

CHAPTER 2

Pedagogy of Case Study

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INTRODUCTION

The 'case study' method of teaching has long been associated with Business, Medical and Law courses, but nowadays teaching and learning with cases has gained widespread interest in the education field also. This is a rich and powerful pedagogy used for the development of critical, analytical, and creative thinking skills among the students. This chapter serves as a guide for pre- and in-service teachers and for teacher educators to know more about theoretical background and implementation of case study as a pedagogy.

We are familiar with the word 'case' which is used in the medical field, in clinical psychology and in business education as a method of qualitative research.

In education we can use case study as an innovative pedagogy where cases are real facts, events, problems, dilemmas, or theoretical and conceptual issues related to education. In education, cases become stories with messages to educate. Cases are a narration of a phenomenon, a process, concepts or realistic facts and terms. In other words, case studies represent realistic, complex, and contextually rich situations that often involve a dilemma, conflict, or problem where one or more characters in the case must negotiate.

CASE STUDY PEDAGOGY

Case study is a task, which aims to teach the students how to analyse the causes and consequences of an event or activity by creating its role model. The pedagogy of Case Study stimulates the students about the real world and encourages them to bridge the gap between theory and practice.

"A case study is an intensive holistic description and analysis of a single instance, Phenomena and social unit." (Antony and Jack, 2009, Walshe 2011).

Thus, case study can be defined in terms of the case itself (the unit of study), the case study design (the process), and the case study (the product). These parts come together and make case studies become stories with an educational message.

A good case study, according to Professor Paul Lawrence is: “The vehicle by which a chunk of reality is brought into the classroom to be worked over by the class and the instructor. A good case keeps the class discussion grounded upon some of the stubborn facts that must be faced in real life situations.” (Christensen, 1981). As an instructional strategy, case studies have numbered qualities. They bridge the gap between theory and practice and between the academy and the workplace (Barkley, Cross and Major, 2005). Case studies vary in length and detail and can be used in a number of ways, depending on the case itself and on the instructors’ goals.

NATURE OF CASE STUDY METHOD

The case study method enables professionals to develop and refine problem-solving abilities through in-depth analysis of complex problems. Teaching based on cases using certain authentic situations, is a tried and tested method. This method is commonly used in the teaching of medicine, chemistry, mathematics, engineering science, language, economics, and political science. In this method of teaching the focus is on the learner, who studies, discovers the issue or the concern of the case and does in depth analysis of the case. During this analysis the learner thinks critically, discusses, discovers various aspects of the cases which have been used to solve the case problem. Here, learner can draw individually his/her inference and principles to handle a similar situation and thereby in the process he/she gains self-confidence. Automatically the whole teaching learning process becomes participatory and motivating.

One can use a case study to illustrate and enrich the lecture material or in a large class one can consider breaking the class into a small groups or pairs to discuss a relevant case.

A good case study can be identified by the teacher / instructor according to the classroom environment, enthusiasm of students; case study method requires certain process techniques, such as, listening, applying logic, following instructions, consciousness, and evidence. In a case study it is also important to frame questions which will help students to understand the concept clearly. Asking the right questions based on the content used for the case study is one of the key aspects of this pedagogy. The case study may be short or long with charts, financial statements, technical information, historical data etc.

CHARACTERISTICS OF CASE STUDY METHOD

- Reflects reality
- Prepares students for lifelong learning
- Inculcate process of inductive thinking

- Builds capacity for critical thinking
- Active engagement of students
- Motivates students
- Sharpens the understanding of the concepts

IMPORTANCE AND BENEFITS OF CASE STUDY METHOD

- The case studies are content rich and built around learning objectives. It helps students to understand the topic explained in a case study.
- Case studies enhance learning.
- Case study engages students in teaching-learning process.
- Case studies facilitates small group learning.
- Case studies help in achieving learning outcomes. (Bonney, 2015; Brslin, 2008; Herried, 2013; Krain, 2016)
- Students can construct new knowledge while solving case studies.
- Case studies increase the ease of learning and depth of learning.
- Use of case studies increase critical thinking skills of the students and promotes active learning.
- Case studies help in developing problem-solving skills.
- Case studies help in developing communication skills among students.
- Case studies develop self-study habits of the students.
- Case studies facilitate inter disciplinary learning.
- Case studies motivate students to take part in classroom activities which promotes learning.
- Case studies help students to improve their understanding of basic concepts.
- Case studies can be used to show the connections between specific academic topics and real-world issues and applications.

THEORETICAL BACKGROUND

Case study method has theoretical background of constructivist theory which is based around the idea of active learners participating in their learning process. A constructivist theory states that each person reflects on the new ideas with their prior knowledge. Therefore, individually, learners develop schemas to organize acquired knowledge. The foundation of case study stems from the learning theories of Dewey, Piaget, Vygotsky, Gagne, and Bruner.

Down below we present the two key elements that are crucial to the success of a constructivist classroom:

1. The instructor takes on the role of a facilitator instead of a director.
2. Learning occurs in small groups or individually.

By using the case study method, the teacher can ensure that the problems encountered in real life by the students are examined and resolved in the classroom environment. The case study method is appropriate for discovery learning (Cin, 2005), (Demirel,2009) and helpful in the development of analytical, critical, and creative thinking skills of the students.

To better understand the process and mechanism of case study it is important to review and outline the main tenets of constructivist theory.

Principles of constructivism:

- Knowledge is constructed. This is the basic principle, meaning that knowledge is built upon another knowledge.
- People learn to learn, as they learn.
- Learning is a social activity.
- Learning is contextual.
- Knowledge is personal and motivation is the key to learning.

All the above principles are used while implementing the case study.

LITERATURE REVIEW FOR CASE STUDY

Sharan Merriam (1988) in her first book focused on the end product of case study. The most important aspect of a case study is that it is a bounded unit. She writes, “The case is a thing, a single entity, a unit around which there are boundaries - I can ‘fence in’ what I am going to study.” She describes three types of case studies: particularistic, descriptive, and heuristic. Particularistic case studies focus on a specific event or phenomenon. Descriptive case study focuses on thick description of whatever is being studied. Such studies may be longitudinal and study the ways in which many variables affect each other. Heuristic case study intends to increase understanding of the case. They can bring about the discovery of new meaning, extend reader’s experience or confirm what is known. Ragin and Becker (1992) add that the case may be a relatively bounded object or a process, it may be theoretical, empirical, or both. At a minimum, a case study is a phenomenon specific to time and space.

Shulman (1992) add to the literature review outlining what a well written case study should look like. Schulman adds that a well-used case study provides empathetic experience with important teaching dilemmas. Case studies help in illuminating human intentions, feelings, misinterpretations with case teaching

problems. Shulman advocated that case studies have the strength to increase students' repertoire of educational strategies showing them how teachers approach problems. Case studies also help students to learn about issues and think about practical problems. Lastly, Shulman highlights that case study methodology provides a connection between the student and their environment.

Richard Grant (1997) studied the case method in the teaching of geography. For him, the case method of teaching is an interactive learning approach which shifts the emphasis from a teacher centered to a students centered classroom teaching.

Dari, Y., R. Tal and M. Tsaushu (2003) studied the effect use of case studies in the teaching of Biotechnology. The aim of the study was to raise the level of student's scientific literacy and higher order thinking skills. The research population was about 200 students in eight classes of grades 10-20 from heterogeneous communities. The findings of the study were positive towards use of case studies. They found a significant improvement in students' knowledge and understanding and higher order thinking skills at all academic levels. In the higher order thinking skills-question posing, argumentation, and system thinking, a significant improvement was shown when using case studies. The result of the study proved that this approach is likely to contribute to developing scientific and technological literacy along with higher order thinking skills of Nano science majors.

Farhoomand Ali (2004) described how to write cases, what is involved in writing a good teaching case. The case method is a powerful approach to teaching and learning which allows students to participate in real-life decision-making processes by identifying the problem given in the case and then attributing to it appropriate solutions.

For Farhoomand, a case study typically consists of three main parts:

1. The opening paragraph which gives the idea about the topic of the case.
2. Body of the case which tells the main story of the case.
3. It should help students to think about solution of the problem. This is the main part of the case/case study which engages the reader and motivates to solve the problems given.

C. F. Herreid (2005) described the use of case studies in the article, "Using case studies to teach science." The author stated that stories set cultural norms, warn us from evils and give us reasons to hope for better things and better days. Great teachers are most often good storytellers who engage students in learning and motivates them, create interest about teaching learning process. Case study

teaching has gained a strong basis in science education. By using case studies students show improved learning.

Ozlem Sila Olgun, Belgin Adali (2008) described a case study approach in the article, "Teaching grade five science with a case study approach." They studied effect of a case study approach on student's achievement and attitudes towards viruses, bacteria, fungi, and Protista. Fifth grade students (N = 88) from different classes were selected as a sample. The control group achieved their instruction by traditional method of teaching while the experimental group students were instructed with a case study approach. Achievement and attitudes were measured before and after teaching the class. The finding of the study proved that by using case study methodology in the classroom, the achievement and attitude towards science of the students improved.

Yadav (2009) compared the lecture method with case teaching method in a mechanical engineering course. He explained that case-based teaching helps students to better succeed in the real world. Yadav selected 86 students for this study from mechanical engineering stream of Mid Western University. The authors developed two case studies based on actual events related to two topics. Instructor A taught one topic with case studies while instructor B taught by using traditional method of teaching. Findings of the study proved that case-based instruction has been found to increase student engagement and learning with motivation and participation. They outlined that the case study method proved to be successful in creating interest in the students' learning of any topic. To assess the learning of the students after using case studies, it is necessary to formulate proper questions to do appropriate measurement of learning.

From these reviews researcher got the idea about formation of question papers to test the effect of case study method on achievement of students in science subject.

Carom Kreber (2010) described learning through case studies in his article, "Learning experientially through case studies? A conceptual analysis." For Kreber, if appropriately applied the case study method is an effective way to involve students in active learning processes. It fosters students' self-learning ability and ability of critical thinking effectively.

Yildizay Ayyildiz and Leman Tarhan (2013) described the effects of case studies on science teaching in the article, 'Case study applications in chemistry lesson: gases, liquids and solids.' The study was conducted on 52 participants from the department of science teaching at universities in Turkey. Pre-test and post-test experimental design with a control group was used and the students were randomly assigned to these experimental control groups. A preparatory course was applied on both groups by the traditional method and after that the same educator taught gases, liquids, and solids with case study method to the experimental group. The achievement test results showed that the experimental group

significantly had higher scores. With regards to attitude towards chemistry, the results proved that chemistry education based on case studies significantly enhanced students' positive attitudes towards the topics.

Minniti, L.F.S., Melo Jr. J.S.M., Oliveira, R. D. & Salles, J.A.A. (2016) in their article "The use of case studies as a teaching method in Brazil" explained the methodology of teaching case studies as a pedagogical alternative in the classroom. The Case Study is defined as an immersive exploration method of realities with an investigative nature. For them, the case study methodology, presents an educational purpose that serves mainly to illustrate concepts and develop skills in students, allowing them to reflect on situations given in the case study and making decisions about it. To clarify, the authors used the case study not as a research method but as a teaching strategy. In the case method, the real situations are presented to student for analysis and dispassion. Here, the teachers' role is to guide the students throughout the process. The teacher presents the description of the situation to the students and students solve the questions related to case study.

The Authors concluded in this paper that case studies are a didactic- pedagogic strategy using a constructivist approach. Furthermore, this pedagogy provides an immersive experience to the students as they do not act as passive elements in the learning process. Science Case Network supports science educators, learners, researchers who are interested in use of case studies and problem-based learning. The website provides various examples of case studies that can help teachers' implement these innovations in their classroom.

Kathy Galluci (2018) stated in her book "Science stories: using case studies to teach critical thinking," that case studies are one effective way to help students understand how science works and how science knowledge is constructed which proves difficult with the traditional method. Case studies help students to understand the scientific knowledge which is a powerful force in modern life and allows them to become critical and analytical thinkers.

Implementation of the Case Studies

The prerequisites to implement a case study in the classroom are the following:

- Willingness to break from traditional teaching
- Aligned with the overall objectives of the curriculum
- Identify the right content which has real facts in the textbook for preparing cases
- Efforts to search supportive material to enrich the case
- Prepare students for case method

THE ROLE OF TEACHERS IN IMPLEMENTING CASE STUDY

The table below outlines the roles attributed to teachers and learners when using the case study methodology in the classroom.

Role of Teacher	Role of Learner
<ul style="list-style-type: none"> • Facilitator • Mentor • Thinker • Collaborator • Coach • Knowledge navigator 	<ul style="list-style-type: none"> • Knowledge navigator • Critical reflector • Researcher • Active learner

Components to create a successful Case Study

- Real facts given in the content
- Graphics
- Text
- Pictures / diagrams
- Audio / video clips
- Learning objectives
- Audio / video clips
- Learning objectives
- Activities
- Questions

Case study Development Method – steps to take and phases

- 1) Analysis of textbooks
- 2) Design of Case Studies
- 3) Development of Case Studies
- 4) Implementation of Case Studies
- 5) Evaluation of Case Studies

To better understand and more importantly, implement a case study in your classroom, teachers can follow the different phases or stages described below.

Phase I – This is the analytical part where the following analysis must be completed:

- | | |
|--------------------------|----------------------------------|
| • Analysis of textbook | • Analysis of content |
| • Analysis of objectives | • Analysis of student's problems |

Phase II – This is the design part where the teacher must compose and conceive the following tasks:

- List the activities
- Apply expected outcomes
- Select instructional strategies
- Validate the content
- Schedule the programme
- Design cases

Phase III – This is one of the key phases where the development of the process will occur and the following developmental activities ought to be performed:

- Develop Instructional strategies
- Development cases
- Development of lesson plans

Phase IV – Once the case is ready, we arrive to the implementation part where the two following tasks should be completed:

- Put into action the developed program (case study)
- Set Learning environment

Phase V – The last part is the evaluation part where the following needs to be performed by the teacher:

- Give the results achieved by implementing the case study

Case study Template

To guide the teachers to create a case study containing all the necessary parts, they can use the list below as a check to ensure all the elements have been integrated in their case study.

1. Title
2. Name of the topic
3. Introduction
4. Description of the topic
5. Situation Analysis
6. Conclusion
7. References
8. Notes

A GENERAL FRAMEWORK FOR HOW TO USE CASE STUDIES IN TEACHING

As we have seen in this chapter, there are many variations in how case studies can be used. To guide teachers, the steps below will give them a general framework for using case studies in their classroom.

- A teacher / instructor should give enough time to students to read and think about the case. If the case is long, it can be assigned as a homework with a set of questions for students.
- A teacher / instructor should introduce the case briefly and provide some guidelines to the students on how to approach it. Clear idea should be given to students about how they should think about the case. If it is necessary to focus or to disregard certain information, it should be clearly explained to students.
- A teacher / instructor should monitor the students to see that everyone is involved.
- If students ask doubts, these should be cleared by the teacher.
- Proper guidance should be given to the students so that they can solve the given questions.
- At the last, question and answers should be discussed to confirm learning through the case study.

CONCLUSION

This chapter gives a clear idea on the conceptual and theoretical background of case study pedagogy. It also reviews the literature supporting case studies and it outlines the procedures to apply this pedagogy in the classroom. The necessary information and the procedures to follow are listed in the chapter for teachers to implement this pedagogy without facing any obstacles. By going through this work, teachers can gain the necessary information and the required skills to start incorporating this pedagogical tool in their classroom.

As research has proven, the use of case studies motivates learners to self-study and to acquire additional subject knowledge. The implementation of case study in the classroom allows teachers to use their analytical, critical, and creative thinking skills to promote those same skills among their students. Therefore, case studies become a rich and a powerful pedagogy used for the development of critical analytical, and creative skills in children. Hence, this tool is helpful, for teachers as well as students equally, in developing various 21st century skills.

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