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Green Technology Usage Behaviour in Vocational Education: The Mediating Roles of Perceived Long-Term Benefits

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ABSTRAK

Pentingnya teknologi hijau untuk diterapkan oleh pendidikan vokasional (VE) belum diwujudkan dalam perilaku yang optimal. Dugaan kuatnya, mereka tidak merasa itu bermanfaat secara instan, meskipun disamping itu kompetensi operasionalnya dan budaya pendorongnya belum dipahami. Penelitian ini bertujuan untuk mengukur signifikansi pengaruh kompetensi teknologi hijau (GTC), norma sosial budaya (SCN), dan persepsi manfaat jangka panjang (PB) terhadap perilaku penggunaan teknologi hijau (UB). Selain itu, peran mediasi PB juga diuji dalam menjembatani pengaruh tidak langsung GTC dan SCN terhadap UB. Penelitian expost-facto dilakukan pada VE yang berstatus Adiwiyata dengan total keterlibatan 647 peserta yang bergabung sebagai guru dan siswa. Pengumpulan data menggunakan angket tertutup dengan empat skala likert yang telah diuji validitas dan reliabilitasnya. Structural Equation Modeling digunakan untuk menganalisis data melalui metode analisis jalur dan bootstrap. Penelitian ini membuktikan pentingnya PB sebagai penentu UB pada guru dan siswa VE. Penelitian ini juga memberikan wawasan penting bahwa GTC dan SCN berperan penting dalam mengembangkan PB dan menentukan UB. Hasil ini brimplikasi penting bagi VE untuk meningkatkan kompetensi dan landasan sosial budaya dalam mendorong penggunaan teknologi hijau secara berkelanjutan. VE dapat bersinergi dengan berbagai pemangku kepentingan dan masyarakat sosial budaya dalam mendukung penguatan modal sosial, bantuan teknis dan finansial. Selain itu, daya adaptif VE untuk menganalisis kebutuhan integrasi teknologi hijau juga harus diupayakan.

ABSTRACT

The importance of green technology to be applied by vocational education (VE) has not yet been realized in optimal behavior. The strong assumption is that they do not find it instantly beneficial, even though the operational competencies and cultural drivers still need to be understood. This research aims to measure the significance of the influence of green technology competence (GTC), socio-cultural norms (SCN), and perceived long-term benefits (PB) on green technology use behavior (UB). In addition, the mediating role of PB is also tested in bridging the indirect influence of GTC and SCN on UB. The expost-facto study was conducted in VEs with Adiwiyata status with a total involvement of 647 participants who joined as teachers and students. Data collection used a closed questionnaire with four Likert scales that had been tested for validity and reliability. Structural Equation Modeling was used to analyze the data through path analysis and bootstrap methods. This study proved the importance of PB as a determinant of UB in VE teachers and students. It also provides essential insights into how GTC and SCN play an essential role in developing PB and determining UB. These results have important implications for VEs in improving their competencies and socio-cultural foundations to promote the sustainable use of green technologies. VE can synergize with various stakeholders and socio-cultural communities to support the strengthening of social capital and technical and financial assistance. In addition, the adaptive power of VE to analyze the need for green technology integration must also be pursued.

1. INTRODUCTION

The issue of environmental sustainability continues to grow and is increasingly important to solve today and in the future. The reason is that humans have been living beyond the earth's carrying capacity since 1987 (Menton et al., 2020; Smith & Brisman, 2021). Since that year, various paradigms have continued to develop to overcome these problems, such as the presence of sustainable development as the proper development paradigm for now and the future (French & Kotze, 2018; Mensah, 2019). This paradigm focuses on the sustainability of the environment, which is increasingly degraded. The importance of this was outlined in the agenda of the sustainable

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development goals (SDGs) of the United Nations in 2015 to be achieved by 2030 (Agbedahin, 2019; Kassim et al., 2020; Shepherd et al., 2009). Unfortunately, more than five years on, the progress of the SDGs has decreased. According to the report, the SDGs in 2022 led to conclusions about the decline of green land, increased biodiversity extinction, increased energy scarcity, and water scarcity. This is also reinforced by previous study who highlighted the trend of declining water, soil, and air quality in several developing countries, thus signaling the deterioration of environmental conditions (Burki et al., 2021). It is important to identify various causal factors to improve environmental quality.

The industrial sector is reported to be the most significant factor that negatively impacts the environment (Ghobakhloo et al., 2022; Khattak et al., 2021; Oláh et al., 2020). Previous study reported that industry accounts for about 29% of greenhouse gas emissions (Muthukannan & Ganesh, 2019). In addition, industry is also the largest energy-using sector to fulfill the production chain process. Moreover, industries in developing countries have been noted to pollute water and soil in the wild by discharging waste containing hazardous chemicals (Ghobakhloo et al., 2022; Kozlowski et al., 2014). This pollution also adversely affects and threatens human health in the long run. According to other study the industrial cycle that has the potential to degrade the quality of the environment will continue to occur, with great potential to increase (Khattak et al., 2021). The importance of economic development in developing countries is often a dilemma for these countries, considering that the increase in the number of industries will continue. Still, it is not balanced with good industrial greening. The results of the literature analysis led to essential aspects of the industry that contribute to environmental degradation. Human resources (HR) in industry is the most important and frequently discussed aspect.

Vocational education (VE) is one of the agencies most responsible for helping to overcome these problems. This is because most of the industry's human resources are filled by VE graduates (Mustapha, 2016; Oláh et al., 2020). VE, which has the essence of providing job skills to students, must be able to change the process of education and learning based on environmentally friendly work (Billett, 2011; Pavlova, 2019). However, organizing education and knowledge based on environmental conservation takes a lot of work. Various countries, especially developing countries, need help integrating environmentally friendly aspects into the curriculum in VE due to its complexity. Various studies have tried to explore and analyze the efforts to overcome these difficulties in depth. They suggest that VEs that are close to technological aspects should be able to integrate green technology (GT) to be critical in the programs run (Kaliappan & Hamid, 2021; Onyilo et al., 2020). In addition, GT also has the potential to become the primary qualification when graduates work in industry, especially in the future regulations on GT will be intensified (Asnawi & Djatmiko, 2016; Sern et al., 2021). However, previous study suggested that before VE integrates GT, it is necessary to prepare it carefully. GT usage behavior (UB) is essential to VEs' success in integrating GT through learning (H. Li et al., 2023). GT UB includes intention, commitment, self-development attitude, decision-making, problem-solving, and behavioral impact (Ciocirlan, 2017; Katz et al., 2022).

However, further issues also arise about the low intensity of UB in GT. Such problems were found in the field study, including VE students who were reluctant to use safety equipment. They were also observed not using tools wisely, resulting in the waste of electrical energy. This problem was also reported by previous research, which revealed that students only think instantly about their work without looking at the long-term impacts that could potentially result from it. This is because behavior includes complex aspects to be built and reinforced in students, which are influenced by various factors from within and outside (Norton et al., 2015; Nurwidodo et al., 2020; Wiernik et al., 2016). In this regard, the study by previous study suggested increasing good stimulus to grow UB in GT (Asnawi & Djatmiko, 2016; Yuriev et al., 2018). The average human will use technology if it has benefits that will be obtained from it. However, in the context of GT, the benefits that will be felt tend to be long-term (Iravani et al., 2017; Zhang et al., 2023). Therefore, emphasizes that VEs must be able to properly orient and realize that the use of GT will provide long-term benefits and may only be felt a little when using it. In addition, what needs to be emphasized is related to the potential long-term benefits for other living things that will positively impact human sustainability (Pavlova, 2009; Shepherd et al., 2009). The vision-mission of intergenerational sustainability must be instilled in this case to build UB on GT. Therefore, efforts to raise awareness of long-term benefits (PB) must be made.

A problem often experienced by VEs in improving green technology use behavior is the lack of technical skills to operate GTs. GT, seen as unfamiliar, is an obstacle that must be solved. The use of GT requires competence in operating it. Therefore, various studies suggest improving green technology competency (GTC (Guo et al., 2020; Iravani et al., 2017; Q. Wang et al., 2019). Previous research confirms that UB always needs competency strengthening (Losacker et al., 2023). Especially about GT, this has yet to be widely understood by individuals who may be involved in using it. Therefore, the greater the GTC, the higher the quality and quantity of behavior in using GT (Onyilo et al., 2020; Rajput et al., 2021; Ramli et al., 2020). GTC is the most crucial aspect, which includes five parameters: awareness, literacy, capability, creativity, and criticality of green technology. Awareness is the basis for underlying the motivation for building literacy and adaptability to adjust the development of green technology needs (Beny et al., 2023; Fu et al., 2020; Serrano-García et al., 2023). Then, capabilities, including

practical skills, always require sufficient literacy. Meanwhile, capabilities built strongly will provide great potential to generate a variety of creative and critical thinking in determining and developing green technology as a form of environmentally friendly innovation (Feng et al., 2022; X. Li et al., 2020).

However, various other studies warn that high competence in using GT does not guarantee that it can boost behavior, which is the realm of individual psychological drives. The psychological drive relates to whether GT will be used after competence is built or competence is only a formality (Ercantan & Eyupoglu, 2022; Larsen & Dupuy, 2023; Sabokro et al., 2021). This means it is essential to emphasize the vital aspects that can create a strong psychological drive to use GT (Nguyen et al., 2017; Norton et al., 2017; Qasim et al., 2023). Some recommend strengthening the foundation derived from socio-cultural norms is the most critical aspect (Ghazali et al., 2018; Kaliappan & Hamid, 2021; Maisaroh et al., 2023). Socio-cultural norms (SCN) include values, behavioral expectations, lifestyles, ethics, and manners. The strength of SCN embedded in individuals can be a counterweight to the development of GT competence, which leads to the formation of behavioral intentions to use GT (Chwialkowska et al., 2020; Perera et al., 2022). The study conducted by previous study has confirmed that SCN can underlie the growth of green behavior (Yang et al., 2017). In addition, with strong GTC support and a robust socio-cultural foundation, green behavior will be encouraged because they know the long-term environmental benefits. Therefore, the growing awareness of the long-term benefits will increase the use of green technology (Chen et al., 2023; Iskandar et al., 2021).

Based on these issues and the support of various theories and previous research studies, this study aims to measure the influence of green technology competence (GTC), socio-cultural norms (SCN), and long-term benefits obtained (PB) on the growth of green technology use behavior (UB). We also examine the role of PB in mediating the indirect effects of GTC and SCN on UB. So far, there needs to be more research on these aspects, especially since there is no relevance to the involvement of vocational education students. Therefore, the novelty of this study focuses on research on teachers and students in VE, considering that both are human resources (HR) professionals who are highly involved in the learning process. This research aims to measure the significance of the influence of green technology competence (GTC), socio-cultural norms (SCN), and perceived long-term benefits (PB) on green technology use behavior (UB).

2. METHOD

Our research focuses on data in the form of phenomena or conditions that have already occurred and have relevance to the theory built as an introduction to the hypothesis. Given this, we adopted the ex-post facto research method, the design of which was developed to examine events that have already occurred. This study is a cross-sectional study where data is collected through a questionnaire designed with structured questions. Based on the conceptual framework and existing theoretical studies, direct and mediating effects are measured based on actual data in the field. The analyzed data explain the extent of the role of each aspect or exogenous variable in fostering green technology (UB) usage behavior in students in vocational education (VE). We ensure the research direction aligns with the importance of greening the industry, building environmentally friendly human resources (HR), and greening TVET or VE. The collected data were systematically analyzed using three iteration measures to ensure a high accuracy level even when comparing the three measures.

Key The research participants were selected by considering the criteria that all of them came from Adiwiyata schools as the identity of green (environmentally friendly) schools in Indonesia. Secondly, we decided on participants with sufficient experience in learning implementation. Thus, we only set teachers with more than five years of experience teaching vocational subjects, while the students chosen were students in the third grade. The probabilistic simple random sampling calculation obtained 914 participants who were teachers and students in vocational high schools that had Adiwiyata status. From this number, we filtered again using voluntary sampling techniques and brought the involvement of 647 teachers and students. The total number of teachers involved was 106; the rest were students. Of all the participants, fifty-eight percent were women, and the rest were men. At least three areas of expertise in vocational education were represented: Technology and Engineering (39%), Information and Communication Technology (32%), and Tourism (29%). Teachers ranged in age from 27-56 years old. A total of 531 (82%) reported that they had been involved in using green technology in their field for more than one year, and the rest for less than one year.

We collected data from VEs in several regions in Indonesia from early to mid-2023. The data in this study was collected using a questionnaire technique through Google Forms, which has been validated in terms of content and construct. The questionnaire used was a 4 Likert scale questionnaire, with the answer options Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). Instrument development was carried out by adopting the expert opinion of each variable. The instrument is equipped with respondent identities that include essential dimensions related to class choice, school status, gender, status of the field of expertise pursued, and domicile of residence. Table 1 presents the instrument development (grid) results in this study, which is used as a data collection tool.

Table 1. Instrument Grid

Variable	Indicators	Example Item	References
Green technology competency	Green technology awareness	I am aware of the benefits of green technology	(Astuti et al., 2022; X. Li et al., 2020; Pavlova, 2009)
	Green technology literacy	I understand how to use green technology	
	Green technology capability	I am able to operate green technology	
	Green technology creativity	I am able to develop green technology	
	Green technology criticism	I am able to select useful green technology	
Socio-cultural norms	Values	I understand cultural values related to the environment	(Chaudhary, 2020; Ruiz-Molina et al., 2023)
	Behavioral expectations	I want to implement energy saving behavior	
	Lifestyle	I understand the purpose of life to keep trying and be optimistic	
	Ethics and manners	Trends in environmental issues have changed my lifestyle	
	Emotional satisfaction	I emphasize the emotions related to sustainability	(Anderson et al., 2022; Moret et al., 2021)
	Understanding long-term health	I emphasize long-term health-oriented behavior	
	Loyalty	I strive for environmentally friendly actions in a sustainable manner	
Perceived long-term benefits	Functional utility	Eco-friendly actions definitely have a positive impact on my needs	
	Believe in orientation	I believe that my orientation has good prospects	
	Optimism in solving problems	I have a high sense of optimism in solving problems	
Green technology use behavior	Intention	I have the intention to use green technology	(Kaliappan & Hamid, 2021; Mejia, 2019)
	Commitment	I am committed to continuing to use green technology	
	Self-development	I attended various green technology training	
	Decision making	I consider before making a decision to use green technology	
	Problem-solving	I use green technology to solve problems	
	Behavior impact	I feel the impact of sustainability on the environment	

The research hypothesis was formulated based on relevant theoretical support regarding the path of influence of exogenous variables on endogenous variables directly or using mediation, as stated in previous literature insights. Structural Equation Modeling (SEM) analysis was used to test the hypothesis of direct influence between variables and the role of mediation through path analysis and bootstrap methods. Path analysis measures the direct role of GTC, SCN and PB in determining UB in VE teachers and students. Next, the bootstrap method is used to measure the role of PB in mediating the role of GTC and SCN in determining UB. Bootstrapping was adopted considering its accuracy, considering this method is the most reasonable and can obtain confidence limits for certain indirect effects in most conditions (Preacher & Hayes, 2008). Statistical analysis in this research uses SmartPLS 3.0 supporting software with variations in the number of iterations to obtain the most accurate position analysis.

3. RESULT AND DISCUSSION

Result

Validities and Reliabilities Instrument

Before testing the SEM model, we analyzed the outer loading value which describes the level of item validity and the α and AVE values which describe the reliability level of the measuring instrument. We measure the level of validity using the CFA method and the level of reliability using Cronbach Alpha with the help of the SmartPLS 3.0 application. The results of the validity test showed that all indicators for all research variables had outer loading values exceeding 0.700, so that none of the indicators for all variables failed. In accordance with the theory of partial least squares, this value is above the safe threshold for the appropriate level of validity, so that all items that have met are decided to have validity criteria and are ready to be used for research. Likewise, the reliability test results show that the value of α is in the high range for the reliability value. Table 2 presents the results of the validity and reliability tests in more detail.

Table 2. Validities and Reliabilities Instruments

Variable	Reliability			Validity			
	α	AVE	Decision	Item	Outer Weight	Outer Loading	Decision
Green technology competency (GTC)	0.839	0.609	High Reliability	GTC 1	0.281	0.791	Valid
				GTC 2	0.208	0.703	Valid
				GTC 3	0.257	0.828	Valid
				GTC 4	0.318	0.865	Valid
				GTC 5	0.205	0.703	Valid
Socio-culture norms (SCN)	0.904	0.777	High Reliability	SCN 1	0.297	0.890	Valid
				SCN 2	0.276	0.901	Valid
				SCN 3	0.284	0.900	Valid
				SCN 4	0.278	0.835	Valid
Perceived long-term benefits (PB)	0.893	0.652	High Reliability	PB 1	0.197	0.823	Valid
				PB 2	0.220	0.834	Valid
				PB 3	0.208	0.809	Valid
				PB 4	0.215	0.838	Valid
				PB 5	0.212	0.825	Valid
				PB 6	0.183	0.710	Valid
Green technology use behavior (UB)	0.869	0.602	High Reliability	UB 1	0.256	0.758	Valid
				UB 2	0.185	0.754	Valid
				UB 3	0.204	0.791	Valid
				UB 4	0.202	0.801	Valid
				UB 5	0.191	0.759	Valid
				UB 6	0.250	0.790	Valid

Model Fit Evaluation Results

We evaluate the suitability of the model to measure the level of suitability and determine changes to the structural model designed based on the theoretical framework. The overall fit index of the research model is presented (as the main model) in Table 3.

Table 3. Model Fit Evaluation Result

Goodness of fit indices	Estimated	Desired level	Evaluation
Chi-square	22.501	Expected to be small	Small
Probability	0.281	>0.050	Good/fit
NFI	0.914	≥0.900	Good/fit
SRMR	0.039	<0.050	Good/fit

Base on Table 3, as presented, all the fit indices for the entire main model obtained good test results. The chi-square value obtained shows a relatively small critical number. The probability value evaluated shows a significant number at a high level (> 0.050). GFI, AGFI, CFI and NFI all tested well showing values above the threshold (≥0.90). Likewise, the SRMR < 0.05 and RMSEA < 0.08. Based on these results it can be concluded that the fit model is based on the acquisition of values that are included in the goodness of fit category, so that

structural model analysis can be carried out. Meanwhile, the structural analysis model used is presented in Figure 2.

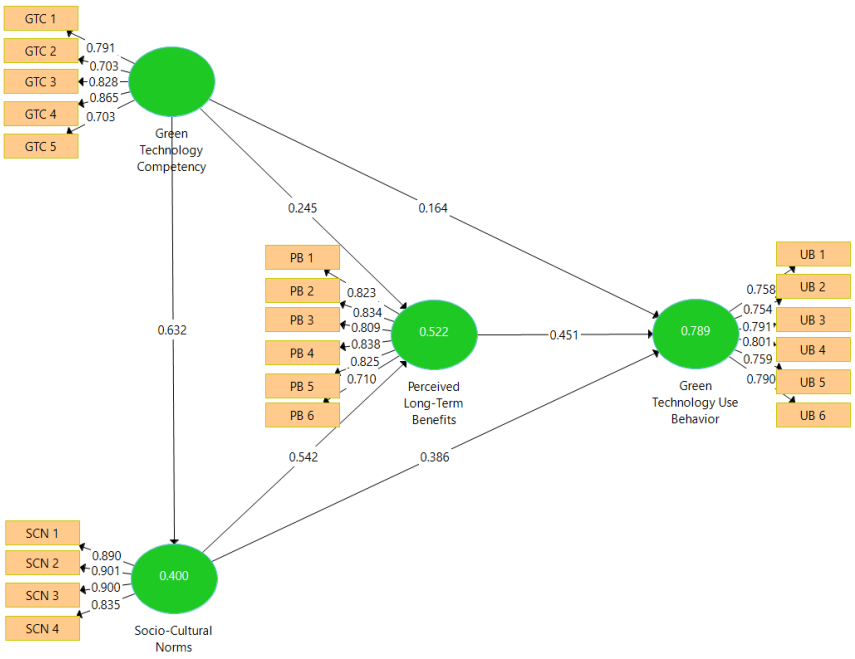

Figure 2. SEM Analysis Result

Direct Role Test Results

We tested the hypothesis systematically based on the theoretical framework that had been built previously. Testing the hypothesis which states the results of the role or direct influence is seen based on the results of path analysis, which is based on the estimated value of the correlation, t statistic and p value with a significance level of 5%. In addition, we get certainty regarding the confidence interval obtained from the analysis results of 97.5% (CI 97.5%) and an error rate of 2.5%. The hypothesis testing specifically measures the direct effect of GTC and SCN, and PB on UB, and the direct effect of GTC and SCN on UB. Table 6 presents the results of hypothesis testing using path analysis with the intact sample and samples in each class. Overall, the results of the path analysis state that all hypotheses proposed based on the theoretical framework are accepted. These results were identified based on the p-value of all pathways which were less than 0.050 ($p<0.050$) at the 5% significance level. First, these results confirm that GTC, SCN and PB have a significant contribution in determining the UB of VE teachers and students. Besides that, whether or not PB in VE teachers and students is a consequence of the high or low GTC and SCN they have. Path analysis result is show in Table 6.

Table 6. Path Analysis Result

Path	Estimated Correlation	t-Value	SE	p
PB → UB	0.451	13.393	0.002	0.000
GTC → PB	0.245	6.226	0.002	0.000
SCN → PB	0.542	14.074	0.000	0.000
GTC → UB	0.164	5.443	0.001	0.000
SCN → UB	0.386	12.321	0.002	0.000

The Role of PB Mediation in Determining UB

The main role in this research is to examine the role of PB as a mediator for GTC and SCN in helping to determine UB. In this case, testing is carried out using the bootstrap method to test and analyze the significance of this role. Bootstrap was used considering that previous research proved that bootstrap is the most robust and reasonable method for obtaining confidence limits for certain indirect effects in most conditions. Table 7 shows the level of PB's role in mediating GTC and SCN in determining UB in VE teachers and students. The confidence interval obtained for the bootstrap method is still the same as before, namely 97.5%. Overall, PB was able to show its main role in mediating GTC and SCN in influencing UB (indirect influence) with a proven significance value of 0.000*** for both. These results confirm that the two hypotheses indicating the mediating role of PB (H6 and H7) are accepted. The mediating role of self-efficacy is sho win Table 7.

Table 7. The Mediating Role of Self-Efficacy

Path	Direct Effect		Indirect Effect		Total Effect	
	Estimated	p	Estimated	p	Estimated	p
PB → UB	0.451	0.000	-	-	0.451	0.000
GTC → PB	0.245	0.000	-	-	0.245	0.000
DGTC → UB	0.164	0.000	0.121	0.000	0.275	0.000
SCN → PB	0.542	0.000	-	-	0.542	0.000
SCN → UB	0.386	0.000	0.244	0.000	0.630	0.000

Discussion

Climate change, energy, water scarcity, and health and security issues have changed how humans think about addressing them. In the past, people thought about jobs that relied on natural resources, but current efforts are about conserving the environment. So far, green terms have emerged, such as economy, green jobs, green industry, green technology, green schools, and so on (Feng et al., 2022; Grillitsch & Hansen, 2019; Mealy & Teytelboym, 2022). However, the most important thing is building human resources (HR) with the capability, capacity, and willingness to consciously and consistently do green work (Ercantan & Eyupoglu, 2022; Mensah, 2019; Pavlova, 2019). Therefore, various studies also provide positive speculation about the intrinsic factors from within humans to succeed in green programs. One is related to successfully integrating green technology (GT) in their use (Afum et al., 2023; Iravani et al., 2017). The increasing availability of GT must be balanced by encouragement that can stimulate the willingness of human resources to choose and use it (Johnson & Wichern, 2007; Long et al., 2023; Reid, 2014). Recently, various studies have analyzed factors related to socio-cultural aspects and competencies that significantly influence motivation to use GT (Afum et al., 2023; Iravani et al., 2017; Long et al., 2023).

This research proves that the development of individuals oriented to socio-cultural aspects and competence can influence GT usage behavior (UB). On the other hand, competence is essential to provide instructions and procedures for using GT in human activities or work (Afum et al., 2023; Qasim et al., 2023). However, humans, who are social creatures and carry culture from birth, are indeed guided by this aspect. Moreover, the culture inherent in individuals has been hereditary and has become a daily view of life. Therefore, this study promotes again how sociocultural norms (SCN) influence UB on GT (Subramanian & Suresh, 2023). This result emphasizes the importance of balancing green technology competence (GTC) with individual foundations to build GT usage motivation, which is analyzed from SCN. This result also agrees with several studies that reveal socio-cultural values in implementing environmental conservation programs (Abumoghli, 2023; Long et al., 2023). However, a study by other study that highlighted that the variety of socio-cultural norms that depend on each region does not guarantee similar results (C. H. Wang, 2019). In Indonesia alone, more than a hundred tribes spread throughout the area and have different socio-cultural conditions (Charina et al., 2022; Sulistiyani et al., 2021).

On the other hand, the emergence of feelings of benefits from the results of actions in wisely using digital technology provides an excellent opportunity to increase its intensity. In addition, feelings of benefits when using digital technology can also increase its consistency (Ercantan & Eyupoglu, 2022; Katz et al., 2022). This study also proved that the long-term benefits obtained (PB) can mediate the indirect influence of GTC and SCN on the growth of UB on GT. This was confirmed by previous study who revealed that the greater the benefits people feel, the greater the human action to use GT (Lafortezza et al., 2009). However other study suggest that every country tightens green job regulations, especially in industries that often negatively impact the environment (Peng et al., 2021). Regulations that have the force of law are recommended, considering that green jobs cannot only be done voluntarily, but there must be binding legal certainty to become an obligation for the entire community. The results of this study highlight the importance for stakeholders and units of vocational education (VE) institutions to continue synergizing together to help the successful adoption of GT in VE (Kurylo et al., 2020; Pavlova, 2018). Cooperation with various cultural practitioners, activists, or social community leaders is a relevant option for equipping teachers and students with SCN. If the socio-cultural foundation has been built, strengthening GTC training will be more optimal (H. Li et al., 2023; Nugrahani et al., 2020).

This research has important implications, especially for VE institutions, to transform and balance the power of competence and foundation to stimulate the growth of solid behavior by sustainably using environmentally friendly technology. Several options can be made. First, synergy between various stakeholders and socio-cultural communities is essential in strengthening social capital and technical and financial assistance. In addition, the adaptive power of VE to analyze the needs of green technology integration is another aspect that must be pursued. Future research is expected to assist VEs in balancing the strengthening of GT and SCN to realize success in increasing UB in GT. However, this study has several limitations, one of which relates to the representativeness of VEs across various characteristics. We only selected VEs with Adiwiyata status, a green

school implementation program in Indonesia. Therefore, this may bias the results obtained, given that research has yet to examine the influence of the variables in this study with two different characteristics (green schools and public schools) and compare them. In addition, this study is limited to socio-cultural norms and green technology competencies. Various other variable options need to be intervened with the existing variables in this study to see a more comprehensive effect. Therefore, future research is also expected to examine the influence of the variables in this study and provide additional or broader interventions.

4. CONCLUSION

This research proves that the development of individuals oriented towards socio-cultural aspects and green technology competencies can influence green technology use behavior and accentuate the mediating role of perceived long-term benefits. On the other hand, competence is essential to provide instructions and procedures for using green technology in human activities or work. However, humans who are social creatures and carry culture from birth are certainly guided indeed by this aspect. Moreover, the culture inherent in individuals has been hereditary and has become a daily outlook on life. Therefore, this study also promotes how socio-cultural norms influence green technology usage behavior through the mediating role of perceived long-term benefits. These results emphasize the importance of balancing green technology competencies with individual foundations to build motivation to use green technology and consider its long-term benefits. The results of this study highlight the importance for stakeholders and units of vocational education institutions to continue to synergize together in helping the successful adoption of green technology in vocational education.

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