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Developing Argumentation Skills through Reading Strategies in the 8th and 9th Grades

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Abstract

Thinking is generally considered the broadest term as it includes reasoning and problem solving. Reasoning is the main subject because the ability to reason effectively is equally important to succeed in school and throughout life. It has been found out that only a few students can effectively use their knowledge in thinking and reasoning. Therefore, teachers need to place more emphasis on students' ability to analyze, classify, compare, formulate hypotheses, and draw conclusions, that is, the thinking skills required for reasoning processes. The aim of this lesson study is to find the best strategies that will help develop argumentation skills of students through reading. Literature related to the research theme was reviewed and qualitative research methodology was used in this study, namely lesson observation, interviewing and post-lesson discussions. The participants of the study were chosen by using purposeful sampling technique. The findings of this study demonstrated that applying reading strategies of activating background knowledge, making predictions, using four-statements strategy, and completing graphic organizers helped students to be inclined to read, learn more, and understand better. These strategies mixed with post-reading comprehension questions, helped students to recognize that they understand better and are able to apply the strategies outside the English classroom. As students learn to define and develop their reasoning skills, they become more effective and independent learners and better at using strategies.

Keywords: reasoning, argumentation, reading strategies, understanding, evidence.

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Introduction

Argumentation skills are one of the essential skills required for students of secondary and high schools, as well as universities. According to Faize, Husain and Nisar (2017), argumentation is summarized and defined “as a social and dynamic process, involving individuals engaged in thinking, constructing and critiquing knowledge” (p. 477). In the context of school education this skill is equally needed in the humanities and science. In humanities subjects argumentation takes place as a social interaction process where two or more individuals make a claim, supporting their statement with examples, reasons, offering solutions to problems.

While working as secondary and high school teachers, we have come across the fact that many high school students struggle “to find relevant data to support their claim and provide evidence” (Faize, Husain & Nisar, 2017, p. 476). The aim of this lesson study was to find the best strategies that will help develop argumentation skills of middle school students through reading. We decided to teach argumentation skills at earlier stages of studying so that students could become more confident argument users by the time they get to high school.

The term ‘skill’ is defined as “an ability to do an activity or job well, especially because you have practised it” in the Cambridge dictionary (Cambridge Dictionary, 2018). The same dictionary gives the following definition to the term ‘strategy’ “a long-range plan for achieving something or reaching a goal, or the skill of making such plans” (Cambridge Dictionary, 2018). A skill becomes a strategy when the learners can use it independently.

The reason why we have chosen reading to develop argumentation or reasoning skills is that reading helps students to improve their cognitive skills, enlarge their vocabulary, improve their argumentation skills and nurture their intellectual development. Husna (2019) reviews the work of different researchers on the impact of extensive reading on developing ESL students’ ability in critical thinking. According to their data, “the students became familiar with the scientific style of reading which helped them write their arguments logically... reading widely could help students avoid poor decision-making in their life because they were able to use that information to build a logical framework to deal with real world difficulties” (ibid, p. 212).

Purpose and objectives of the study

As the students of 8 and 9 grades struggle to put forward arguments and justify them, providing examples and reasoning their answers, the aim of this lesson study is to find the best strategies that will help develop argumentation skills of students through reading.

The main objectives of the study are:

1. Use 'causes and effects' graphic organizers so that students were able to differentiate causes and effects in a reading excerpt;
2. Apply four-elements' strategy to formulate students' answers providing reasons;
3. Find out how students implement the given strategies on science subjects.

Literature review

When practicing reading skill with learners, teachers use different strategies in order to see how a learner comprehends a text. However, it is not always possible, since students limit themselves only with Yes/No answers, without providing any arguments and reasons. Therefore, to help these learners to tackle the issue and be able to provide full answers to the questions, it was agreed to provide students with several reading strategies that will enhance text comprehension and develop argumentation skills.

The review of current literature has provided several insights into the development of argumentation skills through reading. It is obvious that developing this skill plays a great role in every student's academic life, since it establishes student's reading comprehension, high-order thinking and giving full answers to the questions (Echeverri Acosta & McNulty Ferri, 2010). By developing learners' argumentation skill students are able to enlarge their vocabulary, to answer higher-order thinking questions and even do better in writing, as these skills correlate with each other, and both need either providing argumentation to the idea or finding argumentation in the text. Furthermore, the ability to construct a high-quality argument according to the read material leads to academic success especially in learning languages (Almelhi, 2014). In order to teach how to enhance giving argumentation for students several strategies can be used. In the number of literature studied for this research work the following strategies for developing argumentation skills were reviewed. They are making predictions, using prior knowledge, graphic organizers, story maps, answering and generating questions, paraphrasing and many others.

One of the most common reading strategies is making predictions. This strategy is practiced when learners are given some support from the side of the author as a title, images, headings and subheadings, diagrams, etc.

By using these prompts and their background knowledge learners can generate ideas that will help them in further reading. In addition, “predicting helps keep the reader’s mind engaged and activated as he or she works through a text. When students actively predict while reading, they stay connected to the text and can reflect upon, refine, and revise their predictions” (Classroom Nook, 2021, p. 1). This strategy is widely used among various language teachers with the purpose of developing comprehension and argumentation skills. Using prior knowledge is another strategy that is used to make a personal connection with a topic, remembering all of the experiences readers have had in their lives. This experience is used to connect the material to the readers’ own background. According to Tovani (2000), the advantage of this strategy in relation to the argumentation skill is that learners are more likely to expand giving arguments if they relate the reading material to their experience and intelligence. When looking at different reading strategies, using graphic organizers appeared to be as one of the most effective. A graphic organizer is a method that demonstrates a concept of how different ideas and topics from the reading material can be related to each other through diagrams and illustrations. Thus, it represents visually the information given in the text. This strategy can be practiced in learning languages as well as in the social studies and sciences. In order to be able to develop learners’ argumentation skills, firstly, it is vital to comprehend the text in detail, and connect its parts to each other. This strategy is proved to be effective, since it is regarded as “a type of advance organizers that activates a reader’s prior knowledge and depicts the organizational pattern of a reading selection by schematically representing key vocabulary terms” (Alvermann, 1986, p. 88). Secondly, using graphic organizers are helpful in activating background knowledge, identifying certain concepts, such as problem-solution, causes-and-effects, finding the main idea of the text, and developing reasoning skills, that is argumentation (Manoli & Papadopoulou, 2012).

In a nutshell, based on the literature research it was discovered that there are various strategies that can be applied to develop learners’ argumentation skills. These reading strategies are applicable both in enhancing comprehension of the text together with developing students’ reasoning skill.

Methodology

The research has been held at Nazarbayev Intellectual school of Physics and Mathematics among the students. They were 46 students of the 8th and 9th grades, including 29 boys and 17 girls aged 11 to 13. Since the students were under 18, the consent was gained from their parents for conducting this research. Some participants have been studying English for 7 years, and others, started learning the language only 4 years ago. Each class had from 4 to 5 class hours of English. The 8th grade students’ level of English was Pre-intermediate, while the 9th graders had an Intermediate proficiency level. The program that was used for English lessons based on the course plan of the school.

Apart from students, science teachers were also interviewed, namely, three teachers of chemistry, biology, and physics, respectively. They all signed consent forms agreeing to participate in the present study.

The method used in the lesson study is qualitative. In the beginning of the lesson study, we faced with two problems. The first one was connected to lack of resources – as there were not many strategies for teaching argumentation skills for B1 learners. And the second one – the students' speech was not highly developed for making appropriate arguments that can be proved with examples from the text. However, after thorough lesson planning with colleagues we coped with these mentioned problems.

For observing each lesson three students from each group were chosen: a less-able student, an average one and a more-able student. Before applying the graphic-organizer strategy during the lesson, the students were asked the following questions:

1. Do you like giving your point of view during the lesson? Why/ why not?
2. Do you use any proves and/or examples while making an argument?
3. How can you improve your argumentation skills?

Each teacher has conducted two lessons during 'Lesson study' having used graphic organizer and '4 elements' strategies.

Lesson 1. Graphic Organizer Strategy

In the second term students of 8th-9th grades studied the topic 'Environmental problems'. After finding out that some students struggle to construct an argument, it was clear that scaffolding is needed. The first lesson was based on the topic: "Environmental Problems in Kazakhstan". At the pre-reading stage students watched and discussed the video about 'Environmental problems' in the world to get the initial thoughts. Having read the text, the students were to complete the table about causes and effects of these issues in Kazakhstan and come up with their own solutions (Table 1).

Problems stated in a text	Causes	Effects	Solutions (Personal idea)

Table 1

Lesson 2. '4 Elements' Strategy

The previous strategy showed that students could use the texts to find proofs and evidence. The next step was to teach students to provide extended answers with clear evidence from the reading passage. The second method was chosen which aimed at constructing the argument using four sentences in the answer: argument, reason, example and outlining sentence. Firstly, the students read the text about colours in Kazakhstan, then, their task was to make their own 4 sentences about the meaning of these colours. The example was provided before fulfilling the task (Picture 1):

What examples can you give of what different colours mean in your country?

The answer should include four elements:

1. argument,
2. reason,
3. example,
4. outlining sentence.

1. In Kazakh culture, blue is one of the most popular colours. 2. It is associated with clear sky and water. 3. Even the colour of our flag is blue. 4. This example shows how important it is in Kazakh culture.

The following questions were asked to the students after each research lesson:

1. What did you enjoy most about the lesson?

2. What did you learn? (What can you do now that you could not do before? What can you do better? How is it better?)
3. What aspect of the teaching worked best for you?
4. Have you had enough time for fulfilling the task?

Implementing the strategies at Science lessons

The third research question we posed, whether students could use strategies outside the English classroom, led us to observing the same students in other disciplines to find out how argumentation skills are taught in non-language classes.

It is known that one of the goals of science teaching at school is to enable students to learn scientific concepts; it is equally important to support them in the study of scientific reasoning (Bricker & Bell, 2008). In this way, argumentation should play a more important role in the teaching and learning of science.

We have attended a number of science lessons, namely Chemistry, Biology, and Physics with the aim of observing the way students use argumentative skills through ‘causes and effects graphic organizer’ and ‘four-element’ reading strategies. Students were suggested reading the texts with higher order thinking questions, and worked in collaboration with science subject teachers. Apart from this, students, while answering the questions, were to find evidence from the text, to be able to reason their answers using the two reading strategies. Further on, students answered the interview questions on how they managed to fulfill the task and how they built arguments:

1. What was challenging?
2. Did you struggle while finding the evidence from the reading passage?
3. What reading strategies did you apply while doing the task?

Results

Lesson 1 findings

After the first lesson during the post research discussion, some drawbacks were highlighted that were changed at the next lessons.

To begin with, the pre-reading stage was too long – the time needed to be shortened as much time should have been dedicated to post reading strategy, which plays an important role in developing learners' argumentation skills. Moreover, it was difficult for students to fill in the graphic organizer, since learners first wrote the effects of the issue, then the causes. In the second lesson the order of these columns was changed. Even though the students coped with the graphic organizer, some of them still struggled with making arguments. Therefore, it was concluded to give some examples of arguments before the final stage.

Lesson 2 findings

The second lesson itself was found to be successful, however, in the post research discussion with the colleagues some shortcomings were revealed to be modified at the next lesson. Considering the fact that students used this method for the first time, this task should be done in written form firstly. For this reason, more time is needed to complete this procedure.

Apart from that, making an argument was difficult for some less-able students. Therefore, the scaffolding sentences should be given.

It was clarified that linking words should be given for writing the argument to make it flow smoothly and logically connect ideas.

Interview results

According to the results of the questionnaire carried out after each research lesson, it was clear that students really liked the applied strategies. Thirty-nine students out of 46 (85%) found them useful. In accordance with the answers, these two strategies, graphic organizer strategy and four-element strategy, help construct arguments and use examples found in the text without any difficulties. Twelve students stated that they became more active during the lessons as these strategies were very easy to use for giving their own point of view. Eighty-seven per cent (40 out of 46 students) stated that they had enough time to fulfill the task.

Having conducted the interview, the following conclusions were drawn:

1. Less-able students do not usually tend to give their personal opinions during lessons as they lack vocabulary and many ideas for constructing arguments. They do not justify their answers.
2. Average students usually give their personal opinions when they are asked, but they do not volunteer to answer questions because they are afraid of making mistakes and their speech might be too slow. They sometimes make some examples from their daily life experience.

3. More-able students like giving their personal opinions and always try to answer during the lesson. They often use examples that are taken from their daily life and facts that they know.

4. Mostly all students highlighted the fact that for improving argumentation skills they should read more. On this stage, it is clear that they do not know any rules and methods for constructing arguments.

Science Lesson results

After Science lessons the students were asked post-lesson questions to find out where they struggle, what strategies were used by them:

1. What was challenging?
2. Did you struggle while finding the evidence from the reading passage?
3. What reading strategies did you apply while doing the task?

According to the interview results, more-able students coped with the task easily since they were able to answer the questions and find evidence without putting any efforts and building oral arguments. Less-able students found it difficult to provide immediate arguments, despite the fact that detecting evidence caused no problem to them. Limited vocabulary influenced on managing time and it was not surprising as they were students of the 8th and 9th grades. Students found graphic organizer strategy to be useful and applied it successfully. However, the second strategy caused some difficulty and thus needs further practice.

Moreover, subject teachers were interviewed on the outcomes of applying reading strategies used at the lessons:

1. Are you satisfied with the reasoning skills of your students? Why/Why not?
2. Have you ever used suggested reading strategies at the lessons?
3. If no, will you use them?

According to the teachers' answers, students got used to give short answers without any supporting details and justification. Sometimes students even do not use reading passages as a tool for finding evidence but relying on their worldview only. It is emerged that most of the science teachers have never used reading strategies before, though some of them applied PBL (problem-based learning).

After having made the attempts to apply the above-mentioned reading strategies at their lessons, science teachers found them effective and agreed that it is necessary to implement different strategies to further develop scientific argumentation skills.

Discussion

The data suggests that argumentative skills should be taught beginning from secondary school in order to avoid argumentation problems later when pupils are in grades 10-12. Students need argumentation skills to be able to apply in other subjects as it has been studied earlier by Faize et al. in the work 'A Critical Review of Scientific Argumentation in Science Education' (2017).

The chosen strategies were effective as they had scaffolding stages. Firstly, the graphic organizer strategy contributed to students' finding of causes and effects and reflecting on them. Secondly, based on the found information students were able to construct their arguments using four-element strategy which included four sentences: argument, reason, example and outlining sentence. The implementation of argumentation skills learners received at English lessons was observed at science lessons. The results were different: more-able students could apply the strategies without putting any effort, whereas less-able students needed some time and visual aids (tables) to accomplish the task. The collected data was useful from the point of developing argumentation skills and must be implemented throughout the learning process for students to become confident while providing arguments.

Conclusion

Having conducted a number of lessons on reading strategies in English and having attended lessons of science teachers, it has become clear that proposing and testing alternatives, assessing the quality or reliability of evidence, assessing the potential viability of scientific claims, and constructing scientific arguments are far more important. Therefore, teachers should give students the opportunity to learn how to formulate a statement, back it up with evidence, respond to criticism, and revise the statement based on feedback or new evidence.

There are various strategies that can be applied by teachers to develop learners' argumentation skills, although based on this study, we have come to the conclusion, that the most effective ones are completing graphic-organizers and following the four-statements strategy. They assist students in finding necessary information and producing reasonable answers when discussing any topics during the lesson. Moreover, it was found that most learners were able to use argumentation skills that they gained at the lessons of English outside the English classroom.

They used the same and/or similar reading strategies at science lessons and the results demonstrated by the students proved the fact that implementing them into science had positive effect on evolving reasoning skills.

The problem of having a prior knowledge for constructing an argument can be solved by offering some reading material to the class as homework. This will help students form a minimum knowledge base for argumentation in the next lesson. It is also desirable that the argumentation activity is carried out by forming small groups of students. This will further strengthen the argumentation process through mutual interaction between students. Even mutual discussion during argumentation and presentation of counterarguments can be useful for students in understanding and assimilating the relevant information.

For further research it is suggested to study other strategies that will enhance learners' argumentation skills apart from reading, which is listening, writing, and speaking. Being able to use argumentation as a means of communication will help learners think critically, express their opinion, and gain versatile knowledge both in and out of classroom.

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