



Case Study: Learning Difficulties of Qualitative Research Methodology at Biology Education Postgraduate

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ABSTRACT

Keyword:

Case study,
Learning Difficulties;
Qualitative Research
Methodology.

Qualitative research methodology courses become a provision for postgraduate students to carry out research, as one of the three obligations of college. The course is a new subject and most students had never practiced it and had never been familiar with the concepts. The aims of the study is to analyzed the causes of learning difficulties and solutions carried out by students and by lecturers in qualitative research methodology courses. This study used a qualitative research approach with a case study design. Data were obtained from questionnaires and interviews with 20 postgraduate students of biology education, Universitas Negeri Malang. Data processing consists of: data reduction, data presentation, and making conclusions. The students experienced main problems in understanding the teaching materials used because it was written in English and the methods in various qualitative studies tend to be similar so causing confusion. Various solutions are carried out by students, for example: conducting discussions, compiling concept maps, and conducting qualitative research practices. Supporting lecturers have main difficulty in assessment. Lecturers take advantage of online media to facilitate assessment. The findings of this study provided alternative solutions for lecturers and students who take qualitative research methodology courses in order to minimize the constraints.

**Article History:**

Received: 30-01-2020
Revised : 10-03-2020
Accepted: 10-04-2020
Online : 11-04-2020



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<https://doi.org/10.31764/ijecca.v3i1.2039>

A. INTRODUCTION

The qualitative research methodology course is one of the new subjects in biology graduate education at Universitas Negeri Malang. The course has never been given in the previous school year, and was only first presented at the Biology Education Graduate Program in Universitas Negeri Malang in the even semester of 2016. Postgraduate students of biology education at Universitas Negeri Malang who first met the subject for qualitative research were students of biology education postgraduate at Universitas Negeri Malang in class of 2015. Observation results showed that most of the graduate students of biology education at the Universitas Negeri Malang in 2015 felt that qualitative research had never been done.

Biology education graduate students at Universitas Negeri Malang class of 2015 are teacher candidates or lecturer candidates. As prospective lecturers, one day they have an obligation to improve their competence through the implementation of educational tridharma, one of which is

to conduct research (Samosir, 2018) in order to improve the quality of higher education (Bungai&Perdana, 2018). As prospective teachers, they also have an obligation to develop their competence through research (eg. classroom action research) (Hannay et al., 2003) to overcome problems in the teaching and learning process (Catelli, 1995; Catelli et al., 2000) and improve the quality of education (Catelli et al., 2000). As a prospective researcher, mastery of various forms of research is an obligation, both quantitative and qualitative research, bearing in mind that in the process prospective teacher or lecturer students will be confronted with events or problems that can not only be researched and resolved only by one method. Most of the research conducted by graduate students in biology education at the Unoiversitas Negeri Malang in 2015 was quantitative research. Thus qualitative research courses are very important subjects to be understood and mastered by students.

Based on observations made while the teaching and learning process takes place, students tend to memorize the concepts that exist in the qualitative research methodology course. They have not been able to understand the concept. Concepts that are only memorized will not last long because human memory is limited (Cowan & Rouder, 2009; Seven & Ali Osman Engin, 2007), different if the concept is understood. The ability to understand possessed by students is influenced by several factors. One of these factors is the initial knowledge possessed by students (Naveh-Benjamin et al., 1989). Early experience and knowledge will create cognitive conflict when students discover new concepts. This will require the process of thinking, which later results from the process of thinking that is an understanding, not just memorization.

Students feel that a concept in the qualitative research methodology is new because it has never been owned before. Thus, when students accept the new concept of this research methodology, students do not experience cognitive conflict. Students only accept the new concept passively. Students will experience problems if the accepted concepts are only able to be memorized, not understood. Therefore, it requires a separate effort to instil and understand new concepts in the research methodology so that they are not merely memorized.

Student under standing about concepts the qualitative research methodology materials is not optimal because of learning difficulties. Difficulty learning is a condition experienced by students which is marked by the existence of certain obstacles that lead to not achieving learning goals. There are various factors that affect the unachievement of learning goals that are measured on learning success consisting of; student capacity, teacher quality, quality of the learning environment, and quality of the learning process. Of the four factors, the two most dominant of learning are; Student capacity and teacher quality (SittiFaika&Sumiati Side, 2011).

A number of studies have been conducted to analyze the learning needs of students as preliminary research for research and development or R&D in a number of courses, but not in qualitative research methodology courses. The research is only limited to the analysis of difficulties and needs, without analyzing the solutions of the problems carried out by students and lecturers. This case study research was conducted to explore information about constraints and solutions conducted by students and supervisors that are useful as a reference solution to the problems of qualitative research methodology learning. The purpose of the study is to analyze learning difficulties and solutions by postgraduate students and supporting lecturers in qualitative research methodology courses. Based on this background, the study "Case study: Learning Difficulties in Qualitative Research Methodology Postgraduate Biology Education Students" is important to do.

B. METHODS

1. Research Design and Researcher Presence

This research uses a qualitative research approach with a case study design. Researchers are directly involved in research and become part of the respondents, researchers are students who also take qualitative research methodology courses. The data was obtained from informants consisting of 20 graduate students of C offer Biology Education 2015 who took qualitative research methodology courses and lecturers supporting qualitative research methodology courses at Universitas Negeri Malang.

2. Research Procedure

This study uses a questionnaire with open questions and qualitative data obtained from interviews. Qualitative data collection is carried out based on the five steps of the qualitative data collection process proposed by Creswell (2012), including: identifying participants and locations; get access; determine the type of data to be collected; developing data collections; and manage the process. The stages of this case study adopted from Creswell (2012), are presented briefly in Figure 1.

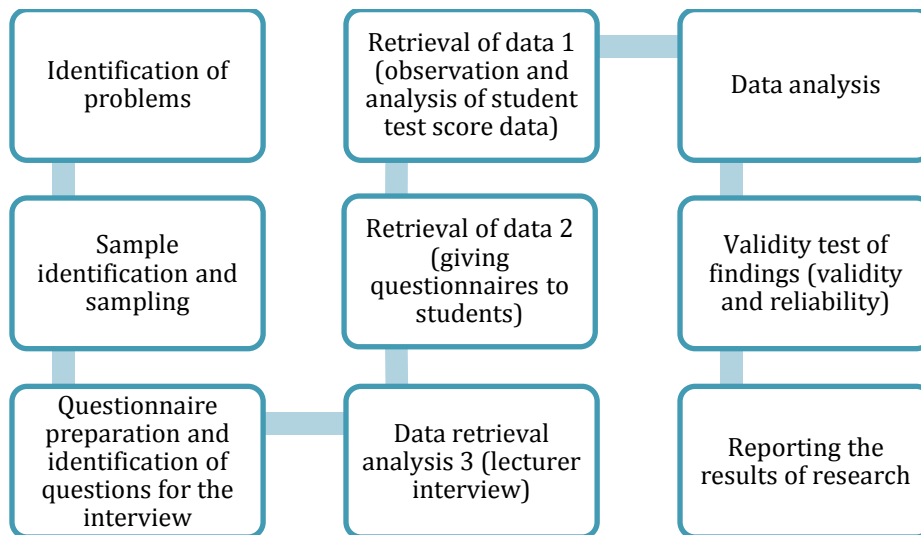


Figure 1. The stages of case study research (J.W. Creswell, 2012)

3. Research Instruments and Data Analysis

This research uses two forms of instruments, among others: the questionnaire and the researcher himself to conduct interviews. Questionnaire data were analyzed descriptively. Qualitative data processing consists of: data reduction, data presentation, and making conclusions.

C. RESULT AND DISCUSSION

This research is supported by a number of supporting data obtained from the questionnaire, including: the level of student interest in qualitative research methodologies and the level of difficulty of qualitative research methodology concepts. There are 5% of students who say they don't like qualitative research methodology courses, 30% are mediocre, and 65% say they like it. As many as 27% of students stated that qualitative

research methodology courses were difficult, 50% were ordinary or "moderate", and 23% students stated easy.

1. Analysis of Learning Difficulties and Solutions Made by Students

Data obtained from questionnaires in the form of open questions given to students shows that the causes of student learning difficulties are grouped into 3 categories, consist of: teaching materials, the using of terms and the exposure technique to qualitative research methodology materials.

1.1 Learning Difficulties Caused by Qualitative Research Methodology Teaching Materials

Teaching material is the biggest obstacle experienced by students, with a percentage reaching 83%. Students feel difficulties to understanding the language used in teaching materials, namely English. Most students have low English ability. The teaching materials used in qualitative research methodologies in English include: 1) Research Methods in Education, compiled by Cohen, L. ; Manion, L. ; and Morrison; 2) Planning, Conducting, and Evaluating Quantitative and Qualitative Research (Fourth Edition), compiled by Cresswell, J.W; 3) How to Design and Evaluate Research in Education (7th Edition), compiled by Fraenkel, J. R. and Wallen; and 4) Practical Research. Planning and Design (Eighth Edition), composed by Leedy, P. D. And Ormrod, J.E.

The students also feel that the concepts in teaching materials are difficult to understand because they are less systematic in reaching 9% and less flexible reaching 8%. So they have to arrange their own framework and think through the concept of qualitative research methodology after reading and translating teaching materials. Students argue that the concepts or material presented are not directly to the material core and are difficult to understand. Constraints faced by students regarding teaching materials are presented in Figure 2.

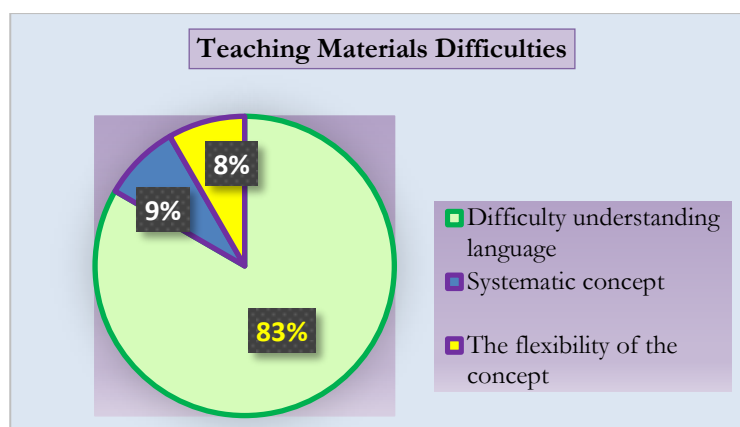


Figure 2. Learning difficulties caused by qualitative research methodology teaching materials

Teaching material is an important component in learning. The language used in teaching materials must be able to be understood by its users (SEVEN & Ali Osman ENGİN, 2007) because teaching materials lead students to understand concepts and principles (Kristiana et al., 2018). The understanding of the language used in teaching materials is the first step of mastery of the material contained in these teaching materials.

1.2 The Learning Difficulties Caused by the Using of the Term Qualitative Research Methodology

Data obtained from the questionnaire shows that students have difficulty in understanding the terms in the qualitative research methodology because of 3 factors, including: 1) the term using a foreign language; 2) the term used is a new term for students; and the term used in the types of qualitative research has many similarities. The biggest learning difficulty related to the use of terms is caused by the use of foreign languages (English) reaching 50%, then followed by the existence of new terms 33%, and the similarity of terms 17%. The obstacles faced by students regarding the use of the term qualitative research methodology are presented in Figure 3.

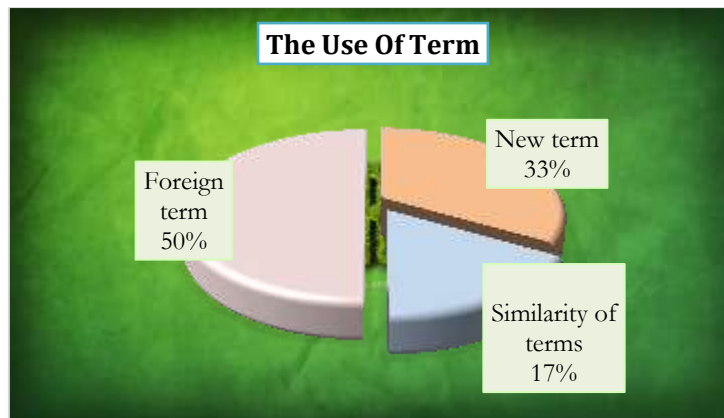


Figure 3. Learning difficulties caused by the use of the term in qualitative research methodologies

Research on the use of language in learning process has been reviewed, but studies are limited to differences in perceptions between students and lecturers. Subject lecturers argue that language is a major obstacle for students, but instead, students actually argue that cultural mastery is an obstacle (Sawir, 2005). The findings of this study contrast with the findings of the study conducted by Sawir & Elenawati. The lecturer considered that the use of foreign language teaching materials was not a problem, but instead, students considered that the use of foreign language learning resources was a major difficulty. In the learning process, language acquisition becomes important for students to determine the success of the learning process (SEVEN & Ali Osman ENGIN, 2007). This finding provides important information for supporting lecturers to provide teaching materials in Indonesian as a supporting teaching material for students. This finding is also a reference for students that mastering a foreign language is indeed their need to keep up with the times.

1.3 Learning Difficulties Caused by the Exposing Technique to Qualitative Research Methodology Materials.

The last learning difficulty accessed through questionnaires is the difficulty caused by the exposing technique of qualitative research material. The results of the questionnaire showed that there were 4 categories related to the exposing technique of the material resulting in learning difficulties, consist of: 1) the lack of seriousness of students in exposing the material; 2) cystetamika in material exposing technique; 3) mastery of concepts by presenters; and 4) communication skills possessed by the presenter. Diagram of learning difficulties caused by the exposing technique of material in qualitative research

methodology illustrates that the lack of seriousness in presenting the material is the biggest obstacle experienced by students, up to 60%, greater than the exposing technique of material that only reaches 20%, 10% concept mastery, and communication skills 10%. The data is presented in Figure 4.

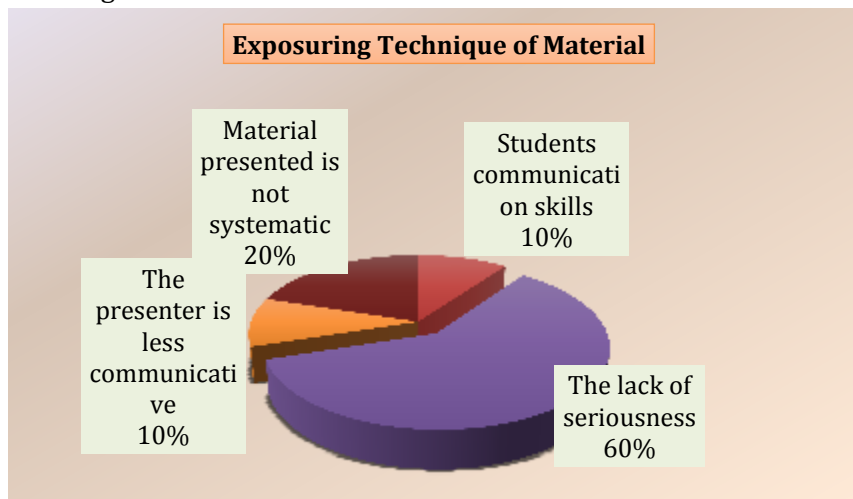


Figure 4. Learning Difficulties Caused by Exposing Technique of Material in Qualitative Research Methodologies

1.4 Learning Difficulties Based on Interviews with Students

The obstacle experienced by students in qualitative research methodology courses is in the translation of teaching materials. Students have difficulty translating reference books that use English. In addition, students find it difficult to compile a critical analysis taken from journal articles in English. Based on the results of the interview, students tend to experience obstacles in understanding the material because the material is too much. The methods used in various types of qualitative research tend to be similar. Likewise with the data analysis technique, students have difficulty in applying validity and reliability tests in qualitative research. In addition, some students felt that the learning methods used tended to be monotonous.

1.5 Solutions Made by Students

Some solutions put forward through interviews with Biology Education graduate students in overcoming the difficulties of learning qualitative research methodologies, include: 1) holding discussions with their friends; 2) preparing concept maps; 3) learning a foreign language; 4) training their self to be more communicative in presentations; 5) increase the learning frequency; 6) reading reference books related to the material; 7) pay attention to the presentation of material during lectures in class; 8) compile critical analysis of articles related to qualitative research; 9) compile qualitative research, not just theory; 10) explanation of the material should be supplemented with examples; 11) discuss systematic research directly from the research of each student; 12) pay attention to the explanations or reviews from the lecturer in each lecture; 13) make a presentation in front of the class and make a power point; 14) conduct question and answer with lecturers; 15) compile learning journals; 16) compile papers; 17) find other references that support the main reference; 18) relearn the material that has been learned in class; and 19) buy supporting books.

Concept maps are techniques to organizing material to be easily understood and studied (Deshpande & Ahmed, 2019). Concept maps also play a role in interpreting students' understanding structures (Deshpande & Ahmed, 2019). Concept maps help students to understand a concept because it makes it easy for students to associate concepts with one another, so the learning becomes meaningful (Carol Briscoe, 1991). Efforts to overcome the difficulties of qualitative research methodologies learning conducted by students through increasing the learning frequency, compiling maps concept and compiling learning journals are efforts to review and repetition the material. Material repetitions plays a role in improving student memory (SEVEN & Ali Osman ENGIN, 2007). In addition, repetition of material or concept recall can produce long-term retention in students (Pan et al., 2019a, 2019b).

2. Analysis of Teaching Difficulties and Solutions by Lecturers

This case study research also explores information through interviews with Qualitative Research Methodology lecturers, namely Prof. Dra. Herawati Susilo, M.Sc., Ph. D. Interviews were conducted to find out the preparation, constraints, and solutions related to lecturing on Qualitative Research Methodology. Interviews are conducted outside the lessons time, to allow flexibility in exploring the information needed in research. Topics covered in the interview included: (1) Preparations made in the study of qualitative research preparation; (2) the selection of learning methods in qualitative research learning lectures; and (3) qualitative research discussion techniques, difficulties and solutions.

2.1 Preparations Made by the Lecturer

The first preparation is done is the preparation of the lesson plan. The lesson plan was prepared together with Dr. Hadi Suwono, M. Si, as a teammate teaching a Qualitative Research Methodology course. Based on the explanation from the lecturer, it is known that the preparation of the lesson plan is done in a team, but in its implementation it is equipped with creativity and ideas that are suitable for each lecturer. The following is a description of the Qualitative Research Methodology lecturer, Prof. Dra. Herawati Susilo, M.Sc., Ph. D.

"The lesson plan was originally requested from Mr. Hadi Suwono, because we are a teaching team. So that the preparation of lesson plans is also done in teams. However, on the way, I reread the lesson plan that was compiled, then I made a little additional teaching material and then revised. In implementing the lesson plan also carried out. So the implementation of the lesson plan follows the teaching style of each lecturer. But still guided by the lesson plan. The lesson plan prepared by Mr. Hadi Suwono does not contain qualitative research practice activities. But on the way I did a consulting activity doing qualitative research. That is one form of team activities carried out "

"The number of credits in the Qualitative Research Methodology course is initially 2 credits when viewed from the Semester Lecture Program. However, this is a mismatch compared to the number of credits in the Quantitative Research Methodology course, which is 4 credits. If the number of credits is 4, it will be more flexible for the application of theory and with the contribution of 2 credits for theoretical lecture activities and 2 credits for practicum activities. In this case I keep trying to make the number of credits for Qualitative Research Methodology courses is 3 credits so that students have the time that is possible to do practical activities as well as theory "

Giving assignments in the form of qualitative research practices to students provides many benefits and makes learning meaningful (Winn, 1995). These practical assignments support students' understanding of concepts. The ability of students to understand a concept will increase if it involves more senses, namely an increase of 10% from reading, 30% from seeing, 20% from hearing, 50% from seeing and hearing, 70% from telling and 90% from practicing (SEVEN & Ali Osman ENGİN, 2007). Practical activities must contain three main components, namely concepts, principles, and procedures (Kristiana et al., 2018). Integrating these three components facilitates students to produce a qualitative study through the process of integrating concepts, principles, and procedures.

2.2 The Selection of Learning Methods in Qualitative Research Methodology Lectures

Biology education graduate students are given the freedom to choose lecturing methods. Basically lecturers are able to apply the presentation method by students. However, the method is further modified by students according to their creativity. Students who work as presenters modify presentations by holding presentations by involving participants in presentations. The lecturers like this method. The following are the opinions of the lecturers regarding learning methods.

"I like the method used by students at presentation time. They involve their friends to participate in presentations. Thus all students can play an active role in lectures. However, there are a few shortcomings in this regard. The presenter students should first upload the material that will be submitted so that other friends can learn it first, so that concepts related to qualitative research methodologies can be mastered".

Based on the statement from the lecturer, it is known that the technique of delivering material through group presentations modified by students is actually very effective in practicing student activity, but in the process there is still a lot of time wasted. Students are not maximally utilizing time, when in fact it can be used to explore their creativity. This time should be used to provide interesting quizzes, such as those conducted by Offering B students. At first the C offering class held a quiz, but it didn't last until the end of the semester. This is very unfortunate by the lecturer.

2.3 Evaluation Techniques, for Subjects, Difficulties and Solutions in Qualitative Research Methodology Course

The lecture in Qualitative Research Methodology course, Mrs. Dra. Herawati Susilo, M.Sc., Ph. D. said that there are a number of obstacles encountered in teaching Qualitative Research Methodology Courses. The lecturer outlines the obstacles as well as the improvement efforts that will be made in the future.

"Students tend not to make serious presentations if they are not controlled by the lecturer. The seriousness of students in presentations is caused by the dependence of students on lecturers. In this case I feel that I lack control over students. I often get sleepy during presentations. I was sleepy because my schedule was tight so I didn't get much rest. Besides that, I feel I have not mastered the concepts in the Qualitative Research Methodology course. I also did not have time to revise the translations prepared by students before the

presentation. The translation of teaching materials compiled by students must be revised first, translated in full so that in the end a translation book will be obtained which is easy to learn and understand by students. However, energy and time possessed does not allow to do that. I don't have an assistant, and my schedule is tight. In the future, I am still trying to make this happen so that students will easily understand the qualitative research methodology.

Students find it difficult to understand teaching materials. Lecturers play an important role in preparing teaching materials. Lecturers strive to arrange teaching materials that are easily understood by students, namely teaching materials that using Indonesian language. Teaching materials must be in accordance with the needs and characteristics of students, including intellectual ability and language mastery of students (SEVEN & Ali Osman ENGİN, 2007) so that students are able to maximize with teaching materials.

The lecturer also stated that the main difficulty experienced in carrying out a qualitative research methodology course was about his assessment. She stated that sometimes there was a delay in doing the assessment. The obstacle faced in this assessment is the many aspects that must be assessed. These aspects include: learning journals, critical analysis of articles, papers, presentations, power points, and midterm. The following are his considerations given at the interview.

"I don't want to manipulate the student score. All of my student work was corrected later and I grade it very much. I also pay attention to the quality of the learning journal. So I am sometimes late in giving grades. Sometimes I also feel tired and lazy in correcting, so correction takes longer"

The lecturers' statements which were uttered through interviews showed that the lecturer prioritized objectivity in the assessment. Lecturers conduct assessments according to student performance, not based on subjectivity. Evaluation in the qualitative research methodology course used is a close book written test, based on the lecturer considerations.

"The test given is in the form of a close book writing test because only the basic concepts are tested. As for the open book test, it is given if the question is in the form of logical reasoning, and high-level questions. I am not demanding like that because basically this Qualitative Research Methodology also requires a deep understanding to understand its basic concepts".

The results of the interview explained that the lecturer must also be able to determine the appropriate type of assessment. There are several logical reasons for the selection of close book tests in the Qualitative Research Methodology Course, including the purpose of evaluation (for example to train student honesty), the difficulty level of concept and the level of student ability. The lecturer also experienced difficulties in assessing the honesty of students in answering the exam.

"Learning must be evaluated. If it is not evaluated, how do I get the value, I do not want to manipulated the students score. Evaluation is done in class to assess the students honesty in answer the exam. Students who cheat their friends' answers can be known through the way of writing and how to arrange

the answer sentences. Students who cheat tend to have answers whose sentence structure is similar or even the same as those that are copied. But there is still no solution to find out which students are cheating, and which students are cheating "

Regarding the assessment techniques that have been carried out by lecturers, until finally the discovery of online assessment techniques that can be used to assess the students discipline in data collection involves other assignments.

"Assessment can also be accessed through student learning journals that are collected every meeting. Learning journals collected through edmodo provide benefits for training the students discipline and students perseverance in the collection of assignments. Students who are disciplined will upload assignments according to the specified date, and vice versa.

The lecturer stated that learning journals uploaded through "Edmodo" online media can also be used to determine the level of honesty and student activity.

"I give appreciation to students whose learning journals contain a complete list of names submitting questions and answers during the discussion. Because through this I know the activeness of students when lectures take place. The journals uploaded by students on edmodo are easily observed for their honesty. Students who cheat their friend's learning journals can be seen through the errors in their study journals. Students who cheat and are cheated have the same writing errors, so they are easily detected. Another advantage of social media edmodo as a means of gathering assignments is that it can be used to see which students are cheating and which students are being cheated. Another advantage of edmodo social media as a means of gathering assignments is that it can be used to see which students are cheating and which students are being cheated.

Utilization of online media conducted by lecturers is a solution that integrates knowledge with technology. Digital learning connects the real world with digital in the learning process (Faustmann et al., 2019) and provides meaningful learning experiences for students (Strecker et al., 2018). The use of online media can be applied by prospective teacher students (Faustmann et al., 2019) or prospective lecturers in conducting learning because digital learning guarantees equitable access by heterogeneous user groups through interaction, communication, and knowledge sharing (Faustmann et al., 2019).

D. CONCLUSION AND SUGGESTIONS

The findings of this study provide information that the main difficulties experienced by biology education graduate students in Qualitative Research Methodology courses are in terms of understanding the language used in teaching materials, the use of terms, the ambiguity of various qualitative research methods, and the seriousness in the learning process. A number of solutions that can be used include: making concept maps, discussions, and conduct research practices directly. The findings are also taken into consideration for supporting lecturers to develop teaching materials that are more in line with student characteristics and provide punishment to ensure the seriousness of the learning process. The next meaningful finding is the

existence of a problem faced by the supporting lecturer, which is about assessment. The solution to these problems is the use of online media such as Edmodo to help lecturers to assess psychomotor and cognitive, as well as affective which includes: honesty, and student discipline. This finding is a meaningful finding for other lecturers, because online media is a media that can be used in various subjects and is easy to apply. The researcher recommends further research to discuss the effectiveness of the use of online media in subject assessment techniques.

ACKNOWLEDGEMENT

Appreciation and gravity is conveyed to Universitas Negeri Malang as a place to conduct research.

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