An Innovative, Constructivist Approach to Encourage more Independent Learning in and out of the Classroom

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Abstract

How can students come to class prepared? This was the question on what this action research was based. This action research tests the effectiveness of a new, constructivist method by comparing it to a traditional teaching method. In the constructivist learning approach, students develop their own learning and reading strategies to prepare for the lesson before coming to class. The results given show that if more importance is given to help students learn how to come to class prepared, their learning will likely improve as well as their scores on quizzes and exams.

Introduction

Students usually come to the class to discover the new lesson that will be explained to them by their teacher. Most of them, if not all, do not read their textbook or any other material related to their lesson. Many even come to class without their notebooks and textbooks.

Many students wait for exams to open their textbooks and try to figure out the chapters that had been covered. Coming to class prepared includes bringing the required materials, such as notebook, textbook, any necessary worksheets, and reading the lessons that will be covered in class. This will help learners build their understanding and knowledge of course concepts.

What is an Action Research (Classroom Research)

Action research or classroom research involves the critical reflection about teachers’ pedagogical practices and their classroom, assessing whether goals were achieved, identifying what has or has not gone well, in a systematic, planned way, and they share their findings with others. Action Research involves identifying a problem or area that needs improving, focusing on an issue that is small, manageable and has an immediate and practical application then formulating a hypothesis about the possible source of the problem or issue (McKeachie, 2002).

The teacher sets up the “experiment” by planning an intervention, a change from the current practice, and decides on an appropriate data collection system to determine how the experiment is working. The teacher conducts the experiment and collects the data. Analyzing the data allows the teacher to know whether the experiment worked. In other words, have things changed or improved? What has been the outcome? The teacher then shares what was learned with others. However, this is not the end. At this point teachers involved in action research, ask themselves whether there is anything they would do differently, or what would be a logical next step. If they have more changes in mind, how will they document them? How will they know if they’ve been successful? It’s the never-ending spiral of action research and reflective teaching (Cross & Steadman, 1996).

Action research is a valuable tool because it is directly connected to what is happening in the classroom. Action research helps teachers become more aware of and open to solving problems. Teachers’ attitudes, skills and knowledge are positively affected as they engage in research that will have immediate and practical effects in their classrooms (Mills, 2000).

Constructivist Approaches to Learning

Researchers have moved from viewing the teacher as belonging at the center of the learning process, to viewing the student as having a more central and active role. This student-centered approach is sometimes referred to as constructivism because it sees students as constructing their own understanding (Davis, 1997).

What does it mean to place students at the center of the learning process? In one sense, it means teachers’ jobs are more demanding because it is often more difficult to make student-centered approaches work. Page numbers appear automatically in the footer. The location of the page number is at the center of the footer. These should not be changed.
than it is simply to stand at the front of the room and give a lecture. Constructivist approaches require thorough planning, tools and equipment, and in-depth knowledge of the students. Student-centered teaching has been the foundation of so-called “open schools,” a term often used to describe schools in which students are actively involved in deciding what and how they will study (Pintrich & Schunk, 1996).

With the constructivist perspective comes an increased awareness of individual differences in the classroom and a renewed emphasis in learning of the role of prior experiences and learning (Sternberg & Williams, 2002). Schulte (1996) maintained that in constructivist learning environments, students come to the classroom equipped with their personal experiences, cognitive and affective skills, which all have a remarkable influence on their perspective about how things operate in the real world.

**Comparison between constructivism method and traditional classroom**

In a traditional classroom, students wait for the teacher to explain lessons to them with references to their textbooks. Students are passive receivers who learn what the teacher tells them to learn and in the way they are told to learn it (Schulte, P. L., 1996). They are then assigned different exercises and homework to reinforce their learning. The job of the teacher as an educator is to concentrate on how to teach and what material to evaluate. As a result, students strive only to complete the activity quickly or correctly with little thought of the tasks significance (Schulte, P. L., 1996). The teacher measures observable behavior rather than conceptual change or understanding. The result is that students memorize a variety of terms but often cannot apply them to problems or outside experiences because they do not truly understand them (Schulte, P. L., 1996).

Constructivism recognizes that students have different levels of understanding and presents variety of ideas. Students then can share their ideas with their peers to clarify their thoughts. Students may not be thinking in the same manner, but they are learning ideas in ways that are meaningful to them. No longer the teacher is seen as an expert, who knows the answers to the questions she or he has constructed, while the students are asked to identify their teacher's constructions rather than to construct their own meanings.

In a constructivist classroom, students are encouraged to use prior experiences to help them form and reform interpretations (Audrey Gray 1997). Textbooks are a part of the constructivist classroom as long as the teacher does not rely on them for meaningful learning and students clearly understand the purpose of the reading (Schulte, P. L., 1996). They start from that construct their own reading strategies and build then their learning.

**Methodology**

**Sampling**

From the 4 Information and Communication technology first level (ICT1) sections I am teaching this semester, the research was applied on 2 different sections only (section 814 and section 810). The other 2 sections were using normal teaching methodologies (section 601 and section 813).

**Procedure**

Before any new lecture, students should come to class prepared. The preparation includes reading the chapters that will be covered in the class to have a basic idea about the lesson and measure the difficulty level of the lesson and bringing the necessary material to the classroom such as the notebook and the textbook.

**Material used for the research**

In this research, 2 materials were prepared and distributed to students to do the evaluation:

1. Weekly assignments were distributed to students to do.
2. 4 different quizzes to evaluate students’ understanding.

**Distribution of the assignments:**
The weekly assignments were distributed to all the four sections, the experimental group (evaluated sections) and the control group (non-evaluated sections), in the same way, but additional instructions were assigned to the experimental group.

- **Experimental groups:**
  Students were asked to read the chapter that will be explained in the next session. To verify that students did their homework in the correct way, the following specific tasks were assigned to students:
1. Writing the new keywords from the lessons that requires understanding and summarization on their notebook.
2. Preparing at least one question from all lessons read in the chapter.

The teacher also sends an e-mail describing the homework in details for those students.

- **Control groups:**
  Students are asked to read the chapter that will be explained in the next session and concentrate on the lessons that require memorization.

**Teacher’s task on the due date of the assignment:**
- **Experimental groups**
  - **Verifying Notebooks:**
    The teacher collects students notebooks, checks the keywords and the questions and provide individual feedbacks to students on the quality of their work whether it is organized, relevant and well presented.
  - **Opening a discussion:**
    The teacher asks the students about the difficulty level of the chapter prepared, problems they faced to do their assignment, and the reading strategies used to understand the subject discussed in the chapter read.
  - **Explaining the new chapter:**
    The teacher then explains the new chapter, answers all students’ questions written in their notebook, and refer students to their notebook to complete their keyword list and write the answers to their questions.
  - **Distributing the quiz:**
    During the last 15 minutes, the teacher distributes a theoretical quiz to students summarizing the most important points of the lesson to test their understanding.

- **Control groups:**
  - **Explaining the new chapter:**
    The teacher then explains the new chapter and answers students’ questions.
  - **Distributing the quiz:**
    During the last 15 minutes, the teacher distributes a theoretical quiz to students summarizing the most important points of the lesson to test their understanding.

**Handing back the corrected assignments:**
- **Control groups:**
  The teacher hands back the quiz corrected and provide students with the correct answers.

- **Experimental groups**
  After handing the assignment corrected to students, the teacher points out the students who got full mark and discuss with them their learning and reading strategies applied. The teacher writes the different strategies on the board and encourage other students to use them to improve their grades in the coming quizzes. The teacher then provides answers to the questions in the quiz.

**Summary of students feedback:**
- **Reading strategies used:**
  - Read the lesson before coming to the class
  - Skimming carefully the paragraphs.
  - Underlining or highlighting the important parts of the lesson.
  - Identifying the lesson keywords (Bolded words)
  - Translating or explaining the difficult words.
  - Construct a vocabulary list in the notebook
  - Organizing the notebook
  - Identifying the main ideas from lessons
  - Read more than one time.
  - Preparing questions about the points that are not clear.
- Learning strategies:
  - Paying attention to the teacher’s explanation in the class to reinforce the understanding of the lessons
  - Listening carefully.
  - Completing the vocabulary list in the notebook
  - Asking questions
  - Completing all practice tasks in the classroom.
  - Sharing duties in group work activities.

Results:

Students performance in evaluation quizzes:

Experimental Group:

- **Section 814:** The chart below shows that the average quizzes was increasing from one quiz to another one except for the last quiz that went down to 4 but 60% of students got full mark.
- **Section 810:** The chart shows that the average quizzes was increasing from one quiz to another one. In quiz 4, 50% of students got full mark.

This shows clearly that students were benefiting from the constructivist method as they started to become more serious about coming to the class prepared which includes:

1. Reading the chapter at home
2. Highlighting the important words
3. Trying to understand the lessons and coming up with questions.
4. Bringing the required material to the classroom: Notebook, Study book

Control Group:

For both sections, there was no improvement as the grades were varying up and down from one quiz to another one.

- **Section 813:** Only 33% of students got full mark.
- **Section 601:** Only 13% of students got full mark.

Since the teacher has no way to verify whether the students did some reading before coming to class or not, students didn’t take the method seriously so their quizzes were going up and down. They were relating 100% on the teacher’s explanation in the class. This was not enough to improve their grades.

![Comparison chart between averages in evaluation quizzes for each section](image)

**Fig. 1:** Comparison chart between averages in evaluation quizzes for each section

Students performance in evaluation quizzes:

The timed tasks assigned in the classroom are all practical. They are based on scenarios and tasks for students to do. Students are then required to do some reading to understand what they are supposed to do.
Students on which the constructivist method was applied developed their own reading strategies and applied them in the assigned timed tasks. Therefore, their grades were higher and they were improving from one timed task to another one.

The comparison chart below shows clearly that students in both experimental groups were improving in their grades, whereas there is a very little improvement in section 813 and no improvement in section 601 (control groups).

Students performance in the midterm exam

The midterm exam is based on scenarios and tasks where students have to read the scenario carefully to be able to select the correct answer and then answer the associated tasks. This requires students to use some reading strategies such as identifying keywords and highlighting them, translating or explaining the difficult words and then decide about the software to be used.

The chart shows clearly that the average in the midterm exam is higher in the sections where the constructivist method was applied. Even though the level of students in section 813 (control group) is much better than the one in section 810, the students in section 810 (experimental group) benefited from the constructivist method and performed well in the midterm exam.

Conclusion

Since constructivism recognizes that students are at different levels of understanding and presents variety of ideas, teachers should start encouraging more student-centered learning in their teaching methodologies.
The research presented shows that the constructivist method applied had a good effect on the students' scores in comparison with the traditional teaching method. Therefore, more importance should be given to developing new methods to help students construct their own reading and learning strategies while preparing the material that need to be covered before the class, creating open discussions for students to share their strategies and ideas with their peers in the classroom and encouraging students to use their strategies developed in other courses than IT. This will also help students search for other resources such as textbooks and the Internet to localize their lessons and prepare them in their own.

At the end, students will become more responsible for their self-learning before, inside and outside their classes.

References