



The case study approach in extreme psychology Master's course

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Abstract

The case method involves learning by doing and stresses the development of analytical and decision-making skills, communication skills, abilities to solve real-life professional problems etc. We integrate past work by presenting the steps involved in creating and using case studies for the Master's course in Extreme Psychology. We consistently used *highly structured, short vignettes, long unstructured and ground-breaking* cases. The last group of cases fully meets the requirements of Master of Science programs.

A typical case passed through six stages: *introduction to the problem, information gathering and analysis, consideration of alternatives, decision making, results presentation and class-wide reflexive discussion*. Two case formats were used in the study: the Problem Based Format and the Scientific Research Team Format.

Case studies contribute to the building of a professional repertoire for extreme psychologists. The cases for the Extreme Psychology Master's course were purposefully selected in accordance with the following criteria: they were extreme, informative, critical, revelatory and applicable. The case studies provided students with opportunities to evaluate data, identify important concepts, develop hypotheses, and create or defend arguments. As a result of the systematic implementation of the case study method, the Master's course students demonstrated integration of significantly more theoretical concepts to a greater extent in the case analysis. Working on cases in groups also helped students develop interpersonal skills and the ability to work in a team.

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Keywords: case study approach, extremal psychology, Master's course, learning outcomes;

1. Introduction

Many higher schools of business, law, medicine and psychology have used real or simulated stories known as cases to teach students different disciplines for a long time. The idea behind the case study method is to learn by doing. Case studies stress the development of analytical and decision-making skills, communication skills and abilities to solve real-life professional problems etc. Although several illustrations of case studies for psychology classes exist in literature, few resources have consolidated suggestions about how to develop or implement them. We've integrated past work by presenting the steps involved in creating and using case studies for the Master's course in extreme psychology.

Extreme psychology is one of the new areas of research in psychological science and practice. It integrates theoretical approaches, experimental research and psychological methods concerning so-called high risk and extreme situations such as accidents, disasters, military conflicts, crimes and terrorism. Thus, extreme psychologists have to be experienced specialists ready to work with victims and professionals, witnesses and criminals, children and the elderly.

We chose to use the case-study method as the principal training tool in order to prepare the Master's course students for practice in extreme psychology. Case studies recount real life extreme situations that present students with a dilemma or uncertain outcome. A case study model has at least four applications (Yin, 1994):

1. To explain complex causal links in real-life interventions
2. To describe the real-life context in which the intervention has occurred
3. To describe the intervention itself
4. To explore those situations in which the intervention being evaluated has no clear set of outcomes.

Though focused on one specific case, case studies simultaneously take the context into account and encompass many variables and qualities (Herreid, 2007; Brickman, Glynn, Graybeal, 2008). Thus, case studies contribute to the building of a professional repertoire for an extreme psychologist.

The cases for the Extreme Psychology Master's course were purposefully selected in accordance with the following criteria: they were extreme, informative, critical, revelatory and applicable. Generalizations from cases were not statistical but analytical, based on reasoning. Usually generalizations were operative, or naturalistic – made from known cases and applied to an actual problem through appropriate comparisons (Simmons et al., 2000).

We consistently used *highly structured, short vignettes, long unstructured and ground-breaking* cases. The last group of cases completely suits the aim of the Master of Science program, as its goal is not simply to teach the content of science, but to also teach how the scientific process is created (Hager, 2004; Gallucci, 2006; Gallucci, 2009). These cases seem ideally suited in terms of illustrating the relevance of science to society.

A typical case study is comprised of six stages: *introduction to the problem, information gathering and analysis, consideration of alternatives, decision making, results presentation and class-wide reflexive discussion*. Two case formats were used for the course: Problem Based Team Format and Scientific Research Team Format (Herreid, C.F. 2002; Cliff, Nesbitt. 2005; Artan, 2007). The key features of a research case study are its scientific credentials and its evidence base for professional applications (Brickman, Glynn, Graybeal, 2008). The best case technique for the Scientific Research Team Format was one called “Interrupted Case Method” (Herreid, 2005), which was modeled to resemble the scientific method in real life – the students worked with incomplete data sets, made tentative hypotheses, collected more information, made more predictions, got more data, and so on.

The purpose of the present study is twofold. First, it is intended to examine the influence of case studies on the learning outcomes of Master's course students. The second purpose of this paper is to compare the effectiveness of two case study team formats: the Problem Based Format and the Scientific Research Format.

2. Methodology

2.1. Participants and Sample

A total of 130 Extreme Psychology Master's course students in the second term at Moscow State University of Psychology and Education participated in this study. All were native Russian speakers. Overall, 72% of the sample indicated having at least one year of prior job experience. Of the participants, 78 (60%) were female. Mean age was 27.6 years with a standard deviation of 3.2 and a range from 21 to 42.

2.2. Procedures

The investigation had a quasi-experimental design. A one term Extreme Psychology course was delivered in three different formats: one lecture-seminar taught group and two case study taught groups characterised by one of two above-mentioned case formats.

- a) LS – Lecture/Seminar based learning conditions, control group (N=45)
- b) PB – Problem Based Case Team Format, experimental group 1 (N=43)
- c) SR – Scientific Research Team Format, experimental group 2 (N=42)

In order to control for differences in teaching approaches between three formats, standardised learning materials on the subject of the Extreme Psychology (including a work program, a text book; a set of assignments and

assessment methods were developed for a set of 12 lessons (each lasting for 1h30min). A total of 6 teachers participated in the study.

In the control group, the information was presented directly in a lecture format. In the experimental groups, students had to discover and study the information in teams in order to solve the problems presented in cases (PB format) or to organize research on the case material (SR format). The teachers' role in these groups was restricted to supervision and coaching during the learning process.

2.3. Instruments and Data Analysis

In order to analyse the efficiency of the case study approach to learning, a mixed-method investigation design (Johnson, Onwuegbuzie, 2004; Matthews, 2008) was used to evaluate the learning outcomes of students taught by differentiated educational methods. We evaluated quantitative (test results) and qualitative data from student case analysis tasks. Individual contributions to teamwork were measured by a co-assessment method.

a. Multiple choice test

The multiple-choice test was administered upon program completion and included 100 questions with 4 possible answers each. Items were equally divided into four question categories: knowledge, competencies, application and problem solving. The test was given as an examination course procedure in all three groups.

b. Case based assessment

The students' case analysis material was studied in order to evaluate (a) integration of theoretical concepts; (b) the depth of analysis; (c) student abilities to reflect on the materials. The pre- and post-evaluation of the case material was conducted in both experimental groups: PB format and SR format.

c. Co-assessment

Co-assessment was used to differentiate between the students' individual contributions to team assignments. For each of 5 criteria (analytical thinking, involvement in group discussion, ability to develop hypotheses, ability to create and defend arguments and willingness to undertake arranged tasks), students had to indicate for each team member (and themselves) whether he/she contributes more (score 3), equally (score 2) or less (score 1) than average or if the student made no contribution to the group project at all (score 0). These scores were calculated into individual and mean group activity factors.

Due to the differences in teaching methods used in the three investigated groups, an additional evaluative question was included in order to assess student perceptions of the learning conditions that they experienced during the Extreme Psychology course. The question was the following: "How do you assess the teaching methods you have experienced during the course of Extreme Psychology?" Students had to indicate on a five point scale one of the following answers: 'very good,' 'good,' 'moderate,' 'weak' and 'very weak'.

For the received data analysis descriptive statistics were calculated.

3. Findings

Due to the creative, collaborative and self-regulative nature of the case-study method, scores were expected to be higher for the case study approach compared to the traditional Lecture/Seminar based learning method on multiple choice test results. In order to evaluate the differences in the case study format, special attention was paid to the case based assessments and co-assessment results of student learning outcome.

Means for test results and peer factor, [as well as](#) qualitative case analysis scores for the three investigated groups are presented in Table 1. Significant differences between the students' educational outcomes of two learning methods: Lecture/Seminar based learning conditions and case study approach, are indicated in the table.

Table 1. Results of Students' Learning Outcome Evaluations

Groups	Test scores (max 100)	Case Based Assessment Pre-Evaluation	Case Based Assessment Post-Evaluation	Peer Factor Mean
Control Group	67.82	-	-	-
Experimental Group 1	83.54	moderate	Good	2.43
Experimental Group 2	80.85	moderate	very good	2.57

The multiple choice test results are significantly better in experimental groups than in the control group. No significant differences were found between the experimental groups in test scores. At the same time the test results were not correlated with the format of the case study: the test scores are very high in both experimental groups, which indicates excellent learning outcomes for students taught in the case study approach.

No significant differences were noticed in the peer factors of the two case formats. Students in both groups were moderately prepared for case analysis at the start of the experiment and were equally active in team assignments. The case based assessment results did not differ between the two experimental groups in the pre-evaluation procedure. However, the post-evaluation revealed a distinction in qualitative characteristics of student case analysis between two case method formats: the Scientific Research Teamcase format was more effective in terms of developing analytical skills, hypothetico-deductive thinking and argumentation abilities than the Problem Based Team case format.

In addition, students expressed their opinions of the method used in classes. It appeared that distinctively more students taught in the Scientific Research case format felt satisfied and very satisfied by the teaching method (76%) than students taught in Problem Based (62%) and Lecture/Seminar (46%) formats. The percent of the students dissatisfied with the teaching method was about the same across all three groups (15-17%).

4. Discussions

Two major goals were pursued in the study. The first was to examine the influence of case studies on the learning outcomes of Extreme Psychology Master's course students. The findings of this investigation confirm the hypothesis: the case study teaching approach with psychology Master' course students is more effective in terms of acquiring knowledge and developing competences and problem solving skills. These findings are consistent with the evidence that students who completed the case studies scored significantly higher than those who did not (Grunwald and Hartman, 2010). They also agree with Dupuis and Persky (2008) investigation results, where the case based learning (CBL) approach was assessed using examination scores and attitudinal surveys. Assessments indicated that students enjoyed the applied format of CBL, and examination scores were higher in groups where CBL was used than in control groups. The authors conclude that CBL allows class time to be used for higher levels of learning and assessment instead of for traditional content delivery. Mayo (2004) used three unit tests and comprehensive final exam results in the Psychology of Adjustment course to report that the students in the case based learning condition outperformed the students in the traditional class on comprehension and application of course principles.

The second purpose of this study was to compare the effectiveness of two case study formats: Problem Based (PB) and Scientific Research (SR). No significant differences between the two experimental groups were found in either the test scores or in the co-assessments of student team activity. However, the case material qualitative analysis suggests better learning outcomes for the SR format experimental group. Students in this group demonstrated very good reflective and analytical abilities and willingness to integrate theoretical concepts in the case analysis. A plausible explanation is that the SR format cases stimulated the exploration of the problem in contrast with the PB format, which was largely solution-driven.

These results are similar to Bowe, Voss and Thomas Aretz (2009) findings, which showed that students actively engaged in case discussions were able to apply basic scientific principles in problem solving. The results are also in

line with Chernobilsky, DaCosta and Hmelo-Silver(2004) findings, which showed a correlation between the number of concepts discussed in the group work with the incidence of “transforming ideas” and the depth of knowledge demonstrated in the students individual case analysis material.

And finally the students’ proved to be more satisfied with the case based learning approach than with the traditional teaching method. The best feedback was provided regarding the use of the Scientific Research format. In their comments, the students indicated a preference for the case study approach because it required them to integrate classroom material and collaborate with others. Students also reported that the case study method stimulated critical thinking, motivated independent thought and helped them to streamline their approach to problems. They experimental groups enjoyed the learning experience more than the control lecture group, had better attitudes toward the subject, and were able to articulate their points better. At the same time, there were some stressful aspects of the case study approach: large amounts, or deficiency of information, incomplete cases, and uncertainty over whether or not answers were correct. Such topics surely merit attention in future research.

The discussion would be incomplete if some shortcomings of the present study were not mentioned. There were only two case formats investigated. Other case based learning methods may be more effective and interesting when it comes to problems unique to Extreme Psychology.

A problem more specific to the methodological part of this study is the choice of instrumental methods used for the evaluation of the student learning outcomes. The present results reflect only the first approach to the subject: a “draft” to be used for further study. A third potential drawback of the present investigation is the consequence of psychological data deficiency that doesn’t permit to use more powerful methods of statistical data analysis.

5. Conclusion

In accordance with the study goals the strict evidence for the case study approach’s effectiveness in the Extreme Psychology Master’ course was abandoned. Both quantitative and qualitative data were analysed in order to evaluate the differences between the two case format widely used in the educational process. The Science Research Team format was found to be the most convenient for the Master’s course classes. One of its modifications – the Interrupted Case Method, was modeled to resemble the scientific method in real life– the students worked with incomplete data, made tentative hypotheses, collected more information, made more predictions, got more data, and so on.

Those faculty who do wish to encourage Scientific Research case study formats, as they are irreplaceable in Master of Science courses, should ensure that students are ready and well equipped for this learning method. First of all, they should possess the appropriate amount of theoretical knowledge and at basic research abilities. Students must also have access to multiple sources of scientific information. Otherwise, the method cannot be used to its maximum potential.

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