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Developing Employabilty Skills Using the Work-Based Learning Model

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Abstract. Employability skills are non-technical competencies that must be possessed by any person who wish to be absorbed by the labor market. In the Asian Economic Comunity (AEC) regional bloc, employability skills are increasingly becoming invaluable for all prospective job seekers to be marketable. The nature of the present vacant jobs requires a variety of employability skills. All vocational trainees undergoing industrial practice should finish the industrial training phase with relevant and industry demanded skills. This study was quantitative. Descriptive analysis and confirmatory factorial analysis techniques were incentivized to analyze data collected through questionnaires. The study was made up of a sample of 60 bakery competence students under Agribusiness program of Agricultural Products Processing and Technology (APHP). The results revealed that Work-Based Learning implementation contributes to the development of employability skills in vocational students. Employability skills includes communication skills, teamwork skills, innovation and enterprise skills, self-management skills, problem solving skills and learning skills. Work-Based Learning instructional model is ideal for the development and formation of employability skills by vocational students. All Vocational Education and Training (VET) stakeholders should prioritize the development of employability skills during the current fourth industrial revolution.

1. Introduction

The rapid industrial progress and immense growth of most economies in the world is a result of the competition for business and the desire to be dominant by both developed and developing economies. For the economies to be internationally competitive in terms of international trade, the international trade competitiveness should be anchored on efficient and effective industry dynamics and technologies as well as innovative business and economic practices. Presently, most economies are engaged in serious research and development that enables them to be science, economics, technology and international business hubs. Research and development are best represented by the Global Innovation Indices. Every year the World Bank produces each country's global innovation index. Switzerland occupied the first position with an average score of 68.40 during the period 2011 to 2018. Netherlands (63.36) and Sweden (63.32) occupied the second and third places respectively. In 2017, Sweden was ranked second while Netherlands was ranked third. The United States was ranked fourth in 2017 and 2018 respectively [1].

The variation in global innovation index was also witnessed in both middle-income countries and less developing countries like Indonesia, Philippines, Cambodia, Vietnam and Myanmar. According to World Bank statistics, Indonesia was ranked 85 on the world innovation ladder in 2018 with a score of 29.80, up two levels from its 2017 rank (87) with a score of 33.10 [2][1].

Table 1. Global Innovation Index
Southeast Asian Countries (2018)

No.	Country	Group	Ranked World	Score (0-100)
1.	Singapore	High Income	5	59.83
2.	Malaysia	Up-Middle Income	35	43.16
3.	Thailand	Up-Middle Income	44	38.00
4.	Brunei Darussalam	High Income	67	32.84
5.	Philippines	Low-Middle Income	73	31.56
6.	Indonesia	Low-Middle Income	85	29.80
7.	Cambodia	Low-Middle Income	98	26.69

With respect to the global competitiveness index Indonesia was ranked 37 with a score of 4.52 in the period 2015 - 2016. Indonesia's global innovation index rank plummeted to number 41 with an associated score of 4.52 during the period 2016 to 2017 out of 138 countries that were considered. In the period 2017-2018, Indonesia rose to number 36 out of 137 countries with a score of 4.68 in terms of global competitive index [3][4][2][1].

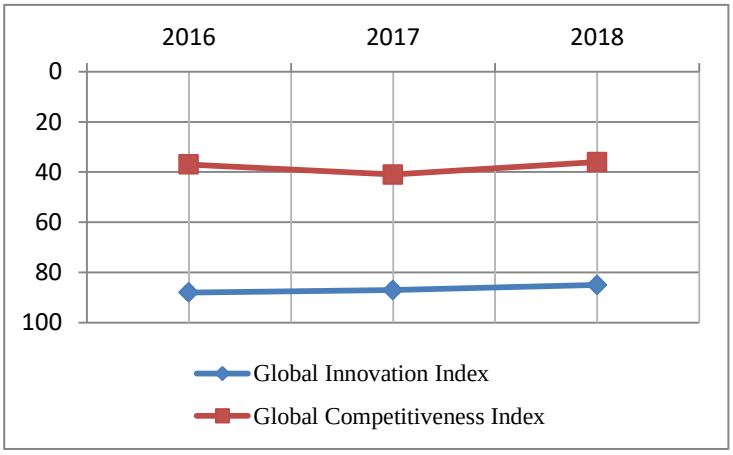

Figure 1. Indonesia's Global Innovation Index and Global Competitiveness (2016-2018)

Education systems are meant to create human resource competitiveness. Decree on National Education System, Article 15, number 20 of 2003 states that there are two types of professional education programs in Indonesia, namely general education and vocational education. The vocational school curriculum is vitally linked to the proceedings in the industrial and business world. Vocational education and training (VET) seek to produce prospective workers who will be employed as middle level workers. Vocational education and training seeks to produce workers with right skills needed in

industry and business world of work, as such VET should be sensitive to changes that occur in the industry [5][6].

Vocational High Schools also share the training responsibility with tertiary institutions. Vocational high schools intend to produce skilled labor for the benefit industry and the economy at large. Prospective vocational graduates should obtain right skills that will make them competitive on the labor market, thus vocational high schools should provide quality education and training. Technological advancement has broad social benefits [5][7] in that it enables prospective workers attain market demanded skills. The international competitiveness of any country is hinged on knowledge and skills of its workforce [8]. The training process should equip prospective workers with dynamic skills that will enable them to easily adapt to the existing working conditions and environment. Employability skills are sustainable skills that will enable the holder to remain relevant on the job [9][10].

Industrial traineeship comes in the form of on the job training and it is alternatively known as Work-Based Learning (WBL). It provides students with an opportunity to master practical knowledge and skills which cannot be obtained in Vocational training institutes [11]. Academic learning in Vocational institutes complements and supplements experiential learning in industry. Experiential learning equips graduates with work ready skills (manual skills) that will increase their chance of being employed. The success of any vocational training institution is measured by the successful placement or hiring of its former graduates. If more graduates are absorbed in the labor market, training institutions stands a chance to appeal to potential students and their respective accreditation grades might also rise. Employability skills are defined as " not job specific, but skills that cut horizontally across all industries and vertically across all jobs from entry level to chief executive officer"[12]. Employability skills can be defined as "one's ability to identify and realize career opportunities"[13], Employability skills can also be defined as the ability of a person to actively adjust to a particular job making it possible for the individual to survive and be successful at work [8]. Employability skills needed by graduates of vocational schools in Indonesia should be tailored to the needs of the potential employers [14]. WBL is learning that describes a program at the school through which the school and the industry or firm jointly design learning at the workplace so that the program meets the needs of learners, and contributes to the development of the employing firms. WBL is a formal program organized in schools with the invaluable input from industry [15]

2. Research Method

This study was quantitative, and of the non-experimental design. Questionnaires were administered to collect sample data [16]. Purposive sampling was opted to collect data. The participants were bakery students under the Agricultural Product Processing (APHP) who were presently practicing on the job training (industrial attachment or graduate industrial traineeship). Questionnaires were used to collect data about the implementation of the work-based learning (WBL) model in relation to employability skills formation. The data was descriptively analyzed. Regression analysis was also incentivized to process the data. The data was processed using SPSS version 23.0 for Windows. The descriptive analysis in this study aimed to assess the impact of the work-based learning implementation (WBL) on employability skills. Confirmatory factor analysis was also incentivized analyze the impact of work-based learning (WBL) on employability skills. Additionally, the regression analysis was intended to establish the contribution of the implementation of work-based learning (WBL) on employability skills

3. Result and Discussion

3.1. Implementation Data Description Work based learning

Informed consent was physically sought in the first learning meeting. The researcher created a 30-item questionnaire of 1 to 4 Likert scale. The minimum was 30 and the maximum score was 120. The

questionnaire survey results ranged from 45% to 100% (Mean = 85.99, Standard Deviation = 7.34). Work Based Learning Implementation Criteria value criterion was ($\bar{X}k$= 75) and standard deviation criteria was (σk= 15). Work-based Learning Implementation Criteria Score is shown in Table 2.

Table 2 Work Based Learning Implementation Criteria Score

No.	Category	interval	Frequency	Percentage
1	Very low	30.0 to 52.5	4	6.7
2	Low	52.6 to 67.5	7	11.7
3	moderate	67.6 to 82.5	13	21.7
4	High	82.6 to 97.5	30	50
5	Very high	97.6 to 120	6	10
Total			**60**	**100**

The mean score of the research was $\bar{X}$ = 85.99. On the basis of the classification criteria, the bakery competency students highly rated (50%) the implementation of work-based learning with regards to attainment of employable skills (Agricultural Products Processing). 21.7% of the bakery competency students moderately rated the implementation of work-based learning, 11.7% in the lowly rated the implementation of work-based learning, 10% of the bakery competency students categorized the implementation of work-based learning as very high while 6.7% of the bakery competency students rated the implementation of work-based learning very low.

3.2. Data Description Employability Skills

The minimum score was 30 and the maximum score was 120. The questionnaire survey score ranged from 35 to 119 (Mean = 82.33, Standard Deviation = 10.88). Employability Skills Criteria average value criterion was ($\bar{X}k$= 75) and standard deviation criteria was (σk= 15).Employability Skills Criteria Scores are shown in table 3.

Table 3. Employability Skills Criteria Score

No.	Category	interval	Frequency	Percentage
1	Very low	30.0 to 52.5	2	2.5
2	Low	52.6 to 67.5	7	10
3	moderate	67.6 to 82.5	23	32.5
4	High	82.6 to 97.5	28	45
5	Very high	97.6 to 120	0	0
Total			**60**	**100**

The employability skills mean score was $\bar{X}$ = 82.33 based on the classification criteria in Table 2. The general employability skills of bakery competency students under the Agribusiness program of Agricultural Products Processing (APHP) was within the high category. 45% of employability skills were perceived to fall in the high category, 32.5% in the medium category, 10% in the low category and 2.5% in the very low category.

3.3. Hypothesis Testing with Regression Analysis

To determine the effect of work-based learning implementation on employability skills, linear regression was opted. From the regression analysis, coefficient of determination (R^2) was deduced as 0.598. 59.8% of the variation was explained by the regression model. It means 59.8% of the points on the regression line fits the data. The implementation of work-based learning did have a 59.8% effect on employability skills. Conversely, 40.2% of the variation was influenced by other factors (unexplained). From the ANOVA table, the p-value was less than 0.05 (Sig.= 0.000), therefore, the null hypothesis was rejected and the alternative hypothesis was retained (H_a). This means that regression coefficient was significant. Based on this it can be concluded that work-based learning implementation contributed significantly to employability skills.

Based on the results of regression analysis it was that found the correlation of implementing work-based learning on employability skills was a significant by 59.8% (R^2). It found that there was a significant contribution of implementing work-based learning on vocational students' employability skills. These results revealed that employability skills are growing as a result of a good learning system [17][18][19].

Currently, the workplace requires a workforce that do not only have the technical skills, but also possess employability skills [20][21], To that end, learning process should be well structured through which more emphasis will be placed on rules, should be skill-oriented and not just facilitate students to obtain certificates through rote memorization [8][22][23][24], Employability skills can be developed through academic work, work practices, industry-based learning and cooperative learning integrated with work[25][26][27].

Skills and work attitude as one of the competencies required of graduates can be created and developed during the learning process[28][29], Educational institution are obliged to provide infrastructural support, and ensure that educators are in place, who will convey and deliver the learning experience for the attainment of employability skills in the learning process [30][31][32][33]. Effective education and training depends on the development of work skills in students, student characteristics and student readiness[34][35].
Based on theoretical and empirical studies that have been conducted, it can be concluded that work-based learning contributes significantly to students' employability skills development in bakery competence under the Agribusiness Program of Agricultural Product Processing (APHP). This implies that efforts to improve the quality of the various forms of learning programs can develop employability skills of vocational graduates..

4. Conclusions

Based on the discussion of the results of this study, it can be concluded that the implementation of work-based learning contributes significantly to the employability skills development of students in bakery competence under the Agribusiness Program of Agricultural Product Processing (APHP). Therefore it can be concluded that the implementation of work-based learning as a learning model can be applied in the development of employability skills of vocational graduates.

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