MULTITASKING MEDIA, ONLINE VIGILANCE, LOCUS OF CONTROL, AND STUDENT ACADEMIC PERFORMANCE

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ABSTRACT

One of the factors determining how effectively learning is implemented in higher education is student academic performance. This study aims to ascertain how student academic performance is impacted by media multitasking, online vigilance, and locus of control. This type of study is a descriptive quantitative study with a sample size of 169 students. The type of data used is primary data. Data analysis used multiple linear regression analysis. The results of this study indicate that multitasking media and online vigilance significantly negatively affect student academic performance, while locus of control has no effect. Thus, it is hoped that the study would be used by students as another resource to be considered while using online resources for learning.

Keywords: Student Academic Performance; Locus of Control; Media Multitasking; Online Vigilance

ABSTRAK

Kinerja akademik mahasiswa merupakan salah satu indikator yang menentukan baik atau buruknya kualitas penyelenggaraan pembelajaran di perguruan tinggi. Penelitian ini bertujuan untuk mengetahui pengaruh multitasking media, online vigilance, dan locus of control terhadap kinerja akademik mahasiswa. Jenis penelitian ini merupakan kuantitatif eksplanatif survei. Teknik sampling yang digunakan adalah purposive sampling method dengan jumlah sampel 169 mahasiswa. Jenis data yang digunakan adalah data primer. Analisis data menggunakan analisis regresi linier berganda. Hasil penelitian ini menunjukkan multitasking media dan online vigilance berpengaruh negatif secara signifikan terhadap kinerja akademik mahasiswa, sedangkan locus of control tidak berpengaruh. Dengan demikian, diharapkan penelitian dimanfaatkan sebagai tambahan referensi untuk dipertimbangkan oleh mahasiswa dalam penggunaan perangkat online ketika melaksanakan pembelajaran.

Kata Kunci : *Kinerja Akademik Mahasiswa;* Locus of Control; Multitasking Media; Online Vigilance
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INTRODUCTION

Academic performance results from learning evaluation, measured using letters and numbers (Ramadhan & Winata, 2016). Academic performance is one of the indicators of a student's quality and can be conceptualized as the attainment of results (a degree of accomplishment) (Widodo, 2012; Savoji et al., 2013). According to Guney (2010), academic performance is an evaluation of the effects of learning activities in the areas of knowledge, comprehension, application, analytical power, synthesis, and evaluation, with the evaluation's outcomes being based on the outcomes of tests or exams from each topic. According to Ramadhan and Winata (2016), academic achievement is a good indicator of a student's learning success.

One of the factors determining the quality of learning in higher education is student academic achievement (Budhianto, 2020; Puji, 2010; Mustaqim, 2020). The State University of Malang is an institution with a strategic aim to create graduates with academic proficiency and professional development potential (Renstrabis UM, 2020-2024). Undoubtedly, one of the goals in the attempt to carry out the established strategic plan is to improve student academic performance (Puji, 2010; Mustaqim, 2020). All educational institutions were mandated to offer online instruction during the COVID-19 epidemic, including the State University of Malang's Accounting Department. Professors and students must continue to adjust due to the shift to an online learning system for the learning process to function correctly. Online media usage is crucial for implementing online learning and promoting student achievement (Gikas & Grant, 2013; Kus & Has, 2016).

Currently, students, lecturers, and practitioners still need to grapple with significant problems regarding the variables that influence academic performance among students (Budhianto, 2020). In general, two types of elements impact academic performance: internal and external influences (Hussin, 2018; Mustaqim, 2020). Motivation, intelligence, behavior, talents, and hobbies are internal factors. Teachers, the school environment, families, communities, and friendship environments are examples of external variables (Budhianto, 2020; Puji, 2010).

Media multitasking habit is one of the internal elements that can impact academic performance due to the extensive use of technology (Luo et al., 2020; Zhang, 2015). Utilizing multiple media simultaneously is referred to as media multitasking (Duff et al., 2014; Foehr, 2006; Jeong & Fishbein, 2007; Pilotta et al., 2004; Voorveld, 2011; Voorveld & Viswanathan, 2015). Media multitasking tendency develops due to rapid technological advancements (Parry & le Roux, 2019; Voorveld & Viswanathan, 2015). Le Roux et al. (2020) assert that students engage in more extraordinary multitasking activities when learning in classrooms with internet networks lends credence to this. Students believe that multitasking may effectively and efficiently utilize time (Fulton et al., 2011).

Many studies have shown that media multitasking improves academic achievement (Alghamdi et al., 2020; le Roux et al., 2020). Helpful information and communication technology utilization during the learning process can enhance academic success (Junco & Cotten, 2012; May & Elder, 2018). However, other research shows that multitasking on media lowers academic achievement (Lau, 2017; Loh et al., 2016; Luo et al., 2020; Zhang, 2015). Research on several topics was done, but the results were different because respondents were primarily female in that study, which produced favorable findings (Alghamdi et al., 2020). It is in line with research by le Roux et al. (2020) which states that women are superior in practical multitasking activities.

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Online vigilance is another element that may influence a student's academic performance (Reinecke et al., 2018). The psychological state of people who always want to be online is known as online vigilance (Reinecke et al., 2018). This habit is brought on by the constant use of digital gadgets, which has ramifications for a state that is constantly curious about how information spreads online (le Roux et al., 2020). This view demonstrates that each person responds differently to the allure and importance of connecting via digital technologies (Reinecke et al., 2018). People aware of the internet will consider using online media more carefully (Reinecke et al., 2018). According to research by Reinecke et al. (2018), online vigilance impairs academic achievement. This adverse consequence results from students' online awareness being out of context during the application of learning (Katz & Lambert, 2016; Parry & le Roux, 2019).

Additionally, the locus of control is a component that affects academic achievement (Joo et al., 2013). A person's level of belief about anything that might impact his life is indicated by the psychological concept known as locus of control (Rotter, 1966). These occasions can be spectacular and general, along with regular occurrences like academics and health. According to the locus of control research, academic performance is positively impacted by locus of control (Drago et al., 2018; Ghasemzadeh & Maryam, 2011; Hopkins et al., 2020; Joo et al., 2013; Micomonaco & Espinoza, 2019). However, this contradicts other studies' findings that locus of control has little bearing on academic performance (Bozorgi, 2009; Cassidy & Eachus, 2000; Suphi & Yaratan, 2012; Watkins, 1987). According to Hopkins et al.'s research (2020), business class students have a more vital locus of control than students who do not take business classes.

Previous research was conducted on regular or face-to-face learning in the classroom. Direct engagement is prioritized in face-to-face learning activities, so technology is only necessary to support learning (Sadikin & Hamidah, 2019). According to Parry et al. (2020), online classes will likely increase media multitasking behavior. This study was conducted on students who participated in online learning due to the policy implemented to implement teaching and learning activities during the COVID-19 pandemic condition, which makes it distinct from previous studies. The results of online learning activities will vary (Gikas & Grant, 2013), and the utilization of online media is essential as a supporter of learning achievement (Gikas & Grant, 2013; Kus & Has, 2016). In addition, the sample used in this study was students from the accounting department. Research by Hopkins et al. (2020) states that students from the business class have a more vital locus of control than non-business class students.

METHOD

This research is an explanative survey quantitative research. Multiple linear regression is the data analysis method that is employed to describe how the independent variable affects the dependent variable (Sekaran & Bougie, 2017). The independent variables in this study are media multitasking, online vigilance, and locus of control. The dependent variable in this study is student academic performance.

This study uses primary data collected through questionnaires with Google Form media respondents. Collecting data through questionnaires was chosen because it made it easier for respondents to fill out each question item. A closed questionnaire was used in this study, where respondents had to select one of several possible replies (Sugeng, 2020). Five Likert scales, ranging from "never" (score of one) to "always"

(score of five), are used in this study. The instrument in this study was developed according to the problems studied.

The questionnaire was obtained from the development of a previously existing questionnaire. In this study, a pilot test was used to test research instruments in the field so that the instruments used could be used. After the pilot test, the validity and reliability of the instrument are next evaluated. According to the analysis's findings, thirty of the study's question items are suitable for usage.

The population of this study was students of the State University of Malang majoring in Accounting in 2018. The sample selection used in this study was a purposive sampling method with criteria that can be seen in Table 1.

Table 1. Total Population and Research Sample

No	Criteria	Amount
	Population	348
1	Respondents are listed as active students of class 2018 majoring in Accounting at the State University of Malang (not currently on leave from college or dropping out).	348
2	Respondents are students with strata 1 (S1) levels.	319
3	Students are willing to fill out research questionnaires.	201
	Total samples that match the criteria	201

Source: Academic Affairs Faculty of Economics, State University of Malang

A private message was used to deliver the survey. 201 of the 294 students were available to step in. Twenty-two of the data were unusable because they contained two answers to one question. Such information must be removed because it can obstruct analysis. As a result, 179 pieces of data passed the subsequent test. The results of the conventional hypothesis test revealed that the data were not regularly distributed. Outliers or data with extreme values must be eliminated for the data to have a normal distribution. Boxplots are used to find univariate outliers in data. Because boxplots are thought to make it easier to compile all outliers into one variable, they were chosen. Mahalanobis Distance (D2) was additionally employed to find multivariate outliers (Hair et al., 2019). Ten univariate outliers were discovered during the test. However, no multivariate outliers were. After removing outliers, one hundred sixty-nine data were acquired that were suitable for testing.

RESULT AND DISCUSSION

The demographic data of the respondents who were filled in through the questionnaire in this study included gender, offering, and study program. Of the total respondents, as many as 201 students, 73% were female, and 27% were male. Then the study program is divided into 2, namely S1 accounting education, as much as 42%, and S1 Accounting study program, as much as 58%. Judging from the offering (class) participants offering A as much as 14%, offering AA 11%, Offering B 7%, BB offering 8%, offering C 8%, CC offering 8%, Offering D 10%, Offering DD 12%, Offering D 9%, offering E 12% and offering EE 7%. The demographic data of respondents can be seen in table 2.

Table 2. Demographic Data of Respondents

Description	Amount	Percentage
Gender		
Male	55	27%
Female	146	73%
Study program		

Description	Amount	Percentage
S1 Accounting Education	85	42%
S1 Accounting	116	58%
Offering		
A	29	14%
AA	23	11%
B	15	7%
BB	17	8%
C	16	8%
CC	20	10%
D	24	12%
DD	18	9%
E	24	12%
EE	15	7%

Source: Data Processed by Researchers

The data analysis technique used in this study is multiple linear regression analysis. Multiple regression analysis in this study was used to determine the extent of the influence of the independent variables, namely multitasking media (x1), online vigilance (x2), and locus of control (X3), on the dependent variable, namely student academic performance (Y). The following is a multiple linear regression formula.

$Y= \alpha + \beta1X1 + \beta2X2 + \beta3X3 + \varepsilon$……(Equation 1)

Description:

Y	= Student Academic Performance
α	= Constant
β1, β2, & β3	= Multiple Linear Regression Coefficient
X1	= Factor Score Variable Multitasking Media
X2	= Factor Score Variable Online vigilance
X3	= Factor Score Variable Locus of Control
ε	= Other Factors Outside Research

The following table 3 shows the descriptive statistics of this study's dependent and independent variables.

Table 3. Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Y Academic Performance	169	3,220	3,970	3,612	0,149
X1 Multitasking Media	169	-2,385	2,304	-0,027	1,016
X2 Online Vigilance	169	-2,326	3,005	0,021	0,988
X3 Locus of Control	169	-4,284	2,304	0,004	0,988

Source: Data Processed by Researchers

The results of the multiple linear regression test above show the form of the regression equation as follows.

$Y = 3.\ 646 – 0{,}088X_1 - 0{,}026X_2 + 0{,}006X_3 + e$.....(Equation 2)

Based on table 3, it can be seen that the mean value of student academic performance as measured using GPA is 3.6. This value indicates that the average student has excellent academic performance. It can be caused by students doing online learning. In online learning, most lecturers give relatively high scores and beat the average value given to students (Christian, 2020).

The mean factor score of the multitasking media variable is -0.027. This score indicates that it is included in the HMM category (heavy media multitaskers) (Klimmt et al., 2018). The average multitasking media scores high because respondents carry out online learning (Alghamdi et al., 2020). Duffet al. (2014) stated that media multitasking is primarily done in online classroom learning. It is due to implementing learning which requires several media to be accessed simultaneously (Cottens et al., 2011).

The mean factor score of the online vigilance variable is 0.021, indicating that, on average, students are involved in online vigilance activities in the high category (Loh et al., 2016). On average, students are involved in high-vigilance online activities because they are learning online, so they cannot be separated from online devices or media (Cottens et al., 2011). Continuous interaction with these online media from time to time will have implications for high online awareness (Klimmt et al., 2018; Johannes et al., 2020).

The mean factor score of the locus of the control variable is 0.004, indicating that students have a low locus of control (Levenson, 2010). Low locus of control scores is caused by online learning. Individuals with characteristics that tend to have a locus of control need self-actualization in their life processes, including learning (Levenson, 2010). In face-to-face learning, they can show a spirit supporting self-actualization in the learning process. In online learning, they can only interact online, and the learning process must be by the format set by the system (Azlan et al., 2020).

Table 4. Multiple Linear Regression Test Results

Variable	Coefficient	Std. error	t-statistic	Sig.
(constant)	3,646	0.008	451,996	0,000
Multitasking Media	-0,088	0,010	-8,641	0,000
Online Vigilance	-0,026	0.010	-2,577	0,011
Locus of Control	0,006	0,008	0,794	0,429

Source: Data Processed by Researchers

Table 4 above is the result of multiple linear tests, which shows that media multitasking hurts student academic performance, online vigilance has a negative effect, and locus of control has no effect.

The Effect of Multitasking Media on Student Academic Performance

The results of this study indicate that media multitasking has a negative effect on students' academic performance. The higher the media multitasking activity, the lower the student's academic performance. The results of this study are consistent with previous research conducted by Lau (2017), Loh et al. (2016), Luo et al. (2020), and Zhang (2015) but not consistent with the research conducted by Junco & Cotton (2012) and May & Elder (2018).

Media multitasking has a negative effect on students' academic performance because the activity of using several media at one time can cause a heavy cognitive burden (Abramova et al., 2017). The implications of the emergence of cognitive load can inhibit memory processing in learning activities (Mayer & Moreno, 2016). Memory performance can be impaired when attention from the primary task is shifted to a secondary task (Naveh-Benjamin & Guez, 2000). It is especially relevant regarding negative impacts on learning and academic outcomes (Patterson, 2017). Research by Loh et al. (2016) states that someone who often performs media multitasking behavior can experience deviations in daily life and predict achievement negatively (Lau, 2017). Students who do many activities with digital media when completing assignments can disrupt concentration in completing work (Patterson, 2017). Computer-based media

multitasking activities spend half the time in daily activities (Judd, 2013; Lau, 2017). Even though task switching in media multitasking activities is almost invisible, the time spent switching tasks can cause as much as 40% loss of productivity (Judd, 2013).

The negative influence was also caused by the sample used in this study: teenage students. Adolescents have been identified as multitaskers because of their involvement with online technology while performing routine tasks (Demirbilek & Talan, 2018). In a multigenerational study conducted by Carrier et al. (2009), millennials (born between 1982-2001) spend more time than Generation X (born between 1965-1976) and baby boomers (born between 1946-1964) on media-related activities such as surfing the web, internet, texting, and video games. Millennials are more likely to multitask compared to previous generations. (Small & Vorgan, 2009).

The results of this study support the cognitive load theory, which states that there are limits to human cognitive processing abilities when learning occurs (Paas et al., 2001). Therefore, switching from one task to another or performing more than one task while learning activities requires changes in focus, cognitive work, and attention (Delbridge, 2001). Studies have shown that cognitive load can increase due to frequent task switching (Paivio, 1986), leading to decreased performance as a result of simultaneous tasks (Junco and Cotten, 2011, 2012) and delayed task completion (Bowman et al., 2010). This study concludes that media multitasking hurts students' academic performance based on the analysis results. High media multitasking will have an impact on decreasing student academic performance.

The Effect of Online Vigilance on Student Academic Performance

The results of the analysis show that online vigilance has a negative effect on students' academic performance. The higher online vigilance behavior will make lower academic performance. These results are consistent with previous research conducted by Fried (2008), Kraushaar & Novak (2006), and le Roux et al. (2020) which states that online vigilance has a negative effect on academic performance.

The results of this study are supported by the assumption that connectedness with online media has been out of the context of the task and can result in low achievement (Loh et al., 2016). It indicates that the inappropriate use of technology when students carry out learning can reduce academic performance (Alghamdi et al., 2020; Fried, 2008; Wainer et al., 2008). Students connected to the online world often have difficulty disconnecting from online content (Johannesen al., 2020; le Roux et al., 2020). Someone with high online awareness will always think about what is happening in cyberspace. Thus, when students are carrying out learning, the learning focus will be divided (Reinecke et al., 2018).

Respondents in this study were students who were carrying out online learning. Continuous interaction with online platforms from time to time gives rise to online vigilance (Reinecke et al., 2018). This phenomenon indicates that the inappropriate use of technology when students learn will reduce their academic performance (Alghamdi et al., 2020; Fried, 2008; Wainer et al., 2008).

Research states that high online awareness can disrupt priorities in learning in the classroom (Parry et al., 2019). When students are faced with high online vigilance, most students need help managing the pattern of using communication technology effectively (Parry et al., 2020). It causes academic procrastination behavior and increased anxiety. When students are used to procrastinating work, they will be less than optimal in completing assignments and tend to get a low cumulative achievement index (Parry & le Roux, 2019).

The results of this study support the cognitive load theory, which states that extraneous cognitive load can interfere with learning because it places an additional burden on working memory that does not contribute to knowledge acquisition (Paas et al., 2001). Research states that online vigilance gives a heavy cognitive load (Johannes et al., 2020; Klimmt et al., 2018). The amount of time adolescents spend on social media is significantly associated with impairment in completing academic tasks (Klimmt et al., 2018; Luo et al., 2018; Reinecke et al., 2018). In this study, online vigilance hurts students' academic performance. Therefore, it can be concluded that students' academic performance will be low when students engage in high-vigilance online activities.

The Effect of Locus of Control on Student Academic Performance

The analysis results in this study indicate that the level of locus of control does not affect student academic performance. The results of this study are consistent with previous studies conducted by Bozorgi (2009), Cassidy & Eachus (2000), Suphi & Yaratan (2012), and Watkins (1987). However, the results of this study are not consistent with the research conducted by Drago et al. (2018), Ghasemzadeh & Maryam (2011), Hopkins et al. (2020), Joo et al. (2013), and Micomonaco & Espinoza (2019).

Intelligence and skill factors are the most critical determinants in obtaining GPA. Therefore locus of control is not an indicator to determine a high or low GPA (Bozorgi, 2009). Students can get a good GPA because they have high-quality intelligence and skills. Research by Cassidy & Eachus (2000) states that locus of control does not affect achievement but does affect students' approach to learning and relates to self-efficacy.

Furthermore, this study's respondents were students carrying out online learning. The impact of online learning is that educators cannot monitor learning activities directly, so they cannot measure academic performance validly (Azlan et al., 2020). The Indonesian Ministry of Education and Culture has also noted that online learning activities during the pandemic impact learning outcomes (Azlan et al., 2020).

The results of this study do not support the social cognitive theory. Social cognitive theory shows how a person believes in control over life events and refers to a person's beliefs about what causes good or bad outcomes in his or his life, in general, or in a particular area, such as health or academics. Social cognitive theories state that reinforcement reinforces the expectation that behavior or outcome will be followed by more reinforcement in the future (Bandura, 1989).

CONCLUSION

Conclusion of this study is that media multitasking significantly negatively affects students' academic performance. The results of this study are consistent with previous studies that the higher the students' involvement in media multitasking activities, the lower their academic performance will be, and vice versa. Online vigilance has a significant negative effect on student academic performance. The higher the online vigilance behavior carried out by students, the lower the GPA obtained. The results of this study are consistent with previous research that the higher students are involved in online vigilance activities, the lower their academic performance will be, and vice versa. The results of this study support the cognitive load theory, which states that foreign cognitive loads can interfere with learning because they place an additional burden on working memory that does not contribute to knowledge acquisition (Klimmt et al., 2018; Luo et al., 2018; Reinecke et al., 2018). Locus of control has no effect on student academic performance. The results of this study are consistent

with previous research, which states that locus of control does not affect academic performance. The limitation of this study is related to the data. The researcher removed some outliers so that the amount of data was reduced. In addition, calculating the score for the multitasking media variable only uses raw data and does not use the MMI (multitasking media index) index. Suggestions for further research are that if there are outliers in the research data, it is better to transform the data so that the amount of data stays the same due to eliminating outliers. In addition, it is expected to expand the scope of research to obtain better results and avoid data that are not normally distributed. The next suggestion is that the multitasking media variable score should be calculated using the MMI (multitasking media index) formula so that the analysis results are robust.

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