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To cite this article:

Matondang, Z. & Sitompul, H. (2021). Evaluation of field practices of building education program. *International Journal of Education in Mathematics, Science, and Technology (IJEMST)*, 9(4), 684-696. <https://doi.org/10.46328/ijemst.2045>

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International Journal of Education in Mathematics, Science, and Technology (IJEMST) affiliated with
[International Society for Technology, Education, and Science \(ISTES\): www.istes.org](http://www.istes.org)

Evaluation of Field Practices of Building Education Program

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Article Info

Article History

Received:

18 February 2021

Accepted:

30 August 2021

Keywords

Vocational education

Field practice

Construction world

Competence

Abstract

This research aims to find out the process of implementing field practices in Building Education Program of Faculty of Engineering at Medan State University. The implementation of field practice is one of the implementation of vocational education. Field practice activities for building education programs are conducted through observation and analysis of various problems in building and civil construction observation and analysis of various problems in building and civil construction work. The subjects of the study were students of Building Education Program of Faculty of Engineering at Medan State University who had conducted field practice as many as 34 people in 2019. Based on the results of research and discussion of the implementation of field practice in building education, it is necessary to improve, namely: 1) acceleration of completion, because the average length of field practice is 6.88 months, 2) acceleration of administration process such as correspondence, 3) implementation of field practice conducted during college holidays to be more efficient, 4) The focus of field practice report is quickly determined when guidance with each student, and 5) field practice exam materials around the student's written report. Overall, the results show that the implementation of field practice can improve competence and attitude towards the world of work especially in the field of construction. The implementation of field practice in Building Education Program still needs attention to prepare more competent graduates in the field of building and civil construction.

Introduction

Learning in the network (online) is the application of distance education online. This learning aims to increase access for students to obtain better and quality learning. Because, with online learning, it will provide opportunities for students to be able to follow a particular lesson or course. During the current outbreak of the corona virus (COVID-19), it has had its own impact on the education sector in Indonesia. The rapid spread of COVID-19 has created concern for the Government, particularly the Ministry of Education and Culture, and for parents and students alike. This fact has finally forced a number of universities to temporarily suspend face-to-face teaching and learning activities in the classroom. This is clearly to prevent the spread and transmission of COVID-19 to students. Online learning is considered to be the best solution for teaching and learning activities in

the midst of the COVID-19 pandemic. Although agreed upon, this study caused controversy. For teachers, online learning is only effective for assignments, while making students understand online learning materials is considered difficult. In addition, the technological and economic abilities of each student are different. Not all students have facilities that support online learning activities. Inadequate internet connection, unsupported devices, and expensive internet quotas are barriers to online learning. However, learning must continue.

Each education provider has their own policy in responding to this rule. Several higher education institutions provide internet quota subsidies to students for the purpose of conducting online learning. Although there are several higher education institutions in Indonesia that are ready to do online learning, the presence of COVID-19 shows that there are more higher education institutions that are not ready to implement an online learning system. For example, the use of online learning technology is still dominated by universities in big cities because of the financial capacity and availability of a digital learning system (e-learning) which is better than small campuses in rural areas. In addition, many educators still have difficulty using online learning technology, whether it is using e-learning or other platforms from third parties such as Zoom, Google Classroom, and Cloud X. This makes online learning take place only by giving assignments remotely without any feedback or interaction with students. Several studies have been conducted related to online learning.

Tantri (2018) conducted research on social presence in online learning based on the point of view of open and distance education learners. The results of the study show that online learning has a positive impact on connectedness, learning, and social (socio-emotional) aspects. Khusniyah and Hakim (2019) conducted research on the effectiveness of online-based learning by utilizing the use of web blogs on students' ability to understand English texts. The results showed that there were differences in students' understanding abilities. In addition, online learning with the web blog has a positive influence on improving students' English reading skills. Kuntarto (2017) conducted research on the effectiveness of online learning models in Indonesian language lectures using the Online Interactive Learning Model (OILM) technique. The results showed that this learning model was able to increase the absorption of lecture material by students with an increase of more than 81%. Sofyana and Rozaq (2019) conducted research on combined online learning based on Whatsapp in the employee class of the informatics engineering study program. The results showed that online learning increased student interest by 89% and had an effectiveness of 78%. Rusdiana and Nugroho (2020) conducted research on student responses to online learning for Indonesian law introductory courses using e-learning. The results showed that the motivation of students when attending online lectures was 71% and the effectiveness of lectures was 76.4%. Mostofa, Chodzirin, and Sayekti (2019) conducted research on the formulation of the online lecture model by utilizing the government's official website as an effort to reduce disparities in the quality of higher education. The results of the study indicate that the online lecture system has a positive contribution to encourage disparities in the quality of higher education in Indonesia.

Vocational education aims to prepare the young generation ready for work and professional. Formally, vocational education consists of vocational secondary education and vocational higher education. One of the vocational higher education programs in North Sumatra is the Building Education Program of the Faculty of Engineering at Medan State University. The mission of vocational higher education is to produce students who have

competence and quantity according to the needs of the job market. Vocational higher education graduates are expected to have:

1. knowledge and skills according to their profession
2. social competence to carry out professional practice,
3. the ability to work effectively, and
4. the spirit of continuing to learn to improve the skills and knowledge of the profession.

The development of students' academic, professional and soft skills is important to prepare students to enter the world of work. The formation of student abilities and competencies is carried out through an educational program that integrates theoretical material and work practice. This activity is implemented through field practice courses. The Building Education Program of the Faculty of Engineering at Medan State University aims to produce graduates who are ready to work as teachers in vocational schools and can also work in the world of work in the construction or civil sector. In order to prepare graduates of Building Education study programs, one of the compulsory subjects is the Field Work Practice course. The Field Practice course formulates student competencies in understanding and analyzing various techniques for implementing building and civil construction works that are being carried out in the field.

The purpose of the Field Practice course is an effort to provide students with field experience as a form of practical learning outside the classroom and laboratory and to compare and analyze according to the concepts or theories obtained in lectures. The Field Practice course is equivalent to 3 credits which takes about 60 working days (2 months). With the Field Practice course, students can analyze various problems that occur in the construction world and provide alternative solutions to solve them. Through street vendors, students have real experience of various construction or civil works and analyze solutions to various obstacles that occur in the field of work.

The reality that often occurs in construction jobs is that workers are fired for various reasons including: less skilled at work, lazy, less careful, dishonest, less disciplined, and so on. Field practice courses for the students of Building Education Program are given so that prospective graduates understand various problems in construction jobs and be able to anticipate the occurrence of errors in work. The implementation of field practice for Building Education Program involves construction companies as a place of practice. In the implementation of field practice in Building Education Program, there are still various problems, both in terms of the length of completion of field practice report, administrative management in the study program, process and implementation as well as field practice assessment. To find out various practical problems in the field, it needs to be studied and evaluated so that it becomes better. This evaluation is very important to identify various obstacles and ensure that the objectives of implementing field practice can be achieved.

Some obstacles in the implementation of field practice are: less effective supply conducted, administrative problems, difficulty finding a place field practice, and less response from various agencies in accepting students for field practice (Adininggar & Wafa, 2016). The problem of students in the implementation of field practice is the work schedule is less clear, the work done is not in accordance with the field, and the role of supervisors is

less optimal. Problems in the preparation of thereport on the implementation of field practice include guidance is still general, students do not analyze problems in the employment, and competency tests are not carried out.

Similarly, field practice in Building Education Program of Faculty of Engineering at Medan State University generally is the one where field practice (construction world) is less responsive, and often rejects field practice students. In terms of the implementation of field practice, students do not have a fixed schedule and time during the field. Students are less attentive, so they learn for themselves about every type of work in the field. The main problem in this study is that field practice is very important to improve the quality of graduates, but it has never been seen the effectiveness of implementation which includes preparation, implementation and exams in Building Education Program.

Field practice activities are mandatory courses and are programs that are always implemented, so it needs to be reviewed the level of achievement of its implementation. Through this paper, the process and implementation of field practice as well as assessment on the Building Education Program at Medan State University will be revealed. According to Doruk (2019), when the reasons given by pre-service teachers were examined, it was revealed that they made shallow evaluations. Instead of focusing on the logical structures found in proofs, they focus more on local situations, such as the use of definitions, errors in operations, the use of certain words, and changing variables. These results are consistent with studies that found that most university students were undertaking a superficial evaluation while evaluating proofs. According to Harden et al. (2020), the National Working Group on the RE-AIM Planning and Evaluation Framework (here the Working Group) was established in 2004 to support the application of the framework and advance the dissemination and implementation of knowledge (D&I). Working group members developed and disseminated products and resources (and continue to do so) to advocate for consistent application of RE-AIM and enable cross-study comparisons (Karalis, 2020).

The proposals presented here are based on and start from two different scientific fields, namely: Human Resource Management and especially Crisis Management and Planning and Evaluation, in the latter case, its dimensions concerning non-formal education activities (Giudice, et al., 2020). Thus, the aim of the present study was to compare the trueness of these two full-digital work-flow for the realization of mock-up for maxillary anterior region. To perform this evaluation, we referred to a specific 3D technology involving digital measurements and the use of surface-to surface matching technique of the two scanned mock-ups. A clinical assessment of fitting of mock-ups was also involved in the study. With regards to the evaluation of Peer Wise in physiology courses, available data seem to be limited and incomplete with the current existing studies focused primarily on the association with academic performance and student perceptions. Therefore, the main focus of this review is to report comprehensively on the role of peer wise in supporting students' independent learning in physiology by further investigating the study characteristics, study designs, method of assessments, study limitations, and ultimately its effects on cognitive and affective performances (Khashaba, 2020).

Started that field work practice activities are quality control of students, whether they have fulfilled the competencies as required by the field, whether they have fulfilled the principle of link and match of the program with industry (Apriyadi & Sulisty, 2016). Thus field practice in Building Education Program, knowing whether students have understood various implementation techniques in making a building or civil construction. To know

the achievement of the objectives of field practice in Building Education Program, it can be done through evaluation. The demands for evaluation are urgently needed especially in vocational education. So it is not only student activities that are evaluated, but also the activities of educators and educational institutions. One of the important components in planning the program is to state in advance its objectives, both general purposes and desired specific objectives (Sitompul, Mursid, & Matondang, 2018).

Evaluation is done to determine the problems that occur in carrying out an activity or program. The implementation of field practice is an activity to prepare students to understand various problems in the world of work. So that the objectives of field practice are: 1) provide students understanding of the world of work in real, 2) improve student skills, 3) foster and increase awareness of the professional attitude of students as prospective professional workers, and 4) Carry out job assignments in accordance with their profession / field.

To achieve this goal is influenced by internal factors derived from the student and external factors that exist outside the student. Factors that come from within students include intelligence, talents, interests, attitudes and so on. Factors that come from outside the student selves are the support of field practice place, supervisors, supervisors in the field, employees in the field practice, work environment, and fellow field practice friends (Sukanti, 2015).

According to Gunawan, Sumardika, and Widiati (2020), the determination of the economic value of the object of each deed in the practice of the implementation of notary positions is in accordance with the provisions. All public officials who agree on honorarium arrangements state that they must have a sense of binding and the existence of coercion forces that are in accordance with the provisions of the UUJN. With this notary will provide legal services to underprivileged communities based on the morality and integrity of a notary because knowledge and insight that is lacking or lacking about the benefits of using their obligations cannot be applied in a very broad profession, namely the community environment. Meanwhile, according to Zubaidah (2020), these activities can be proven by various achievements made by students. Mrs. Yusri (Practice Teacher) explained that the students of SMK N I Kudus in the food service study program who took part in the competition won 1st place in the cooking competition at the Central Java and East Java levels. This is reinforced by the achievements of the students of SMK N 1 Kudus in participating in the event, making the German people addicted to Indonesian cuisine. SMK N 1 Kudus sent three students of the food service study program to attend the inaugural Food Explorer class "Classroom of the Future".

Information about the world of work is an overview that must be understood field practice students according to their field. The world of work is a picture of the form / type of work done by workers to produce a product. For field practice students, it is necessary to understand the world of work including:

- (1) Types of work in their environment,
- (2) Types of jobs that graduates can enter according to their field,
- (3) Benefits gained from each job,
- (4) Knowledge, proficiency, and skills required for each job,
- (5) Conditions and future in a job, and
- (6) Special conditions of a job.

Some of the skills needed by construction workers are: tidying up areas and workplaces, accident relief, material testing, building construction part testing, concrete testing, equipment use, plating implementation, tile/ceramic installation and concrete mold making (Matondang, Siregar, War-wind, & Sitompul, 2019). All these skills are generally obtained by students at the time of field practice.

Students who carry out street vendors better understand the work, so that they have more information about the work environment. Students, who have information about the world of work, will be able to make more appropriate choices choosing the type of work. When students carry out field practice, many students interact with employees so as to obtain information about the types and various motivations of working people. Thus students will have knowledge and understanding with the world of work. This fosters the professional attitude of students in seeking knowledge and attitude in work.

Professional is the appearance of workers in carrying out something in accordance with the demands of the profession / job. Students, who carry out field practice, will have the ability in accordance with the demands of the profession in accordance with their field. The professional competence of students shows mastery of knowledge, attitudes and skills that are in accordance with what is needed in the world of work. While personal competence / personality is a very important factor in the personal formation of a student to be a professional, personal competence needs attention because it takes a relatively long time to form the personal competency.

Skills are a follow-up to understanding and attitude. To improve skills in their field, students need to be given materials such as: self-understanding, values, environmental understanding, and future planning. Some characteristics of skilled students include: 1) immediately carrying out the work, 2) carrying out the work carefully, 3) polite and friendly with others, 4) always looking for information related to work, and 5) practicing yourself. In general, students' skills will improve if given the opportunity to practice. Field practice will be said to be successful if students experience an increase in understanding of the world of work, skills, and awareness of professional attitudes.

Method

The research was conducted in Building Education Program of Faculty of Engineering at Medan State University. The research was conducted in May – October 2020. The type of research is descriptively evaluative. The data is obtained in the form of qualitative and quantitative data. Qualitative data in the form of information about the field practice process, skills obtained by students, professional attitudes of students in practice, the role of lecturers and supervisors field practice in forming students on the implementation of field practice. Quantitative data are in the form of descriptive information about the administration system and the process of assessing student competence in the implementation of field practice.

The subjects and data sources in this study are field practice students, field practice supervisors, and field practice reports. Research data collection techniques are conducted using data instruments in the form of questionnaires and interview sheets and observation sheets. Interviews are conducted with lecturers and

supervisors of field practice while polls are given to students. Observation sheets are used to collect data based on field practice reports. Data analysis techniques in this study, according to Lodico, Spaulding, and Voegtle (Putra, 2013), namely have these stages:

- 1) grouping and examining research data carefully,
- 2) re-examining the validity of data,
- 3) conducting data processing include: describing, summarizing, and organizing coding, and
- 4) conducting final analysis, making interpretations and final conclusions containing research findings.

Results and Discussion

The data source in this study is students who conducted field practice study program building education during 2020. The data was obtained from questionnaires and observations of the results of field practice report as many as 34 people. From 34 field practice reports written by students of Building Education Program, the length of the field practice process starting from administration management, implementing field practice and exams, it is known that the average length of implementation of field practice is 6.88 months, with a standard deviation of 2.57 months. When viewed the completion of field practice in Building Education program at least 3 months and maximum 13 months with module 6 months.

Based on the questionnaire filled by students consists of 4 parts: the administrative process, the implementation of field practice, field practice guidance, and assessment. The administration process of field practice conducted in Building Education Program is presented in Table 1.

Table 1. Average Score of Field Practice Administration Process

No.	Aspects of The Administrative Process	Average Score
1	Field practice Terms	3.24
2	Field practice Loci Search	3.00
3	Field practice study to Prodi	3.03
4	Letter to field practice place	2.82
5	Letter from field practice place	3.62
6	Average Administration Process	3.14

The data in Table 1 show that the score of the administrative process of the implementation of field practice in Building Education Program is the highest namely about letters from field practice places and the lowest is the process of letters to field practice places. This indicates that it is necessary to improve the administration system, especially about the letter to the field practice place in the Building Education Program. The process of implementing field practice based on data is presented in Figure 1. From the data on the picture shows that the lowest score is found in the old aspect of field practice with a score of 2.65 and the highest score is the aspect of absent field practice with the average score of the implementation process of field practice in Building Education Program is 3.79. Overall the value of the implementation of field practice according to students in the building education study program is with a score of 3.16

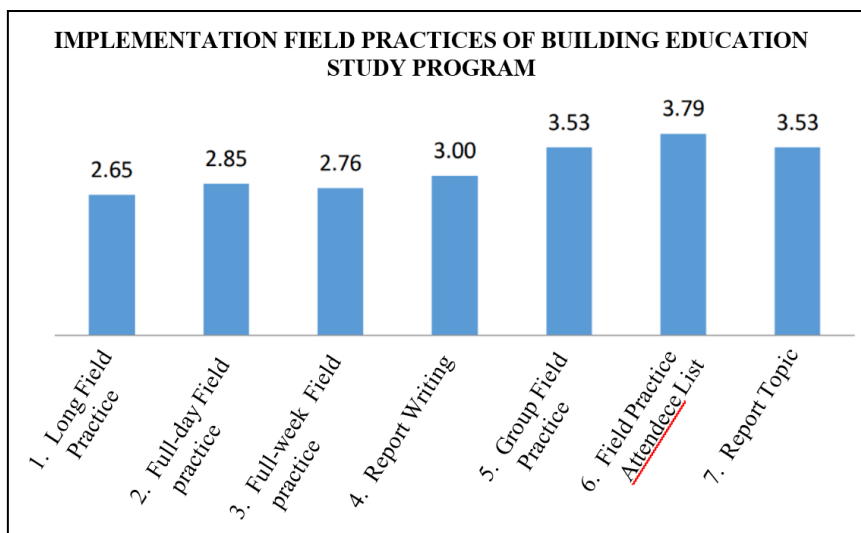


Figure 1. Average Field Practice Implementation Score

Based on data from students on the implementation of guidance in the writing of field practice report, the findings are presented in Table 2.

Table 2. Implementation of Guidance on Writing Field practice Activity Report

No.	Aspects of Field practice Guidance	Average score
1	Guidance during field practice	2.82
2	Submission of Report Title	2.68
3	Guidance by field workers	3.41
4	Implementation of Guidance	2.79
5	Minimum Frequency guidance	2.82
6	Implementation of Field practice Exam	2.97
7	Average Aspects of Field practice Guidance	2.92

Table 2 shows that the low average score is the submission of the title of the field practice report with a score of 2.68. While the highest score is the writing of a report involving field personnel with a score of 3.41. Overall the averagescore on the guidance aspect of field practice in Building Education Program is 2.92. These results show that the field practice guidance process in Building Education Program needs improvement. The results of field practice reports written by Building Education Program students in general around the implementation of building work are presented in Table 3

Table 3 shows that the focus of field practice report from Building Education Program’s students is about the implementation techniques of a building structure. Of the various building structures that exist, the most used students become focus field practice is aboutthe structure of blocks with 8 reports (23.53%). Furthermore, there are also field practice reports written by students in whole or a combination of several building constructions, such as blocks and columns. In order to broader the insights of Building Education Program’s students, the focus

area of field practice report is not only on construction implementation techniques, but also in terms of construction work management.

Table 3. Focus on Writing Student Field practice Report of Building Education Study Program

No.	Field practice Report Focus	Sum	Percentage
1	Construction Implementation Techniques	4	11.76
2	Block Implementation Techniques	8	23.53
3	Column Implementation Techniques	6	17.65
4	Block and Column Implementation Techniques	1	2.94
5	Floor Plate Implementation Techniques	2	5.88
6	Stair Implementation Techniques	5	14,71
7	Secant Pile	2	5.88
8	Structure Frame Work	1	2.94
9	Plumbing Installation Work	1	2.94
10	Foundation Work	1	2.94
11	K3 Management	1	2.94
12	Identification of RTH	1	2.94
13	Concrete Parapet	1	2.94
	Sum	34	100.00

Based on the data presented in Table 3, in general, students of Building Education Program carry out field practice on the construction process of a building or housing. More detail is presented in Table 4.

Table 4. Types of Jobs Attended by Field Practice Students

No.	Types of field practice Activity Projects	Sum	Percentage
1	Hospital	4	11.76
2	Mosque	2	5.88
3	Vihara	2	5.88
4	Mall/Building	3	8.82
5	Showroom	3	8.82
6	School/Campus	4	11.76
7	Hotel	3	8.82
8	Water Pump	1	2.94
9	Housing	8	23.53
10	overpass	2	5.88
11	Urban Areas	1	2.94
12	Retaining Wall	1	2.94
	Sum	34	100.00

Table 4 shows that the types of work that are followed or observed and analyzed by students of the study program in carrying out street vendors are building and housing construction work. Students of Building Education Program carry out street vendors in buildings such as construction: hospitals, mosques, monasteries, malls, showroom, schools and hotels. This was chosen to be the place of field practice, because at that time there was a development in the city of Medan and its surroundings is the type of building. When observed more deeply, the place field practice students of Building Education Program in addition to building and housing development, namely: the construction of an overpass as many as 2 people (5.88%), urban areas as much as 1 person (2.94%) and the work of the retaining wall of 1 person (2.94%). From this data shows that the type of work that becomes the implementation of field practice for students of Building Education Program needs to be expanded, such as the construction of highways or toll roads, irrigation construction, bridge construction and other buildings (see Figure 2).

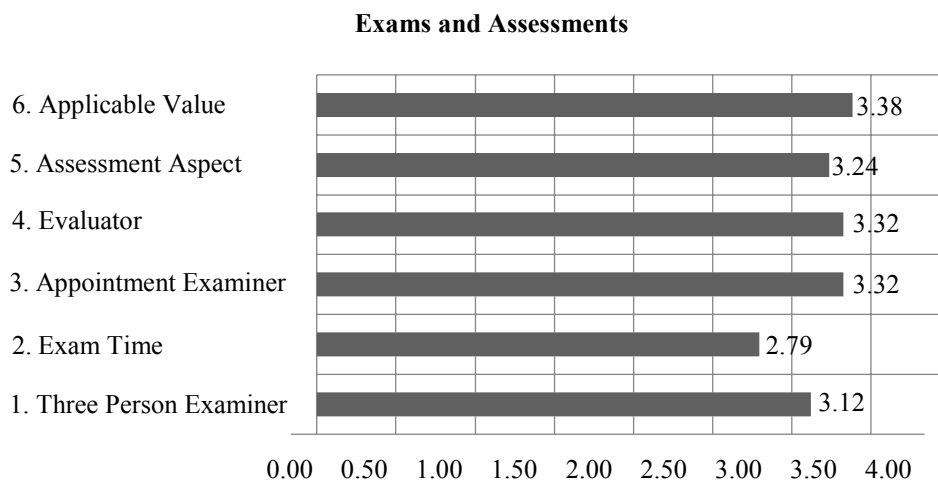


Figure 2. Average Test Implementation Score and Field Practice Assessment

Figure 2 shows the score based on students' opinion on the implementation of exams and assessment of field practice in Building Education Program. The lowest score given by students is the duration of the implementation of field practice exams conducted by the study program or the testing team with a score of 2.79. While the highest score occurs in the aspect of the implementation of field practice score after the implementation of the exam, this data concludes that it is necessary to pay attention to the study program or the testing team that the duration of the field practice exam duration is about 90 minutes. Based on the results of the field at the time of the field practice exam, it is sometimes the tester asks out of focus or material reviewed by students. This results in longer exam times. When reviewed the mentoring process with the supervisors against the length of time field practice passed by students presented in Table 5.

Based on Table 5, the fastest student guidance is for 3 months with the number of guidance 6 times with a supervisor. While the longest completed is for 10 months with the number of guidance as much as 6 times (there are 3 people), as many as 7 times (there are 2 people) and as many as 8 times (there is 1 person). When further analyzed, a correlation between the number of discussions and the supervisor to the length of the guidance period obtained a correlation coefficient of -0.11. The negative correlation coefficient indicates that the more often

(many) students conduct guidance with lecturers, the sooner they complete their field practice report. However, the correlation coefficient was statistically tested, suggesting that there was no significant relationship between the amount of guidance and lecturers towards the length of completion of the field practice report on the Building Education Program of Faculty of Engineering at Medan State University.

Table 5. Comparison of the Number and Length of Field Practice Guidance

Long Guidance (Months)	Guidance With Lecturers (times)						Sum
	4	5	6	7	8	9	
3			1				1
4		1		3			4
5	2		3	1	1	1	8
6		2	1	6			9
7		1		2			3
8		1			1		2
9				1			1
10			3	2	1		6
Sum	2	5	8	15	3	1	34

The same was done by analyzing the amount of guidance with field supervisors with the length of completion of field practice obtained correlation coefficient of -0.23. The correlation coefficient also shows that the more guidance with the field supervisor will be the sooner it is completed. This means that the more often a student conducts guidance with a field supervisor, the more understanding what is learned and obtained at the field practice place. This result will be easier and faster for students to compile field practice reports, so that the faster they finish their field practice.

From various aspects carried out in the implementation of field practice in Building Education Program, the role of supervisors and field personnel is very large to achieve the objectives of field practice. Various reasons that result in supervisors and field personnel have not played an optimal role in the mentoring of field practice, namely: busyness on campus, implementation of field practice outside the city, the timing of submission and withdrawal of field practice students in conjunction with other activities. From the results of qualitative research, shows that the implementation of field practices in the Building Education Program of Faculty of Engineering at Medan State University can improve:

- 1) students' understanding of the world of construction as a whole and its benefits, as well as its meaning for its life.
- 2) awareness of the need for concepts and theories of the construction field to be a force in work.
- 3) appreciation and attitude, in the form of a value system that applies and is needed in the work especially in the field of construction. This appreciation and attitude is developed through direct education in the field that will result in self-satisfaction and social work.
- 4) decision-making capabilities, in decision making, including alternative actions, namely choosing and implementing alternatives in resolving problems, especially in the field of construction.

5) awareness of education, a form of introduction from students of Building Education Program on the meaning of basic skills development and mastery of knowledge in achieving goals through education, especially in the field of construction and civil.

Conclusion

Based on the results and discussions on this research, some conclusions can be drawn as follows: 1) the average length of implementation of field practice for students of Building Education Program is 6.88 months. Delay in the implementation of field practice occurs in the preparation of reports, 2) the system of field practice administration in the study program needs to be improved, especially in the making of correspondence between the study program and the field practice place, 3) the process of implementation of field practice, should be during the school holidays, although sometimes a construction work does not exist at all times, 4) field practice supervisors early discuss the focus of the report written at the beginning of the implementation of field practice , and 5) the process of conducting field practice exams, the test materials given should focus on the core of the report written by students. In general, the implementation of field practice in Building Education program shows positive things in improving the competence and attitude of students. To facilitate the implementation of field practice in Building Education Program, the focus of the practice can be widened such as highway buildings, ports, water buildings (irrigation and dams) and other civil buildings. Then the implementation of field practice can also be in the field of planning and supervision (consultants) in the field of construction.

Acknowledgements

We thank all leaders, colleagues at the State University of Medan, the Ministry of Education and Culture and research sites.


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