Computer Knowledge and Anxiety in Student Learning Outcome: The Role of Learning Motivation as Mediator

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Abstract: The research is being carried out among the students of the SMK Accounting and Finance Institute who are still not mastered in computer knowledge, have anxiety about the use of computers, and lack motivation towards learning outcomes. This study aims to examine the role of learning motivation as a mediator between computer knowledge and computer anxiety in student learning outcomes. This type of research is quantitative with a path analysis correlation design. The number of respondents in this study was 90 students of SMK Negeri 1 Boyolali. The results showed that the learning motivation variable is a mediator variable between computer knowledge and learning outcomes. However, the results of the analysis also show that the learning motivation variable is a mediator variable between computer anxiety and learning outcomes, while computer knowledge and computer anxiety have an effect but are not significant on learning outcomes. Therefore, to improve learning outcomes through increasing students' computer knowledge, learning motivation is needed. Meanwhile, increasing computer anxiety decreases motivation and learning outcomes, but not significantly. Therefore, learning motivation has an important role in mediating computer knowledge and computer anxiety on student learning outcomes in spreadsheet subjects for accounting. Further research is expected to find out what other factors affect student learning outcomes in accounting spreadsheet subjects.

Keywords: Computer Knowledge; Computer Anxiety; Learning Motivation; Learning Outcome.

Computer Knowledge dan Anxiety terhadap Hasil Belajar: Peran Motivasi Belajar sebagai Mediator

Abstrak: *Penelitian ini dilatar belakangi peserta didik SMK Akuntansi dan Keuangan Lembaga yang masih belum menguasai dalam pengetahuan komputer, kecemasan dalam menggunakan komputer, dan kurangnya motivasi belajar terhadap hasil belajar. Penelitian ini bertujuan untuk menguji peran motivasi belajar sebagai mediator antara computer knowledge dan computer anxiety terhadap hasil belajar peserta didik. Jenis penelitian ini adalah kuantitatif dengan desain korelasi path analysis. Jumlah responden penelitian ini yaitu 90 peserta didik SMK Negeri 1 Boyolali. Hasil penelitian menunjukan bahwa variabel motivasi belajar merupakan variabel mediator antara computer knowledge terhadap hasil belajar. Namun, hasil analisis juga menunjukan bahwa variabel motivasi belajar merupakan variabel mediator yang antara computer anxiety terhadap hasil belajar sedangkan computer knowledge dan computer anxiety berpengaruh namun tidak signifikan terhadap hasil belajar. Oleh karena itu, untuk meningkatkan hasil belajar melalui peningkatan computer knowledge peserta didik diperlukan motivasi belajar. Sedangkan, peningkatan computer anxiety menurunkan motivasi dan hasil belajar namun tidak signifikan. Oleh karena itu, motivasi belajar memiliki peran yang penting dalam memediasi computer knowledge dan computer anxiety terhadap hasil belajar peserta didik pada mata pelajaran spreadsheet untuk akuntansi. Penelitian selanjutnya diharapkan dapat mengetahui faktor-faktor lain apa saja yang mempengaruhi hasil belajar peserta didik pada mata pelajaran spreadsheet akuntansi.*

Kata kunci: *Computer Knowledge; Computer Anxiety; Motivasi Belajar; Hasil Belajar.*

1. Introduction

The rapid development of information technology has become inseparable. Information technology is a process of learning, implementing, planning, and supporting human performance (Setiawan & Listiadi, 2021). One of the advances in technology is in the field of computers. Computers themselves have very important functions in various aspects of life, including in the world of education. Computers

are assessed to have a variety of advantages when compared to manual systems. One of its advantages is speed, error prevention, volume output, automatic posting, and automatic reporting (Yudha & Ramantha, 2014). Knowledge of using computers can be acquired through education.

In education, understanding the importance of skills in technology, especially computers, is crucial. The computer is no longer a strange tool for use in the learning process and has become one of the modern technology-based tools commonly found in schools (Baety & Rohmah, 2017). One of them ranks High School of Instruction on the Institute's Accounting and Finance expertise programme.

In the Institute's accounting and finance expertise programme, the use of computers is applied to a number of accounting subjects, one of which is spreadsheets. Spreadsheet is the basic subject of class X of Accounting and Finance, which relates to computer processing for data processing in number form and data analysis in table form. In spreadsheets, students are equipped with science and skills in compiling financial reports using computers and the help of the number processing application (Microsoft Excel).

Aliyah and Wahjudi (2021) mention that on the subject spreadsheet, most learners have not met the maximum continuity score. Juita and Yulhendri (2019) mentioned that on the subject spreadsheet, a small proportion of the students obtained a score above the KKM. While Ramadhani and Taman (2018) mentioned that the learning outcomes on the subject spreadsheet were a small part of the pupils who got a score above the KKM and the rest still got a rating below the KKM. Some of these studies indicate that there is still a low learning output among students in numerical processing subjects (spreadsheet).

The learning results obtained by the pupils are a reflection of the ability they have after the learning process and learning experience (Maulina & Ghofur, 2023). Learning results are a guide tool that guides pupils and teachers on the desired results of planned learning (Mahajan & Singh, 2017). Sedangkan menurut Nurrita (2018) Each student who follows the same learning process will have a different learning outcome. There are two factors that affect students' learning outcomes: internal and external. Internal factors include the physical environment, the social environment, and instrumental factors (Juita & Yulhendri, 2019). External factors are all factors outside the

student, including the family environment, the school, and the community (Hapnita et al., 2017). Based on the results of Nafisah K, MargunaniL (2015) mentions factors that affect the learning outcome of students, namely the learning motivation and the learning method of students. Edriani and Gumanti (2021) mentioned that the interests and independence of learning are factors that influence the learning outcomes of students. According to Clark in the book Sudjana (2014), students' learning outcomes in schools are 70% influenced by their intellectual abilities and 30% by their surroundings.

The first supposed internal factor that affects the student's learning outcomes on the spreadsheet subject is computer knowledge. Knowledge is an understanding of the theory applied in the form of technology that has been updated (Aziz & Hassan, 2014). A strong knowledge of computers can help students understand and use computers more effectively during the learning process. Based on their study, Setiawan and Listiadi (2021) mentioned that computer knowledge significantly influences computer learning outcomes in spreadsheets. Nurjanah and Hakim (2019) mentioned that computer knowledge has an influence on the learning outcome of Accounting Computers MYOB. Wulandari and Rohayati (2015) found that computer knowledge influences the learning results of accounting computers.

The second supposed factor affecting learning outcomes in spreadsheet subjects is computer anxiety. Computer anxiety can be interpreted as an uncomfortable feeling while using a computer. Students who feel anxious may have some negative thoughts, sweaty hands, and an increased heart rate, or they may want to avoid working with a computer (Awofala et al., 2017). Anxiety usually occurs when learning something new, and this leads to resistance to change that can negatively affect the ability to think.

Based on the study by Pratiwi and Listiadi (2021), there is a significant influence of computer anxiety on student learning outcomes. Penelitian Setiawan and Listiadi (2021) found that there is a significant influence of computer anxiety on student learning outcomes. According to research by Rahmayanti and Nurkhin (2019), computer anxiety has no positive and significant influence on computer learning results in accounting.

The third supposedly influential factor is learning motivation as a mediator variable, which means indirectly influencing (strengthening or weakening) learning outcomes on spreadsheet

subjects. Motivation that comes from within the individual (intrinsic motivation) or from outside the individual can increase the level of presentation and enthusiasm when performing an activity, one of which is learning (Darsinah, 2020). Learning motivation is considered to be the impulse that drives human behaviour to change, one of which is learning behavioural change. A learner will be motivated to learn if he has the motivation to learn, but instead he will become lazy if he is not motivated (Nurcahyanty & Rochmawati, 2021). This is in line with the study of Oknaryana, Astuti and Murdy (2020), which found that students who have good or high learning motivation will be encouraged to grow and be creative, and subsequently, can use all the abilities they have to get a good learning outcome. The low level of learning motivation among students influences learning outcomes. According to Saputra, Ismet and Andrizal (2018) research results, learning motivation has a significant influence on student learning outcomes. In addition, Dahen, Tanjung and Elya (2019) stated that learning motivation has a significant influence on student learning outcomes. Mujiani and Rohayati (2018) also stated that learning motivation has a significant influence on learning outcomes.

A good knowledge of computers can directly improve the learning outcome of the student because the student has the knowledge and skills to use the computer. High anxiety about computer use can lower the student's learning outcomes. Moreover, learning motivation as a mediator variable has an important role in influencing the study outcome when the learning motivations of the high school students can encourage them to improve computer knowledge and reduce their anxieties about computer usage, thus improving the students' learning output.

Based on the background exposure results, the aim of the study is to test the influence of computer knowledge, computer anxiety, and learning motivation as mediator variables on the learning outcomes of students on both simultaneously and partially spreadshet subjects. It is hoped that this research can provide benefits for students to help improve learning outcomes by knowing what factors affect learning outcomes. Meanwhile, for schools and teachers, it can increase knowledge about the influence of computer knowledge and computer anxiety on learning outcomes in spreadsheet subjects for accounting.

2. Method

This research is quantitative. The population in this study is the pupils of class X AKL SMK State 1 Boyolali for the school year 2023/2024, which numbered 90. Data collection method using documentation and questionnaires. In this study, variable learning outcome number processing (spreadsheet) measured from the documentation of learning outcomes such as evaluation of subjects spreadsheet students class X Financial Accounting and State SMK Institutions 1 Boyolali teaching year 2023/2024, variable computer knowledge measureed using a questionnaire consisting of 11 questions with 3 indicators including knowledge of hardware, knowledge of software, knowledge about computer operations, computer variable anxiety measureds using a quiz consisting Of 4 questions with 2 indicators Fear, Anticipation, and Motivation learning as a variable mediator measuried using a questionary consisting from 12 questions and 2 indicators Intrinsic/self-impulsion of individual students and extrinsic impulses from outside individual students. In this study, data path analysis was performed using AMOS software.

3. Finding and Discussion

The description of the respondent's identity is an overview of the gender and class of the student.

Table 1. Respondent Descriptive

Descriptive		Number of Respondents	Presentase
Gender	Male	5	5,4%
	Female	85	94,6%
Class	X AKL 1	28	31,2%
	X AKL 2	31	34,4%
	X AKL 3	31	34,4%

Based on table 1, the majority of respondents were female types of 85 and male types of 5, which consisted of three classes with 28 and 31 respondents each. Respondents are obtained, then calculated using AMOS software. The data is modelled using path analysis.

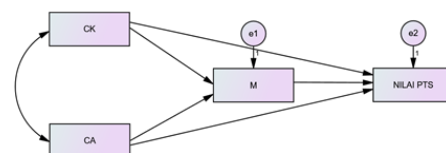The next step is to perform a test analysis of the pattern diagram pattern.

Figure 1. Research Track Diagram

Description:
CK (X$_1$)   : Computer Knowledge
CA (X2)   : Computer Anxiety
M (X3)   : Learning Motivation
PTS VALUE (Y) : Learning Outcome

Assessing goodness of fit is the main objective in AMOS to determine how far the hypothesized model "fits" or matches the data sample. Based on the results of the goodness of fit test in table 2, it shows that most of the research models are not good fit models.

Table 2. Model Fit Summary

Model	RMSEA	RMR	GFI	AGFI	CFI
Default model		,000	1,000		1,000
Saturated model		,000	1,000		1,000
Independence model	,337	7,540	,738	,563	,000

Primary data processed 2023

Root Mean Square Error of Approximation is an index value to determine the acceptability of a model. RMSEA can be used to compensate for chi-square statistics in large samples. A good RMSEA value must be <0.08. From the calculation of the table 2, it shows that the RMSEA value does not meet.

Root Mean Square Error is the average value of all standardized residuals with a range of 0 to 1 and is said to meet if the value is <0.05. From the calculation in the table 2, it shows that the RMR value does not meet.

GFI is a non-statistical measure that has a range of values between 0 (poor fit) and 1 (perfect fit). A high value in this index indicates a better fit. Table 2 shows that the GFI value does not meet.

Adjusted Goodness of Fit Index is a function similar to GFI, with the difference being the alignment of the DF values according to the model described. The recommended acceptance level is when AGFI has a value equal to or > 0.90. From the calculation of the table 2, it shows that the AGFI value does not meet.

Comparative Fit Index (CFI) is ≥ 0.95. The closer to 1, the better the model. The advantage of this index is that its magnitude is not affected by sample size. From the calculation in the table 2, it shows that the CFI value meets.

The calculation of the coefficient value is to see how much the influence of each variable can be seen through the results of Standardized Regression Weights in the following table:

The estimate value (Standardized regression weights) shows the effect of computer knowledge on motivation is positive by 0.649. This means that the higher the computer knowledge of learning, the more learning motivation will increase by 0.649.

The estimate value (Standardized regression weights) shows the effect of computer anxiety on learning motivation has a negative value of -

0.061 This means that the lower the computer anxiety, the more learning motivation will decrease by -0.061.

Table 3. Standardized Regression Weights

			Estimate
M	<---	CK	,649
M	<---	CA	-,061
Hasil Belajar	<---	CK	,256
Hasil Belajar	<---	CA	-,089
Hasil Belajar	<---	M	,045

Primary data processed 2023

The estimate value (Standardized regression weights) shows the effect of computer knowledge on learning outcomes is positive at 0.256. This means that the higher the computer knowledge, the learning outcomes will increase by 0.256.

The estimate value (Standardized regression weights) shows the effect of computer anxiety on learning outcomes is positive value of -0.089. This means that the lower the computer anxiety, the learning outcomes will decrease by -0.089.

The estimate value (Standardized regression weights) shows the effect of learning motivation on learning outcomes is positive value of 0.045, which means that the higher the learning motivation, the learning outcomes will increase by 0.045.

The next step is to test the hypothesis to answer the questions in this study or to analyse the structural relationships of the model. The analysis of the hypothetical data can be seen from the regression weight value, which shows the coefficient of influence between variables. From data processing, a positive relationship between the variables can be determined if C.R shows a value > 1.96 and a P value < 0.05.

Table 4. Regression Weights

			Estimate	S.E.	C.R.	P
M	<---	CK	,563	,070	7,993	***
M	<---	CA	,144	,193	,748	,454
Learning Autcome	<---	CK	,394	,208	1,896	,058
Learning Autcome	<---	CA	,375	,437	,859	,390
Learning Autcome	<---	M	,080	,239	,336	,737

Primary data processed 2023

Description:

CK (X_1) : Computer Knowledge

CA (X2)   : Computer Anxiety

 M (X3)   : Learning Motivation

Table 4 is the result of calculations using AMOS software in the form of regression weight output. This analysis will generate criteria that are used to justify the relationship between variables and evaluation standards used in assessing the suitability of the model being determined. Therefore, the conclusions obtained from the test results above are the results of the first hypothesis, showing that the computer knowledge variable has a significant effect on the mediator variable of learning motivation. In the second hypothesis, the results show that the computer anxiety variable has an insignificant effect on the mediator variable of learning motivation. In the third hypothesis, the results show that the computer knowledge variable has an insignificant effect on the learning outcome variable. In the fourth hypothesis, the results show that the computer anxiety variable has an insignificant effect on the learning outcomes variable. For the fifth hypothesis, the results show that the learning motivation variable has an insignificant effect on the learning outcome variable.

Based on data analysis in table 4, it shows that computer knowledge has a significant effect on learning motivation in spreadsheet subjects for students in class X Financial Accounting and Institutions of SMK Negeri 1 Boyolali. This result is a recent finding in which the learning motivation variable is a significant mediator variable for computer knowledge. states that the higher the motivation of students, the better their learning achievement (Sutama et al., 2018). In addition Suranto (2015) states that the higher the motivation of students, the better their learning achievement. In addition, Rahman (2021) also stated that higher learning motivation can improve student learning outcomes. Therefore, the significant effect shows that the higher the learning motivation possessed by students, the greater their computer knowledge, so that they can achieve high learning outcomes.

Based on data analysis in table 4, it shows that computer anxiety has an insignificant effect on learning motivation in spreadsheet subjects for students in class X Financial Accounting and Institutions of SMK Negeri 1 Boyolali. This result is a recent finding that anxiety about using a computer can reduce student learning motivation, but not significantly. Computer anxiety is a negative feeling towards computers where someone experiences discomfort, stress, or fear when using them. If someone has a high level of computer anxiety, especially the fear level, it will reduce their motivation to use the computer, while if they have a high level of anticipation, it will increase their motivation to use the computer. The low level of anxiety experienced by students is one of the factors that can reduce learning motivation (Rajiah et al., 2014). The results of this study are supported by Aryadi & Rochmawati (2021) state that learning motivation cannot be a moderating variable for introductory accounting and computer attitude variables.

Based on data analysis in table 4, it shows that computer knowledge has an insignificant effect on learning outcomes in spreadsheet subjects for class X students of Financial Accounting and Institutions of SMK Negeri 1 Boyolali. Computer knowledge in this study is defined as students' knowledge and understanding of computer components, ability to operate computers, and completion of tasks using computers (Wulandari & Rohayati, 2015). The absence of a significant influence on the computer knowledge variable on spreadsheet learning outcomes shows that the lower the computer knowledge of students in spreadsheet subject, the lower the level of spreadsheet learning outcomes of students, this is because in achieving learning outcomes in spreadsheet subject, students must have all three components of computer knowledge which consist of knowledge of computer hardware, knowledge of computer software, and knowledge of operating a number processing application program (Microsoft Excel). The results of this study are supported by Rahmah and Rochmawati (2023) state that computer knowledge does not have a significant effect on accounting computer learning outcomes.

Based on data analysis in table 4, it shows that computer anxiety has an insignificant effect on learning outcomes in spreadsheet subjects for students in class X Financial Accounting and Institutions of SMK Negeri 1 Boyolali. This is because in spreadsheet learning it is important to have good self-control skills in students, so that even though students have fear and anxiety in operating computers, as long as these feelings can be controlled properly, it will not affect spreadsheet learning outcomes. The results of this study are supported by Yulihanita and Bahtiar (2023) which state that computer anxiety does not have a positive and significant

effect on accounting computer learning outcomes. In line with Hasanah (2020) which states that computer anxiety has no significant effect on an accountant's expertise in using a computer. The absence of influence of computer anxiety on spreadsheet learning outcomes shows that students who have concerns about using computers do not have a significant impact on the learning outcomes of spreadsheet subjects. It is possible that there are other factors that can encourage student learning outcomes.

Based on data analysis in table 4, it shows that learning motivation has an insignificant effect on learning outcomes in spreadsheet subjects for students in class X Financial Accounting and Institutions of SMK Negeri 1 Boyolali. The results of this study are supported by Astiti, Mahadewi and Suarjana (2021) which state that learning motivation has no partial effect on learning outcomes. Nurjanah and Hakim (2019) state that learning motivation has no significant effect on the achievement of MYOB Accounting Computer learning outcomes. Motivation is an encouragement within a person that creates a desire to achieve a goal Suhendri and Kurniawan (2022). Motivation provides an energy boost to do everything that is a need or desire, one of which is in learning. Students who have high learning motivation will get better learning results, on the contrary, if students have low learning motivation, the learning results obtained are less than optimal. This means that high and low learning motivation in students can affect learning outcomes. So that from this discussion further research is needed to find out why learning motivation does not affect student learning outcomes.

4. Conclution and Suggestion

Based on the results of data analysis of research on the influence of computer knowledge, computer anxiety, learning motivation as a moderating variable on the learning outcomes of spreadsheet subjects in class X students of Accounting and Finance Institute of SMK Negeri 1 Boyolali, it can be concluded that: 1) computer knowledge does not have a positive and significant effect on the learning outcomes of spreadsheet subjects; 2) computer anxiety has no effect and is significant on the learning outcomes of spreadsheet subjects; 3) learning motivation has no effect and is significant on spreadsheet subjects; 4) learning motivation does not moderate the effect of computer knowledge on learning outcomes of spreadsheet subjects; 5) learning motivation does not moderate the effect

of computer anxiety on learning outcomes of spreadsheet subjects.

Based on the conclusions described above, suggestions can be given: 1) to increase students' computer knowledge, the school can provide information about technology, especially computer technology, so that it is hoped that students can expand computer knowledge. 2) to increase students' learning motivation, the teacher provides motivators, so that it is expected to increase learning motivation. 3) For further research, it can expand the variables and samples that are thought to affect spreadsheet learning outcomes for accounting.

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