Understanding Student Leadership Skills for Multidisciplinary Competencies in Vocational Education and Training

M Ihwanudin[1*], Syamsul Hadi[2], Ramadhana Hari Murti[2]

[1] *Automotive Engineering Technology, Engineering Faculty, State University of Malang, Malang, Indonesia*
[2] *Automotive Engineering Education, Engineering Faculty, State University of Malang, Malang, Indonesia*
[*]*Email: m.ihwanudin.ft@um.ac.id*

ABSTRACT

Competency needs embedded in modern technology require elements of multidisciplinary skills. to manage multidisciplinary student leadership skills are needed to support the multidisciplinary learning process. Student leadership is the skill of leading oneself to situations and challenges in the learning process. Students often do not have leadership skills to support managing learning activities. This is an important skill to develop for vocational school students. This study aims to measure the compatibility of leadership skills with student learning outcomes. This study used a quasi-experimental method which was carried out during the semester. This study uses a non-test instrument in the form of a survey. The study was conducted with 70 students of state Vocational School 2 Tulungagung. Divided into 2 groups, (36 and 34 students) used a pre-test and post-test design. The results obtained were compared using t-test analysis to identify differences between the dependent variable and the independent variable. In general, the experimental group showed a statistically significant increase in all indicators. Similar results, statistically significant differences were also found between the pre- and post-test results. These results mean that student leadership contributes to the development of the quality of student learning outcomes. Thus, the experimental group obtained an average score of 330.77 in the pre-test and 339.52 in the post-test. It was concluded that applying student leadership in the learning process was able to provide a significant increase in student learning outcomes. In practice, student leadership can be used to optimize the learning process in vocational education and training.

Keywords: *Student Leadership, Multidisciplinary Competencies.*

1. INTRODUCTION

Accelerated achievement of learning goals students are expected to be able to do effective time management, demonstrate the ability to set goals, build positive relationships, use effective conflict resolution skills, show an interest in helping others to build their leadership skills. Because with this, students are able to create a sense of belonging and responsibility, help peers in solving problems, plan and implement programs better, the ability to acquire knowledge and process good decision-making skills, and increase peer autonomy, membership in various organizations/clubs, and agencies that lead to higher academic engagement and achievement [1].

Academic enabling skills are related to leadership skills, interpersonal skills, motivational learning (learning) skills, and engagement skills. Interpersonal skills are related to leadership skills such as social skills and interpersonal skills of leaders. Learning motivation (learning) skills are related to leadership skills such as student approach, persistence, and level of interest with the task or subject, learning skills that allow students to independently practice, memorize, plan, review, and organize information. Engagement skills are related to leadership skills such as task time, attention, and participation in learning. Leadership skills cannot be separated from the positive traits of leadership, such as the 5 traits put forward: 1) Intelligence; 2) self-confidence; 3) determination (determination); 4) integrity; 5) sociability/ability to socialize (sociability). So that the personality factor can support students' skills in leadership [2].

Learning outcomes are changes in behavior in individuals and developments in terms of knowledge and attitudes after individuals do learning or study independently. Changes that arise in individuals must lead to things that are better than before. Learning carried

out by individuals will change the level of mental development which is manifested in three aspects, namely the development of the cognitive aspect, the development of the affective aspect, and the development of the psychomotor aspect [3]. The achievement of student learning outcomes is not enough to just rely on aspects of cognitive assessment, but students must also show a good attitude in learning and be able to implement their knowledge and learning experience well.

In this study, researchers took the learning outcomes of vocational high school students' productive subjects. The delivery of teaching materials for vocational productive subjects in the form of theory in learning activities is carried out by productive teachers and students to achieve the expected competencies together. The subject matter in question is all subjects taught by productive teachers in the Automotive Engineering Expertise Program, the Light Vehicle Engineering Skills Competency which is divided into two, namely the Basic Expertise Program and Expertise Competency [4]. Automotive productive teachers in vocational schools must be able to teach productive subjects competently according to their respective competencies, both in terms of theoretical and practical learning. Theoretical and practical learning must be appropriate, the theoretical learning delivered is not allowed to be different from practical learning. So that the learning outcomes of productive subjects for vocational students affect the abilities of students, besides that students are also more motivated and able to be fully involved in the productive learning process.

Productive subjects function to improve the skills and work attitudes of students in accordance with the expertise program, also function as provisions for students before carrying out industrial work practices. Therefore, students are expected to have extensive knowledge related to the material studied in productive subject groups as a basis so that in carrying out industrial work practices they are able to apply this material. Students will also have no difficulty practicing what they have learned in productive subject groups when in the field [5]. These productive learning outcomes are listed in the Curriculum which leads to Learning Outcomes in accordance with the rules (Ministry of Education and Culture, 2022) Core Competencies (KI) and Basic Competencies (KD). is a series of knowledge, skills, dispositions (attitudes) about science, and attitudes towards the learning process (drive to learn and motivation to explore deeper concept) Thus, skills, knowledge and attitudes should not be separated.

The core competencies of the four subjects PMKR, PKKR, PSPT, PKK consist of two aspects, namely aspects of knowledge and aspects of skills. From the aspect of knowledge students are able to apply, analysis, and evaluate factual, conceptual, basic operational, and metacognitive knowledge in accordance with the field and scope of work of Automotive Light Vehicle Engineering at a technical, specific, detailed, and complex level, with respect to science, technology, art, culture, and humanities in the context of self-potential development as part of the family, school, world of work, national, regional and international citizens. Then from the aspect of skills, students are able to carry out specific tasks using tools, information, and work procedures that are commonly carried out and solve problems in accordance with the field of work in Automotive Light Vehicle Engineering.

Display performance under guidance with measurable quality and quantity in accordance with work competency standards. Demonstrate the skills of reasoning, processing, and presenting effectively, creatively, productively, critically, independently, collaboratively, communicatively, and solution in abstract realms related to the development of what they learn in school, and being able to carry out specific tasks under direct supervision. Demonstrate the skills of perceiving, readiness, imitating, getting used to, proficient movements, making natural movements in concrete areas related to the development of what they learn in school, and being able to carry out specific tasks under direct supervision. Productive Subjects are a group of subjects whose function is to equip students to have work competence. Productive programs are taught specifically according to the needs of each skill program. Productive subjects are all subjects that can provide basic technical knowledge of vocational skills. This definition is emphasized as material related to the formation of certain skills according to each program of expertise.

Factors Affecting Student Learning Outcomes it is known that there are a number of factors that are thought to be related to the achievement of student learning outcomes, as follows, Study Group Size, Instructional Leadership, Social Economy Status, Metacognition, Peer Tutors (Peer Tutoring), Mentoring, Feedback (Feedback), Collaborative Learning, Individualized Instructions, School Climate, Parental Engagement, Student Health [6]. This study will take a discussion related to leadership, where the factors of student learning outcomes are inseparable from learning leadership or instructional leadership. In the world of education, the main thing is that schools must have a leader who can organize and plan educational organizations in it.

The actions taken by the principal in carrying out managerial responsibilities are referred to as "instructional leadership" [7]. The role of the principal in planning all forms of learning activities in schools is very important to achieve school goals. Signs on the ground

show that effective schools are often very much tied to the principal's function in directing and organizing the learning process in schools. School performance will reflect the success of the principal's leadership. According to reports, some school principals have high expectations for staff and students [8]. A leader is characterized by having several qualities that others do not have, by making decisions about what others should do and helping them or not in terms of shaping their personality. Therefore, a leader is an involved person who helps and directs others and who analyze the causes and consequences of what happens [9]. In this sense, to act as a good leader it is necessary to have an academic culture and develop values and attitudes in people that support their intellectual, personal, academic and economic development [10].

Therefore it is important that leaders know what their strengths and weaknesses are, that is, leaders know themselves to be able to understand others, give the best of themselves, and know their own goals with other people to achieve. So student leadership is a behavior of students to make decisions, direct themselves and others in analyzing a task as a means of achieving the desired results together. Student leadership must be supported by good leadership traits so that it can influence other groups and students in completing assignments and being involved in participating in learning [11].

2. METHOD

The research design is a plan that provides the underlying structure for integrating all elements so that the results are credible and can be generalized well [12]. This research is qualitative research, a type of research approach to obtain, discover, and develop correct knowledge systematically and according to scientific principles [13]. The design of this research uses the experimental method. This study used a quasi-experimental method which was carried out during the semester. This study uses a non-test instrument in the form of a survey. The study was conducted with 70 students of state Vocational School 2 Tulungagung. Divided into 2 groups, there are 36 and 34 students respectively. In this study, the design used a pre-test and post-test design.

The correct research instrument will make it easier to obtain valid, accurate, and reliable data. Research data is a form of depiction of the variables studied. Whether or not the research data is true determines the quality of the research results. There are two minimum requirements that must be met by research instruments, namely validity and reliability. Validation is a measure that shows validity. An instrument is said to be valid if it is able to measure what is desired and can reveal data from the variables studied appropriately. valid means that the instrument can be used to measure what should be measured. The instrument validation test was carried out in two stages, namely content validation and construct validity. Content validation for instruments in the form of tests. Meanwhile, construct validation is to measure the meanings contained in the material to be measured. In this study, the instrument used was in the form of a non-test so that it was sufficient to fulfill construct validation.

The normality test is used to determine whether the residual value of a regression is normally distributed or not. The normality test relies on Kolmogorov-smirnov to make a decision, if sig. the value is 0.05, the residuals are normally distributed, if sig. less than 0.05, the residuals are not normally distributed. then generated with a value of 0.552 normally distributed.

A statistical test procedure that aims to show the existence of two or more groups of sample data that has been taken from populations that have the same (homogeneous) variance in this study using the SPSS program with the Levene test at a significance level of 5% to find out whether the data are evenly distributed homogeneous or not. Homogeneous data distribution if the value of Sig. > 0.05, and if the Sig. < 0.05 then the data is said to be not homogeneous. then generated with a homogeneous value of 0.843.

3. RESULTS

Based on the results of research on the nature of student leadership, class XI students majoring in Automotive Light Vehicle Engineering (TKRO) have an influence on the learning outcomes of productive subjects. The results of the pre-test and post-test studies also show that student leadership has a significant influence on the learning outcomes of productive subjects because the significant value between student leadership on productive subject learning outcomes is 0.000 which means less than 0.05. With the nature of student leadership, it means that students have intelligence, self-confidence, determination, integrity, and good social skills. then thus it can be said that the implementation of student leadership, addressing visible and significant differences in the learning outcomes of productive subjects.

The experimental group showed a statistically significant increase in all indicators. Similar results, statistically significant differences were also found between the pre- and post-test results. These results mean that student leadership contributes to the development of the quality of student learning outcomes. Thus, the experimental group obtained an average score of 330.77 in the pre-test and 339.52 in the post-test. It was concluded that applying student leadership in the learning process was able to provide a significant increase in student learning outcomes.

4. DISCUSSION

Based on the results of research showing that identifying groups of leadership traits is important to be related to how individuals in various groups become leaders. The results showed that the average individual in a leadership role differed from the average group member with regard to the following eight traits: intelligence, alertness, insight, responsibility, initiative, persistence, confidence, and sociability.

First, being a leader can improve academic performance in both the short and long term. Second, student leadership experiences in primary schools are most effective in increasing academic achievement [14]. Then the research results, who examined the impact of student leadership on academic achievement at the university level showed that there was a significant effect of student leadership on academic achievement, every increase in student leadership, student academic achievement was also predicted to increase [15].

On a similar theory states that situational factors affect leadership. Although tentative in his conclusions, personality is a trait that can be used to distinguish leaders from non-leaders. The results identified strong leaders characterized by the following six traits: intelligence, masculinity, conformity, dominance, extraversion, and conservatism [16]. Some of the important traits include intelligence, self-confidence, determination, integrity, and sociability. Key Leadership Traits:

4.1. Intelligence

Intelligence or intellectual ability is positively related to leadership [17]. Based on their analysis of a series of recent studies on intelligence and leadership indices, support for the finding that leaders tend to have higher intelligence than non-leaders [18]. Having strong verbal, perceptual, and reasoning abilities seems to make someone a better leader. While being intelligent is a good thing, research also shows that a leader's intellectual abilities should not differ too much from those of his subordinates. If the leader's IQ differs greatly from that of followers, it can have a counterproductive effect on leadership. Leaders with higher abilities may have difficulty communicating with followers because they are busy or because their ideas are too advanced for their followers to accept. Figures and tables should be placed either at the top or bottom of the page and close to the text referring to them if possible.

4.2. Self-confidence

Self-confidence is another trait that helps a person to become a leader. Confidence is the ability to be confident about one's competence and skills. This includes a sense of self-worth and self-confidence and the belief that one person can make a difference. Leadership involves influencing others, and self-confidence allows the leader

to feel confident that his efforts to influence others are appropriate and correct [19].

4.3. Determination

Many leaders also show determination. Determination is the desire to get the job done and includes characteristics such as initiative, persistence, dominance, and drive. People with determination are willing to assert themselves, are proactive, and have the ability to persevere in the face of adversity. Being determined includes showing dominance at times and situations where followers need to be directed [20].

4.4. Integrity

Integrity is one of the important leadership traits. Integrity is the quality of honesty and trustworthiness. People who adhere to sound principles and take responsibility for their actions demonstrate integrity. Leaders with integrity inspire trust in others because they can be trusted to do what they say they will do. They are loyal, reliable, and don't cheat. Basically, integrity makes a leader trustworthy and trustworthy [19].

4.5. Sociability

The last trait that is important to leaders is sociability. Sociability is a leader's tendency to seek pleasurable social relationships. Leaders who demonstrate sociability are gracious, friendly, courteous, tactful, and diplomatic. They are sensitive to the needs of others and show concern for their well-being. Social leaders have good interpersonal skills and create cooperative relationships with followers [20].

5. CONCLUSIONS

Based on the results, data processing, analysis, and discussion of this study, the research conclude that Applying student leadership in the learning process was able to provide a significant increase in student learning outcomes. In practice, student leadership can be used to optimize the learning process in vocational education and training.

It is recommended that schools need to evaluate student behavior by giving psychological tests and tests, to find out the character of students participating in classroom learning, so that teachers can sort and choose more effective ways to improve student performance in learning.

It is recommended that teachers be able to carry out closer interactions and accompaniment with students because there are students who have not been able to find a way to lead themselves classified as lacking involvement and good learning outcomes.

It is hoped that students will succeed in developing leadership skills to foster leadership character within

themselves and involvement in participating in learning can improve the quality of student learning, so that students will be better able to deal with learning situations both theoretically and practically under any conditions in achieving maximum learning outcomes.

REFERENCES

[1] D. Rolf, E. Jérémy, Lemoine, N.K. Steffens, K. Rudolf, Identity leadership going global: Validation of the Identity Leadership Inventory across 20 countries, 91(4), 2018, pp. 697-728. Wales: The British Psychological Society https://doi.org/10.1111/joop.12223

[2] P. G. Northouse, Leadership Theory and Practice Sixth Edition. In SAGE Publications, Inc. (Sixth Edit). SAGE Publications, Inc, 2013.

[3] E. Mahananingtyas, Hasil Belajar Kognitif, Afektif dan Psikomotor melalui penggunaan jurnal belajar bagi mahasiswa. Prosiding Seminar Nasional HDPGSDI Wilayah IV, 2017, pp. 192–200.

[4] R. Elistanto, A.B.Santosa, and F. N. Mahmudah, Evaluasi Efektivitas Manajemen Pembelajaran Guru Produktif Otomotif SMK. Tadbir : Jurnal Studi Manajemen Pendidikan, 4(1), 2017, p.101. https://doi.org/10.29240/jsmp.v4i1.1183

[5] F.S.Fuadah, Pengaruh Hasil Belajar Mata Pelajaran Produktif, Praktik Kerja Industri, Dan Self-Efficacy Terhadap Kesiapan Kerja. Skripsi Universitas Siliwangi Tasikmalaya, 2020, p.17.

[6] Y.Wirda, Faktor-faktor Determinan Hasil Belajar Siswa. In Pusat Penelitian Kebijakan, Badan Penelitian dan Pengembangan dan Perbukuan, Kementerian Pendidikan dan Kebudayaan (Vol. 4, Issue 1), 2020.

[7] K.M. Soria, M.R. Johnson. A Conceptual Framework for Evidence-Based Leadership Development Practices. Special Issue: Evidence-Based Practices to Strengthen Leadership Development. 2020 (168), 2020, pp. 9-17. John Wiley & Sons, Inc. https://doi.org/10.1002/yd.20404

[8] J. Lindsay, Hastings, M. Hannah, Sunderman. Evidence-Based Practices in Mentoring for Leadership Development. Special Issue: Evidence-Based Practices to Strengthen Leadership Development, 2020 (168), 2020, pp. 75-84 John Wiley & Sons, Inc. https://doi.org/10.1002/yd.20410.

[9] M.L.Gómez, R. García, A.-M., and M. Á. Montoro, Estudio Del Liderazgo Estudiantil Desde Las Motivaciones Para Su Elección. El Caso De La Universidad De Santo Tomás De Bucaramanga (Colombia). European Scientific Journal, ESJ, 12(34), 2016, pp.370. https://doi.org/10.19044/esj.2016.v12n34p370

[10] J. J. H. Moya, Actitudes de liderazgo en los estudiantes de posgrado de ingeniería. 7, 2017, pp. 1–8.

[11] J.Heinrichs, School leadership based in a philosophy and pedagogy of parent engagement. School Leadership and Management, 38(2), 2018, pp. 187–201. https://doi.org/10.1080/13632434.2017.1406905

[12] S. Abutabenjeh, and R. Jaradat, Clarification of research design, research methods, and research methodology: A guide for public administration researchers and practitioners. Teaching Public Administration, 36(3), 2018, pp. 237–258. https://doi.org/10.1177/0144739418775787.

[13] A. Mukhadis, Metodologi Penelitian Kuantitatif: Bidang Pendidikan dan Contoh Aplikasinya. Aditya Media Publishing, 2016.

[14] W. Deng, X. Li, H. Wu, and G. Xu, Student leadership and academic performance. Journal Pre-Proof, 60, 2019, p. 101389. https://doi.org/10.1016/j.chieco.2019.101389.

[15] S. Kashan, N. H. Shah, and Zia-Ur-Rehman, Impact of Student Leadership on Students' Academic Achievement in Public and Private Universities of Pakistan. Kashmir Journal of Education, 1(2), 2019, pp. 56–58.

[16] S .Leonard, R. Lewis, A. M. Freedman, J. Passmore, The Wiley-Blackwell Handbook of the Psychology of Leadership, Change, and Organizational Development. Special Issue: Evidence-Based Practices to Strengthen Leadership Development John Wiley & Sons, Inc., 2013. DOI:10.1002/9781118326404

[17] P. G. Northouse, Leadership Theory and Practice Sixth Edition. In SAGE Publications, Inc. (Sixth Edit), 2013.

[18] J. E. Owen, Deepening leadership identity development. New Directions for Student Leadership, 2023, pp. 11-20. published by Wiley Periodicals LLC. DOI: 10.1002/yd.20550.

[19] J. Skalicky, W. P. Kristin, Jacques, F. Sally, D. Phillip, and D. Stewart, A framework for developing andsupporting student leadership in higher education, Studies in Higher Education, 2018. DOI:10.1080/03075079.2018.1522624.

[20] K. Kraiger, J. Passmore, N.R.dos Santos, S. Malvezzi. The Wiley Blackwell Handbook of the Psychology of Training, Development, and Performance Improvement. 2015. ISBN:9781118737019, DOI:10.1002/9781118736982.