

CRITICAL PEDAGOGY: THE ROLE OF STUDENT DIGITAL LITERACY IN UNDERSTANDING CRITICAL PEDAGOGY

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Abstract

Technological developments encourage students to adapt and must be able to control technology with digital literacy. Critical pedagogy understanding can be the basis for students in developing pedagogy mindsets and skills. The purpose of this study is to explore how digital literacy influences students' critical pedagogy understanding. The method in this research used an exploration method with a quantitative approach. The sample in this study was student at one of the universities in West Java. The instrument used is a questionnaire instrument containing students' digital literacy and a test instrument containing students' critical pedagogical abilities. The instruments used have gone through expert validation. The analysis in this study used SEM (Structural Equation Modeling) which can provide information about the effect of a variable with a complex model. The results of the analysis show that digital literacy has a significant influence on students' critical pedagogical understanding abilities. The influence is represented by the dimensions of access, evaluate and share. Although the results of the study show a positive value, there needs to be an in-depth study of how these dimensions can have an effect.

Keywords: Digital Literacy, Critical Pedagogy, SEM

Abstrak

Perkembangan teknologi mendorong mahasiswa untuk beradaptasi dan harus mampu mengendalikan teknologi dengan literasi digital. Pemahaman pedagogi kritis dapat menjadi landasan bagi mahasiswa untuk mengembangkan pola pikir dan keterampilan pedagogi. Tujuan dari penelitian ini yaitu mengeksplorasi pengaruh literasi digital pada pemahaman pedagogi kritis mahasiswa. Metode pada penelitian ini menggunakan metode eksplorasi dengan pendekatan kuantitatif. Sampel pada penelitian merupakan mahasiswa di salah satu universitas di Jawa Barat. Instrumen yang digunakan yaitu instrumen kuesioner yang berisi tentang literasi digital mahasiswa dan instrumen tes yang berisi tentang kemampuan pedagogi kritis mahasiswa. Instrumen yang digunakan sudah melalui validasi ahli. Analisis pada penelitian ini menggunakan SEM (Structural Equation Modeling) yang dapat memberikan informasi mengenai pengaruh suatu variabel-variabel dengan model yang kompleks. Hasil analisis menunjukkan bahwa literasi digital mempunyai pengaruh yang signifikan pada kemampuan pemahaman pedagogi kritis mahasiswa. Pengaruh tersebut diwakili oleh dimensi access, evaluate dan share. Meskipun hasil penelitian menunjukkan nilai yang positif namun perlu adanya pendalaman mengenai bagaimana dimensi-dimensi tersebut bisa berpengaruh.

Kata Kunci: Literasi digital, pedagogi kritis, SEM

INTRODUCTION

The era of the industrial revolution 4.0 has changed world civilization in various sectors. In the education sector, era of 4.0 has massively affected the activities and arrangements of the education system to be more advanced. Easy access to information and knowledge makes education experience a very great disruption followed by the proliferation of computers and

automation of records that have used digital concepts. By these changes, the younger generation in the future must be ready and able to develop themselves to have digital literacy skills to be able to survive in The era of the industrial revolution 4.0.

Digital literacy is a person's skill, attitude and interest in using digital technology and communication tools to obtain, manage, integrate, analyze and evaluate information, build new knowledge, and communicate with others as a form of effective participation in society. (Setyaningsih et al., 2019). The concept of digital literacy itself was first introduced in 1997 by Paul Gilster in a book entitled *Digital Literacy*. In his book, Gilster defines digital literacy as the ability to understand and use information from a variety of digital sources. Bawden (in Nurjanah et al., 2017) argue that develop a new understanding of digital literacy based on the conceptualization of digital literacy which consists of four things, namely basic digital literacy (underpinning), background knowledge of information (background of knowledge), main digital literacy competencies (central competencies), as well as attitudes and perspectives regarding information.

Students as agents of change have a big role and responsibility in determining the flow of the nation's future civilization. As seeds of productive age, students are expected to be able to improve the quality of various sectors in life through skills, abilities and synergies that are in line with the zeitgeist (spirit of the times) in the 4.0 era. Some of the demands of the industrial era 4.0 are the demands to have basic literacy, technological literacy, digital literacy, human literacy, cultural, economic and social literacy, having career and life skills, as well as leadership and responsibility (Astini, 2019). By improving the quality of oneself to master these various skills, the demographic bonus which will experience its peak in 2030-2040 will bring a golden age to Indonesian civilization.

Based on data from APJII (2020), the young generation of Indonesia today seems to be accustomed to digital technology, this is evidenced by the penetration of internet users who are dominated by millennials. This is evidenced by the increase in the number of penetration of Indonesian internet users based on data APJII (2020) which has increased from 64.8% in the 2018 period to 73.7% in the 2019-2020 period. However, despite the increase, the data does not guarantee that internet users in Indonesia have been wise in using the internet. This is because various cases of internet abuse are rife along with the increase in the number of internet user penetrations, for example, the case of web defacement (website hacking) which has occurred as many as 88,414,296 cases during the January-April 2020 period (Tobing, 2020), and 5,156 recorded cases of spreading hoaxes that occurred during the period August 2018 –

March 2020 (Kominfo, 2020). If traced from its roots, a number of these cases stem from one thing, namely the low digital literacy of the Indonesian people. For the students themselves, APJII data shows that based on the job category, students are in the sixth rank of internet users (3.7%) with the first rank of internet users being dominated by students (>9.3%). If examine the data, it can be concluded that the level of digital literacy of students in Indonesia itself is still low.

The development of digital technology has become a social phenomenon for students. In this case, it is necessary to develop digital literacy skill. Gilster (1997) defines digital literacy as the skill to understand and use information in various formats with an emphasis on critical thinking on using information and communication technologies. Digital literacy can be considered as a framework of skills, knowledge, and ethics (Calvani et al., 2008). In the case, Martin (2008) describes a digitally literate person as someone with the skill to identify, access, manage, integrate, evaluate, analyze, and synthesize digital resources. Meanwhile, some authors emphasize cognitive and socio-emotional aspects while others focus on technical skills (Eshet, 2004). Referring to the explanation above, digital literacy is not enough to be interpreted as skill in using digital technology in finding sources of information, but also needs to be critically aware to be able to interpret literacy well and reflect behaviours that uphold values and morals.

Based on the explanation above, it is necessary to have digital literacy skill that are the basis for the community, especially students. Students in the current era are accustomed to using smartphones to access and find the information they need. However, the many sources of information available on digital sources are not all able to have a positive impact. Based on this, it is necessary to have essential competencies in digital literacy. (Hobbs, 2010) formulate five essential competencies of digital literacy, namely act, access, analyze, create, & reflect.

The five competencies work complementary in a digital literacy circle, supporting the community's active participation in lifelong learning through the process of consumption and message creation. This approach is in line with constructivism education described by Brazilian education fighter Paulo Freire, he conveys "the concept of women and men as conscious beings ... and by putting forward the human problem in relation to the world" (Hobbs, 2010).

The level of mastery of digital literacy is not determined by how often students interact with digital technology. Based on research on digital literacy assessment in the United States conducted on final year students of a regional university by Murray & Pérez (2014) It can be seen that the level of understanding of students' digital literacy cannot be equated with the

intensity of student interactions with digital technology on a daily basis. It was only 12% of the total students in the study were able to correctly answer 80% of the assessment questions regarding digital literacy. This results show that there are several other factors that can affect student digital literacy.

One of Bawden's conceptualizations of digital literacy that affects a person's level of digital literacy is the possession of basic digital literacy skills. Nurjanah et al. (2017) said, The basic digital literacy skill in question are Reading comprehension skill, writing, understanding symbols to represent language, numerical calculations, and basic computer skill in using software and hardware devices. These basic skill are influenced by the educational background obtained. Research conducted by Urbančíková et al. (2017) argues that the factors that can affect digital literacy are a person's background which includes age, education, income, family, place of residence and gender. Fox (2016) in his research also suggests that there is a digital literacy gap that is motivated by the economic status of students, where students with a poor economic status background have the opportunity and scope that is too narrow to learn the concept of digital literacy.

In the explanation above, it turns out that digital literacy plays an important role in student life. However, we do not yet know how the role of student digital literacy in the process of students' critical pedagogical skills. In terms of terminology and methodology, pedagogy is the science of educating/educational science that provides guidance to educators to be able to deliver students to become whole human beings who are able to exist in harmony with the values of life that develop normatively and progressively. The term pedagogy was chosen with the aim of obtaining a wider scope of educational praxis from the philosophical level to the practical level.

In this research, The type of pedagogy chosen is critical pedagogy. Critical pedagogy is a combination of educational praxis with critical social theory (Dehler et al., 2001; Leonard & McLaren, 2002). Durst (2006) explained critical pedagogy is not about polemics or preaching one's politics in the classroom. Rather, it involves authorizing students to share responsibility for their education while posing problems based in students' collective experience in the world around them. Critical pedagogies challenge the status quo both in content and method. Referring to Durt's opinion, it can be concluded that critical pedagogy is not about polemics in the political debate of education or preaching some knowledge in a classroom dominated by educators. On the other hand, critical pedagogy involves students' autonomy to share responsibility when facing problems based on their collective experience of

the social realities they face. It means that critical educators always have a desire to improve their capabilities as educators, both in content and strategy. He fights for change and does not want to be a perpetuator of the status quo, he moves from his comfort zone.

In a practical level, critical pedagogy aims to raise awareness or is called Conscientization. In the process, Conscientization begins with a dialogue about contradictory human problems, then educators and students simultaneously reflect by looking for the causes of these problems and move on to take cultural action with transformative power. According to (Nevin et al., 2008) Conscientization is a process in which humans have a critical awareness so that they are able to see critically the social contradictions that exist around them and actively move to change them. Critical awareness is the basis for constructing strategies and implementing new learning patterns in responding to new challenges (Imron, 2020). This critical awareness must be supported by the pedagogical basis of the teacher in carrying out the implementation of learning with critical pedagogy (Murtadho, 2020). These relevant studies form the basis of critical pedagogy that is driven by students' digital literacy skill. Therefore, this study aims to see how students' digital literacy determines critical pedagogical skills.

METHOD

This research was an exploratory research with a quantitative approach. The purpose of this study is to determine the influence of a digital literacy dimension of students on the ability to understand critical pedagogy. This research will explore the role of digital literacy in building critical pedagogy of students. The sample selected from the faculty of education and teacher training students and teacher training at a university in West Java. The sample were 64 students that studying pedagogy subject.

The process of collecting data used questionnaires and tests. The questionnaire instrument contains the dimensions of digital literacy developed from various theories. In the process of developing the instrument, several dimensions were produced which were considered to be able to provide an overview of students' digital literacy. The dimensions in question are the dimensions of access, evaluate, and share/product. digital literacy questionnaire instrument showed in Table 1.

Table 1. Digital literacy questionnaire instrument

Dimension	Question
Access	I do study using a laptop.
	I do college assignments using smartpone.
	I search for referral sources using google search engine.
	I search for an understanding of the material on youtube first before google.
Evaluate	I use google scholar in search of credible referral sources.
	I use one source that I believe to be true.
	I seacrh for other reading resources as a comparison.
Share/Product	I write assignments from reading results.
	I use personal understanding and data from the sources I read in writing tasks.
	I make sure my writing is nothing wrong before collecting.
	I collected the task on time correctly.

Then, the test instrument was test instrument is a tactile understanding instrument related to critical pedagogy. This instrument was developed and validated by experts. The test instrument contains an assessment of pedagogical knowledge regarding understandings that lead to the assessment of critical pedagogical knowledge.

Structural Equation Modeling (SEM) is an analytical technique used in this study. SEM has characteristics that are able to determine the magnitude of the correlation and the effect of a latent variable that is explained by the observed variables simultaneously. The first step of analysis data is normality test. Testing the normality of the data using skewness and kurtosis (Bai & Ng, 2005). This normality test was carried out on univariate and multivariate data. The data criteria that are considered normal are p-value more than 0.05. Then after testing the normality, it can be determined the estimate used to perform the SEM test. In SEM data analysis, when the data is normal, the maximum likelihood (ML) estimate can be used, but if the data is not normal, the generalized least-squares (GLS) estimate can be used. (Widhiarso, 2012). Interpretation of data analysis is seen first for the fit of the model and then seen the influence between variables. The criteria for testing the model are $2df > \text{Chi-square}$, $P\text{-value} > 0,05$, $RMSEA \leq 0.08$, $GFI \geq 0,90$, $AGFI \geq 0,90$, $NFI \geq 0,90$, $CFI \geq 0,95$, $IFI \geq 0,95$ (Marsh et

al., 2005). Then to see influence between variables by looking at the t-value with the criteria t-value > 1.996 has a significant effect.

RESULTS AND DISCUSSION

Results

The results of the analysis provide some information about the results of testing the normality of the data, the fit of the model and the influence between the variables. The results of the normality test of univariate and multivariate data with Skewness and Kurtosis showed that the p-value was 0.001. These results indicate that the data in this study is not normal. When the data is not normal then SEM data analysis is carried out using the GSL estimation method. Then the data analysis using the GLS method and the suitability of the analysis model. The results of the overall model fit analysis are based on the results of the analysis. The model fit test can be done by looking at the value of Chi Square, P-value, and RSMEA. The criteria for testing the model are $2df > \text{Chi-square}$, $P\text{-value} > 0.05$ and $RMSEA 0.08$. The results of the overall model fit analysis show that the resulting model is fit.

Tabel 2. Goodness of fit

Indicator	Criteria	Value	Decision
Chi-Square	$< 2df$	$80,29 < 2(82)$	Good fit
p-value	$\geq 0,05$	0,532	Good fit
RSMEA	$\leq 0,08$	0,000	Good fit
GFI	$\geq 0,90$	0,911	Good fit
AGFI	$\geq 0,90$	0,915	Good fit
NFI	$\geq 0,90$	0,902	Good fit
CFI	$\geq 0,95$	0,953	Good fit
IFI	$\geq 0,95$	0,951	Good fit

Table 2. shows that the 9 criteria used to test the fit of the model indicate a good Goodness of Fit decision. This indicates that the developed model has a suitable model. So these results can support the influence of digital literacy on critical pedagogical abilities.

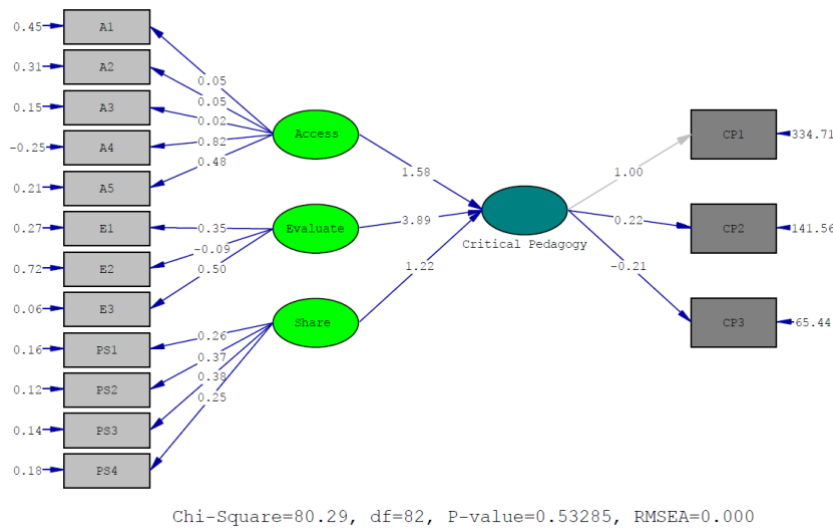


Figure 2. SEM results of the GLS estimasi estimation method

Figure 1. Explains about the estimation results with the GLS model. The estimation results shows that the dimensions of digital literacy have a good and positive influence on understanding critical pedagogy. This is supported by the large number of observable variables that have a positive value on the latent variable. However it can be concluded that understanding critical pedagogy gets good support from digital literacy. Then the significance of a variable is in good validity on the construct or latent variable if the t-value of the loading factor is greater than the critical value (≥ 1.96 for a significance level of 5%).

Table 3. Result of t-value

Variabel	t-value
Access - Critical Pedagogy	1,99
Evaluate - Critical Pedagogy	2,12
Share - Critical Pedagogy	2,09

Based on the analysis, it shows that the access variable, the evaluate variable, and the share variable have an influence on the critical pedagogical variables. In the T-value estimation, each variable relationship has a positive value relationship and has a loading factor > 1.96 . This shows that each variable has an influence on other variables according to the developed model.

Discussion

Based on the results of the study, it shows that there are three important variables that can see the dimensions of students' digital literacy, namely access, evaluation, and share

variables. This access variable is the ability to search and select information that has been obtained (Hague & Payton, 2010). This ability requires caution in the process of seeking information and using it selectively. This is supported by research conducted in the cities of Bandung, Surabaya, and Pontianak which shows that teenagers already have a high ability to access digital information. (Nugroho & Nasionalita, 2020). Not only in these three cities, teenagers in Bandung Regency also have high abilities in the access variables skills (Nasionalita & Nugroho, 2020).

The next variable after the access digital information skill is the evaluation variable which is a continuation process from the information that has been obtained so that the information is not only accepted but also critically analyzed for its truth and contribution. (Hague & Payton, 2010). This variable is an important capability for digital literacy practices in selecting, controlling, and selecting digital information and content (Iordache et al., 2017). The results of the study show that adolescents with the ability to critically evaluate digital information are more likely to become active learners compared to adolescents who do not have this ability (Kim & Yang, 2016).

Another important aspect of digital literacy is not only simply evaluating digital information, but also being required to take action as a form of evaluation results (Talib, 2018). Digital information that has been selected is safe to be shared with the public as valid information. This can support a sense of social connection and increase students' creativity in expressing themselves (Frechette, 2014). However, in its implementation, of course, it must still be monitored by a special government agency so that it does not cross the line and remains safe for distribution.

Based on the results of the study, it shows that there is a positive relationship between the three digital literacy variables on students' critical pedagogical skill. This is supported by Indramayu's research which shows that critical pedagogical models have an impact on increasing students' digital literacy (Setiawardani et al., 2021; Yuniarti et al., 2021). This skill is one of the preparations for future generations, especially students in facing society 5.0.

Social media is the most commonly used digital media by students, not only as a learning tool, but also as a critical analysis subject (Funk et al., 2015) (Pangrazio et al., 2020). Critical pedagogy is a natural ally of digital literacy because it can encourage students to develop critical awareness and integral outcomes based on digital information and

content.(Talib, 2018) The low ability to access, evaluate and provide information for a prospective educator indicates a low level of critical awareness so that it also has a negative impact on critical pedagogic abilities.

CONCLUSION

The results of the study show that digital literacy is influenced by access, evaluate, and share. These results show that these dimensions can provide an overview of digital literacy abilities, especially students' digital literacy. Then it turns out that students' digital literacy affects students' critical pedagogy understanding. This influence has a positive value both from access, evaluate and share. This positive influence illustrates the role of student digital literacy in understanding students' critical pedagogy. These results can be used as a reference to improve the quality of students' critical pedagogical understanding. It also needs to be considered regarding other variables that affect critical pedagogical understanding.

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