

Analysis of the Need for Construction Services towards the Minimum Competency Standards for Vocational Student Work Attitudes

Rolly Robert Oroh¹

¹Faculty of Engineering, Universitas Negeri Manado, Indonesia

Corresponding author : rollyoroh@unima.ac.id

Abstract

This research aims to find the minimum standards of work attitude competency for vocational high school (VHS) students required by construction services in carrying out work on concrete structures. This research uses a descriptive research approach. Research data was collected through surveys, field observations, and focus group discussions with construction service actors. This research was conducted in North Sulawesi province, Indonesia. The participants in this research were 5 construction service actors who were taken randomly from representatives of construction service actors registered with the North Sulawesi provincial construction services development agency. The research data was analyzed for its suitability to construction service needs and Indonesian national work competency standards. The results of the research found that the minimum standard of competency for work attitudes of VHS students which must meet the needs of construction services in carrying out concrete construction work is accuracy and thoroughness in carrying out scaffolding work, concrete molding work, concrete reinforcement work and concrete casting work. This research also found 3 classifications of student work attitude competency achievements according to construction service needs, namely classification A means "good", classification B means "enough", and classification C means "poor".

Keywords: student work attitude competency, concrete structures, construction services.

INTRODUCTION

Vocational education in Indonesia is a formal education pathway that is placed at the secondary education level. The function of vocational education is to prepare students to be able to work in certain fields according to their area of expertise. Vocational education is secondary

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education that prioritizes developing students' abilities to carry out certain types of work. Vocational education in Indonesia is known as vocational high school (VHS). The principle of implementing VHS must always be directed at preparing students to have competence and be ready to work in fields that suit their expertise. This principle should be that the implementation of education and learning in vocational schools must be in accordance with what is expected by the business world and the industrial world.

The implementation of education and learning at VHS still does not optimally prepare students to have work competencies that suit the needs of the job market. Many VHS graduates in several regions in Indonesia have not been absorbed because the work competency qualifications of VHS graduates do not match the type and qualifications needed for employment. This resulted in the fact that VHS, which was supposed to alleviate the problem of unemployment, actually became a contributor to unemployment. The open unemployment rate is an indicator used to measure labor that is not absorbed by the labor market and illustrates the underutilization of labor supply. The open unemployment rate in February 2022 was 5.83 percent. This means that out of 100 people in the workforce, there are around six people who are unemployed. When viewed based on the highest level of education completed by the workforce, the open unemployment rate in February 2022 has almost the same pattern as February 2021. In February 2022, the open unemployment rate for VHS graduates is still the highest compared to graduates of other levels of education, namely 10.38 percent (BPS, 2022). This data indicates that VHS must always strive to make improvements to its educational and/or learning processes so that its students have work competencies that suit the needs of the workforce.

One of the principles that must be implemented by VHS is the application of Prosser's postulates in the implementation of education and learning. Application of Prosser's postulates as a form of guarantee of suitability for work competency needs in the business and industrial world. Some of these arguments include, among others, that: (a) vocational education will be efficient if a learning environment is provided that is appropriate to the environment in which they will work in the future; and (b) Vocational education must be familiar with working conditions and the job market (Sudira, 2014). This principle is a prerequisite for vocational education to always be dynamic with the competency needs of the job market, so that students who have completed the learning process at VHS will be immediately absorbed into the job market. This is the function of VHS to prepare students to become workers who have job competencies and are ready to work (Amilda, et al, 2023), so that students have competitiveness in the job market (Hadiyanto, et al,



2021). Therefore, the suitability of VHS students' work competencies to the needs of the business and industrial worlds is important in increasing the employment absorption capacity of VHS graduates.

The low absorption of VHS graduates into the world of work is a result of the mismatch between the work competencies of VHS graduates (BPS, 2022) and the needs of the business world, such as in the construction services industry. Efforts can be made to guarantee the suitability of students' work competencies with construction service needs, so VHS needs to be accommodating to construction service needs in developing relevant student work competency profiles.

VHS students' work competencies are obtained through a productive program learning approach. Competencies are the basis for learning and assessing student learning outcomes (Kreuzer & Weber, 2018; Nore & Lahn, 2014). Good student work competencies will increase their work productivity (Zancajo & Valiente, 2019; Papakitsos, 2016), and increase economic productivity (Nkwanyane, 2023). Competency-based work is defined as the work abilities required to demonstrate knowledge, skills and attitudes. This means that apart from knowledge and skills, work attitude is also an important factor in demonstrating students' work competence. VHS students' work attitude competencies are developed from learning productive programs at VHS. The structure of the vocational education curriculum in Indonesia, through learning at VHS, places subjects into three groups, namely normative, adaptive and productive program groups. Productive program group subjects provide teaching materials that prepare students with good work attitudes, so that students have good work attitude competencies according to their field of expertise. Thus, to be able to guarantee the suitability of students' work attitudes with the needs of construction services, this research aims to find the minimum standard of competence for VHS students' work attitudes required by construction services in carrying out work on concrete structures. Furthermore, the results of this research are intended to be useful for efforts to improve the quality and relevance of VHS student work attitude competencies through policies from all relevant stakeholders.

Student work attitudes are an important aspect, which is characterized by the ability of VHS students to demonstrate careful and thorough behaviour in carrying out certain work according to their area of expertise. The work attitude aspect is one of the important standards needed to demonstrate the work competence of a worker (Maclean & Wilson, 2009). Work attitude is one of the aspects required to work in a particular job according to your field of



expertise. In this way, students' work attitudes become an important aspect for success in every job, which is characterized by a careful and thorough attitude in carrying out work.

The construction services industry has a strategic role in national development. The construction industry is one of the largest contributors to a country's income because it provides relatively large employment (Halpin & Senior, 2011). Therefore, the construction services industry is the most developed industry throughout the world, such as in the construction of facilities and infrastructure for both government and private agencies and individuals. With the development of infrastructure development, the role of the construction services industry is needed in the development process (Mtshali & Pillay, 2023). Therefore, the construction services industry really needs competent human resources to accelerate the development of existing facilities and infrastructure. The main objective of the construction services industry is to provide construction project completion services to construction building owners.

The role of the construction services industry in the development of a region is so important; it needs to be supported by the availability of competent workers in the field of construction work. VHS is one of the sources of workers who have construction work competencies. Therefore, VHS needs to always prepare its students to have good work competencies. Therefore, this research is important to find the minimum standard of work attitude competency for VHS students that meet the needs of construction services in carrying out concrete structure work.

METHODS

Research design

This research was carried out using a descriptive research approach. Descriptive research design is a research approach in which the researcher stays close to the data, uses limited frameworks and interpretations to explain the data, and catalogs information into themes (Creswell & Creswell, 2022) and to discover trends in the research context (Roni, et al, 2020). The descriptive research data was collected through survey activities, field observations, and limited focus group discussions (FGD) with construction services industry players. The FGD material was developed from the results of survey activities and field observations and is based on conformity with applicable work standards in Indonesia. The standards used are the Indonesian national work competency standards (SKKNI) (Kepmenaker RI, 2021) and the Indonesian national qualifications framework (KKNI) (Perpres RI, 2012). The SKKNI standards used are concrete structure work



standards, and the KKNi is adjusted to the level of vocational secondary education graduates.

Population, sample and participants

Construction service industry actors were taken as the population for this research, where construction service industry actors used as the research population were those who had construction project work activities in the province of North Sulawesi, Indonesia and its surroundings. The research sample was determined randomly, namely construction service actors who had employed VHS graduates in North Sulawesi. Furthermore, the participants in this research were 5 construction service actors who were taken randomly from representatives of construction service actors registered with the North Sulawesi provincial construction services development agency.

Data collection

Research data was collected through survey activities, field observations, and limited FGDs with construction service industry players. The survey data and field observations were carried out as additional information data for FGD activities, because survey activities and field observations were carried out to obtain information about the conditions of student education and learning in vocational schools and the availability of existing construction implementation. Several vocational schools in the province of North Sulawesi, Indonesia, which were targeted for surveys and observations, were 3 VHS which provide competency in modeling design and building information skills. Data collection was carried out through FGD with construction service actors, and then FGD to analyze the minimum standards of work attitude competency for VHS students in carrying out concrete structure work. The FGD was carried out by conducting separate discussions and in-depth research with construction service actors, and continued by asking for responses regarding students' work attitude competencies. The preparation of performance indicators and criteria for concrete structure work in the FGD was carried out using theoretical considerations adapted to the SKKNI and KKNi for vocational secondary education levels.

Research instrument

The FGD activities in this research were directed and limited to discussion and in-depth study of the material. Discussion and in-depth material is depicted in the research instrument. The research instrument provides an overview and indicators of work attitudes in carrying out



concrete structure work, where concrete structure work consists of several stages of work that must be carried out. Several jobs related to reinforced concrete construction work, namely formwork installation, reinforcement placement and concrete placement (Fanella, 2016).

Analysis of research data

This research data was analyzed using descriptive statistical analysis techniques. The FGD implementation seeks to find several minimum standard indicators as criteria for the level of competence of students' work attitudes in the dimensions of concrete structure work. These indicators are the result of an inventory and identification of several indicators that emerged from discussions with construction service actors. From several indicators of work knowledge, a scale or achievement score is then determined. The determination of the achievement scale or score is made to provide an overview of the level of achievement of minimum standard indicators that can be demonstrated by students, and is also developed and determined from the frequency level of responses from the construction service actors involved. Next, an analysis of the classification of the level of achievement of the minimum standard indicators of work attitude competency that can be achieved by students according to the needs of construction services is then analyzed.

RESULTS AND DISCUSSION

The results of the research found that the work attitude competency of VHS students complies with the minimum standards required by construction service actors, as shown in Table 1. The minimum standard of work attitude competency was obtained through FGDs with construction service actors. FGDs were conducted on a limited basis with construction service actors in North Sulawesi, and continued by asking for responses regarding work competencies from the dimensions of the work. The FGD material with construction service actors is adjusted to the work indicators of the work dimensions and developed theoretically and adapted to SKKNI.

Table 1: The VHS student work attitude competency according to construction service needs

Work dimensions	Work attitude indicators (accuracy)	Achievement scale	Classification
Concrete structure	work of scaffolding work of formwork work of reinforcement	A = all indicators are achieved B = 3 indicators achieved	A = good B = enough C = poor



	work of casting	C = 2 indicators achieved	
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The minimum standard of work attitude competency for VHS students in concrete structure work according to the needs of the construction services industry shows relatively varying levels according to the scale of achievement. These achievements are shown in Table 1 which describes the level of achievement through an assessment scale. Based on Table 1, it can be stated that there are several minimum standard indicators as criteria for the level of achievement of students' work attitude competencies in the dimensions of concrete structure work. The criteria for the level of achievement of students' work attitudes are the result of discussions and responses given by construction service actors involved in FGD activities. The indicators depicted in Table 1 are the result of inventory and identification of several indicators that emerged from discussions with construction service actors. The determination of these indicators is based on the qualifications of VHS students (level 2 KKNi), because from the discussions carried out, several indicators emerged which, if understood, are no longer at the level of VHS students. So that in determining the indicators and criteria for the achievement scale of students' work attitudes, it is always adjusted to theoretical considerations and existing work qualification standards. The research results also found 3 (three) achievement classifications for the number of minimum standard indicators that students can achieve according to construction service needs. The classification of these achievements, namely classification A means being in the "good" category which is marked by all work attitude indicators being achieved, classification B means being in the "enough" category, and classification C means being in the "poor" category. Based on the results of the research analysis, it was found that VHS students must have work attitude competencies that are relevant to the needs of construction services. These findings are based on work indicator criteria developed from relevant theories and adapted to SKKNI.

The results of research analysis based on survey activities and observations on several VHS in North Sulawesi province, Indonesia, found that the learning patterns carried out through teaching materials in productive lesson groups have accommodated the work attitude competency needs of construction services. This form of competency accommodation is only at the stage of practical field learning patterns, and has not yet been fully included in the content of teaching materials in schools. However, it can be said that through collaborative learning patterns, where students practice directly at work locations, collaborative learning can equip students with relevant work attitude competencies. So, through the results of the analysis and findings of this



research, it can be said that the work competencies of VHS students are in accordance with the needs of work standards, meaning that VHS students have work competencies that are in accordance with the needs of construction services (Oroh, 2021), because students are always involved in a learning atmosphere such as at workplace. Furthermore, the work attitude competencies that students get in learning at VHS will provide good work standards, because work standards are the key to success for students at work (Bukit, 2014). Competencies developed at VHS must always be relevant or in accordance with industry needs (Hanavi, 2014). Thus, the research findings regarding the minimum standards for work attitudes of VHS students in concrete structure work that students receive in the collaborative learning process are in accordance with the needs of construction services.

The aspect of a good work attitude is very important for students and must be relevant. Therefore, good and relevant student work attitudes can guide every job, so that it can be carried out carefully and thoroughly according to the area of expertise or work competency. This means that students as prospective workers with good work attitudes will be able to demonstrate their skill competency and be able to adapt to various work situations (Billett, 2020). The attitudinal aspect is an important standard required for workers to demonstrate skill competency (Maclean & Wilson (2009). The attitudinal aspect can be understood as a competency for every worker. Thus, every worker who has a good work attitude also has good work competence.

This research is important and relevant because it makes a real contribution in finding minimum standards of work attitude competency for VHS students that are relevant to the needs of construction service providers. The relevance of students' work attitude competencies will be able to provide guarantees that every job can run well. Work attitude is important because attitude is one of the dimensions that forms work competence for each individual to carry out a certain job according to their field of expertise. Because competence is understood as a person's ability to demonstrate knowledge, skills and attitudes to carry out work tasks according to the field of expertise they are engaged in (Oroh, 2018). If someone is said to be competent in their field, they must have aspects of work attitude that are relevant to the needs of the business world and the industrial world. Because having good competencies will become a person's main capital when taking the construction workforce competency certification tests (Kementerian PUPR, 2019). Thus, it can be said that students' work competence will be good if it is supported by a good and relevant work attitude.



CONCLUSION

This research found 4 minimum competency indicators for VHS students' work attitudes which must meet the needs of construction services in carrying out concrete structure work, namely accuracy and accuracy in carrying out scaffolding work, concrete molding work, concrete reinforcement work, and concrete casting work. Furthermore, 3 (three) achievement classifications were found, the number of indicators of minimum work attitude competency standards that students must achieve according to the needs of construction services, where classification A means entering the "good" category with the criteria that all work indicators must be achieved according to the needs of construction services, while classification B means entering "enough" category with the criteria that some work indicators have been achieved, and classification C means being in the "poor" category. Through this research, it can be suggested that further research needs to be developed and carried out by paying attention to other aspects that form the work competence of VHS students, so that it can be found student work competency standards with other aspects.

REFERENCES

- Amilda, Bujuri, D. A., Uyun, M., Nasrudin, D., & Junaidah. (2023). Patterns of character education for vocational school students through non-academic programs: paradigm and implementation. *International Journal of Learning, Teaching and Educational Research*, 22(4), 459-477. <https://doi.org/10.26803/ijlter.22.4.25>
- Billett, S. (2020). *Learning in the workplace, strategies for effective practice*. Routledge, Taylor & Francis Group
- BPS. (2022). *Keadaan ketenagakerjaan Indonesia per Februari 2022 [Indonesian labor situation as of February 2022]*. BPS RI, Jakarta, Indonesia.
- Bukit, M. (2014). *Strategi dan inovasi pendidikan kejuruan, dari kompetensi ke kompetisi [Vocational education strategy and innovation, from competency to competition]*. Bandung: Alfabeta.
- Creswell, J. W., & Creswell, J. D. (2022). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage Publications.
- Fanella, D.A. (2016). *Reinforced concrete structures analysis and design*. McGraw-Hill Education, New York, USA.
- Hadiyanto, Noferdian, Syamsurizal, Muhaimin, & Ina, K. (2021). *Students' soft skills, hard skills,*



- and competitiveness (SHC): A suggested model for Indonesian higher education curriculum. *International Journal of Learning, Teaching and Educational Research*, 20(2), 218-234. <https://doi.org/10.26803/ijlter.20.2.12>
- Halpin, D. W., & Senior, B. A. (2011). *Construction management*, Fourth Edition. John Wiley & Sons, Inc., USA.
- Hanavi, I. (2014). Pendidikan teknik & vokasional, menggali pengalaman sukses bi-national di negeri Jiran, dari konsep hingga Implementasi [Technical and vocational education, exploring experiences of national success in neighboring countries, from concept to implementation]. Bandung: Rafika Aditama.
- Kementerian PUPR. (2019). Sertifikasi tenaga kerja konstruksi [Construction labor certification]. Directorate General of Construction Development, Jakarta, Indonesia.
- Kepmenaker RI. (2021). Standar kompetensi kerja nasional Indonesia (SKKNI) pada jabatan kerja pelaksana lapangan pekerjaan gedung [Indonesian national work competency standards (SKKNI) for work positions implementing building work]. Regulation of the Minister of Manpower of the Republic of Indonesia (Kepmenaker RI). Jakarta, Indonesia.
- Kreuzer, C., & Weber, S. (2018). Modelling opportunity recognition competence as a foundation for teaching and learning in vocational education. *Vocations and Learning*, 11:399–423. <https://doi.org/10.1007/s12186-017-9194-7>.
- Maclean, R., & Wilson, D. (2009). *International handbook of education for the changing world of work bridging academic and vocational learning*. Springer.
- Mtshali, Th. I., & Pillay, A. S. (2023). Pedagogical capital strategies for civil technology skills-based activities. *International Journal of Learning, Teaching and Educational Research*, 22(5), 389-409. <https://doi.org/10.26803/ijlter.22.5.20>
- Nkwanyane, Th. P. (2023). Understanding the demand for industrial skills through the national certificate (vocational) building and civil engineering programme. *International Journal of Learning, Teaching and Educational Research*, 22(5), 674-687. <https://doi.org/10.26803/ijlter.22.5.35>
- Nore, H., & Lahn, L. C. (2014). Bridging the gap between work and education in vocational education and training. A study of Norwegian apprenticeship training offices and e-portfolio systems. *International Journal for Research in Vocational Education and Training*, 1(1), 21–34. <https://doi.org/10.13152/IJRVET.1.1.2>
- Oroh, R. (2021). Dominant Factors of the Knowledge Competency of Vocational High School



- Students According to the Need of Construction Services. In Proceedings of the 4th International Conference of Vocational Higher Education - ICVHE; ISBN 978-989-758-530-2; ISSN 2184-9870, SciTePress, pages 117-121. DOI: 10.5220/0010036400002967
- Oroh, R. R., Haris, A. S., Sugandi, R. M., & Isnandar. (2018). What are the dominant factors of students' productive skills in construction services?. IOP Conference Series: Materials Science and Engineering. Volume 306, 2nd International Conference on Innovation in Engineering and Vocational Education 25–26 October 2017, Manado, Indonesia. <https://iopscience.iop.org/article/10.1088/1757-899X/306/1/012111>
- Papakitsos, E.C. (2016). Systemic modelling for relating labour market to vocational education. International Journal for Research in Vocational Education and Training, 3(3), 166-184. <https://doi.org/10.13152/IJRVET.3.3.1>
- Perpres RI. (2012). Kerangka kualifikasi nasional Indonesia [Indonesian National Qualifications Framework]. Regulation of the President of the Republic of Indonesia [Perpres RI]. Jakarta, Indonesia.
- Roni, S. M., Merga, M. K., & Morris, J. E. (2020). Conducting quantitative research in education. Springer, Singapore.
- Sudira, P. (2014). Indonesia vocational education praxis between mazab John Dewey and Charles Prosser. International Conference On Vocational Education And Training (ICVET). May 14 th, 2014. ISSN 2301-7147.
- Zancajo, A., & Valiente, O. (2019). TVET policy reforms in Chile 2006–2018: between human capital and the right to education. Journal of Vocational Education & Training, 71:4, 579-599. <https://doi.org/10.1080/13636820.2018.1548500>

