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Research Article

DEVELOPING A MODEL OF SOFT-SKILL TEACHING FOR CIVIL ENGINEERING STUDENTS

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Abstract

An observation shows that civil engineering students' soft skill is still low. It is characterized by their poor sociability and low positive attitude toward dealing with problems and challenges of life. For students to have various aspects of soft skill, a study was conducted to develop a model of soft-skill teaching that would meet the criteria of validity, effectiveness, and practicality. The research and development referred to Richey & Klein approach, which is: (1) developing a model; and (b) validating a model. The validation process was conducted in two phases, namely internal validation and external validation. The internal validation of the model and its components was conducted by experts in educational technology, vocational education, and evaluation. On the other hand, the external validation was conducted in the form of small groups and of large groups which involved 41 students and a member of the Department of Civil Engineering Board. The data analysis was performed in two phases: the developmental phase and the testing phase. The analysis in the development phase was conducted by means of the qualitative approach, while the analysis in the testing stage was conducted by means of the quantitative approach; the two phases should be undergone to analyze the model validation and the trial results. These phases would also be undertaken by the experts. The results of the study show that the model of soft-skill teaching developed for the students of the department of civil engineering had been able to meet the criteria of validity, effectiveness, and practicality.

Keywords: *model development, soft skills*

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Introduction

As people enter the 21st century, the requirements for pursuing employment have actually become more complex. In the past, employment might be secured by just having the technical skills. However, now more often candidates for positions require not only the job technical skills but also the soft skills, primarily interpersonal skills.

There are findings from several studies or surveys which expose the industrial demands for employee candidates to have soft skills. Newton, Hurstfield, Miller, Page, and Akroyd (2005, p.57) state that businesses nowadays are interested in the candidates who are able to show their flexibility, and those who have soft skills. Some of the soft skills found in Newton's surveys are as follows: being able to focus on the customers, being able to work in a team, and having job motivation and fundamental skills for performing the job.

Similarly, the North American Council for Online Learning (NACOL, 2008, p.2) argues that to be successful in work, just mastering the teaching material is not enough. Instead, students should also possess multiple skills such as being creative, being able to communicate, being able to do the problem-solving activities, and being able to perform analytical thinking.

The set of skills in addition to the technical skills and academic skills as having been explained above are named the life skills, the social skills, the human relationship (HR) skills and the people skills by Parakandi (2011, p.6). On the other hand, these skills have internationally been known as transferable skills, soft skills, core skills, key skills, generic skills, basic skills, cross-curricular skills or, more recently, employability skills (Hager & Holland, 2006, p.2).

As a result, job seekers should have multiple proficiencies in order that they might perform their job successfully. In general, certainly these multiple proficiencies will be related to the learning service that they experience. In other words, have we been integrated with the soft skills as having been expected by the industry during our learning service?

The answer to the question is described implicitly in the results of a survey by the Confederation of British Industry/Education Development International (CBI/EDI, 2011) that was conducted toward 566 companies with 2.2 million people. The result of the survey is:

> *'Over two-thirds of employers (70%) want to see the development of employability skills among young people at school and college made a top priority – this does not require a new qualification but rather embedding the skills in the curriculum as the best schools and colleges already do'* (CBI/EDI, 2011, p.6).

Being interested in the results of the survey by CBI/EDI, a pre-survey of learning process in the Construction Engineering Education Study Program specifically in the jurisdiction of the Faculty of Engineering, Universitas Negeri Padang, was conducted. The pre-survey was to see whether the study program had integrated soft skills into the learning process. The results of the pre-survey indicated that study program had not integrated soft skills in a systematic and well-planned way into the learning process.

Based on the results of the pre-survey, a model of soft skills teaching needs to be developed. The model would be specifically intended to the students of the programme of this research focus. The reason was that the students of the study program have been deliberately educated for serving as the vocational teachers in the future.

The elements of soft skills may be categorized into the affective and cognitive aspects; therefore, in order to attain optimal results within the integration, a model that will be a combination of Student Teams Achievement Divisions (STAD)-type Cooperative Learning Model and the Guided Inquiry-type of Inquiry-Based Learning (IBL) was developed. The selection of STAD-type Cooperative Learning, which has been directed to the development in the elements of soft skills, has been based on the results of a review of an educational study performed by Sharan (1980, p.248). From the six models reviewed, Sharan concluded that the STAD-type Cooperative Learning was able to pro-

vide positive impacts in the formation of social skills and affective behaviors (soft skills). On the other hand, the selection of Guided Inquiry-type IBL, which has been directed to the development in the elements of soft skills within the cognitive aspect, has been based on the results of a review by Barron and Hammond (2008) of the study that made use of the Inquiry-Based Model. The results of their review showed that: 'Students engaged in inquiry-based learning develop content knowledge and learn increaseingly important twenty-first century skills, such as the ability to work in teams, solve complex problems, and to apply knowledge gained through one lesson or task to other circumstances' (Barron & Hammond, 2008, p.12).

Method

Type

The study employed a research and development approach and the objective of the study was to develop a model of soft skills teaching to the students of Construction Engineering Education study program. According to the objective of the study, the research and development model referred to was the one proposed by Richey and Klein (2007); a combination of model development and model validation. The model development included comprehensive model development and component development process, while the model validation consisted of internal validation and external validation.

Site, Period, and Subjects

The study was conducted from July to December in Construction Engineering Education study program, the Faculty of Engineering, Unversitas Negeri Padang. The subjects of the study were the university students and the lecturers who had been involved in the experiment. The subjects of the study can be seen in Table 1.

Data, Instrument and Data Gathering Technique

Data Type

The data in the study consisted of quantitative and qualitative data. The quantitative data were the data which were resulted from the questionnaire completion and the validation conducted by experts, while the qualitative data were from focus group discussion (FGD) and lecturers' opinions of the developed product.

Data Gathering Instrument

In gathering the data, the following instruments were used: observation guidelines, interview guidelines, and also questionnaire.

Data Gathering Technique

Observation and interview were used in the preliminary study and the first experiment. Then, a questionnaire was used in the second experiment. The detailed explanation is provided in Table 2.

Table 1. Subjects

Activities			
Small-Group Experiment		**Large-Group Experiment**	
Lecturers	Students	Lecturers	Students
1	9	1	32

Table 2. Instruments of model practicality test and model effectiveness test

No	Domain	Questionnaire/Instrument
1	Model Practicality Aspects	Model implementability assessment
		Lecturer activities assessment
2	Model Effectiveness Aspects	Model effectiveness assessment (For Lecturer)
		Model effectiveness assessment (For Students)

Data Analysis Technique

The qualitative data obtained through FGD were analyzed using descriptive-qualitative analysis to present research results in the form of descriptive explanation. On the contrary, the descriptive quantitative analysis was performed to analyze the model validity, practicality, and effectiveness as presented in Table 3.

To measure the level of model validity and model sets validity, the coefficient of validity proposed by Musthan, Suhartono, Tirtaraharja, and Rahamma (2013, p.36) was employed as follows:

3.5	M ≤ 4	very valid
2.5	M < 3.5	valid
1.5	M < 2.5	moderate
	M < 1.5	not valid

Notes: M = assessment average.

The reliability test, especially the value of intra-class correlation coefficient, also known as ICC, was referred to Cicchetti, Bronen, Spencer, Haut, Berg, Oliver, and Tyrer (2006, p.561) in which:

< 0.40	Poor
0.40–0.59	Fair
0.60–0.74	Good
0.75–1.00	Excellent

Meanwhile, for the nominal data, the level of inter-rater evaluation agreement was measured by using Cohen's Kappa coefficient with reference to the criteria proposed by Landis and Koch (1977, p.165) as follows:

< 0.00	Poor
0.00- 0.20	Slight
0.21- 0.40	Fair
0.41- 0.60	Moderate
0.61- 0.80	Substantial
0.81- 1.00	Almost Perfect

In relation to the requirements for being practical and effective, the results of the analysis were consulted to the criteria proposed by Guskey and Bailey (2001, p.77), as follows:

90% - 100%	Excellent
80% - 89%	Good
70% - 79%	Average
60% - 69%	Poor
0% - 59%	Failing

Development Procedure

The development procedure is presented in Figure 1. In order to describe the association

Table 3. Quantitative analysis

No	Aspect	Testing Domain	Tools of Analysis
1	Validity	Validity Reliability	ICC Validity Coefficient
2	Practicality	Validity Reliability Practicability Implementability Lecturer Activities	ICC Validity Coefficient Percentage Test and K Test Percentage and ICC
3	Effectivities	Validity Reliability Effectiveness Effectiveness (Lecturers) Effectiveness (Students)	ICC Validity Coefficient Percentage Test Percentage Test

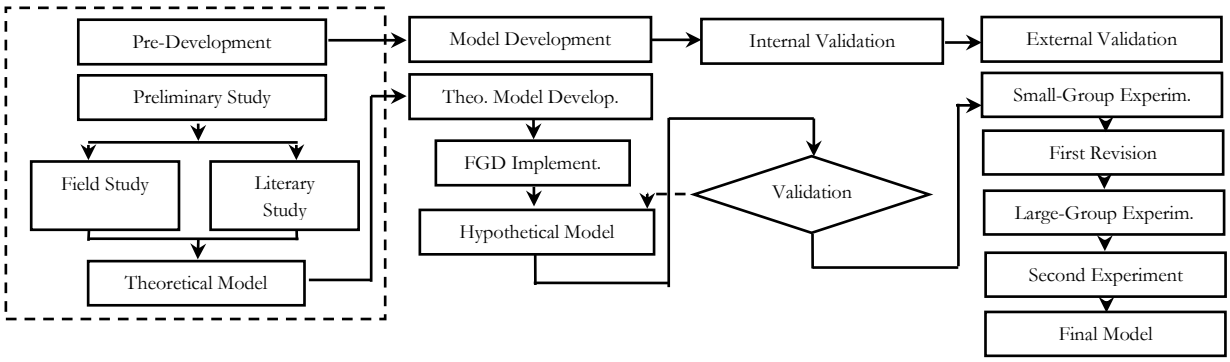

Figure 1. The procedures of model development

between the pre-development activities and the development procedures, the dotted lines for the pre-development activities were intentionally drawn.

Pre-Development

The pre-development phase, which was in the form of a preliminary study, was conducted in order to identify the following aspects: (1) the study program activities in equipping the students with the soft skills; and (2) the tendency of the employment in recruiting the employee candidates. The data were gathered from documents, and through observation, interview, and also library research.

The documentation was conducted in order to measure the completeness of the soft skills development that the study program have had. Then, the observation was conducted in order to measure the learning process and the daily behavior of the university students. Next, the interview was completed in order to understand the opinion of the teaching staff of the students' soft skills mastery. Finally, the literature study was done in order to measure the tendency of the employment in recruiting the employee candidates by means of articles and journals browsing in the Internet and the books regarding the soft skills.

Based on the results of identification of the study program and of the study regarding the tendency of employment in recruiting the employee candidates, a theoretical model was designed. The theoretical model was then employed as a reference in the model development.

Model Development

Richey and Klein (2007, p.8) divide the phases of model development into two categories, namely: (1) comprehensive model development; and (2) model components development process.

The model development was executed comprehensively by re-reviewing the theoretical model that had been attained in the pre-development phase in detail. In this phase, the elements of the soft skills, the research instrument, and also the hypothetical model were reviewed by means of focus group discussion (FGD).

The model component process development consisted of the model component development process and the instructional development process. Specifically, for the model component development, a model that had been developed by Joyce and Weil (2003, pp.84-87) was adopted. In their model, Joyce and Weil introduced five components that consisted of syntax, social system, reaction principles, supporting system, and instructional impact.

The developed model is not a model that specifically contains the soft skills materials; instead, the model is the one that is a tool for integrating the soft skills. In relation to the situation, the instructional development process that was assigned were the instructional development model from one of the subjects in the study program, in this case the Ground Mechanism Practice. The consideration for selecting the subject was as follows: (1) the practical subject had been one of the peculiarities in the vocational education; (2) the practical subject done in the laboratory still made use of lab-sheet; and (3) the amount of credits for the Ground Mechanism Practice was assumed to meet the form of the learning activities.

Especially for the instructional development, a model which was proposed by Dick, Carey, and Carey (2009) was employed, whose phases in the instructional development are as follows. The identification of general objectives/competence standards was conducted by analyzing the syllabus of the subject. It was conducted altogether with the analysis of students' characteristics and the context as well as the learning process. This resulted in the information about the students' characteristics and the context in which the instruction would be given altogether with the relevant phases for meeting the objectives.

The next activity was elaborating the general objectives into the performance objectives/the basic competencies. After that, the assessment instrument was developed. Specifically for the aspects of the soft skills, the assessment instrument was developed in the form of a rubric. During the process of

designing the assessment instrument, the strategy development or the learning scenario development was done. The learning scenario basically was the integration of soft skills teaching into the learning process.

After the learning strategy had been formulated, the teaching materials were selected. The instructional development activity would be ended by designing and implementing the formative and summative evaluation. In the study, the evaluation was conducted by means of small group testing and large group testing.

Validation

According to Richey and Klein (2007, p.8), the model validation consisted of internal validation and external validation. The internal validation of the learning model sets was conducted by the experts in educational technology, vocational education, and evaluation. Then, the model sets to be validated were as follows: (1) manual of soft skill learning model for the students of Construction Engineering Education study program (soft skills were obtained from FGD implementation, see Figure 1); (2) the assessment instrument for the aspects of teaching-learning process; (3) the instrument of practicality assessment; and (4) the instrument of effectiveness assessment.

Specifically for the external validation, according to Richey and Klein (2007, p.76), the objectives of performing the external validation are as follows: (1) to prove that the model might provide the expected learning results; (2) to serve as the evidence of program implementation; (3) to measure the designers' capability; and (4) to identify the impacts generated by the product.

In relation to the implementation of external validity testing, first of all, the criteria of product quality as having been stated by Nieveen (1999, p.125) were provided. A product would be considered qualified if it had been used in accordance with the developer's plans. On the other hand, a product would be considered effective if it provided the expected results.

If the objectives of the external validity testing were related to the criteria of practicality and effectiveness as stated by Nieveen, then the external validity basically was in line with the practicality testing and effectiveness testing. Then, within the model, the model was performed on a test and the testing was divided into two categories namely (1) the small group testing and (2) the large group testing.

Product Testing

Experiment Design

The activities of product development testing included the model practicality testing and the model effectiveness testing; both of the testing were conducted in a small group and large group.

Small Group Testing

The small group testing was to gather the empirical evidence regarding the product/ model feasibility in a limited manner. The test was administered to two groups (2x4 persons) of university students and a lecturer of Ground Mechanism; all of the subjects had been selected purposively.

Large Group Testing

The large group testing, which had been the continuity of the small group testing, was conducted toward two groups (2 x 4 persons) and a lecturer as well; all of the subjects were selected randomly by means of validation instrument similar to that of small group testing.

Results of Development

The Results of Development of the Soft Skills Teaching Model in the Students of Construction Engineering Education Study Program

The development of the model of soft skills teaching to the students of Construction Engineering study program was conducted in three phases namely: (a) pre-development; (b) development; and (c) validation. The detailed explanation for each stage was as follows.

Pre-Development

Based on the results of the identification of the study program activities and

the study of the employment tendency, altogether with the support from the results of literary study, a theoretical model was designed as presented in Figure 2.

Development

After the theoretical model design stage, the next stage was the model development. This stage was marked by the implementation of two focus group discussions (FGD). In the First FGD, the elements of soft skills which were necessary to be mastered by the students of Construction Engineering Education study program, as displayed in Table 4, were gathered.

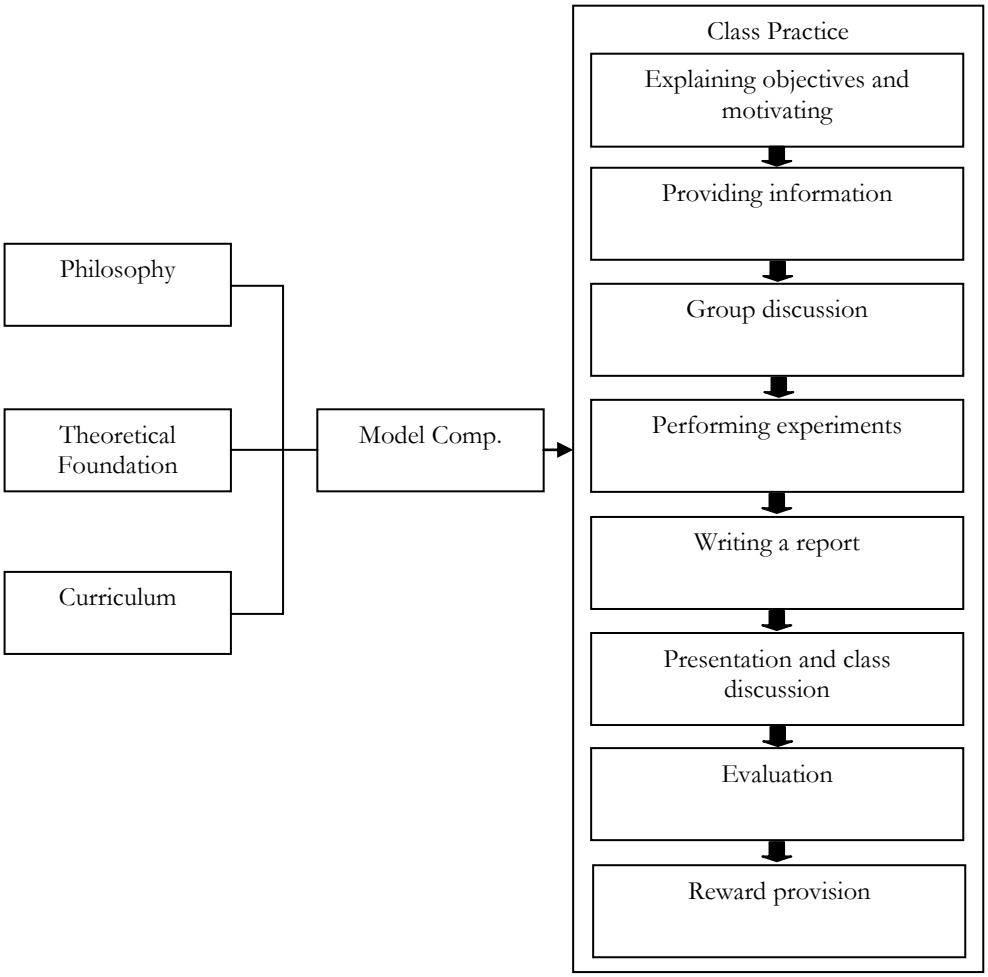

Figure 2. The theoretical model of soft skills teaching to the students of Construction Engineering Education study program

Table 4. Elements of soft skills

No	Soft Skills Elements in the Students of Construction Engineering Education	Note
1	Communication ability	
2	Work Ethos	
3	Discipline	
4	Honesty	
5	Problem Solving Ability	
6	Cooperativeness	
7	Adaptability	
8	Responsibility	

Then, in the Second FGD, the instrument domain was found as displayed in Table 5 and in the hypothetic model displayed in Figure 3. Based on the results of FGD regarding the instrument domain, each of the instruments was elaborated as displayed in Table 6.

Table 5. Elements of soft skills

No	Instrument Domain	Note
1	Model Book	
2	Teaching-Learning Process Aspects	
3	Model Practicability Aspects	
4	Model Effectiveness Aspects	

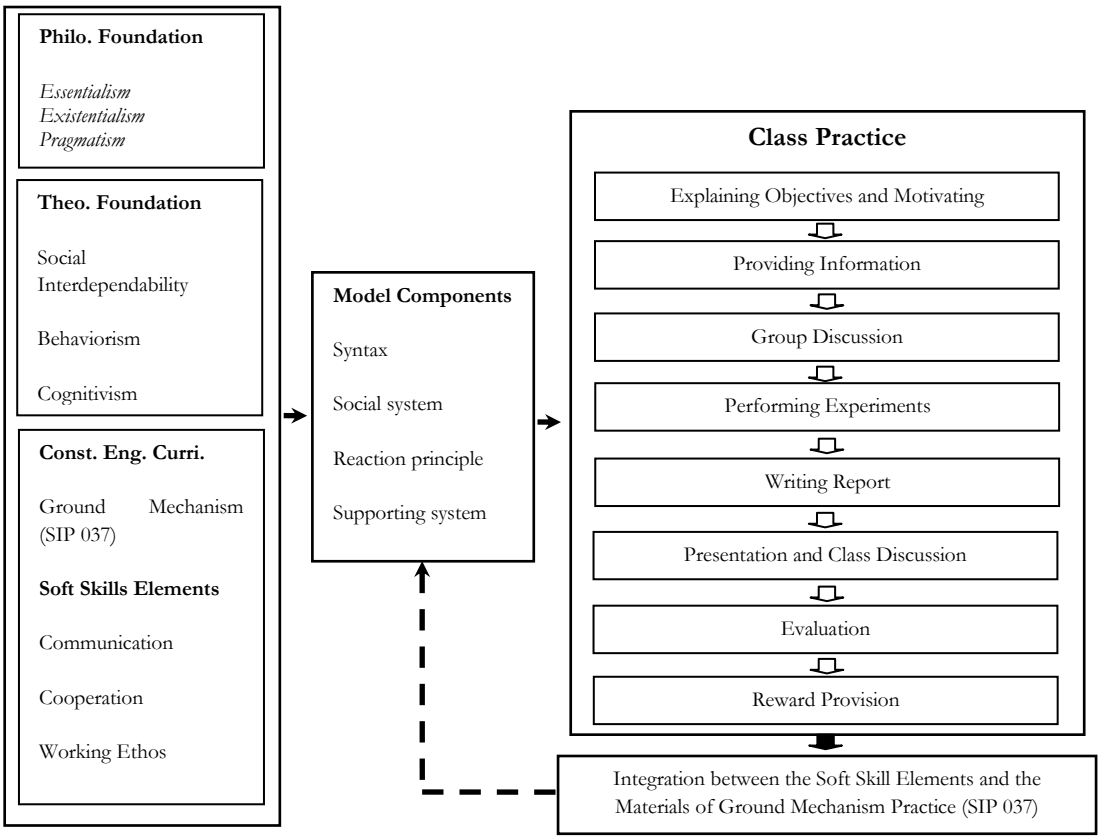

Figure 3. Hypothetical model of soft skills teaching to the students of Construction Engineering Education study program

Table 6. Instrument for the model of soft skills teaching to the students of Construction Engineering Education study program

No	Instrument Domain	Validation/Form Sheet
1	Model book	Model Book Lecturers' Manual Students' Manual
2	Teaching-Learning activities	Lesson Plan Assessment of the Learning Results of Knowledge Aspects Assessment of the Learning Results of Skill Aspects Assessment of the Rubrics of Soft Skills Assessment of the Group Presentation Assessment of the Class Presentation
3	Model practicability aspects	Assessment of the Model Implementability Assessment of the Lecturers Activities
4	Model effectiveness aspects	Assessment of the Model Effectiveness (For lecturers and students)

The next activities in the development stage were composing the model manual, composing the lecturer manual and composing the student manual. The composition of the three manuals were accompanied by the mapping of competence standards, basic competencies, indicators of mastery, assessment aspects, learning specific objectives and lesson plans. Then, by referring to Table 6, the instrument and the validation sheet were designed.

Validation

The validity testing of the instrument was conducted by the experts in evaluation, vocational higher education curriculum, and also learning technology. The validation was performed by using the product validation sheet.

The validation coefficient was then consulted to the validation coefficient provided by Musthan et al. (2013, p.36); the results of the consultation is presented in Table 7.

The results of the validation show that all of the instruments have the validity level between 3.5 and 4. The finding implies that all of the instruments are in the 'highly valid' category.

After the validity testing, the reliability testing which was an inter-rater agreement in the form of intraclass coefficient correlation or ICC was performed. The test was conducted by operating the SPSS 17 and the results are displayed in Table 8.

The results of the testing were consulted to the criteria proposed by Cicchetti et al. (2006, p.56) regarding the level of inter-rater reliability. The value of the level belongs to the following category: 0.60-0.74 (Good) and 0.75-1.00 (Very Good).

Table 7. Recapitulation of the results of validity testing of the instrument of soft skill learning model for the students of Construction Engineering Education study program

No	Validation/Format Sheet	Validation Category	Note
1	1.1 Model Book	3.88	Very Valid
	1.2 Lecturer Manual	3.57	
	1.3 Student Manual	3.90	
2	2.1 Lesson Plan	3.88	
	2.2 Assessment of the learning results of knowledge aspects	3.71	
	2.3 Assessment of the learning results of skill aspects	3.83	
	2.4 Assessment of the rubric of soft skills	3.85	
	2.5 Assessment of group presentation	3.88	
	2.6 Assessment of the class discussion	3.75	
3	3.1 Assessment of the model implementability	3.75	
	3.2 Assessment of the lecturer activities	3.72	
4	4.1 Assessment of the model effectiveness (for lecturers)	3.80	
	4.2 Assessment of the model effectiveness (for students)	3.80	

Table 8. The recapitulatioln of instrument reliability testing results (ICC) for the soft skills teaching model within the students of Construction Engineering Education study program

No	Validation/Format Sheet	(ICC)	Note
1	1.1 Model Book	0.734	
	1.2 Lecturer Manual	0.701	
	1.3 Student Manual	1.000	
2	2.1 Lesson Plan	0.719	
	2.2 Assessment of the learning results of knowledge aspects	0.650	
	2.3 Assessment of the learning results of skill aspects	0.667	
	2.4 Assessment of the rubric of soft skills	1.000	
	2.5 Assessment of group presentation	0.792	
	2.6 Assessment of the class discussion	0.875	
3	3.1. Assessment of the model implementability	0.833	
	3.2. Assessment of the lecturer activities	0.774	
4	4.1. Assessment of the model effectiveness (for lecturers)	0.840	
	4.2. Assessment of the model effectiveness (for students)	0.840	

Findings and Discussion

The results of small-group testing consist of the results from the assessment of model implementability, the assessment of the lecturers' activities, the assessment of the model effectiveness according to the observer and the assessment of the model effectiveness according to the students. These results are presented in Table 9.

The mean of the assessment of the model implementability is 87.12 (Good) and the mean of the inter-rater agreement is 0.662 (Fairly Good). On the other hand, the mean of the assessment of the lecturers' activities is 94.04 (Good) and the mean of the inter-rater agreement is 0.678 (Good). Next, the mean of the assessment of the model effectiveness according to the observers is 98.14 (Good) and the mean of the inter-rater agreement is 0.778 (Very Good).

The mean of the assessment of the model effectiveness according to the students is 73.95 (Moderate) and the mean of the inter-rater agreement is 0.428 (Moderate). In general, the category of small-group testing results is between Fairly Good and Good except for the category of the assessment of the model effectiveness according to the students, which is in a Moderate category.

The low results exposed by the students are assumed to be caused by the students' misperception. The students regard that the object that they assessed is their lecturers' skills instead of the learning model. The cause has been strengthened by the observers' opinions which state that there are some test items that lead to the assessment of the lecturers. In relation to the situation, it is suggested that these items should be improved before the implementation in the large-group testing.

Results of Large Group Testing

The classes for the large-group testing are classes A and B and the number of the participants is 2 x 16 people. The number of the participants is quite different because the three observers and the lecturer are the same so there would not be any further explanation regarding the test.

Specifically for the test participants, before the implementation of the experiment, they were divided into four groups. Each group consisted of four people categorized based on the academic grade point. The testing participants were also given the student manual and brief explanation regarding the learning model that they would try.

The results of large-group test consist of the results from the assessment of the model effectiveness according to the observers and assessment of the model effectiveness according to the students. The results of the testing are presented in the following sections. For class A, the mean of the model implementability is 86.60 (Good) and the mean of the inter-rater agreement is 0.760 (Very Good). Then, the mean of the assessment of the lecturers' activity is 97.85 (Very Good) and the mean of the inter-rater agreement is 0.850 (Very Good). Next, the mean of the assessment of the model effectiveness according to the observers is 90.27 (Good) and the mean of the inter-rater agreement is 0.840 (Very Good). Last but not least, the result of the assessment of the model effectiveness according to the students is 77.02 (Moderate) and the mean of the inter-rater agreement is 0.412 (Moderate).

Table 9. The recapitulaton of small group testing results

No	Implementability		Activities		Effectiveness			
1	Mean Score of Assessment	Mean Socre of Inter-Rater Agreement	Mean Score of Agreement	Mean Socre of Inter-Rater Agreement	Mean Score of Observer Assessment	Kesepakatan Antar rater	Mean Score of Students' Assesment	Inter-Rater Agreement
2	87.12	0.66	94.04	0.67	98.14	0.778	73.95	0.428
Category	Good	Fairly Good	Very Good	Good	Very Good	Very Good	Moderate	Moderate

For class B, the mean of the model implementability was 81.17 (Good) and the mean of the inter-rater agreement was 0.760 (Very Good). Then, the mean of the assessment of the lecturers' activity was 94.51 (Very Good) and the mean of the inter-rater agreement was 0.740 (Very Good). Next, the mean of the assessment of the model effectiveness according to the observers was 89.58 (Good) and the mean of the inter-rater agreement was 0.840 (Very Good). Last but not least, the results of the assessment of the model effectiveness according to the students was 74.75 (Moderate) and the mean of the inter-rater agreement was 0.407 (Moderate). The results of the test in both sections are displayed in Table 10 and Table 11.

The results of large-group test were similar to those of small-group test. In Table 10 and Table 11, it is apparent that the assessment of the implementability, the activities and also the model effectiveness which were done by the observers are in the 'Good' and 'Very Good' categories. On the other hand, the results of the assessment of the model effectiveness which was conducted by the university students are included in 'Moderate' category.

Discussions

Model Validity and Model Sets

The results of validity testing as displayed in Table 7 show that the model has met the validity requirements. Similarly, the results of the vailidity testing of the model sets that consisted of the instrument of assessment of the teaching-learning instrument, the instrument of assessment of the instrument practicability and also the instrument of assessment of the effectiveness show that the model has met the validity requirements.

In addition to the validity testing, a reliability testing of the model and the model manual, the instrument of teaching-learning sets assessment, the assessment of practicability assessment and the instrument of model effectiveness assessment was performed. The results of the reliability testing show that the model, the instrument of teaching-learning sets assessment, the instrument of practicability assessment, and also the instrument of model effectiveness assessment has met the reliability requirements, as displayed in Table 8. Since the validity and the reliability requirements has been met, the model and the model sets might be implemented.

Table 10. The recapitulation of large group testing for class A

No	Implementability		Activities		Effectiveness			
1	Mean Score of Assessment	Mean Socre of Inter-Rater Agreement	Mean Score of Agreement	Mean Socre of Inter-Rater Agreement	Mean Score of Observer Assessment	Kesepakatan Antar rater	Mean Score of Students' Assesment	Inter-Rater Agreement
2	86.6	0.76	97.85	0.85	90.27	0.84	77.02	0.412
Category	Good	Good	Very Good	Very Good	Very Good	Very Good	Moderate	Moderate

Table 11. The recapitulation of large group test for class B

No	Implementability		Activities		Effectiveness			
1	Mean Score of Assessment	Mean Socre of Inter-Rater Agreement	Mean Score of Agreement	Mean Socre of Inter-Rater Agreement	Mean Score of Observer Assessment	Kesepakatan Antar rater	Mean Score of Students' Assesment	Inter-Rater Agreement
2	81.17	0.76	94.51	0.74	89.58	0.84	74.35	0.407
Category	Good	Good	Very Good	Good	Very Good	Very Good	Moderate	Moderate

Model Practicality

The practicability of a model is assessed by means of experiment. For the developed model, the practicality level was assessed by means of a small-group experiment and large-group experiment. Within the implementation, both for the small-group experiment and the large-group experiment, the assessment was conducted by three observers through the instrument of practicality level assessment and the assessment consisted of implementability assessment and lecturer activities assessment.

During the small-group experiment, the results showed that the model had met the practicality criteria that had been uncovered by means of the results of assessment of the model implementability and the lecturer activities. For the implementability level, the general scores provided by the observes were in the 'Good' category (87.12) with K (inter-rater agreement) coefficient of 0.66 ('Fairly Good'). On the other hand, for the lecturer activities the general score was 94.04 ('Very Good') with the ICC score of 0.67 ('Good').

Then, for the large-group experiment, because there were two groups that attended the experiment, the average score from both groups were provided. Specifically for the practicality aspects, it is proposed that based on the results of the experiments, the model had met the practicality criteria. The practicality was marked by the average score of practicality equal to 83.88 ('Good') with the K coefficient value of 0.76 ('Good'). On the other hand, for the lecturer activities the average score was 96.21 ('Very Good') with the ICC of 0.846 ('Very Good').

Model Effectiveness

Like the assessment of model practicality level, the effectiveness assessment was also conducted in the small-group experiment and the large-group experiment. The assessment was conducted by the observers and the students by implementing the instrument of effectiveness assessment specific for the lecturers and the instrument of effectiveness assessment specific for the students, in which both instruments had met the validity and the reliability criteria.

In the small-group experiment, the observers in general scored 98.14 ('Very Good') with the ICC of 0.77 ('Very Good'). On the other hand, the students in general scored 73.95 ('Moderate') with the ICC of 0.428 ('Moderate'). The results of the test showed that the model had met the effecttiveness criteria.

Then, in the large-group experiment, it is also found that the model had met the effectiveness criteria. The finding was marked by the general scores which were provided by the observers and the students. The observers in general scored 90.27 ('Very Good') with the ICC of 0.840 ('Very Good'). On the other hand, the students in general scored 75.68 ('Moderate') with the ICC of 0.409, which is in the category of 'Moderate'.

Conclusion

The results of the validation which was conducted by the observers toward the model and the model sets showed that the model had met the validity requirements. The practicability test conducted in the small-group experiment and the large-group experiment showed that the soft skills teaching model for the students of Construction Engineering Education study program had met the practicability criteria. In addition, the effectiveness test conducted in the small-group experiment and the large-group experiment showed that the model had met the effectiveness criteria. Thereby, it can be concluded that the soft skills teaching model for the students of Construction Engineering Education study program has met the requirements for a good product and the requirements include the validity, the practicality and the effectiveness criteria.

In relation to the employment demand of the graduates who had the soft skills, despite the multiple limitation exposed by the model, the study program is expected to be able to benefit the model as a tool for integrating the hard skills and the soft skills. In addition, the future researchers are also expected to be able to perform experiments and the field tests in relation to the topic of the study.

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