Soft Skill Assessment Development in Basic Electrical Engineering Activities of Vocational High School

by Hantje Ponto

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Soft Skill Assessment Development in Basic Electrical Engineering Activities of Vocational High School

Hantje Ponto, Parabelem Tinno Dolf Rompas, and Rudy Sanger
Universitas Negeri Manado

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Abstract: Vocational high school (SMK) conducts learning activities to educate skilled workers able to work in the business and industry. The learning process in SMK, teachers educate and teach about the subject matter of theory and practice. Soft skill is an important aspect to practice activities in accordance with the objectives. Pre-survey shows SMK teachers do not have assessment instruments yet. The specific objective of the study was to develop an observational assessment in practice on the basic electrical engineering subjects of students at SMK. The research method has used research and development of ADDIE models. It was found that the basic electrical engineering practice assessment developed satisfied the validity, feasible and practical requirements used to assess the soft skills of students in basic electrical engineering practice.

1 INTRODUCTION

Vocational education schools (Vocational Schools) are formal educational institutions that organize secondary education in the implementation of the process of learning more practical activities specifically educating prospective skilled workers. Vocational Schools are being developed in Indonesia to prepare someone to be better able to work in a particular field of work. Vocational or vocational education aims to meet people's needs regarding labour (Evans, 1978). This explanation is in line as described by Pavlova (2009) that vocational education and training activities are a process to prepare students who have skills, skills, understanding, attitude, work habits, and appreciation of the jobs needed by the community and the business community. or the industry is supervised by the community and government.

Based on this explanation, students are expected to have skills and skills called hard skills while attitude behaviours, work habits and appreciation are forms of soft skills. UGM Vocational School (SV) Alumni (2016) said the world of work believes that superior human resources (HR) do not only have hard skill skills but are also skilled in the soft skills aspect. The results of research at Harvard University in the United States turned out to be a person's success is not determined solely by knowledge and technical skills or hard skills alone, but more by the ability to manage themselves and others (soft skills). This study reveals, success is only determined around 20% by hard skills and the remaining 80% by soft skills. Workers who have soft skills are needed in the industrial world (Widarto, Pardjono, and Widodo, 2012). It is a reality that education in Indonesia provides a greater portion of hard skill content, and can even be said to be more oriented towards hard skill learning. Then how big should the soft skill load be in the education curriculum? Actually the determinant of one's success is more due to the soft skill element. Soft skills determine a person's success in carrying out an activity (Herson & Wirda, 2012; Tang, 2018; Pachauri and Yadav, 2014). In addition to soft skill technical skills are important factors for various organizations (Robles, 2012; Ilias, Razak, Yunus, Rasak, 2012). Many industry and service companies are disappointed because their workforce is not adequate (Taylor, 2016).

Sutrisno (2016) said that students as subjects and at the same time education products are required to have eight basic competencies, namely (1) communication skills; (2) critical and creative thinking; (3) inquiry / reasoning skills; (3) interpersonal skills; (5) multicultural / multilingual literacy; (6) problem solving; (7) information / digital literacy; and (8) technological skills. Of the eight competencies 1-6 are soft skills while 7 and 8 are hard

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skills. According to Pramuniati (2013), a teaching imbalance that focuses more on hard skills than soft skills is a serious problem for the world of education that needs to be addressed immediately.

The learning process in Vocational High School is very important to master theory and practice so that students' behaviour about soft skills needs to change their behaviour as explained by (Fayadi, 2012) learning is a process to change one's behaviour in learning activities.

In order for DTL practice activities in vocational schools to produce maximum learning and training processes, students must have soft skills that can be measured for information to formative evaluation in DTL practice activities. Formative evaluation has the goal that it can be known that it has arrived where it has been formed according to the teaching objectives within a certain period of time after participating in learning activities within a certain period of time (Sudjana, 2017). Next Silverius (1991) said formative evaluation was carried out in the middle of a teaching program that had a function to monitor students' learning abilities in the teaching and learning process in order to provide feedback to students and teachers. In order to measure soft skills, it is necessary to develop soft skills assessments for DTL practice activities.

2 LITERATURE STUDY

2.1 Soft Skill

Soft skill is personal behaviours (Choudary & Ponnuru, 2015; Herison & Wirda, 2012; Schulz, 2008). Soft skill related to intrapersonal and interpersonal (Aly, 2017; Illah, 2008: 19). Moss & Till in Romedios (2012) defines soft skills as skills, abilities and traits related to personality, attitude and behaviour. Rumengan, et al (2011: 67), defines soft skill as skill and life skill, both for yourself, in groups, or in society, and with the Creator. Having soft skills makes a person's presence more and more felt in the community such as communication skills, emotional skill, language skill, group skill, ethics and morals, courtesy and spiritual skill. Furthermore Rumengan, et al. say soft skill causes the hard skill to function.

According to Aribowo quoted by Illah (2008: 17), soft skill is a person's skills in dealing with others (including with themselves). Soft skill attribute, thus includes adopted values, motivation, behaviour, habits, character and attitude. This soft skill attribute is owned by everyone at different levels, influenced by the habit of thinking, saying, acting and behaving. However, this attribute can change if the person wants to change it by practicing getting used to new things.

Soft skill is complementary to hard skills, this type of skill is part of a person's intellectual intelligence and is often used as a condition to obtain a certain position or job (Mulyono, 2011: 99). Someone who has soft skills will communicate well, work well, influence others, and get along well, influence others, and get along with others (Agarwal & Ahuja, 2014).

Soft skill aspects of students in TDL practice activities include: initiative, active, obedient, responsive, working together, creative, uplifting, positive attitude, communication, honest, polite, and ethical.

Assessment has special terminology to describe the activities undertaken by the teacher to obtain information about the knowledge, skills and attitudes of students (Marsh, 1996). Attitudes include one aspect of soft skills, meaning soft skills need to be measured.

2.2 Assessment

Assessment is a series of activities to obtain, analyze, and interpret data about process and learning outcomes at the classroom level that are carried out systematically and continuously, so that it becomes meaningful information in decision making (Sukirman, 2012), then the assessment is said to be related to measurement and evaluation. Before the evaluation is done, measurement and assessment are carried out. Ponto (2016) said that measurements and assessments were conducted to obtain information as a basis for policy making or decisions about the implementation of educational programs.

2.3 Practice DTL

Practice is the actual implementation of what is called in theory (Hasan, et al, 2005). The same thing said by Komaruddin (2006) is that practice is a way of carrying out in real terms what is stated in the theory. Referring to the theory, what is explained in theory will be applied in practical activities. Various types of practice such as in the laboratory are often called practicum and workshop to train skills for students / students to have certain competencies as stated in the school or college curriculum.

Notoatmodjo (2003) argues that practice is divided into 4 levels according to their quality, namely: (1) Perception (perception). Knowing and choosing various objects in connection with the actions to be taken is a first-rate practice; (2) Guided response. Being able to do something in the right order and in accordance with the example is a second level indicator of practice; (3) Mechanism. If someone has been able to do something correctly automatically or something that is already a habit,

then he has reached the third level practice; and (4) Adaptation, is a practice or action that has been well developed. This means that the action has been modified without reducing the truth of the action. In this case Notoatmodjo asserted that someone who does practical activities to achieve perfect skills is done through a certain level of process.

Topics of DTL practice activities include: (1) how to use measuring instruments; (2) measuring conductivity, voltage, current, resistance and frequency; (3) testing electrical and electronic components; and (4) the use of oscilloscopes to observe wave curves.

In order for DTL practice activities to be carried out properly, students are required to be serious about doing so by fulfilling the soft skills aspects.

3 METHODS

This research is to develop soft skills assessment in DTL practice activities in North Sulawesi provincial Vocational Schools. The method used is R & D. The aim of R & D is to develop a product that is good and effective for schools (Gay, Mills, and Airasian, 2012). The R & D used is the four-D (4D) model developed by Thiagarajan, Semmel & Semmmel (1974) with the stages: (1) define, which is to define the soft skills aspects of students in DTL practice activities; (2) design, namely designing an assessment model; (3) develop, namely to improve products based on expert validation, field trials of product practicality and effectiveness; and (4) disseminate, namely the dissemination of products in the SMK electrical engineering expertise program in North Sulawesi.

This study will develop students' soft skills assessment in DTL practice activities. In order to obtain a quality product, the validity, practicality and effectiveness of this study will be tested as said by Nieveen (1999: 127) that the quality of products in education is viewed from three aspects, namely validity, practicality and effectiveness.

4 RESULTS AND DISCUSSION

The product developed in this study is the assessment of soft skills in DTL practice activities in vocational schools.

R & D products need to be validated by experts and tested for practicality and effectiveness testing (Sugiyono, 2012). To test the validity, flexibility and effectiveness of a product must be in accordance with the criteria (Nieveen, 1999).

Validation in this study is about the content of soft skill assessment. Validation is carried out by two education measurement and evaluation experts to give their opinions about the content of soft skill items. The rubric that will be filled by experts uses a Likert scale, which is very good (5), good (4), sufficient (3), lacking (2), and very less (1). Validity assessment criteria expressed in Table 1.

Overall product validity is calculated using

$$V = \frac{\Sigma M}{n} \quad (1)$$

Where: V = level of validity, ΣM = total mean, and n = number of items.

The product trial subjects were teachers who taught DTL practice subjects. In this trial the teacher uses a draft product to assess students' soft skills in DTL practice activities. The soft skill of instrument for rubric uses a Likert scale which is very good (5), good (4), sufficient (3), lacking (2), and very less (1). Criteria for assessing the practicality and effectiveness of products are shown in Tables 2 and 3.

Table 1. Criteria for product validity

Range	Information
V > 4.5	very good
3.5 < V ≤ 4,5	good
3.0 < V ≤ 3.5	sufficient
2.5 < V ≤ 3.0	lacking
≤ 25	very less

Table 2. Practicality testing criteria

Range	Information
P > 4.5	very good
3.5 < P ≤ 4,5	good
3.0 < P ≤ 3.5	sufficient
2.5 < P ≤ 3.0	lacking
P ≤ 25	very less

Table 3. Effectively testing criteria

Range	**Information**
E > 4.5	very good
3.5 < E ≤ 4,5	good
3.0 < E ≤ 3.5	sufficient
2.5 < E ≤ 3.0	lacking
E≤ 25	very less

Table 4. Product validation by experts

Item Number	Assessment Score		Mean
	Expert 1	Expert 2	
1	5	4	4,5
2	5	5	5
3	5	5	5
4	5	4	4.5
5	5	5	5
6	4	5	4.5
7	5	5	5
8	5	4	4.5
9	5	5	5
10	5	5	5
11	5	5	5
12	4	5	4.5
Total mean (ΣM)			57.5

Table 5. Practicality data and product effectively

Teacher	Assessment Score	
	Practicality	Effectively
1	5	4
2	4	5
3	5	4
4	5	4
5	5	5
6	4	4
7	5	4
8	5	4
9	4	4
10	5	5
11	5	4
12	4	4
13	5	5
14	4	3
15	5	4
16	5	5
17	5	4
18	4	4
Total mean ((ΣM)	84	76

Practical use of products to assess students' soft skills in the overall DTL practice activities is calculated as

$$P = \frac{\Sigma AP}{n} \quad (2)$$

Where: P = level of practicality, ΣAP = total practicality value, and n = many assessors.

Overall the effectiveness of the product to assess soft skills of students in DTL practice activities is calculated as follow

$$E = \frac{\Sigma AE}{n} \quad (3)$$

Where: E = level of effectiveness, ΣAE = total value of effectiveness, and n = many assessors.

Table 4 shows the data of the number of items (n) of 12 items, while the total mean (ΣM) is 57.5. Then, the data is substituted into (1), the validity level is 4.8. Table 1 shows that V = 4.8> 4.5. Thus, as a whole, these product assessment items meet highly valid categories.

The results of the trial data for practicality testing are presented in Table 5. Practical trial results data in Table 5 are the number of assessor teachers as much as (n) = 18 while the total practicality value (ΣAP) = 84. After the amounts of the value are substituted into (2) then it is obtained of 4.7. This size indicates that P = 4.7> 4.5. Based on the testing criteria in table 2, the product developed by this product is very practical.

Table 5 shows the total value of effectiveness (EAE) = 76 and the number of assessor teachers (n) = 18. After these quantities are substituted into (3) then E = 4.2> 4.5 is obtained. Thus the products developed are effectively categorized.

5 CONCLUSIONS

From the results of the study, it was concluded that the products developed in the category were very valid. Furthermore, this product is very practical and effective to be used in measuring and assessing the soft skills aspects of students in DTL practice activities.

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REFERENCES

Agarwal, N., & Ahuja, V., 2014. "Preliminary Exploration of Significance of Soft Skills in Groups with Specific Reference to Peer-Assessment". *Journal of Management Policies and Practices*, Vol. 2, No. 2, pp. 85-97.

Aly, A., 2017. "Pengembangan pembelajaran karakter berbasis soft skill di perguruan tinggi". *Ishragi*, Vol. 1, No. 1, pp. 40-51.

Alumni SV UGM/ 2016. *Pentingnya Soft Skill di Dunia Kerja*. Accessed from http:// alumni.sv. ugm.ac.id/ main/lowongan-kerja /pentingnya-soft-skill-di-dunia-kerja.html. Date June, 10th 2018.

Choudary, D. V., & Ponnuru, M., 2015. "The Importance of Soft-Skills Training for Mba Students and Managers", *Abhinav International Monthly Refereed Journal of Research*, Vol. 4, No. 11, pp. 6-14.

Christie, N., 2009. "An Interpersonal Skills Learning Taxonomy for Program Evaluation Instructors", *Journal of Public Affairs Education*, Vol. 18, No. 4, pp. 739-756.

Evans, R. N., 1978. *Foundations of vocational education*, Bell & Howel Company. Colombus.

Faryadi, Q., 2012. "Effective teaching and effective learning: Instructional design perspective", *International Journal of Engineering of Applied Research & Studies*, Vol. 1, No. 2, pp. 222-228.

Gay, L.R., Mills, G.E. & Airasian, P.W., 2012. *Educational research. Competencies for analysis and applications*, tenth edition, Pearson. New Jersey.

Hasan, A. et al., 2005. *Kamus Besar Bahasa Indonesia*, Departemen Pendidikan Nasional Balai Pustaka. Jakarta.

Herizon & Wirda, F., 2012. "Pengembangan soft skills melalui pendekatan centre learning di perguruan tinggi". *Polibisnis*, Vol. 4, No. 2, pp. 101-112.

Illah, S., 2008. *Pengembangan Soft Skills di PerguruanTinggi*, Direktorat Jendral Perguruan Tinggi. Jakarta.

Ilias, A., Razak, A M. Z., Yunus, Y. N. K., & Razak, A. S. F., 2012. "How Accounting Students Perceived Towards Teamwork Skills", *Journal of Education and Vocational Research*, Vol. 3, No. 12, pp. 387-398.

Komaruddin., 2006. *Ensiklopedia Manajemen*, Penerbit Bumi Aksara. Jakarta.

Marsh, C., 1996. *Handbook for Baginning Teachers*, Addison Wesley. Sydney.

Mulyono, I., 2011. *Dari Karya Tulis Ilmiah Sampai Dengan Soft Skills*, Yrama Widya. Bandung.

Nieveen, N., 1999. *Prototyping to Reach Product Quality*. Jan Van den Akker, Robert Maribe Braneh, Ken Gustafson, and Tjeerd Plomp (Ed), Kluwer Academic Plubishers. London.

Notoatmodjo, S., 2003. *Pendidikan dan Perilaku Kesehatan*, Rineka Cipta. Jakarta.

Pachauri, D., & Yadav, A., 2014. "Importance of soft skills in teacher education program", *International Journal of Educational Research and Technology*, Vo.5, pp. 22-25.

Pavlova, M., 2009. *Technology and vocational education for sustainable development: Empowering individuals for the future*, Springer. Australia.

Pramuniati, I., 2010. *Integrasi soft skills melalui learning revolution sebagai upaya peningkatan kualitas lulusan perguruan tinggi*. Universitas Negeri Medan. Medan.

Robles, M., 2012. "Executive Perceptions of the Top 10 Soft Skills Needed in Today's Workplace", *Business Communication Quarterly*, Vol. 75, No. 4, pp. 453-465.

Romedios, R., 2012. "The role of soft skills in employability", *International Journal of Management Research and Review*, Vol. 2, No. 7, pp. 1285-1292.

Rumengan, E., Wello, J., Tobing, M. B., P, Yanti, P., Eriyani, F. & Indra, Z. E., 2011. *Soft Skills Untuk Pendidik*, Baduose Media.

Schulz, B., 2008. "The importance of soft skills: Education beyond academic knowledge", *NAWA Journal of Language and Communication*, Vol. 2, No. 1, pp. 146-154.

Silverius, S., 1991. *Evaluasi Hasil Belajar dan Umpan Balik*, PT. Grasindo. Jakarta.

Sudjana, N., 2017. *Penilaian Hasil Proses Belajar Mengajar*, PT. Rosdakarya. Bandung.

Sukirman, 2012. *Pengembangan Sistem Evaluasi*, Insan Madani. Yogyakarta.

Sutrisno, B., 2016. "Profil model soft skill pada SMK bidang ekonomi di Surakarta", *Jurnal Pendidikan Ilmu social*, Vol. 26, No. 2, pp. 115-135.

Tang, K. N., 2018. "The importance of soft skills acquisition by teachers in higher education institutions", *Kasetsart Journal of Social Sciences*, Vol. 30, pp. 1-6.

Taylor, E., 2016. "Investigating the Perception of Stakeholders on Soft Skills Development of Students: Evidence from South Africa", *Interdisciplinary Journal of e-Skills and Lifelong Learning*, Vol. 12, No. 1, pp. 1-18.

Thiagarajan, S., Semmel, D. S., & Semmel, M. I., 1974. *Instructional development for training teachers of exceptional chidren*, Indiana University Bloomington. Indiana.

Widarto, Pardjono, dan Widodo, N., 2012. "Pengembangan model pembelajaran soft skill dan hard skill untuk siswa SMK", *Cakrawala Pendidikan*, Vol. 31, No. 3, pp. 409-423.

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