

Self-Regulated Learning in Terms of Utilization of Information Technology as a Learning Resource for Generation Z College Students

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ABSTRACT

Technological developments entering the 5.0 era are increasingly rapid, including information technology. College students who enter Generation Z and are familiar with technology must use it well, including as a source of learning when studying independently or self-regulated learning. This research aims to 1) explore information related to the use of technology as a learning resource for Gen-Z college students; 2) determine the relationship between the use of technology as a source of learning towards self-regulated learning in Gen-Z college students. The research method used is a quantitative survey. The number of participants in this study was 144. The data analysis used was descriptive analysis and simple regression analysis. The results of this study show that using information technology as a learning resource for Gen-Z tertiary students greatly assists the teaching and learning process, increases the desire and new interest in learning, provides motivation and interest in learning, and helps to understand in learning. In addition, this study shows that using information technology as a learning resource has a significant positive relationship with the self-regulated learning of Gen-Z college students.

Keywords: College students, Generation-Z, Self-regulated Learning, Utilization of Information Technology as a Learning Resource

Introduction

Our world is transitioning from the industrial revolution Era 4.0 to Era 5.0. Technological developments in the era of the industrial revolution 4.0 have changed many things, both in the technology sector and even in the education sector, as an effort to develop human resources. The ability to connect and changes in life, work and relationships between humans are formed in this era. As emphasized by Schlechtendahl et al. (2015), the period of the industrial revolution 4.0 refers to conditions where all entities in an industrial environment are continuously connected and can share information quickly, such as speed in information availability.

The technology that is currently developing is giving birth to a new generation. One of the generations that has experienced the impact of this technological advancement is Generation Z (Gen-Z). Gen-Z are those born between 1995-2010, or in our demography, are students and also college students. The rapidly developing technology makes them live in an era that makes

it easier for them to search for and obtain information massively and quickly, mainly because of access to the internet and mass media. Renfro said that Gen-Z is also called "Digital Natives," namely the expertise and natural skills they have in using technology to quickly and easily adopt and understand technology. Apart from that, Gen-Z is also referred to as the "Internet Generation (IGen), which is the generation that is used to accessing the internet, digital devices, and various online platforms. Gen-Z is also "Screensters," individuals often involved in interactions with various types of screens, such as smartphones, tablets, computers and television (Gerschenson et al., 2017).

The expertise regarding technology possessed by Gen-Z is also adapted to the learning process, both formal and informal learning, without exception by tertiary students. Gen-Z tertiary students prefer learning using interesting videos accompanied by animations and providing examples appropriate to what is on the ground (Sari & Fazda Oktavia, 2021). Gen-Z college students abandon traditional learning because it is boring (Robinson, 2013). The lecturers who faced Gen-Z college students came from different eras, such as Baby Boomers (born between 1946-1964), Generation X (born between 1965-1979), or Generation Y (born 1980-1995), which are still bringing traditional methods in learning methods that are carried out such as the lecture method and the textbook method (Sari & Fazda Oktavia, 2021).

Many learning methods have been developed using e-learning, blended learning, or online learning (Hastini et al., 2020). The use of technology such as the internet, smartphones, computers, and so on is used by Gen-Z tertiary students as a medium to empower themselves, one of which is to increase knowledge, insight and also the ability to understand lecture material or complete college assignments. On the other hand, the use of technology by Gen-Z is still limited to mere entertainment, such as sending messages or social media (Mutiarra & Kusumawardhani, 2020).

The existing technology is expected to help tertiary students understand learning material. However, in reality, the sophistication of existing technology makes college students less likely to have the business to be able to study more actively because they can obtain material from the internet and can directly copy and paste without the need to understand the material presented first (Mardianto, 2019). This certainly affects the way college students learn, one of which is the self-regulated learning ability of Gen-Z college students.

Self-regulated learning can be interpreted as a way for college students to orient themselves toward achieving goals by sequentially activating their cognition, behavior, and feelings. Students produce academic strategy skills by changing their mental abilities through self-regulated learning (Zimmerman, 2002). There is a performance phase in self-regulated learning, namely the Fore-Thought Phase, namely task analysis and self-motivated beliefs; the

Performance Phase, namely self-control and self-observation; and the Self-Reflection Phase, namely self-judgment and self-reaction (Zimmerman & Moylan, 2009).

As a learning resource for college students, technology can train independent learning abilities by increasing learning motivation, integrating information from several learning sources, and evaluating and reflecting on their own learning (Ningrum et al., 2019). Thus, college students who have good self-regulated learning abilities will be able to improve their academic achievement (Fasikhah & Fatimah, 2013), considering that academic achievement can be influenced by self-regulated learning abilities (Ainley & Patrick, 2006; Pekrun et al., 2002; Perry et al., 2007; Zimmerman, 1986, 1989, 1990; Zimmerman & Moylan, 2009).

The increasingly complex demands of the times have forced Gen-Z tertiary students to be faced with the necessity to have good self-regulated learning skills or independent learning, considering the future challenges that will be even tougher. The use of technology also needs to be encouraged for higher education students as a medium to support the independent learning of higher education students, especially Gen-Z. The contemporary sophistication of technology supports the separate learning process of higher education students to learn from anywhere and anytime through Internet services. Thus, it is necessary to study how Gen-Z tertiary students utilize technology as a source and medium for independent learning. Therefore this study has the objectives to 1) explore information related to the use of technology as a learning resource for Gen-Z tertiary students; 2) to determine the relationship between the use of technology as a source of learning towards self-regulated learning in Gen-Z college students.

Material And Methods

This research is a quantitative survey research with self-regulated learning research variables and the use of information technology as a learning resource. This study's population was college students included in Generation Z. The sample was taken by incidental sampling. Namely, the selection was conducted on people who happened to be encountered (Sugiyono, 2018). Participants in this study were 144 college students born in 2000-2004 in the age range of 19-23 years.

The data collection method in this study was to distribute the research scale to participants according to the criteria. The instrument used to measure self-regulated learning uses the Likert Self-Regulated Learning scale compiled by Malahati (2021) based on the theory by Zimmerman & Moylan (2009) with 18 items. Meanwhile, for using information technology as a learning resource, the questionnaire used by researchers refers to the research questionnaire belonging to (Suharso et al., 2020).

Furthermore, data analysis in this study was carried out using descriptive analysis to determine the characteristics of the participants and the extent to which the use of information technology in the learning process of college students and simple regression analysis to determine the relationship between the use of information technology as a learning resource on self-regulated learning in college students Gen-Z. The data analysis process was carried out using IBM SPSS 27.0.

Results

A. Karakteristik Partisipan

The participants in this study were 144 college students consisting of 14 boys (10%) and 130 girls (90%) (Figure 1). The participants were also psychology college students with 99 participants, and accounting college students with 45 participants (Figure 2). The participants' birth years range from 2000 to 2005, with a composition of 3 people in 2000, 18 people in 2001, 33 people in 2002, 58 in 2003, 29 in 2004 and 3 in 2005 (Figure 3).

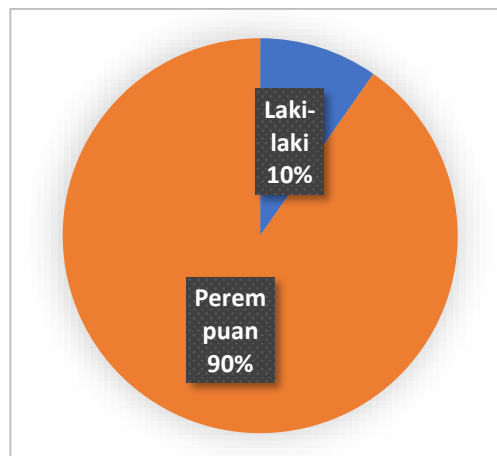


Figure 1. Gender Composition of research subjects

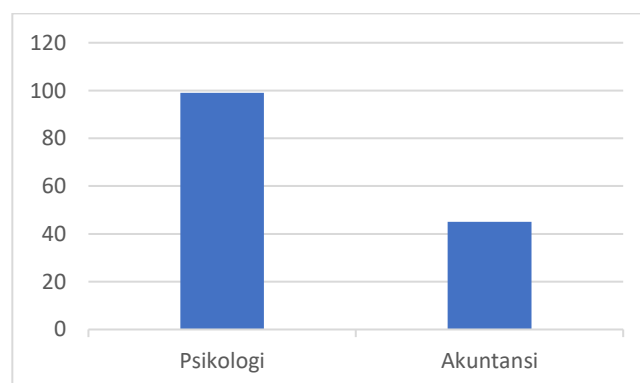


Figure 2. Study Program Composition Research Subjects

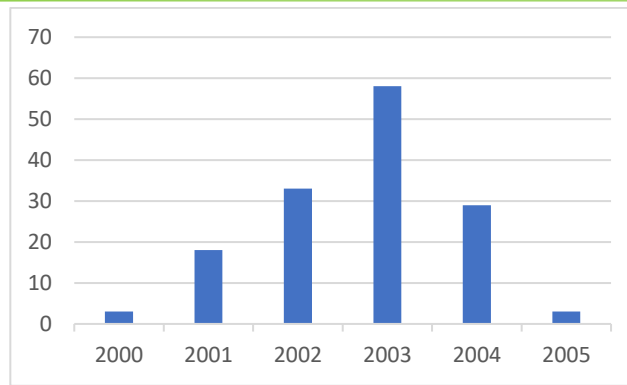


Figure 3. The composition of the year of birth of research subjects

B. Utilization of Information Technology as a Learning Resource

The data obtained regarding information technology media used by tertiary students shows that most tertiary students use smartphones as the primary medium for accessing learning resources (91% of the total participants), followed by laptops (58.3% of the total participants). While PC (personal computer), Tab (smartphone but has a larger size), and other media are the media that are rarely used in accessing college student learning resources (15.7% of the total participants) (Figure 4.). The data also revealed that participants used multiple information technology mediums as learning resources.

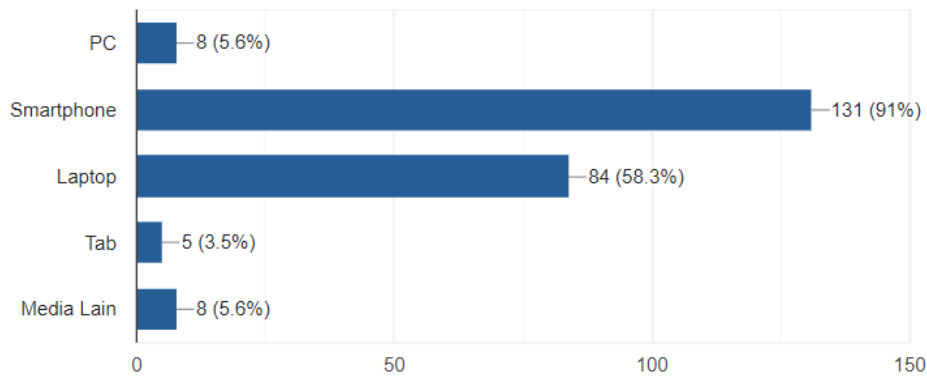


Figure 4. Distribution of Use of Information Technology Media

Figure 5 shows that participants have a variety of times using information technology media as a learning resource. College students who operate between 2 and 6 hours per day are 47.2%, more than 6 hours per day are 34.7%, and 16.7% of the total respondents use information technology media no more than 2 hours per day. These results indicate that tertiary students' use of information technology media as a learning resource varies.

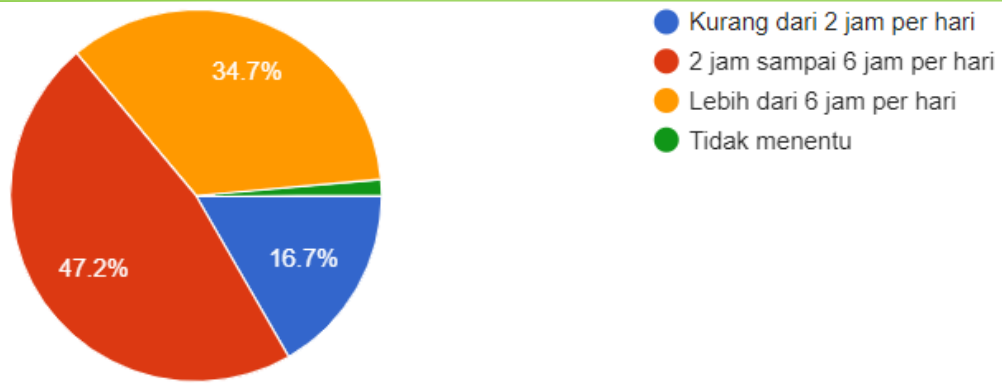


Figure 5. Duration of using Information Technology

Figure 6 shows that apart from studying, 79.2% of participants used information technology for social media. This is the most significant percentage of college students using technology other than looking. The rest of the college students use information technology to find other sources related to lecture material (64.6%), information related to their hobbies (43.8%), and other entertainment, such as watching movies and listening to songs.

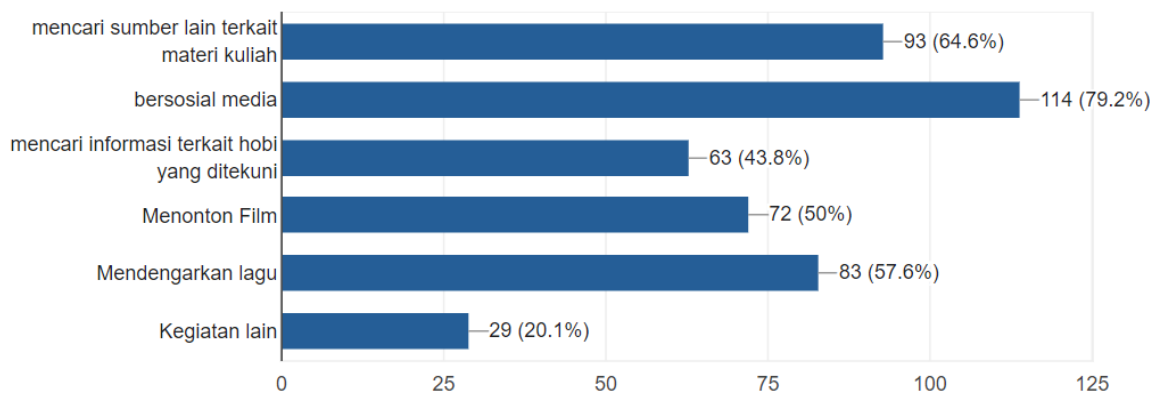


Figure 6. Things Often Do Besides Studying

Figure 7. shows that as many as 56% of respondents agree that learning-related information technology provided by campuses, such as e-learning, digilib, and so on, can increase their interest in learning. Meanwhile, as many as 25% of respondents felt unsure that information technology related to education provided by the campus could increase their interest in learning. In Figure 8. Shows that as many as 51% of college students agree that using information technology can improve the desire to learn, and no one disagrees that technology can increase the willingness to learn. In Table 1, most participants have high motivation and interest in learning by utilizing technology 57.6%. This is also

supported by the participants' high understanding of using technology as a learning resource.

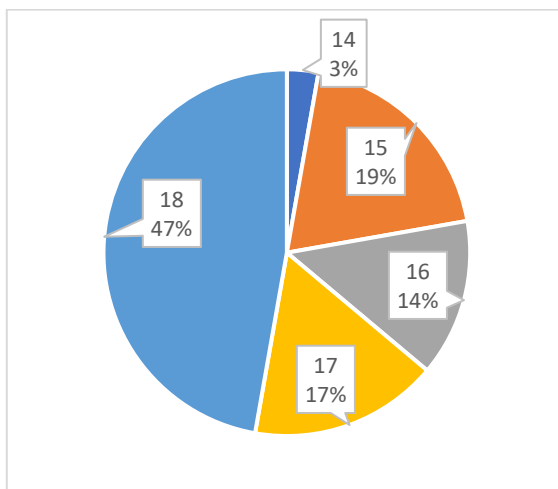


Figure 7. Technology Facilities on Campus Increase Interest in Learning

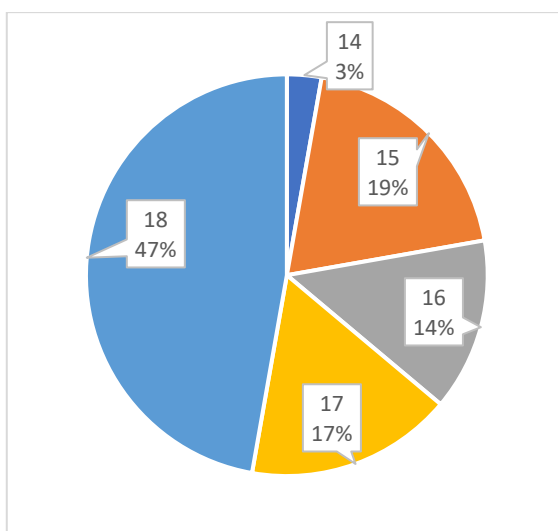


Figure 8. Technology Increases Learning Interest

Table 1. Categorization of the Scale of Technology Utilization as a Learning Resource

Aspect	Category	Criteria	Sum	Percentage
Motivation and Interest in Learning	Low	$X < 11$	0	0%
	Moderate	$12 \leq X < 18$	61	42.4%
	High	$X \leq 19$	83	57.6%
Understanding in learning	Low	$X < 7$	0	0%
	Moderate	$8 \leq X < 11$	40	27.8%
	High	$X \leq 12$	10452	72.2%

C. Self-Regulated Learning in Terms of Utilization of Information Technology as a Learning Resource

The results of testing simple regression analysis carried out using IBM SPSS 27.0 For windows, regarding the relationship of the use of information technology as a learning resource for college students' self-regulated learning of 144 students obtained the following results:

Table 2. Simple Linear Regression Analysis Test Utilization of Information Technology as a Learning Resource for Self-Regulated Learning

Model	Coefficients ^a				
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	45.073	5.146		8.759	.000
Technology Utilization	.765	.160	.373	4.787	.000

a. Dependent Variable: Self-Regulated Learning

Based on the statistical tests from Table 2 above, it was found that the variable utilization of information technology as a learning resource has a positive and significant effect on self-regulated learning (Sig. <0.000). Thus, if the use of information technology is a source of knowledge, then the self-regulated learning of Gen-Z tertiary students will also be higher. Vice versa. Meanwhile, Table 3 shows that the coefficient of determination for Adjusted R Square is 0.373. This means that the amount of information technology utilization as a source of learning for Self-Regulated Learning is 37.3%, and the remaining 62.7% is influenced by other variables not discussed in this study.

Table 3. Determination Test Results

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. The error in the Estimate
1	.373 ^a	.139	.133	6.822

a. Predictors: (Constant), Technology Utilization

b. Dependent Variable: Self-Regulated Learning

Information technology as a learning resource has a vital role in the self-regulated learning process of Gen-Z college students. This aligns with research by Yang et al.,

(2023), which states that technology facilitates and examines students' holistic self-regulated learning processes, which supports the performance phase. In addition, digital-based learning has a positive effect on student creativity, so it can be a suggestion for educators to develop technology-based education to increase the creativity of tertiary students (Hidajat et al., 2023). Technology can help improve students' self-regulated learning abilities by increasing intrinsic motivation and increasing learning engagement (An et al., 2023).

Conclusion

Information technology as a learning resource for Gen-Z tertiary students greatly assists the teaching and learning process, increases the desire and new interest in learning, provides motivation and interest in education, and helps to understand knowledge. In addition, this study shows that using information technology as a learning resource has a significant positive relationship with the self-regulated learning of Gen-Z college students. Information technology as a learning resource for college students is expected to develop and support a conducive learning environment for college students so that college students can learn independently.

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