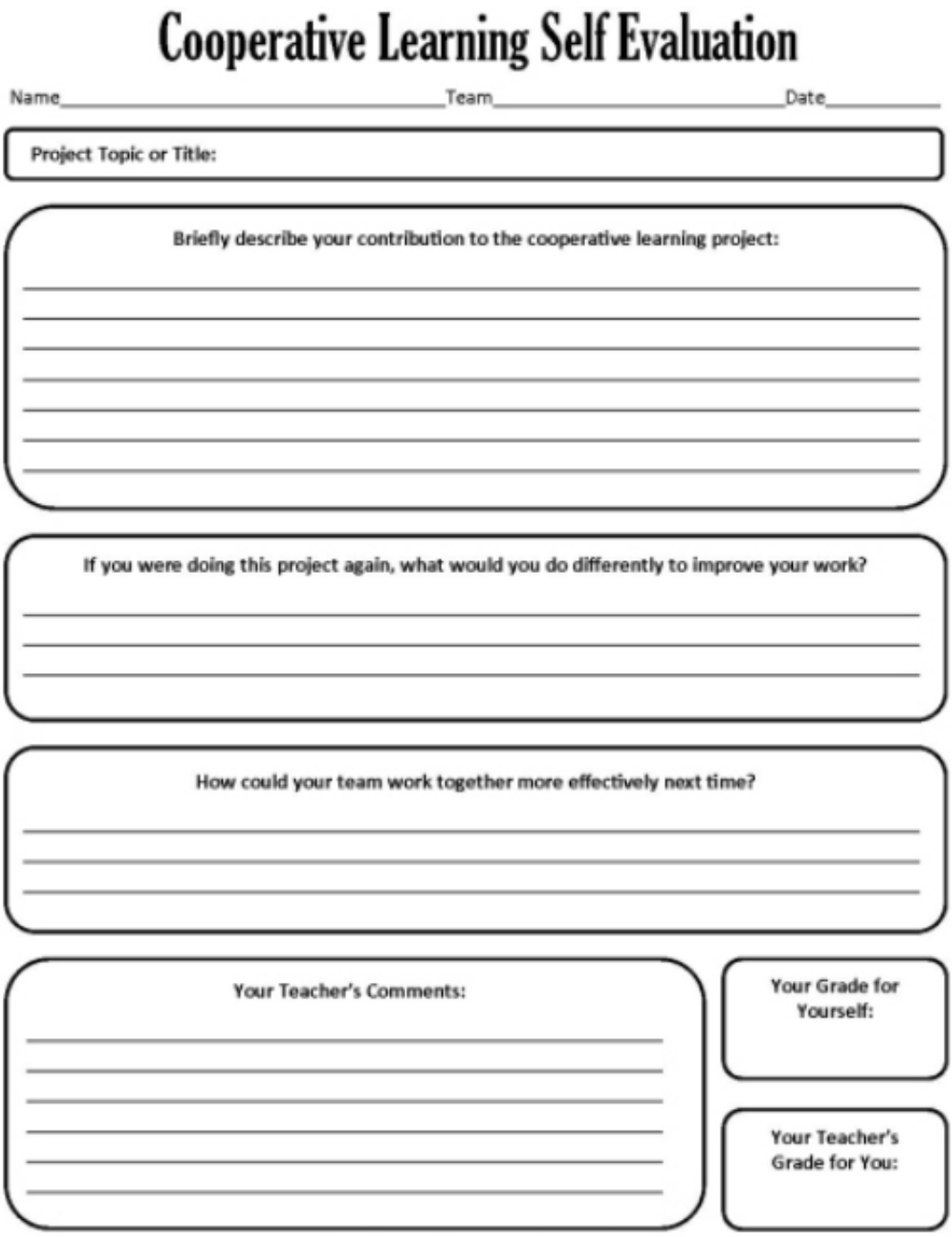
Progress Assessment

Name_____Class Period_____Date_____

	Need to Work on This Score 1	Successful Score 2	Outstanding Score 3
Getting Set Score_____	Noisy. Moved too slowly. Didn't know where to go or interfered with other groups.	Moved into group reasonably well, ready to get to work. May have had work. Needed a reminder or two from the teacher.	Moved efficiently and quietly into group, ready to work.
Being Considerate Score_____	Noisy. Failed to take turns. Failed to listen. Hurt feelings of others in group. Argued or interfered with other groups.	Worked reasonably well together. May have needed a reminder or two from the teacher.	Worked quietly together. Took turns. Listened to each other's ideas. Supported and helped each other. Together, asked for help from teacher as appropriate.
Doing Assignment Score_____	Off task. Wasted time. Argued. Unable to work out problems without lots of teacher intervention. Unprepared. Unable to decide who needs to do what. Failed to share workload or failed to meet deadlines.	Stayed on task most of the time. Everyone did his fair share. Finished on time. May have needed a reminder or two from the teacher.	Stayed focused. Everyone worked well together to accomplish assignment goals.
Quality of Work Score_____	Work done in a rush. Failed to follow rubric for assignment.	Work done carefully, following guidelines of rubric.	Extra work put into assignment. Met criteria for an outstanding assignment by guidelines of rubric.
Individual Role Score_____	Failed to work well with group. Failed to pull fair load, or interfered with other groups.	Worked reasonably well with group. Did fair share of work. May have needed a reminder or two from the teacher.	Worked well with group. Did fair share of work and helped others in the group be successful.

(Manis, 2012)

Annex 11: Self-evaluation rubric



Cooperative Learning Self Evaluation

Name_____Team_____Date_____

Project Topic or Title:

Briefly describe your contribution to the cooperative learning project:

If you were doing this project again, what would you do differently to improve your work?

How could your team work together more effectively next time?

Your Teacher's Comments:

Your Grade for Yourself:

Your Teacher's Grade for You:

(Manis, 2012)

Annex 12: Peer-evaluation rubric

Peer Evaluation Form

Name_____Class Period_____Date_____

Write the names of your group members in the numbered boxes. Then, assign yourself a value for each listed attribute. Finally, do the same for each of your group members and total all of the values.

Values: 1=Strongly Agree 2=Agree 3=Disagree 4=Strongly Disagree

Attribute	Yourself	1.	2.	3.
Was dependable in attending group meetings.				
Willingly accepted assigned tasks.				
Contributed positively to group discussions.				
Completed work on time or made alternative arrangements.				
Helped others with their work when needed.				
Did work accurately and completely.				
Contributed a fair share to weekly papers.				
Worked well with other group members.				
Overall was a valuable member of the team.				
Column Totals ▷				

(Manis, 2012)