University Analysis on Digital Construction Program: Implementation & Impact of Mbkm Internship in Construction & Infrastructure Industry at Narotama University

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Abstract

The Merdeka Learning-Merdeka Campus (MBKM) policy triggers Narotama University Surabaya to carry out innovative and creative teaching and learning activities. All parties involved, ranging from students, lecturers, and universities in general, enthusiastically welcomed the offers of new programs, one of which was the internship program. It is a way in the construction sector to finish all jobs with the help of digital tools and software. This study aims to describe the implementation of construction internships in the construction and infrastructure industry's digital era. It is seen from the point of view of university assessments in general. Crosstab analysis is used to see whether there is a relationship between effectiveness and the resulting benefits to the policies and processes of apprenticeship activities. The results prove that the Civil Engineering Study Program has run it well. Other study programs have also understood the concept of digital internships to improve soft skills.

Keywords
Internship-MBKM, Digital era construction, Chi-Square test, Crosstab

1. Introduction

The MBKM activity is a framework to prepare students to become solid and relevant graduates to the needs of the times, which is carried out based on the Minister of Education and Culture Regulation No. 3 of 2020. It consists of four central policies (Tohir, 2020): study programs, higher education accreditation system, changing university status to a legal entity, and student learning rights. The last one gives the right to study for three semesters outside the study program, both within one faculty, on- and off-campus, and even in the field, namely in industry and society.

The MBKM concept at Narotama University Surabaya is a program that includes all the characters needed by students comprehensively. University readiness is also implemented in the management units that support and accommodate its implementation.

One of the exciting activities is the internship, a program that provides students with professional work experience in a structured manner with the help of experts in their field (SUN, 2014). It is perfect because, during the process, students will be accompanied by two supervisors: lecturers and field supervisors, who will train work culture in the industry, especially the construction world, and how to interact with their new environment. The internship will teach students new skills in the construction world and teach students how to work (Fatah, 2021). While mentoring by lecturers aims to integrate cases in the field with existing theories for decision-making processes under applicable regulations.

This program benefits students and supervisors because they can explain their knowledge according to field cases in real terms. It makes it easy for students to understand it. It is expected that the collaboration between educators and practitioners in the field will produce excellent, professional, creative, adaptive, competitive, and productive alumni.

In this collaboration, universities need an integrated system, which facilitates recognizing student learning outside the home campus. The collaborative information system will allow universities to process data into the required information. It must complete the handling of access, control, and distribution of information (Hermanto et al., 2021).

One form of support from Narotama University Surabaya is Simnaro. It is needed because students must provide reports during the internship process in videos and internship reports to each supervisor. This study aims to describe the implementation of MBKM internships in the Construction and Infrastructure Industry of Narotama University based on an Assessment from the University.

2. Literatur Review

2.1 MBKN Internship

Internship/Work Practice Programs for one to two semesters provide sufficient experience through experiential learning. Students will gain hard skills (technical, complex problem solving, analytical skills, etc.) and soft skills (professional/work ethics, communication, collaboration, etc.). On the other hand, the industry gets talent that, if suitable, can be recruited immediately, thereby reducing recruitment and initial training/induction costs. Students familiar with the workplace will be better prepared to enter their careers. Through this activity, universities will understand industrial problems to update teaching and learning materials. In addition, research topics will also be more relevant

The main objectives of the program are:

- Increase the experience and capabilities of students according to their fields of knowledge and introduce an authentic work culture
- Provide input and feedback to Study Programs to adjust the curriculum according to the demands of the world of work
- One of the efforts to accelerate the absorption of alumni in the job market so that mutually beneficial cooperation exists.

The scheme of the internship process is below.

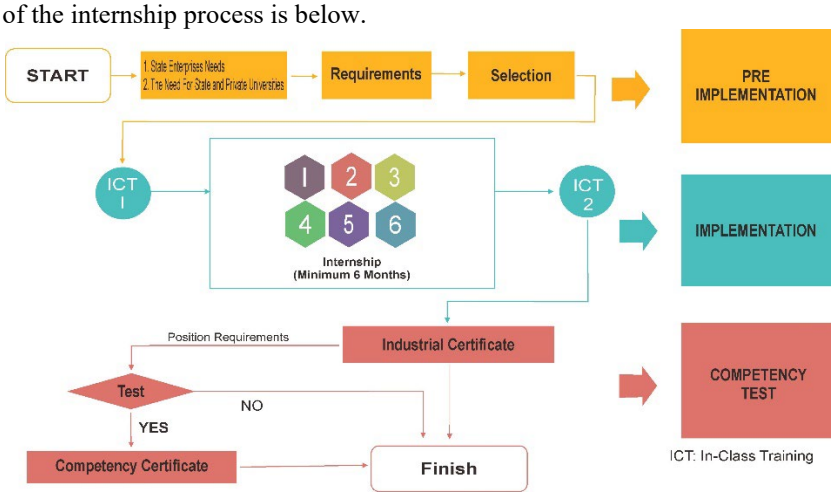

Figure 1. Digital Construction Internship Program Process

2.2 Information Systems – Digital Field and Academic Collaborative Learning

According to Hasan et al. 2011 in Hermanto, 2021, collaboration technology helps organizations solve problems due to poor communication and sharing information and expertise previously non-existent. A collaborative Information System is a cross-functional system for communication, coordination, and

collaboration among organizational members and working groups to achieve common goals. It helps organizations to work more efficiently.
Therefore, Narotama University Surabaya began to develop an online internship guidance feature at SIMNARO so that all parties can connect from anywhere to consult and report progress. It is equipped with a space for a youtube video link or internship report document, with a review column from the lecturer for each report.

3. Methods

This research is a qualitative descriptive study in all study programs at Narotama University. It consists of sixteen questions. Data collection techniques used forum discussion group (FGD) activities, where the Chi-Square test was applied.
It helps test the relationship between two nominal variables and measure the influence's strength between variables (C = Coefficient of contingency) and can be done only on large samples. The Chi-Square characteristic is that it is always positive. This test is performed by tabulating the variables into categories and then calculating the chi-square statistic.
Meanwhile, data analysis was carried out using the Crosstab Method, an analytical method by presenting data with two or more variables with a descriptive relationship (Tjiptono, 2001, p176).

4. Data Collection

The research data are primary and secondary data obtained from questionnaires and interviews with students from all study programs: Accounting, Management, Law, Civil Engineering, Computer Systems, Information Systems, Informatics Engineering, and Early Childhood Education. Interviews were conducted to learn about policies, information, and implementation of MBKM, especially the internship program. The following is a picture of the questionnaire and FGD activities.

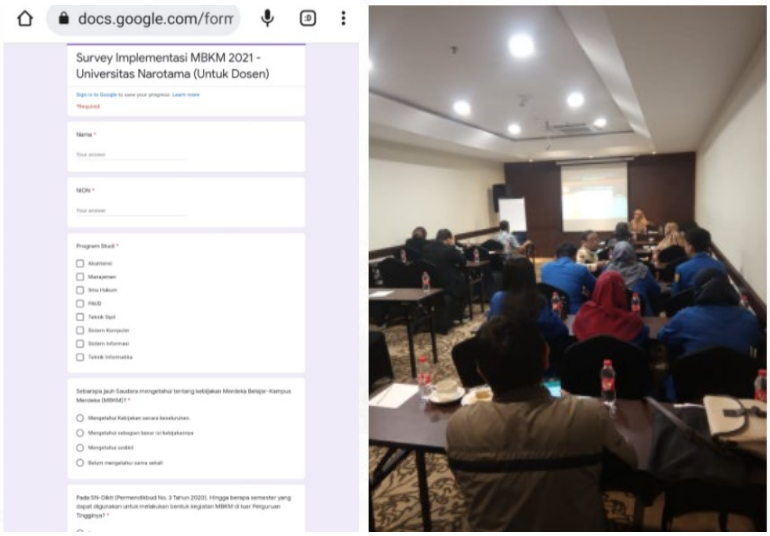

Figure 2. Questionnaire and FGD Process

5. Results and Discussions

5.1 Validity Test

According to (Sugiyono 2019), the validity test is used to measure the validity of a questionnaire. It is valid if the question can reveal something that is being measured. Here, the questionnaire consists of eight questions with a significant level of 5% or 0.05. The table below demonstrates that all variables are valid.

Table 1. Variable Validity Test - Case Processing Summary

QUESTION	N	Valid Percent	N	M Percent	N	T Percent
1. Knowledge of the MBKM policy	1,633	100.0%	0	0.0%	1,633	100.0%
2. In your opinion, how many semesters and how many credits can be equated with MBKM activities outside the University?	1,633	100.0%	0	0.0%	1,633	100.0%
3. Where did you get information about the MBKM program?						
4. Offline/online socialization activities organized by the Ministry of Education and Culture.	1,633	100.0%	0	0.0%	1,633	100.0%
5. Does your study program have any previous ones that match the MBKM activity?	1,633	100.0%	0	0.0%	1,633	100.0%
6. If the answer is yes, choose the activity that has been previously taken.	1,633	100.0%	0	0.0%	1,633	100.0%
7. If the answer is yes, select the form of MBKM activity that has been taken previously.	1,633	100.0%	0	0.0%	1,633	100.0%
8. If you were asked to choose from eight learning activities outside the study program, which would you choose??	1,633	100.0%	0	0.0%	1,633	100.0%
9. Do your study program already have curriculum documents, guidelines, and operational procedures for participating in MBKM activities?	1,633	100.0%	0	0.0%	1,633	100.0%
10. Have you prepared yourself to be a part of MBKM activities?	1,633	100.0%	0	0.0%	1,633	100.0%
11. In your opinion, will learning activities outside the study program have implications during the study period?	1633	100.0%	0	0.0%	1,633	100.0%
12. In your opinion, will off-campus learning activities provide additional competencies such as skills in solving real complex problems, analytical skills, professional ethics, etc.?	1,633	100.0%	0	0.0%	1,633	100.0%
13. In your opinion, studying in another study program will broaden your perspective and provide the additional competencies needed?	1,633	100.0%	0	0.0%	1,633	100.0%
14. In your opinion, what do students need to prepare for the optimal implementation of MBKM?	1,633	100.0%	0	0.0%	1,633	100.0%
15. In your opinion, how much benefit would you get if you took part in MBKM activities in developing competence/skills to prepare you for work after graduation?	1,633	100.0%	0	0.0%	1,633	100.0%
16. In your opinion, how much of an increase in soft skills did you get after you took part in MBKM activities in developing competence/skills to prepare you for work after graduation?	1,633	100.0%	0	0.0%	1,633	100.0%

Source: Survey Result

Of the 16 questions asked, only seven were related to this research, namely numbers 1, 2, 9, 11, 12, 15, and 16.

5.2 Crosstab Analysis Results

The output of the crosstab analysis explains the analysis of the relationship between variables, such as knowledge and MBKM policy. Researchers perform the Chi-Square test, where the value must be below 0.05. Here are the results of the analysis per variable.

Table 2. Crosstab Results

Variable	Study Program	Pearson Chi-square	Asymptotic Significance (2-sided)	Meaning
Knowledge of MBKM policy (Question 1)	Information System	30.533	0.002	Seven cells (33.3%) have an expected count of less than 5. The minimum expected count is .16.
How to get information related to MBKM policy (Question 2)	Management	52.399	0.000	Seventeen cells (53.1%) have an expected count of less than 5. The minimum expected count is .09.
	Law	74.041	0,000	Twelve cells (75.0%) have an expected count of less than 5. The minimum expected count is .05.
	Information System	40.607	0,000	15 cells (53.6%) have expected count less than 5. The minimum expected count is .05.
Availability of guide curriculum documents and operational procedures for the Implementation of MBKM in Study Programs (Question 9)	Management	35.469	0,001	Fifteen cells (62.5%) have an expected count of less than 5. The minimum expected count is .03.
	Law	37.025	0,000	Five cells (62.5%) have an expected count of less than 5. The minimum expected count is .05.
The relationship between MBKM activities and the needs of future graduates (Question 11)	Management	45.425	0,000	Four cells (25.0%) have an expected count of less than 5. The minimum expected count is .74.
	Civil Engineering	16.738	0,002	Six cells (60.0%) have an expected count of less than 5. The minimum expected count is .02.
	PG Paud	18.840	0,000	Three cells (37.5%) have an expected count of less than 5. The minimum expected count is .49.
The relationship between perceptions of off-campus learning activities provides additional competence for solving decision-making on real complex problems (Question 12)	Management	100.472	0,000	Twenty-four cells (60.0%) have an expected count of less than 5. The minimum expected count is .05.
	Law	179.925	0,000	Four cells (50.0%) have an expected count of less than 5. The minimum expected count is .48.
	Information system	37.985	0,000	Eight cells (38.1%) have an expected count of less than 5. The minimum expected count is .05.
	PG Paud	86.165	0,000	Ten cells (62.5%) have an expected count of less than 5. The minimum expected count is .03.
The relationship between the benefits of participating in MBKM and student competency	Management	42.318	0,000	Five cells (31.3%) have an expected count of less than 5. The minimum standard count is .66

development (Question 15)	Civil Engineering	27.651	0,000	Six cells (60.0%) have an expected count of less than 5. The minimum expected count is .02.
	PG Paud	34.255	0,000	Five cells (62.5%) have an expected count of less than 5. The minimum expected count is .29.
The relationship between improving soft skills from MBKM activities in competency development as a provision for work after graduation (Question 16)	Management	47.532	0,000	Four cells (25.0%) have an expected count of less than 5. The minimum expected count is .87.
	Civil Engineering	27.651	0,000	Six cells (60.0%) have an expected count of less than 5. The minimum expected count is .02.
	PG Paud	34.255	0,000	Five cells (62.5%) have an expected count of less than 5. The minimum expected count is .29.

Source: Analysis Results

6. Conclusions

The results of the crosstab calculation on the Chi-Square test of all study programs indicate a relationship between the Civil Engineering Study Program and others in understanding the MBKM internship program. In general, they can receive and run the internship program well. Internship experience for six months can improve soft skills and be used for work after graduation.

Information Systems and Management Study Program showed high enthusiasm in the digital internship program. In addition, the University has facilitated student internship progress reports on the Simnaro online internship guidance page. Students can see the obstacles in the project and then learn how to solve them.

Thus, the implementation of the MBKM program for digital construction apprenticeships can be accepted by all parties.

References

Agus Hermanto , Geri Kusnanto , dan Nurul Fadilah, Pengembangan Model Sistem Informasi Dalam Kolaborasi Antar Perguruan Tinggi Untuk Mendukung Program MBKM Program Studi Teknik Informatika, Universitas 17 Agustus 1945 Surabaya Konferensi Nasional Ilmu Komputer (KONIK) 2021 ISSN : 2338-2899

Amir Fatah, Eksplorasi Dukungan Industri Mitra Dalam Pelaksanaan Magang Pada Program Merdeka Belajar Kampus Merdeka Amir Fatah Pendidikan Teknik Otomotif Fakultas Teknik Universitas Negeri Yogyakarta, SNASTEP http://snastep.com/proceeding/index.php/snastep/index Pemberdayaan Teknologi Pembelajaran dalam Tatanan Multidisipliner di Era 4.0

M. R. Hasan, G. Moses, S. Maulid, and A. R. A. Dahlan, ―Collaborative information system: Connecting the government, University, and industry,‖ Innov. Knowl. Manag. A Glob. Compet. Advant. - Proc. 16th Int. Bus. Inf. Manag. Assoc. Conf. IBIMA 2011, vol. 1, no. 1977, pp. 208–216, 2011.

Santoso, Singgih dan Fandi Tjiptono. 2001. Riset Pemasaran Konsep dan Aplikasinya dengan SPSS. Jakarta : PT. Elex Media Komptindo

Sugiyono. (2019). Metode Penelitian Kuantitatif, Kualitatif dan R&D. Bandung: PT Alfabeta.

Sun, C. (2014). 10 Benefits of Starting an Internship Program. Employer Resources. http://www.internships.com/employer/resources/setup/benefits

Tohir, M. (2020). Buku Panduan Merdeka Belajar—Kampus Merdeka. https://doi.org/10.31219/osf.io/ujmte

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