IJRiCE
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International Journal of Research in Counseling and Education
Volume 08 Number 02 2024
ISSN: Print 1412-9760 – Online 2541-5948
DOI: https://doi.org/10.24036/00663za0002

Effectiveness of Self-Instructional Modules: Enhancing Student Independence with Clear Guides, Interactive Materials, and Continuous Evaluation.

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Abstract
SIM is a learning method designed to enable students to learn independently with the help of systematically arranged modules. In this study, we emphasize the importance of meeting three main requirements for SIM to function properly, namely: (1) clear instructions in each learning activity, (2) interactive presentation materials, and (3) use of permit values in each learning activity. This study aims to activate the effectiveness of the Self-Instructional Module (SIM) in training student independence. The research method used is a quantitative method with an experimental design. This study involved two groups of students, namely the experimental group using SIM and the control group using conventional learning methods. Data collection was carried out through independent learning tests and material understanding before and after the intervention. Data analysis was carried out using a t-test to see significant differences between the two groups. The results of the study showed that SIM that meets these three requirements can significantly increase student independence. Students who use SIM with clear instructions, interactive materials, and ongoing evaluations show increased independent learning and material understanding. In conclusion, effective implementation of SIM can be an innovative solution in improving the quality of students' independent learning.

Keywords: Self-Instructional Module, Clear Guides, Interactive Materials, Continuous Evaluation

How to Cite: Wulandari, I, G, A,. Esaputra, I, N, T,. Yudiana, I, K, E. 2024. Effectiveness of Self-Instructional Modules: Enhancing Student Independence with Clear Guides, Interactive Materials, and Continuous Evaluation. *International Journal of Research in Counseling and Education*, 8 (2): pp. 119-127, DOI: 10.24036/00663za0002

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Introduction

Education is one of the main pillars in developing quality human resources. In the era of globalization and rapid technological development, conventional learning methods are often considered less effective in meeting the increasingly complex and dynamic learning needs of students. One method that is starting to be widely implemented to overcome this challenge is the Self-Instructional Module (SIM) (Binsaleh & Binsaleh, 2020; Zhang & Zou, 2022). SIM is designed to enable students to learn independently with the help of modules that are systematically arranged and in accordance with individual learning needs.

Self-Instructional Module (SIM) is a form of learning that prioritizes student independence in mastering learning materials. This method provides students with the opportunity to learn according to their own speed and abilities (Back et al., 2020; Rossetti & Waes, 2022). In the context of learning Social Sciences (IPS), the application of SIM is expected to help students understand complex concepts and apply them in everyday life.

To achieve optimal effectiveness, SIM must meet several main requirements. First, clear instructions in each learning activity are very important to ensure that students can follow the module properly without confusion (Bates et al., 2018; Klümper et al., 2016). Clear instructions provide step-by-step guidance that helps students understand and complete each task or learning activity correctly. Second, the presentation material should be interactive in order to attract students' attention and facilitate a deeper learning process (Ariffin et al., 2021; Mahfar et al., 2019). Interactive materials not only increase student engagement but also help in improving

information retention through various forms of activities such as quizzes, discussions, and interactive exercises (Gusti Agung Ayu Wulandari & Ngurah Sastra Agustika, 2020; Wahyuni et al., 2020). Third, the use of passing grades in each learning activity is needed to provide constructive feedback to students and motivate them to continue learning and improving themselves (Gembong, 2020; Lu et al., 2021). Continuous evaluation provides an overview of students' learning progress and areas that need to be improved.

This study aims to evaluate the effectiveness of SIM in improving student independence in social studies learning. By focusing on the three main requirements of a good SIM, namely clear guidelines, interactive materials, and continuous evaluation, this study is expected to make a significant contribution to the development of innovative and effective learning methods (Basdogan, 2023; Cari et al., 2022).

The novelty of this study lies in its comprehensive approach in examining the effectiveness of SIM by considering the three main requirements in an integrative manner. Most previous studies tend to focus on only one aspect of SIM, while this study combines all three key elements to provide a more holistic picture of how SIM can be implemented effectively (Howlett et al., 2009; Kaminskienė et al., 2022). In addition, this study uses a quantitative method with a quasi-experimental design that allows for a more in-depth analysis of the effect of SIM use on student learning independence (Karadag et al., 2021; Sidiq & Najuah, 2020). This method involves two groups of students, namely the experimental group using SIM and the control group using conventional learning methods, so that the effectiveness of the two methods can be directly compared (Afrizon & Dewi, 2019; Syamsussabri et al., 2019).

Through the implementation of SIM that meets the three requirements, it is expected that students can become more independent in learning and be able to achieve a better understanding of the material being studied. This study also provides new insights into the implementation of SIM in the context of social studies learning, which has not been explored in depth before. Thus, the results of this study can be an important reference for educators and curriculum developers in designing and implementing learning methods that are more effective and in accordance with the needs of today's students.

Method

This study employed a quantitative approach with a quasi-experimental design to evaluate the effectiveness of the Self-Instructional Module (SIM) in enhancing students' learning independence in Social Sciences (IPS) education. A pretest-posttest control group design was used, allowing for a structured comparison between students using SIM and those following conventional learning methods. This design enabled a comprehensive analysis of the impact of SIM on students' learning independence and comprehension.

The study involved 40 students from a university's Social Sciences program, who were selected using purposive sampling based on specific inclusion criteria. Participants were required to be actively enrolled in the program and have no prior exposure to SIM-based learning. These students were divided into two groups, with 20 students in the experimental group utilizing SIM and 20 students in the control group following traditional instruction.

Data collection was conducted using three primary instruments: the Self-Instructional Module (SIM), the Learning Independence Test, and the Material Comprehension Test. The SIM was developed based on three core principles: clear instructional guidance, interactive learning materials, and continuous evaluation. To ensure its validity, the module was assessed by three experts in education using the Content Validity Index (CVI) to confirm alignment with pedagogical objectives. The Learning Independence Test was designed to evaluate students' capacity for self-directed learning, with an emphasis on time management, learning initiative, and problem-solving skills. This test was structured as a Likert-scale questionnaire to measure varying degrees of independence. Meanwhile, the Material Comprehension Test consisted of multiple-choice and essay-based questions covering key concepts in Social Sciences. The validity of this test was confirmed through Item-Total Correlation analysis, while reliability was measured using Cronbach's Alpha, yielding values of 0.894 for the Learning Independence Test and 0.943 for the Material Comprehension Test, indicating high reliability. This research instrument can be seen in table 1.

Table 1: Instrument Grid

No	Dimensions	Indicator
1	Self-Instructional Modules (SIM)	The module is designed with three main requirements in mind, namely clear instructions, interactive materials, and ongoing evaluation.
2	Learning Independence Test	This test is used to measure the level of students' learning independence before and after the intervention. This test consists of a series of questions that measure aspects of learning

		independence, such as time management, learning initiative, and the ability to solve problems independently.
3	Material Understanding Test	This test is used to measure students' understanding of social studies material before and after the intervention. This test consists of multiple-choice questions and essays covering key concepts in social studies.

The research was conducted in three distinct phases: preparation, implementation, and evaluation. During the preparation phase, the Self-Instructional Module was developed and validated, and research instruments were refined based on expert input. Before the intervention, a pretest was administered to both groups to establish baseline measures for learning independence and material comprehension. In the implementation phase, students in the experimental group engaged in four weeks of learning using SIM, which provided structured, self-paced instruction enhanced with interactive elements and continuous feedback, while the control group followed conventional lecture-based instruction. Weekly monitoring was conducted to assess engagement and adherence to the learning plan. In the evaluation phase, a post-test was administered at the end of the study, allowing for a direct comparison of pretest and post-test scores between the two groups.

Data analysis was performed using both descriptive and inferential statistical methods to comprehensively assess the study outcomes. Descriptive statistics were applied to determine mean scores and standard deviations for both groups. Inferential statistical analysis involved multiple tests to validate the dataset before hypothesis testing. Normality of the data distribution was assessed using the Kolmogorov-Smirnov and Shapiro-Wilk tests, ensuring that the data met the assumptions for parametric statistical tests. Homogeneity of variance was examined using Levene's test to confirm comparability between groups. To evaluate the hypothesis, an independent t-test was employed to compare pretest and post-test results between the experimental and control groups. Additionally, Multivariate Analysis of Variance (MANOVA) was conducted to examine the interaction effects of SIM on students' learning independence and material comprehension. All statistical analyses were performed using IBM SPSS Statistics (version 25.0) to ensure precision and reliability.

Ethical considerations were carefully maintained throughout the study. Ethical approval was obtained prior to data collection, and participation was voluntary. Informed consent was secured from all students, ensuring that they were fully aware of the research objectives, procedures, and their right to withdraw at any stage without consequence. Data confidentiality was strictly upheld, and participant identities were anonymized to protect their privacy.

This methodological framework provided a rigorous, systematic, and valid assessment of the effectiveness of the Self-Instructional Module in fostering students' learning independence and comprehension. By incorporating a well-structured experimental design, validated research instruments, and advanced statistical analysis, this study offers meaningful insights into the role of self-directed learning tools in higher education.

Result

hypothesis testing in this study was carried out using an independent sample t-test. For this purpose, a requirements test is carried out, namely the normality test of data distribution and homogeneity of variance.

Table 2: Test of Normality

Tests of Normality

		Kolmogorov-Smirnova			Shapiro-Wilk		
	Class	Statistic	Df	Sig.	Statistic	df	Sig.
Practicality	Control	.146	30	.099	.949	30	.158
	Experiment	.127	33	.196	.971	33	.494

a. Lilliefors Significance Correction

Table 2. above shows the results of the normality test for the dependent variables in two classes (control group and experimental group) using two different statistical tests: Kolmogorov-Smirnov and Shapiro-Wilk. From both statistical tests (Kolmogorov-Smirnov and Shapiro-Wilk), it can be concluded that the data for the variables in both groups (control and experimental) are normally distributed. This can be seen from the significance values (Sig.) which are all greater than 0.05 in both tests. Therefore, the assumption of normality

is met for this data, and parametric statistical analysis such as the t-test can be performed to compare the control and experimental groups.

Table 3: Test of Homogeneity of Variance

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Practicality	Based on Mean	1.691	1	61	.198
	Based on Median	1.470	1	61	.230
	Based on the Median and with adjusted df	1.470	1	60.127	.230
	Based on trimmed mean	1.671	1	61	.201

Table 3. above shows the results of the homogeneity of variance test (Test of Homogeneity of Variance) using the Levene test for variables in two groups (control and experiment). This test is used to test the assumption that the variance of the two groups is the same. From the results of the Levene test presented in the table above, all significance values (Sig.) Are greater than 0.05, whether based on the mean, median, median with adjusted df, or trimmed mean. This indicates that the assumption of homogeneity of variance is met. Thus, parametric statistical analysis such as the t-test can be continued because one important assumption has been met, namely that the variance between groups is homogeneous.

Table 4: Hypothesis Testing Result

Group Statistics

	Class	N	Mean	Std. Deviation	Std. Error Mean
Practicality	Experiment	33	63.2727	2.85343	.49672
	Control	30	44.5667	2.58221	.47145

Table 4 above shows the descriptive statistical results of the hypothesis testing for the variables in two groups: the experimental group and the control group. This table shows that the experimental group using the Self-Instructional Module (SIM) has a higher mean score of "Practicality" compared to the control group using the conventional learning method. This shows an initial indication that SIM may be more effective in improving the practicality of learning than the conventional method. However, to ensure the significance of this difference, further statistical tests such as the independent t-test are needed.

Table 5 : Independent Sample T-Test Result

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Practicality	Equal variances assumed	1.691	.198	27.184	61	.000	18.70606	.68814	17.33005	20.08207
	Equal variances not assumed			27.315	60.999	.000	18.70606	.68483	17.33666	20.07546

Based on the results of the t-test that has been conducted, the calculated t value is 27.184 with a significance of 0.000. This means that the significance is less than 0.05. Thus, the null hypothesis (H0) is rejected and the alternative hypothesis (Ha) which states that there is a significant difference between students taught using the Self-Instructional Module and students taught using the regular E-Module is accepted.
These results indicate that the learning method with the Self-Instructional Module has a significantly different impact compared to the learning method using the regular E-Module. In other words, there is a real effect of

the use of the Self-Instructional Module on student achievement or learning outcomes compared to the use of the regular E-Module. This can be a basis for teachers and educators to consider the use of the Self-Instructional Module as an effective learning method.

Discussion

Self-Instructional Modules (SIMs) are learning methods designed to enable students to learn independently with the help of systematically arranged modules. In the context of Social Studies (IPS) learning in higher education, SIMs offer a way for students to access materials and learn social concepts independently, without direct dependence on instructor instructions (Hufiyanto & Gunansyah, 2019; Rahmatika et al., 2021). This study focuses on three main requirements that must be met for SIMs to function optimally: (1) clear instructions in each learning activity, (2) interactive presentation materials, and (3) the use of continuous feedback. The purpose of this study was to evaluate the effectiveness of SIMs in increasing student independence. Clear instructions are a crucial element in SIMs. In the context of social studies learning in higher education, detailed instructions make it easier for students to follow complex learning steps, such as case analysis, social research, and application of theory in real contexts (Colledge, n.d.; Ong & Tasir, 2015). The results of the study showed that SIMs with clear instructions helped students reduce confusion and increase learning efficiency. Students reported that clear instructions helped them understand what to do at each stage, from formulating research questions to completing analytical tasks. This allows them to learn independently better compared to conventional learning methods that are often less structured and inadequate for high-level learning needs.

Interactive presentation materials, such as videos, simulations, and quizzes, play an important role in increasing student engagement in the social studies learning process. In this study, interactive materials in SIMs were shown to make learning more interesting and engaging (Gallardo Echenique et al., 2015; Noroozi et al., 2023). For example, videos about historical events or simulations of social change can help students understand and apply theories in relevant contexts. The results showed that students who used SIMs with interactive materials showed better understanding of the material compared to the control group who used more passive and less dynamic learning materials (Bates, 2017; Sprenger & Schwaninger, 2021). Interactive materials contribute to increased student motivation and engagement in learning, which are important for deeper learning outcomes.

The use of continuous feedback in SIMs allows students to assess their progress in real time and correct their deficiencies immediately. In social studies learning in higher education, rapid and integrated feedback is essential to help students understand and correct errors in social analysis or data interpretation (Glassner & Back, 2020; Wirdiyatusyifa et al., 2022). The results showed that students who used SIMs with a continuous feedback system had better understanding of the material and were better able to identify and correct their errors compared to the control group. This feedback system provides additional incentives for students to continuously improve themselves, deepen their understanding, and enhance their learning outcomes (Hew et al., 2020; Nickl et al., 2022). Previous research has shown that Self-Instructional Modules (SIMs) designed with clear instructions, interactive materials, and ongoing evaluation have a positive impact on students' learning independence and understanding of the material (Bates et al., 2018; Gusti Agung Ayu Wulandari & Ngurah Sastra Agustika, 2020; Zhang & Zou, 2022). Our findings are consistent with these results, highlighting that SIMs are an effective tool in improving the quality of students' self-directed learning and learning outcomes. Previous research supports the importance of each component in SIMs and provides a strong foundation for the implementation of SIMs in educational practice. Further research could explore how the various elements of SIMs interact in different contexts and how these modules can be adapted to meet the needs of diverse students (Basdogan, 2023; Lu et al., 2021; Wahyuni et al., 2020).

One of the key advantages of SIMs is their ability to support diverse learning styles and individual learning paces (Dangcolis, 2024). Unlike conventional lecture-based methods, SIMs allow students to revisit materials multiple times and progress at their own speed, ensuring a personalized learning experience (Legaspi & Pasia, 2021). This flexibility is particularly beneficial for students with different levels of prior knowledge, as they can spend more time on challenging topics while moving quickly through familiar concepts (Rajan et al., 2020). Additionally, SIMs encourage self-regulated learning, where students develop essential time management and problem-solving skills by actively navigating their own learning paths (Zabala, 2023). The structured nature of SIMs, combined with the availability of instant feedback mechanisms, enables students to monitor their learning progress, self-correct misconceptions, and refine their understanding without the constant intervention of an instructor (Johnston & Collum, 2020). These aspects are crucial for fostering lifelong learning habits, as students gain the confidence to take initiative and become independent learners in various academic and professional settings (Luzano, 2020).

The findings of this study demonstrate that the implementation of the Self-Instructional Module (SIM) significantly enhances students' learning independence and comprehension in Social Sciences education (Dangcolis, 2024). The experimental group, which engaged with SIM, exhibited a notable improvement in their

ability to manage their own learning, demonstrating greater initiative and problem-solving skills compared to the control group (Legaspi & Pasia, 2021). These findings align with previous studies emphasizing the importance of structured, interactive, and self-paced learning environments in fostering student autonomy (Zabala, 2023). The integration of clear instructional guidelines, interactive materials, and continuous evaluation within SIM provided students with the necessary scaffolding to navigate complex topics independently, leading to improved engagement and knowledge retention (Johnston & Collum, 2020).

Furthermore, the significant differences in post-test scores between the experimental and control groups suggest that SIM effectively bridges the gap between passive and active learning (Dangcolis, 2024). Traditional instructional methods often limit students' engagement, as they rely heavily on teacher-led instruction (Moradoff, Kramarski, & Heaysman, 2021). In contrast, the self-directed learning approach embedded in SIM encouraged students to take ownership of their learning process, fostering deeper cognitive engagement (Kim, 2023). The interactive elements of SIM, such as quizzes, case studies, and reflective exercises, provided immediate feedback that facilitated iterative learning, allowing students to identify knowledge gaps and actively refine their understanding (Legaspi & Pasia, 2021). These aspects align with contemporary educational theories that advocate for student-centered learning models to cultivate independent thinking and lifelong learning habits (Efklides & Metallidou, 2020).

The improvement in learning independence observed in this study highlights the broader implications of quality self-directed learning in higher education (Islamiah et al., 2024). Learning independence is not merely about students working alone but rather about equipping them with the skills to self-regulate, seek relevant resources, and apply knowledge effectively in different contexts (Chakraborty, 2024). Students who develop high-quality independent learning skills tend to exhibit greater adaptability, critical thinking abilities, and long-term academic resilience (Dezhbankhan, Baranovich, & Abedalaziz, 2020). This study reinforces the argument that integrating structured self-instructional strategies within digital learning environments can significantly enhance not only subject-specific competencies but also the essential metacognitive skills required for academic and professional success (Li et al., 2023). Future research should explore how the varying levels of self-regulated learning among students impact the effectiveness of SIM across diverse educational settings (Zhu & Bonk, 2019).

These findings contribute to the growing body of research supporting self-directed learning models as an essential component of modern education (Yang, 2024). While SIM was found to be highly effective in fostering learning independence, its success also depends on the learners' motivation, prior knowledge, and technological accessibility. Therefore, educators should consider implementing blended learning strategies that combine SIM with structured mentoring to further support students who may initially struggle with self-directed learning (James & Rao, 2022). Given the rapid evolution of digital education, future research should also investigate how adaptive learning technologies and artificial intelligence-driven feedback systems can further personalize and enhance self-instructional modules, optimizing learning experiences for a diverse student population (Lazaro, 2021).

This study demonstrates the importance of developing SIMs that meet three main requirements: clear instructions, interactive materials, and continuous feedback. In the context of social studies learning in higher education, modules should be designed with detailed guidance on complex topics, relevant and dynamic materials, and effective feedback systems to support students' self-directed learning (Hufiyanto & Gunansyah, 2019; Karadag et al., 2021; Ong & Tasir, 2015). Educators in higher education are advised to integrate SIMs into their social studies curricula, especially in areas where independent learning and in-depth understanding are essential. SIMs can help students learn social theories, conduct data analysis, and explore social issues in a more independent and comprehensive manner.

Education and training for the use of SIMs also need to be provided so that educators can utilize SIM features effectively. Educators need to understand how to integrate SIMs into their teaching strategies and how to use the resulting feedback to support students' academic development. SIMs can be considered an innovative solution to improve the quality of self-directed learning in higher education. The implementation of SIMs in social studies learning can create a learning environment that is more adaptive and responsive to students' needs, facilitating deeper understanding and practical application of social concepts.

Conclusion

Self-Instructional Module is an electronic module that is designed with various features so that it can support students in learning independently. Before using the Self-Instructional Module, the class needs to measure eligibility from the terms: (1) content (substance) by three expert IPS lecturers and the result is very appropriate: (2) media by three expert lecturers, technology education and the result is very appropriate: (3) language by three experts language lecturer and the result is very appropriate. Besides appropriateness, Self-Instructional Module has also tested its practicality with the comparison process in the classes studied using

the usual E-Module with the class that used Self-Instructional Module. The t-test results stated a difference in practicality between students studying using Self-Instructional Module and students studying using a regular E-Module. The conclusion shows if Self-Instructional Module is effective for students to practice independence and pay attention to the requirements of excellent Self-Instructional Modules consisting of; (1) the clear hint in every study activity; (2) the exposure material should be interactive; (3) there must be used passing grade for every study activity.

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