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Learning Styles and Self-Regulation: A Case Study of Economic Education Students at Mulawarman University

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ABSTRACT

This study identifies the relationship between learning styles and students' self-regulation in carrying out teaching practices at different levels of education. The next step is to investigate the strength of the relationship between different learning styles and different self-regulated learning skills. It was found that learning styles such as concrete experience, reflective observation, abstract conceptualisation and active experimentation have a strong relationship with students' ability to learn independently. Students with the concrete experience learning style have the ability to use cognitive strategies (0.642) and self-regulation (0.431). Reflective observation has a cognitive strategy ability of 0.522 and self-regulation of 0.453; abstract conceptualisation has a cognitive strategy ability of 0.446 and self-regulation of 0.641; and active experimentation has a cognitive strategy ability of 0.622 and self-regulation of 0.539. The conclusion of this study is that in order to develop the best competencies, pre-service teachers need high motivation to learn and good self-regulation strategies.

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INTRODUCTION

Self-learning in education is based on research into self-regulatory behaviour, where individuals learn to reduce dysfunctional behaviours that interfere with the learning process. The use of self-learning as a teaching tool is expected to increase student activity in the learning process, making it dynamic, encouraging and persuasive. Someone who is able to learn independently can increase their knowledge and understanding because it is designed interestingly and based on reality (Astriani et al., 2019).

Self-directed learning is very important for students and many studies have been conducted in this regard (Schunk, 2005). There are many studies that show the relationship between self-directed learning and students' learning motivation and academic achievement at different grade levels and subjects (Duncan & McKeachie, 2005; Ergoz, 2008; Garavalia & Gredler, 2002; Glaser & Brunstein, 2007; Kitsansas, Sten & Huie, 2009).

The quality of the learning process in pedagogy-related courses will be enhanced if the message delivery strategy used by the learning lecturers is in line with the characteristics of the students. One of the initial characteristics of students that needs to be identified is their learning style characteristics (Wijaya & Nurhuda, 2019). With the shift from a lecturer-centred approach to the learning environment, students need to be more responsible and in control of their own learning process. Awareness of students' learning styles is considered to be an important factor in student success, and learning style mismatch may be the reason for students' inability to learn (Safari & Hejazi, 2017).

The characteristics of self-regulation possessed by students are shown in various learning strategies such as controlling and managing behaviour, emotions and thoughts in the process of achieving certain goals (Anthonysamy et al., 2021). Good self-regulation in learning will help an individual to meet the various demands that they face. The existence of self-regulation helps students to learn more effectively. This relates to the use of metacognition, motivation, environment and cognitive process components (Anthonysamy et al., 2021). Over time, students will effectively optimise their learning process to achieve a goal (Schunk & Greene, 2017).

Individuals who are able to learn independently tend to have characteristics in regulating themselves and their learning process, which leads to learning achievement (Handrianto & Rahman, 2018). Self-regulation in learning helps students to be aware of their actions and thoughts and motivates them to study more diligently and consistently to achieve their goals by understanding the material they are studying (Sutarni et al., 2021). Students who learn with self-regulation will see the patterns and results of their behaviour so that they can change their learning styles, such as how to overcome difficult parts, the skills they have and develop their strengths and weaknesses. The self-reflection phase involves self-evaluation of students' learning styles and academic performance (Granberg et al., 2021).

Research findings (Safari & Hejazi, 2017) show that learning style is an important factor in a person's success in achieving their learning goals. After knowing the type of learning style, it is necessary to have self-regulation in

learning. Students need to have a strong commitment to independent learning, motivation and knowledge that can influence independent learning. Other findings are explained in research (Viberg et al., 2020) that self-regulation is in line with measuring, collecting and analysing data reports to improve students' learning experiences in optimising learning and the environment where learning takes place. Students benefit from seeing how they can apply what they have learned. This is in line with the provision of better feedback that allows students to seek advice on further action to improve themselves (Martin & Valdivia, 2017).

The problem that occurs with students is that they do not understand the importance of choosing a learning style, although it is necessary to know the learning style in order to find the best way to learn and according to their personality (Wijaya & Nurhuda, 2019). In addition to learning styles, self-regulation must be seen as an integrated process because students can be disciplined in their learning and behaviour (Anna Sverdlik et al., 2022).

Previous research on self-regulation has produced findings on the relationship between self-regulation and the learning environment, academic achievement, differences in students' learning outcomes due to self-regulation, and students' learning strategies (Sutarni et al., 20-21), but there has been little research linking self-regulation to learning styles. Based on this, the purpose of this study is to complement the findings on self-regulation, namely to determine the relationship between learning styles and self-regulation for students undertaking practice in the school field induction programme. From this point of view, students' learning styles become an important factor to be known in the application of self-regulation of learning as an important factor to be strengthened for better academic achievement. Therefore, this study addresses the following research questions: What is the relationship between learning styles and self-regulated learning?

THEORETICAL REVIEW

Research findings (Safari & Hejazi, 2017) show that learning style is an important factor in a person's success in achieving their learning goals. After knowing the type of learning style, it is necessary to have self-regulation in learning. Students need to have a strong commitment to independent learning, motivation and knowledge that can influence independent learning. Other findings are explained in research (Viberg et al., 2020) that self-regulation is in line with measuring, collecting and analysing data reports to improve students' learning experiences in optimising learning and the environment where learning takes place. Students benefit from seeing how they can apply what they have learned. This is in line with the provision of better feedback that allows students to seek advice on further action to improve themselves (Martin & Valdivia, 2017).

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METHODOLOGY

The design of this research is correlational research, which aims to see the relationship between learning styles and self-regulated learning self-learning students of Economic Education FKIP Unmul. The population of this study were all students of Economic Education with the number of participants sampled as many as 116 students. Each participant was given a questionnaire on experiential learning style and self-regulated learning.

The main instrument used in this study was the Motivated Strategies for Learning Questionnaire developed by Pintrich and De Groot (1990) to measure students' self-regulated learning strategies and motivation. A total of 22 items assessed self-regulated learning strategies through two dimensions: cognitive strategy use and self-regulation. The reliability coefficient of the scores on both dimensions was 0.77 for cognitive strategies and 0.68 for self-regulation as measured by Cronbach's alpha. A total of 34 motivation items were assessed through six dimensions, namely intrinsic motivation, extrinsic motivation, task value, control of learning beliefs, self-efficacy and test anxiety. The reliability coefficients of the scores on all dimensions ranged from 0.73 to 0.79 as measured by Cronbach's alpha. Responses were obtained on a 6-point Likert scale ranging from 1 (never) to 5 (always).

The Learning Style Instrument is based on Kolb's Learning Style Inventory (2006), which consists of 12 items from which students have to choose the one that fits them. The items in Kolb's Learning Style Inventory (2006) questionnaire are related to different learning styles, namely activists, reflectors, theorists and pragmatists.

The procedure for conducting the research began with student data collected during the implementation period of the regular school field programme with the permission of the faculty head. Prior to this, the students were informed that a study was being conducted to investigate their learning styles and self-regulation of learning. They were told that participation in the study was voluntary and that their responses would be kept confidential if they chose to participate. They were also assured that their participation would not affect their relationship with the lecturer or their grades. No students refused to take part in the study. In the next step, the students were asked to complete the questionnaire and write their names.

In relation to the above research objectives and questions, the Pearson product moment correlation coefficient was calculated to describe the relationship between learning styles and self-regulated learning using SPSS analysis.

RESULTS

Findings

Based on the results of the questionnaire collected from 116 respondents of prospective teacher education students at Mulawarman University, the data can be tabulated and correlation analysis is conducted to determine the relationship

of each learning style indicator with students' self-regulation. The table of correlation analysis results can be displayed as follows:

Correlations

Table 1. Correlations

		Kognitif	Self_Regulation
Concrete_Experience	Pearson Correlation	.642	.431
	Sig. (2-tailed)	.000	.000
	N	116	116
Reflective_Observation	Pearson Correlation	.522	.453
	Sig. (2-tailed)	.000	.000
	N	116	116
Active_Experimentation	Pearson Correlation	.622	.539
	Sig. (2-tailed)	.000	.000
	N	116	116
Abstract_Conseptualization	Pearson Correlation	.446	.641
	Sig. (2-tailed)	.000	.000
	N	116	116

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Based on the results of data analysis, it can be found that learning styles, Concrete Experience, Reflective Observation, Abstract Conceptualisation, Active Experimentation have a strong relationship with the ability of students to learn independently. Students with Concrete Experience learning style type have the ability to use cognitive strategies 0.642 and self-regulation 0.431, these results indicate that the relationship between Concrete Experience learning style with self-regulation has a strong categorised relationship. Students with Reflective Observation learning style have the ability to use cognitive strategies of 0.522 and self-regulation of 0.453.

The relationship between these two aspects is included in the strong category, where students are able to make observations first before making decisions. Students with Abstract Conceptualisation learning style have the ability to use the use of cognitive strategies of 0.446 and self-regulation of 0.641, these results indicate that students have different ideas in the learning process. While students with Active Experimentation learning style type have the ability to use the use of cognitive strategies of 0.622 and self-regulation of 0.539 which is strongly categorised, these results indicate that students are able to learn based on experience and what happens in their environment.

DISCUSSION

Students with the learning style type Concrete Experience have the ability to use cognitive strategies 0.642 and self-regulation 0.431. This means that the research hypothesis is accepted. Concrete experience (feeling) means learning from specific experiences, sensitive to the situation. Concrete experience is a period of learning through intuition with emphasis on personal experience, experience and feelings (Subekti, 2020). The higher the student's learning style score, the more self-regulated the student is (Nikoopour & Khoshroudi, 2021).

Independent learning style skills do not develop automatically, but can be trained and mastered by students.Parents and teachers can support students in the learning process (Chang et al., 2018).

Students with the learning style type Reflective Observation have the ability to use cognitive strategies 0.522 and self-regulation 0.453. Reflective observation is observing before making a decision by looking at the environment from different perspectives. Looking at things to make sense of them. This stage is learning by perception. Divergent learners rely more on working in imaginative and emotional groups, listening with an open mind and receiving personalised feedback (Idkhan & Idris, 2021). This is in line with the characteristics of divergent learners who are thoughtful, have a strong imagination and consider one experience or event from different aspects (Safari & Hejazi, 2017).

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Divergent learners rely more on imaginative, emotional, open-minded listening and working in groups to receive personalised feedback (Idkhan & Idris, 2021). This is in line with the characteristics of divergent learners who are thoughtful, have a strong imagination and consider a single experience or event from different perspectives (Safari & Hejazi, 2017). Abstract conceptualisation (thinking) is a learning style that is more theoretical than practical, with learning situations where reading and exploring analytical models to generate new ideas or concepts (Idkhan & Idris, 2021). Independent learners are active and responsible for their learning process, giving students the opportunity to develop self-efficacy and an intrinsic interest in a subject (Wisniewski et al., 2020).

Students with the learning style Active Experimentation have the ability to use cognitive strategies 0.622 and self-regulation 0.539. Active experimentation (doing) is the ability to do things with people and to take action based on events, including risk taking. Active experimentation is learning by doing, with an emphasis on practical application in real-life contexts. Teaching techniques used include fieldwork, set goals, projects and testing different approaches (Idkhan & Idris, 2021). Developing students' self-regulation skills is very important not only to help them achieve success now, but also to ensure success in the future. Actions related to performance control play an important role in the process of self-regulation, which leads to the process of monitoring students' learning. This action control allows them not only to identify weaknesses in the learning process, but also to be aware of the effectiveness of the learning strategies used. lecturers can become student facilitators to help students improve their ability to self-regulate learning (Yu, 2023).

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the research conducted, it can be concluded that learning styles, concrete experience, reflective observation, abstract conceptualisation, active experimentation have a strong relationship with students' ability to learn independently from both cognitive and self-regulatory aspects. From these results it can be concluded that in order to develop the best competence, trainee teachers need high motivation to learn and good self-regulation strategies.

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