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INVESTIGATING METACOGNITIVE AWARENESS OF ACADEMIC LEARNING AMONG STUDENTS OF ENGLISH EDUCATION PROGRAM OF IKIP PGRI PONTIANAK

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Abstract

This descriptive study examined metacognitive awareness levels among students in the English Education Study Program at IKIP PGRI Pontianak. Using a cross-sectional survey, data was collected from 420 students across various academic years and backgrounds. The Metacognitive Awareness Inventory (MAI) by Schraw & Dennison (1994), consisting of 52 items across eight indicators and two main factors, was used to assess students' metacognitive skills. Analysis with descriptive statistics revealed that 86% of the students reported a high level of metacognitive awareness. This is significant as metacognitive awareness is linked to academic success, such as higher-grade point averages. The most frequently reported indicators were Debugging Strategies, Conditional Knowledge, and Evaluation, while Information Management Strategies emerged as the least used. Notably, students scored lower on items related to remembering information and using visual aids like diagrams. These results highlight both strengths and areas for growth in students' metacognitive awareness, highlighting specific skills that could be further developed to enhance their academic performance.

Keywords: metacognitive awareness, academic learning students of English education study program.

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INTRODUCTION

With the rapid globalization and advancement of technology, higher education has become one of the fundamental necessities for many individuals. In fact, there was a total of 700,000 applicants participating in the Entrance Selection of State Universities throughout all regions in Indonesia in 2020 (Perwitasari, 2020). On the other hand, along with this growth, there are also numerous emerging problems, especially related to the students' adaptation to academic learning in higher education. One reason behind this is that many of the youth face problems during the transition stage between high school and university, which is mainly due to students' prior expectations and the realities of academic learning in university. This later can result in severe anxiety, poor academic performance, and higher drop-out rates (Hassel & Ridout, 2018). It is noteworthy that this is also a prominent issue in Indonesia. Based on the 2020 Higher Education Statistics released by the Ministry of Research, Technology and Higher Education, there was a staggering number of 602.208 students dropping out from private and public universities in 2019.

To reduce this negative development, the students need to be more aware of the different environments in higher education so that they can improve their academic learning. One of the effective ways to achieve this is through improving learners' metacognitive awareness regarding academic learning in higher education. According to Hacker (2009), metacognition highlights the individual's awareness of their unique needs, the strategies, and the implementation in the learning process. Thus, once students acquire metacognitive awareness, their academic learning is expected to be better. Numerous research has been conducted with the result supporting this claim, and one of them is done by Young and Fry (2008). They found that there is a significant correlation between metacognitive awareness with learners' academic achievement. The findings of a similar research conducted by Kallio et al. (2018) also confirmed that planning and knowledge of conditions – which are a part of metacognitive awareness – lead to success in the learning process.

More importantly, metacognition is largely a part of self-regulation, which is imperative in the learning process. This is because by adopting self-regulation, the students are able to implement metacognition, goal setting, monitoring, and evaluating one's actions in their academic learning (Williams et al., 2015). In addition, Bursalı and Öz (2018) revealed that learners who are able to apply self-regulation can understand themselves better since they have the ability to identify their own shortcomings and strengths – which is also the primary focus of metacognitive awareness.

Therefore, it can be concluded that acquiring metacognitive awareness will allow students to be more prepared for their academic learning in higher education. Besides, this will grant them the opportunity to achieve better academic performance and reduce the risk of dropping out. On top of that, students can discover their strength and weakness from the metacognitive awareness indicators in their academic learning. Additionally, it is noteworthy that metacognitive awareness is not commonly researched in the academic environment of English Education Study Program of IKIP PGRI Pontianak. All in all, due to these pivotal benefits, the research is aimed to discover the level of metacognitive awareness towards academic learning of students.

Metacognition is one of the prominent terms when looking at education from the psychological perspective. To put simply, metacognition is the understanding of the thinking process. Ormrod (2018) also describes it as our understanding of cognitive processes, as well as the use of this understanding when learning and remembering new things. John Flavell was one of the most prominent figures who shaped the foundation of this field of study. Based on the definition set by him, metacognition is made up of four components: metacognitive knowledge, metacognitive experience, goals, and the activation of strategies.

Flavell believed that the interaction between these four components are the basics behind the growth or decline of one's metacognitive skills. In a slightly different variation of the concept, Schraw & Dennison (1994) claimed that there are two subsections of metacognition, which are knowledge of cognition and regulation of cognition.

According to Livingston (2003), a very simple explanation of "knowledge about cognition" would be that it contains both an overall understanding of how information is absorbed by people and their knowledge regarding how they themselves learn. Then, Schraw and Moshman (1995) illustrated that our understanding of cognition can further be broken down into three categories. Firstly, it is our understanding of our learning process which is known as Declarative Knowledge. Secondly, it is comprehension regarding which method is the most fitting which is known as Procedural Knowledge. Lastly, it is the knowledge about the situations that are suitable for certain cognitive activities which is called Conditional Knowledge.

The term "regulation of cognition" refers to the practice of exercising control over one's own cognitive processing, such as the use of a variety of strategies in a flexible manner based on the circumstances and on intermediate learning objectives. According to Pintrich (2004) and Vermunt and Vermetten (2004), the actions of regulation include planning and monitoring before taking a certain class or completing a specific assignment, as well as the use of information management methods while doing learning activity. Therefore, regulation of cognition may be split into five distinct activities, which. Firstly, it is planning, which involves goal setting and allocating resources prior to learning. Secondly, it is information management strategies, which consists of skills and strategies used in the process of understanding the information more efficiently. Thirdly, it is comprehension monitoring, which is the assessment process of one's learning or strategy use. Fourthly, it is debugging strategies, which include strategies used to correct comprehension and performance errors. Lastly, it is evaluation, which is the analysis of performance and strategy effectiveness once the learning process has completed.

It is imperative to assist students to develop the awareness of themselves as learners and to oversee the process. By doing this, one of the objectives of education, which is to lead students to be lifelong learners, can be accomplished. This is where metacognitive ability comes into play, because when students improve their metacognitive abilities, they often report a rise in their level of self-confidence (Jaleel, 2016). Additionally, the ability to participate in metacognition will lead to the opportunity to become good learners as it is associated to intelligence as well (e.g., Borkowski et al., 1987; Sternberg, 1984). This is supported by Young & Fry (2008) who reported in their research that both the knowledge of cognition factor and the regulation of cognition factors had a statistically significant link with one another. It was also revealed that there were significant relationships between metacognitive awareness and many broad indicators of academic success. In addition, Bursalı & Öz (2018) found out that the role of goal setting in metacognitive awareness in foreign language learning is indeed pivotal in metacognition. Hence, it has been widely claimed that metacognitive awareness plays a pivotal role in the academic performance of students.

METHODS

Research Design

This study employed a cross-sectional survey design, a common approach in descriptive research aimed at capturing data at a single point in time. Cross-sectional surveys are useful for identifying patterns in attitudes, beliefs, behaviors, and other characteristics among a specific group or population, as noted by Ary et al. (2010). This study's design was quantitative in nature, reflecting an aim to quantify patterns within the target population

rather than exploring individual subjective experiences or in-depth case studies. Quantitative methods provided an efficient way to capture and analyze data from a large sample group, contributing to the reliability and generalizability of the findings within the English Education Study Program context.

Participants

The target population for this research consisted of students enrolled in the English Education Study Program at IKIP PGRI Pontianak. The sample was drawn from active students in this program, reflecting an intentional selection process focused on students currently engaged in studies related to English education. By narrowing the sample to these individuals, the research aimed to ensure that findings were highly relevant to the experiences and metacognitive awareness levels of those directly involved in English education. A total of 420 active students participated in the study, providing a robust sample size for quantitative analysis. This sample allowed for reliable calculations of average scores and enabled the examination of patterns in metacognitive awareness with a high level of confidence.

Instrument

The primary instrument used for data collection was a questionnaire based on the Metacognitive Awareness Inventory (MAI), a well-regarded tool in educational research developed by Schraw and Dennison (1994). The MAI is specifically designed to measure metacognitive awareness and includes items that cover various aspects of metacognition, divided into two main factors: Knowledge of Cognition and Regulation of Cognition. Knowledge of Cognition encompasses self-awareness related to knowledge and cognitive processes, while Regulation of Cognition relates to an individual's ability to manage, monitor, and control their cognitive activities. The questionnaire further divides into eight indicators, providing a detailed assessment of participants' levels of metacognitive awareness in different dimensions. Adopting an established instrument like the MAI ensured the research leveraged a reliable and validated tool, thereby enhancing the validity of the results.

Data Collection Methods

The data collection process was conducted online using an internet survey. Google Forms was chosen as the platform for administering the survey, given its accessibility and ease of distribution. To distribute the survey, a link to the Google Form was shared with the participants through WhatsApp, along with an informed consent form and clear instructions regarding the survey's technical aspects. This approach allowed for a streamlined data collection process, enabling participants to access and complete the survey on their own time and from any location with internet access. This method also supported anonymity, encouraging participants to respond honestly, and reducing the potential for social desirability bias. Utilizing an internet survey was particularly effective in reaching a large number of students in a relatively short timeframe, contributing to a high response rate and reducing logistical challenges typically associated with in-person data collection.

Data Analysis Methods

Upon completion of data collection, the responses were compiled in a spreadsheet for systematic analysis. The initial stage of data analysis involved assigning numerical values to the survey responses, with "Yes" responses coded as 1 and "No" responses coded as 0. This binary coding facilitated straightforward calculation of averages and allowed for quantitative analysis of metacognitive awareness indicators. The analysis involved several key steps. Firstly, for each survey item, the average score was calculated by dividing the total score by the number of respondents (420). This provided an average score for each item, giving a detailed view of participants' responses on specific aspects of metacognitive awareness. Secondly, the average scores for each of the eight metacognitive awareness indicators were calculated by averaging the item scores associated with each indicator. This allowed for a

more nuanced understanding of which specific areas of metacognitive awareness were more or less prominent among participants. Thirdly, to assess overall levels of metacognitive awareness, the average scores of the two main factors—Knowledge of Cognition and Regulation of Cognition—were calculated. This step provided insight into the participants' general metacognitive awareness and enabled a comparison between the two primary components of the MAI framework. Finally, after calculating scores for individual items, indicators, and factors, the analysis focused on determining which aspects of metacognitive awareness were most and least dominant among the participants. This involved identifying the highest-scoring and lowest-scoring indicators and factors, which provided valuable insights into areas where students exhibited strong metacognitive skills and areas where they may require further development.

RESULTS AND DISCUSSION

The data collection process involved 420 respondents who are students of English Education Study Program of IKIP PGRI Pontianak from all academic years and various backgrounds. Furthermore, several variations were also involved in the questionnaire to discover the demographic of the respondents, namely genders, class, academic year, school of origin, region of origin, and age groups. In the questionnaire, there are two main factors that are addressed in the Metacognitive Awareness Inventory instrument, which are: Knowledge of Cognition and Regulation of Cognition. Furthermore, three indicators are utilized for Knowledge of Cognition, while five indicators are included in Regulation of Cognition. All 52 items for this were included in the questionnaire, and simple criteria were utilized by assigning Yes and No as the options to pick from.

The level of metacognitive awareness was calculated by finding the average score between the two primary factors; Knowledge of Cognition and Regulation of Cognition divided by 420 as the total of the respondents. The average score for Knowledge of Cognition reaches 86% while the figure for Regulation of Cognition is 86% as well. Ultimately, with the score of 86%, it can be said that there is a high level of metacognitive awareness towards academic learning to students of English Education Study Program of IKIP PGRI Pontianak. The data can be seen on table 1 below.

Table 1. The Levels of Students' Metacognitive Awareness

Factors	Average Score	Percentage
Knowledge of Cognition	360.03	86%
Regulation of Cognition	360.98	86%
Metacognitive Awareness	360.51	86%

In addition, a closer comparison of the eight indicators shows that Debugging Strategies has the highest score of 89%. This is closely followed by Conditional Knowledge (88%) and Evaluation (87%) on the second and third position respectively. Planning and Comprehension Monitoring both occupy the fourth place with an equal amount of 86%. Meanwhile, the indicators with the lowest score are Procedural Knowledge (85%), Declarative Knowledge (84%) and Information Management Strategies (82%). The data can be seen in the table below.

Table 2. The Comparison of Indicators in Metacognitive Awareness

Indicator	Average Score	Percentage

Debugging Strategies	373.6	89%
Conditional Knowledge	370.6	88%
Evaluation	363.33	87%
Planning	363	86%
Comprehension Monitoring	359.86	86%
Procedural Knowledge	356.75	85%
Declarative Knowledge	352.75	84%
Information Management Strategies	345.1	82%

Furthermore, a closer look at each factor revealed a unique trend. The first factor, Knowledge of Cognition, refers to the information students possess about their academic learning. Then, the first indicator is Declarative Knowledge which receives an average score of 84%, followed by Procedural Knowledge with 85% and Conditional Knowledge with 85%. With an overall figure of 86%, it can be said that students applied a high degree of all Knowledge of Cognition in their academic learning. The data can be seen in the table below.

Table 3. Result for the Indicators in Knowledge of Cognition

Indicator	**Average Score**	**Percentage**
Declarative Knowledge	352.75	84%
Procedural Knowledge	356.75	85%
Conditional Knowledge	370.60	88%
Overall Average	360.03	86%

Following this is the factor of Regulation of Cognition, which describes about the implementation of learning strategy. It is divided into to five indicators. Firstly, Debugging Strategies gains an average score of 89%, which is the highest among all indicators. This is closely followed by the figures for Evaluation (87%), Planning (86%), Comprehension Monitoring (86%), and Information Management Strategies (82%). All indicators obtain an average score of 86%, which implies that students had a high degree of Regulation of Cognition. The data can be seen in the table below.

Table 4. Result for the Indicators for Regulation of Knowledge

Indicator	**Average Score**	**Percentage**
Planning	363.00	86%
Information Management Strategies	345.10	82%
Comprehension Monitoring	359.86	86%
Debugging Strategies	373.60	89%

Evaluation		363.33	87%
	Overall Average	360.98	86%

Afterward, a detailed analysis of each item shows that the percentage for Item 5 is noticeably lower (67%). This reveals that only about half of the respondents believed in their ability to remember information. Interestingly, for the indicator of Information Management Strategies, a stark gap can be seen between the highest score for Item 24 and the lowest score for Item 29. This means 95% of respondents claimed that they tried to translate new information into their own words, but only 52% of them admitted to drawing pictures or diagrams to improve their understanding. For Debugging Strategies, all items obtain a tremendous percentage except for Item 45 because only 78% of respondents claimed that they stop and go back over new information that is not clear. For Evaluation, the least preferred item among respondents with 75% score is Item 49 – which is about making a summary after learning. The data can be seen in the table below.

Table 5. Results for the Items for All Indicators

Indicator	Item	Description	Applying (n)	Percentage
Declarative Knowledge	Item 1	I understand my intellectual strengths and weaknesses.	400	95%
	Item 2	I know what kind of information is most important to learn.	402	96%
	Item 3	I am good at organizing information.	314	75%
	Item 4	I know what the teacher expects me to learn.	375	89%
	Item 5	I am good at remembering information.	283	67%
	Item 6	I have control over how well I learn.	325	77%
	Item 7	I am a good judge of how well I understand something.	328	78%
	Item 8	I learn more when I am interested in the topic.	395	94%
Procedural Knowledge	Item 9	I try to use strategies that have worked in the past.	384	91%
	Item 10	I have a specific purpose for each strategy I use.	349	83%
	Item 11	I am aware of what strategies I use when I study.	354	84%
	Item 12	I find myself using helpful learning strategies automatically.	340	81%
Conditional Knowledge	Item 13	I learn best when I know something about the topic.	392	93%
	Item 14	I use different learning strategies depending on the situation.	349	83%
	Item 15	I can motivate myself to learn when I need to.	380	90%
	Item 16	I use my intellectual strengths to compensate for my weaknesses.	370	88%
	Item 17	I know when each strategy I use will be most effective.	362	86%
Planning	Item 18	I pace myself while learning in order to have enough time.	349	83%
	Item 19	I think about what I really need to learn before I begin a task.	387	92%
	Item 20	I set specific goals before I begin a task.	357	85%
	Item 21	I ask myself questions about the material before I begin.	334	80%

	Item 22	I think of several ways to solve a problem and choose the best one.	379	90%
	Item 23	I read instructions carefully before I begin a task.	394	94%
	Item 24	I organize my time to best accomplish my goals.	341	81%
Information Management Strategies	Item 25	I slow down when I encounter important information.	314	75%
	Item 26	I consciously focus my attention on important information.	380	90%
	Item 27	I focus on the meaning and significance of new information.	383	91%
	Item 28	I create my own examples to make information more meaningful.	359	85%
	Item 29	I draw pictures or diagrams to help me understand while learning.	219	52%
	Item 30	I try to translate new information into my own words.	397	95%
	Item 31	I use the organizational structure of the text to help me learn.	328	78%
	Item 32	I ask myself if what I'm reading is related to what I already know.	372	89%
	Item 33	I try to break studying down into smaller steps.	356	85%
	Item 34	I focus on overall meaning rather than specifics.	343	82%
Comprehension Monitoring	Item 35	I ask myself periodically if I am meeting my goals.	348	83%
	Item 36	I consider several alternatives to a problem before I answer.	365	87%
	Item 37	I ask myself if I have considered all options when solving a problem.	375	89%
	Item 38	I periodically review to help me understand important relationships.	364	87%
	Item 39	I find myself analyzing the usefulness of strategies while I study.	348	83%
	Item 40	I find myself pausing regularly to check my comprehension.	343	82%
	Item 41	I ask myself questions about how well I am doing while I am learning something new.	376	90%
Debugging Strategies	Item 42	I ask others for help when I don't understand something.	393	94%
	Item 43	I change strategies when I fail to understand.	397	95%
	Item 44	I re-evaluate my assumptions when I get confused.	376	90%
	Item 45	I stop and go back over new information that is not clear.	328	78%
	Item 46	I stop and reread when I get confused.	374	89%
Evaluation	Item 47	I know how well I did once I finish a test.	364	87%
	Item 48	I ask myself if there was an easier way to do things after I finish a task.	379	90%
	Item 49	I summarize what I've learned after I finish.	317	75%
	Item 50	I ask myself how well I accomplish my goals once I'm finished.	368	88%
	Item 51	I ask myself if I have considered all options after I solve a problem.	370	88%

	Item 52	I ask myself if I learned as much as I could have once I finish a task.	382	91%

Comparison among eight indicators revealed that Debugging Strategies - which are strategies that learners used to correct the understanding and errors of performance (Schraw & Dennison, 1994) - is the most applied indicator among students. This is quite the opposite from the result of research by Taufiqurachman (2021) who found that debugging strategies is second lowest indicator of university students in the final semester. Furthermore, the second most applied indicator is Conditional Knowledge, which is about the effectiveness of certain learning strategies. Interestingly, this indicator is the least applied one in the research conducted by Ata & Abdelwahid (2019) among nursing students. Following this, the third most prominent indicator is Evaluation, which is the capacity of analyzing performance and strategy effectiveness after learning. This is another noteworthy trend among students of English Education Study Program in IKIP PGRI Pontianak because Aljaberi & Gheith (2015) discovered the opposite among students from Petra University in Jordan because evaluation is the second lowest indicator instead.

On top of that, it can be concluded that the Regulation of Cognition is the more dominant factor among students of English Education Study Program in IKIP PGRI Pontianak. This is mostly because two out of top scoring three indicators are from this factor, namely Debugging Strategies and Evaluation. This means that students should reap the benefit from this factor because they are more capable of implementing and managing the activities they must do in order to achieve successful academic learning.

On the contrary, the least applied indicator is Information Management Strategies – which are the skills and strategy sequences used to process information more efficiently, such as organizing, elaborating, summarizing, selective focusing (Schraw & Dennison, 1994). On the other hand, according to the research by Ata & Abdelwahid (2019), this is the most applied indicator among nursing students. This comparison shows that students of English Education Study Program in IKIP PGRI Pontianak were less attentive to the strategies to process information.

Furthermore, two specific items have been highlighted since it scored significantly lower compared to the others. The first one is Item 5 and the lower score indicates that students only had a moderate level of ability to remember information. However, the finding of research by Ding (2007) suggests otherwise, since it revealed that successful English as Foreign Language students considered text memorization and imitation as the most effective methods of learning English instead. Moreover, Item 29 received the lowest score among all, which means that only half of the students would utilize visual components in learning, such as diagrams or pictures. On the contrary, visual organizers are actually highly effective to communicate information in EFL (Kang, 2004) .

More importantly, the overall level of metacognitive awareness among students of English Education Study Program in IKIP PGRI Pontianak is reported as high. This is a tremendously positive outcome because metacognitive awareness is correlated to many broad indicators of academic success, including the overall grade point average (Young & Fry, 2008). This implies that students already possessed the necessary metacognitive awareness which can lead them to attain higher academic performance.

CONCLUSION

This study aimed to assess the level of metacognitive awareness among students in the English Education Study Program at IKIP PGRI Pontianak in relation to their academic learning. Data was collected from 420 students across different academic years and backgrounds. The Metacognitive Awareness Inventory (MAI) by Schraw & Dennison (1994), consisting of 52 items across eight indicators within two main factors, was used. The

first factor, Knowledge of Cognition, includes the indicators Declarative, Procedural, and Conditional Knowledge. The second factor, Regulation of Cognition, comprises Planning, Information Management Strategies, Comprehension Monitoring, Debugging Strategies, and Evaluation.

The results indicated a high level of metacognitive awareness among the students, which is a positive finding, as metacognitive skills are closely associated with academic success, including higher grade point averages (Young & Fry, 2008). The most frequently reported indicators were Debugging Strategies, Conditional Knowledge, and Evaluation, while Information Management Strategies were the least applied. Specific areas for improvement were noted in two items: "I am good at remembering information" and "I draw pictures or diagrams to help me understand while learning." These findings highlight both strengths and areas for growth in metacognitive awareness among these students, suggesting targeted areas for enhancing their learning strategies.

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