The Validity of the Model of Employability Skills Requiredfor Graduates to Enter the Workplace

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Abstract

The development of learning model of employable skills is set in motion by low employability skills of Diploma 3 Students of Electrical Technology Study Program with regard to industrial world necessities. Therefore, there is a need to develop a relevant learning model. This study aims to validate employable skills model for students of ET D3 in hope to attain a valid learning model. The validation stage in the development includes internal and external validation. The internal validation involves various experts such as curriculum experts, learning model experts, learning device experts and vocational learning experts to assess the validity and reliability of the model being developed. The result shows that the products of the development of employable skills model including model handbooks, textbooks, lesson plans and worksheets are declared valid and reliable, thus, the learning model developed is fit to be applied in learning processes.

Keywords: employability skills model validity, Model of Employability

1. Introduction

The National Education System Law number 20 of 2003 states that vocational education seeks to prepare students to be able to work in certain fields. Vocational education is one of national education systems that aims to prepare someone to be a work-ready labor possessing a set of skills and knowledge required by a certain job. In Indonesia, vocational education is classified according to its levels of education. At secondary education level is vocational education under the institution of *SMK/SMAK*, while at higher education level, vocational education is provided polytechnic or diploma program (Hanafi, 2014).

However, as the world technology has stepped into the era of industrial 4.0 characterized by cyber-physical system (Samani, 2018), vocational education needs to evolve beyond providing education for its students to be able to work in a certain field. According to World Economic Forum, 35% of core or essential skills required today will be much less needed in 2020. In the coming years there will be a very rapid change in work patterns.

According to Mulder, industrial era 4.0 requires workers to have professional competence which includes generic skills and specific skills. Generic skills are needed to deal with new situations while specific skills are needed to deal with common or routine situations. Generic skills include aptitude in reasoning, great working attitudes (such as being honest, earnest, hard-working and responsible), problem solving capability, excellent communication and capability to work in a team. Whereas specific skills are mastery of the discipline learned.

In coping with rapid industrial advancement, Indonesian government through *Perpres* No. 8 of 2012 stipulated Indonesian National Qualification Framework (IQF/*KKNI*) as the reference in the construction of learning outcomes of graduates from every level of education nationally. *KKNI* is an important aspect in higher education to compete in international world. College graduates must possess distinct, competent and professional qualifications in order to be accepted in job market. With the effectuation of ASEAN free market

(AEC), Indonesia is currently in the situations of free flow of services and free flow of skilled labors.

Previously, through Kepmendiknas No. 232 of 2000, a guideline for preparing tertiary curriculum has been stipulated where graduates of Diploma III program are projected to possess capabilities in routine work fields as well as novel ones where their attributes and contexts are unknown, independently in their implementation and work responsibilities, and to be able to conduct supervision and guidance over the basis of their managerial skills.

Table 1: Higher Education Graduate's Unemployment in Indonesia in 2013 – 2017

No	Education	2014		2015		2016		2017
		Feb	Aug	Feb	Aug	Feb	Aug	Aug
1.	Vocational School	847.3	1.332.5	1.174.6	1.56	1.348.3	1.520.	1621.4
2.	Diploma	195.2	193.51	254.3	251.5	249.3	219.736	242.9
3.	Under-graduate	398.2	495.1	565.4	653.5	695.3	567.23	618.7

Sumber: (Badan Pusat Statistik,2018).

However, government's current mission to improve the quality of vocational education graduates in order to compete internationally has not shown a sign of success in practice. Based on the data of the Central Bureau of Statistics up to 2017, national unemployment rate is still rather high for vocational graduates (diploma) (Table 1). In Table 1, we can observe an upward trend of diploma unemployment year to year. This trend is undoubtedly attributable to the issues of quality and relevance of education outcomes. Although regulations and laws are already in place, the quality of education and graduates remains to be huge problem for the government to rectify. Education world, higher education in particular, is facing the problem of how to produce graduates with qualifications relevant to work world requirements to improve the absorption of graduates in work world. Providers of higher education should currently focus on how to improve the absorption rate. Qualification criteria indicated in employment market in knowledge-based technological era are an important subject to pay attention to by the providers of higher education to optimize the absorption of their graduates.

InstitutTeknologi Padang (ITP), as one of providers of vocational education, is also aware of the high rate of unemployment among diploma graduates. As of now, ITP has three Diploma III Study Programs namely Electrical Engineering, Civil Engineering, and Mechanical Engineering. Electrical Engineering Study Program, on average, produces 97 graduates annually. However, tracer study data shows that graduates that are ready to work according to their expertise are only about 10% (Accreditation Form of Electrical Engineering DIII of ITP). Looking at ITP's vision that is establishing itself as one of eminent colleges in Indonesia in 2024 and its missions, namely (1) organizing quality higher education in engineering field; (2) organizing quality teaching and learning processes supported by proper infrastructures according to technological advancement; (3) promoting competitive, dynamic, and innovative research in line with community needs in engineering field; (4) performing service to community in engineering field as well as heightening and improving academic community awareness toward social problems; and (5) establishing partnership cooperation with various parties and stakeholders, ITP has been endeavoring to emphasize to their graduates to have appropriate competencies according to their education. However, reflecting on the high rate of unemployment of ITP graduates from Electrical Engineering Diploma III, further review on curriculum and lecture processes is definitely in order. In the process of lecture execution, ITP lectures should be able to nurture and develop potentials of students so that they can adopt and adapt to the development of science and technology.

Necessary qualifications in 21st century in order to be employed include mastery of discipline and technology, good reasoning aptitude, great working attitudes, problem solving capability, and ability to work and communicate in a team. In reality, course process in Electrical Engineering DIII Program Study is still largely dominated by the lecturers. Theoretical course is carried out with lecture method while practical course is sadly still at learning-to-do level. Lecturers have not ventured to implement innovative learning models necessary to nurture reasoning aptitude, problem solving capability, communication and cooperation abilities. If referring to Bloom's taxonomy, student cognitive competencies nurtured by the lecturers are still at just applying level (C3) and student psychomotor competencies are still at manipulating level (P2).

Competency test administered to students Electrical Engineering Diploma III as the requirement to enroll in final project exam is limited to C3 level for cognitive aspect and P2 for psychomotor aspect. Lecturers have not developed students' affective competencies demanded in the industrial era 4.0 such adaptability to novel situations, hard work, self-management and others. According to (Semeijm, at al,2000) rapid technological advancement and expanded orientation of national and international organizations have caused changes in labor demand, so

that traditional hard selection devices like educational background still count, but are not sufficient anymore.

Based on the problem explicated above, a solution proposed in this study is to develop a link and match learning system based on employability skills. Employability skills are core skills that can be transferred that illustrate the function of basic attributes of knowledge, skills/expertise and attitudes needed in 21st century workplace. It is needed to excel at all levels of labor and education (Overtoom,2000) Employability skills are someone's capability to enter labor market and maneuver within it and to get a reliable and sustainable job (Sumarno, 2016). The importance of work skills for students (Verawadina, at al, 2020).The curriculum must be relevant to theskill era of the industrialrevolution 4.0 (Hendriyani, at al, 2020). In addition, today's curriculum should also promote and emphasize on work skills.(Verawardina, 2017)

Employability is individual characteristics related to work abilities and desire to stay attractive in labor market (Sanders & Grip, 2003). Employability skills become important since economic crisis that makes it hard for someone to get and/or retain their job (Sanders & Grip, 2003). There are different types of employability: (1) job-match employability refers to the possibility of a worker to retain their current job with the same organization, (2) firm internal employability refers to the possibility of a worker to move to other job in the same organization, and (3) external employability refers to the possibility of a worker to move to other job in different organization (Sanders & Grip, 2003). Employability skills are not limited to hard competences emphasizing on how to follow procedures but also encompass soft competencies emphasizing on reasoning or logic skills, leadership, management and entrepreneurial skills. As stated by BCA/ACCI, employability skills consist of communication skills, team work skills, problem solving skills, initiative and enterprise skill, planning and organizing skills, self-management skills, learning skills and technology skills (Smith, 2003).Project-based learning is very good for improving skills(Asnur, at al, 2020).

According to (Conference Board of Canada, 2000) employability skills comprise (1) fundamental skills, which are skills required as the basis for further development. These skills include communication ability, ability to process information, and ability to work with numbers. (2) personal management skills, which are personal skills, attitudes and behaviors that drive one's potential to grow. These skills include ability to demonstrate positive attitudes and behaviors, sense of responsibility, adaptability, desire to learn, attention to details, reasoning and problem solving. (3) teamwork skills, which are skills required to boost productivity, consisting of ability to work with other people and willingness to participate in tasks. From the opinions above, it can be concluded that employability skills are the competencies needed by someone to work successfully.The purpose of learning model being

developed in this study is to produce a learning model of employability skills to enhance the competencies of ITP students from Electrical Engineering Diploma III Study Program.

2. Method

The method used in the development of employability skills model was classified as Research and Development (R&D) study in the field of education, which was a development model and educational research from (Borg and Gall, 1989). In the development, the first stage was Preliminary Study, then Prototype Designing stage, and then Product Development stage to obtain valid product by conducting focus group discussion (FGD) on the construct of EmS model being developed. Experts invited to the FGD included learning strategy experts, material experts, character education experts, learning evaluation experts, language experts, and professionals in the electricity sector. Inputs from the experts during the discussion become the reference for product revision. Validation was also performed on content and construct aspects such as (1) the syntax of the model and its rationale, (2) generic skills being developed, (3) specific skills being developed, and (4) the suitability of product design with the curriculum.

For the validation of construct aspects of link and match learning model based on employability skills being developed, a number of experts were needed such as curriculum experts, learning model experts, learning device experts and vocational learning experts. Products to be validated included model textbooks, student activity sheets, and student competency assessment sheets for cognitive, affective and psychomotor aspects. The subject of experts' and practitioners' experiment for validation was corporate managers.

The instrument used in conducting the validation was a questionnaire. This instrument was used to collect information regarding the validity of model being developed that contains validity instruments such as model handbooks, textbooks, lesson plans, and worksheets.

3. Result and Discussion

Considering the importance of learning model to achieve learning goals, lecturers need innovative measures in employing learning models. (Arends, 2004) stated, "The term teaching model refers to particular approach to instruction that includes its goals, syntax, environment, and management systems."

The learning model developed in this study was employability skill learning model for electrical installation course. Its development was set in motion by low employability skills of Diploma 3 Students of Electrical Technology Study Program with regard to industrial world necessities. Using this condition as a starting point, a preliminary study which was the initial step of model development was conducted. It aims to identify (1) Program study activities in preparing students

with employability skills; and (2) Work world orientation in conducting recruitment for prospective workers.The result of (Wagiran,2008) study managed to identify 20 soft skills elements required by industrial world in Indonesia in general, among them were: honesty, work ethic, responsibility, discipline, implementation of safety and work health principals, initiative and creativity, cooperation, adaptability, self-confidence, and tolerance. The ESL model would be employed in the implementation process of link and match in Electrical Engineering DIII study program in efforts to improve the effectiveness of link and match between competencies in college and work world.

a. Data Analysis of Model Handbook Validity

The validity of handbooks of Electrical Installation course was measured from material organization, writing, language and content aspects.

b. Textbook Validity

The validity of textbooks of Electrical Installation course was measured from textbook scope, competency achievement indicators, learning content and activities, language and time aspects.

c. Lesson Plan Validity

The validity of lesson plans was measured from material organization, writing, language and content aspects.

d. Worksheet Validity

The validity of worksheets was measured from material organization, writing, language and content aspects.
The recapitulation of the result validity test on study products is presented as follows.

Table 1: Results of validity test on the products of employability skill model development

Products produced	Number of validators	Means	Description
Model handbook	5	0,68	Valid
Textbooks	5	0,90	Valid
Lesson plans	5	0,85	Valid
Worksheets	5	0,69	Valid

Below is the data of validity level of the products of employability skill model development on Electrical Installation course.
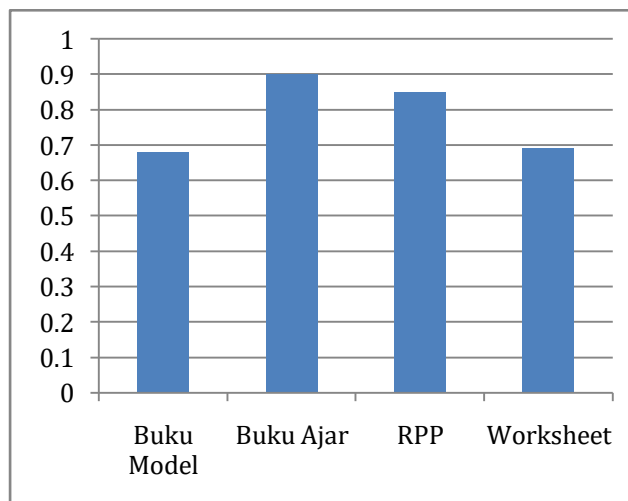

Figure 1: Validity Levels of ESL Model Development Products

From the graph in Figure 1, we can see that the product validity rate was at the range of 0.69-0.90. Therefore, it could be concluded that the products of the model development were valid and could be employed in Electrical Installation engineering course in college.

4. Conclusion

Based on the result of the validation of employability skill learning model development for TE DIII students, internal validation is conducted by a number of experts to test the validity and reliability of the model. The result shows that employability skill model being developed that includes model handbooks, textbooks, lesson plans and worksheet is declared valid, thereby, the learning model developed is fit to be implemented in learning activities.

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