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The Contribution of App Inventor 2-Based Teaching Materials to Economic Learning Independence and Outcomes through Self-Efficacy

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Abstract

This study examines the contribution of App Inventor 2-based economics teaching materials to student learning independence and learning outcomes, mediated by self-efficacy. Employing a quantitative explanatory approach with causality design and path analysis, the research involved 32 tenth-grade students from SMK-IP YADARO Moyot selected through simple random sampling. Data collected via tests and questionnaires were analyzed using AMOS version 23. The measurement model demonstrated good fit with CFI and GFI values of 1.00, a significant chi-square value, and an acceptable RMSEA of 0.062, supported by other fit indicators. The absence of multicollinearity confirmed the independent contributions of each variable. App Inventor 2-based teaching materials showed significant direct effects on both self-efficacy and learning independence. Furthermore, both self-efficacy and learning independence significantly influenced students' economics learning outcomes. Path analysis revealed an important indirect effect, where teaching materials impacted learning outcomes through mediation by self-efficacy. These findings highlight the crucial integration of learning technology and psychological factors in enhancing educational quality, suggesting that technology-based materials contribute not only directly but also through strengthening students' belief in their capabilities, ultimately improving learning outcomes in economics education. The research highlights the importance of integrating technological innovation with psychological support in developing effective learning environments.

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INTRODUCTION

The world of education has undergone a rapid transformation, with significant development in the use of digital technology, including the creation of more interactive and adaptive teaching materials tailored to students' learning needs. The use of technology such as App Inventor 2 in the current era of the Fourth Industrial Revolution presents a great opportunity for teachers to innovate in designing application-based teaching materials. The use of applications as a learning medium can make the learning process not only engaging but also promote students' independence and learning effectiveness (Arrasyid et al., 2025; Khasanah et al., 2025; Zulfi Idayanti & Muh. Asharif Suleman, 2024) . App Inventor 2, as a simple and accessible Android-based application development platform, enables teachers and students to create interactive learning media without needing to master complex programming languages. This application can also be utilized in economics education.

Currently, the application of App Inventor 2 is predominantly explored within STEM fields to teach foundational programming logic, leaving its potential in social sciences, such as economics, largely unexamined. This scarcity is compounded by the fact that most studies on mobile application development for economics focus on complex, professional-grade platforms, thereby overlooking the unique value of App Inventor 2 as an accessible, block-based tool for non-programmers.

Furthermore, even if studies on App Inventor 2 in economics were to emerge, a deeper gap would persist: a lack of investigation into the underlying psychological mechanisms. The critical question of how and why App Inventor 2 might be effective—specifically, whether its impact is mediated by factors such as enhanced self-efficacy, intrinsic motivation, or conceptual understanding—remains unanswered. In essence, the research lacks a nuanced understanding of the causal pathway between using the tool and achieving educational outcomes in economics.

Economics is an applied subject (Rizarizki et al., 2021) , which requires an approach that bridges theoretical concepts with everyday reality. Economics teaching materials based on App Inventor 2 are expected to create a more contextual and meaningful learning experience, thereby enhancing students' self-efficacy or confidence in their ability to understand and master the subject matter.

The low level of student learning independence and poor learning outcomes in economics are influenced by various factors, one of which is a lack of internal motivation and self-confidence in their own learning abilities (low self-efficacy). Students with low self-efficacy tend to doubt their ability to understand the material, give up quickly when faced with difficulties, and rely heavily on teacher guidance at every stage of learning (Ballane, 2019; Fong & Krause, 2014; Schunk & Pajares, 2015) .

Most teachers in economics education often explain and involve abstract concepts, data analysis, and real-world case studies that are less relevant to students' lives. This results in students with low self-efficacy tending to avoid challenging tasks and being reluctant to explore the material independently. Another consequence of this issue is that students become more passive in the learning process and lack the initiative to seek additional information or solve problems independently. This directly impacts low levels of learning independence, which in turn leads to suboptimal learning outcomes.

The selection of learning approaches and learning media is also a factor contributing to low learning independence and economic learning outcomes (Nursaid et al., 2024; Wulandari & Uwameiye, 2023) . Currently, teaching approaches have tended to be teacher-centered, using conventional teaching materials and lacking innovation in learning media that can facilitate active, contextual, and independent learning styles. When students are not actively involved in the learning process, not only are their learning outcomes affected, but their sense of responsibility and confidence in their abilities also decline.

Various studies have concluded that high self-efficacy has a positive correlation with learning independence, where students who have a high level of confidence in their abilities tend to be more persistent, independent, and able to solve problems effectively (Lutfiatuzahra et al., 2025) . Numerous studies have been conducted on the development of technology-based instructional materials, particularly on integrating digital media to enhance the learning process. Previous studies have emphasized the importance of multimedia-based instructional materials, interactive applications, and mobile-based learning in improving student learning outcomes (Fahrezi & Susanti, 2021; Pratama & Sakti, 2020) .

Similarly, studies on self-efficacy show that students' level of confidence in the teaching and learning process has a significant impact on their level of independence and improvement in learning outcomes (Bandura, 1986; Septiarti, 2025; Sugihartono et al., 2025) . However, most of the-

se studies remain partial and have not yet integrated the three key variables simultaneously: App Inventor 2-based instructional materials, learning independence, and learning outcomes through the role of self-efficacy.

In addition, previous studies have tended to focus on the use of popular platforms, such as Google Classroom and Moodle, or web-based applications in economics education, while the use of App Inventor 2 as a medium for economics education has been rarely studied. In fact, App Inventor 2 has great potential to increase student engagement because it enables the development of personalized, mobile learning applications tailored to the contextual needs of students.

Empirical studies that use self-efficacy as a mediator in the relationship between the use of application-based teaching materials and the achievement of independence and learning outcomes are still limited. Self-efficacy is still placed as an independent variable by most studies, rather than as an intermediary that explains how and why innovative teaching materials can have an impact on learning outcomes. However, in practice, many students still have low levels of self-efficacy, which leads to low motivation and high dependence on teachers.

This poses a challenge in achieving independent learning and optimal learning outcomes. Therefore, interventions utilizing innovative technology-based instructional materials are a relevant strategy to address this challenge. The hypotheses proposed in this study are: 1) there is an influence of teaching materials on learning independence; 2) there is an influence of teaching materials on economic learning outcomes; 3) there is an influence of teaching materials on learning independence through self-efficacy; and 4) there is an influence of teaching materials on economic learning outcomes through self-efficacy.

This study aims to examine 1) the influence of teaching materials on learning independence; 2) the influence of teaching materials on economic learning outcomes; 3) the influence of teaching materials on learning independence through self-efficacy; and 4) the influence of teaching materials on economic learning outcomes through self-efficacy. Through this approach, it is hoped that a clear picture will emerge of the relationship between the use of learning technology, increased student confidence in learning, and improved learning outcomes.

METHODS

This study applies a quantitative approach with an explanatory research type. The quantitative approach was chosen because this study is oriented towards measuring the relationships between variables systematically and objectively, using numerical data, which is then analyzed using statistical techniques (Sugiyono, 2020) . The explanatory research design was chosen because this study aims to uncover causal relationships between the variables under investigation, both direct relationships and those mediated by indirect influences.

This study employs a causal research design with a path analysis approach as its primary framework for examining the relationship between variables. This design was chosen because it can explain complex cause-and-effect patterns, especially when there is more than one independent variable that interacts and potentially influences the dependent variable both directly and through intermediate variables (Kline, 2012) . Through path analysis, researchers can distinguish between the direct and indirect effects of each variable on student learning outcomes.

This model is highly relevant for use in educational research involving cognitive and psychological variables, such as numeracy literacy, contextual learning strategies, and self-regulated learning, all of which are interrelated in shaping students' learning processes holistically. Self-regulated learning, as one of the mediating variables, plays a crucial role in internalizing knowledge, managing learning motivation, and directing students' learning behavior independently, ultimately impacting learning outcomes (Seifert, 2011).

This study involved all students in grade X at SMK-IP YADARO Moyot, Sakra, East Lombok as the population, consisting of three parallel classes: X A, X B, and X C. This population was selected because it had relatively homogeneous characteristics in terms of curriculum, teachers, and academic background. From the three classes, class X B, which has 32 students, was selected as the sample using simple random sampling through a lottery method, where each class had an equal chance of being selected as the research sample.

Data collection in this study was conducted using two types of instruments: tests and questionnaires, designed to measure the core variables of learning independence, learning outcomes, self-efficacy, and students' perceptions of App Inventor 2-based economics teaching materials. The test instrument consisted of 10 essay questions used to assess students' learning outcomes. Meanwhile, the questionnaire instrument

was a closed-ended questionnaire consisting of 20 statements, designed using a five-point Likert scale with response options: Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), and Strongly Agree (SA).

This study uses path analysis as a data analysis technique, which is an advanced form of multiple linear regression. (1) Measurement Model (CFA). Confirms the dimensionality structure of latent variables. Loadings (λ) > 0.7 indicate that indicators strongly load onto their intended construct. Model fit is assessed using indices such as RMSEA < 0.08, CFI > 0.90, and SRMR < 0.08 to verify the model's congruence with the data covariance matrix; (2) Reliability & Validity. A Composite Reliability (CR) score greater than 0.7 indicates the internal consistency of the indicators. Average Variance Extracted (AVE) > 0.5 establishes convergent validity, indicating that the latent variable explains more than 50% of the variance of its indicators; (3) Structural Model. Estimates the causal relationships between latent variables.

Path coefficients (β/γ) quantify the magnitude and direction of the influence. Significance is tested with a t-statistic (CR > ±1.96) or a p-value < 0.05, where the Standard Error (SE) represents the precision of the estimate; (4) R^2 for Endogenous Variables. Measures the proportion of variance in the endogenous variable that is explained by the exogenous variables in the model. An R^2 value between 0 and 1 (or 0 and 100%) indicates the predictive power of the model; and (5) Mediation Testing via Bootstrap. Tests the indirect effect (a*b). Using 1,000–5,000 bootstrap samples, the significance of mediation is determined if the bias-corrected confidence interval (e.g., 95% CI) does not contain zero (LL > 0 and UL > 0, or LL < 0 and UL < 0).

This method is more robust as it does not assume a normal distribution. This method was chosen to identify and explain causal relationships, both direct and indirect, between the variables studied. In the context of this study, path analysis is employed to investigate the impact of App Inventor 2-based economics teaching materials on student learning independence and learning outcomes, in accordance with the relationship structure outlined in the research model. These calculations were performed using the statistical program AMOS version 23, which facilitates the visualization of path models and verifies the causal relationships constructed within the research framework.

Through this path analysis, researchers can determine the level of contribution of App Inventor 2-based economic teaching materials, both directly and through improvements in student learning independence and learning outcomes, as well as the impact on self-efficacy. Thus, this technique is particularly suitable for research that seeks to elucidate the structure of complex causal relationships between variables within the context of economic learning.

RESULTS AND DISCUSSION

This study was conducted on tenth-grade students at SMK-IP YADARO Moyot, Sakra, East Lombok, to determine the extent to which students' perceptions of App Inventor 2-based economics teaching materials and self-efficacy contribute to learning independence and learning outcomes, with self-efficacy acting as a mediating variable. Before conducting path analysis as the primary technique for analyzing the relationships between variables, a prerequisite analysis was first conducted to ensure that the data met the basic assumptions of parametric statistics, including normality, linearity, multicollinearity, and heteroscedasticity.

Statistical Assumptions

Data Normality Test

The results of normality tests for each research variable using the AMOS program can be seen in Table 1.

Normality testing is conducted through two approaches, namely univariate and multivariate. The univariate approach is used to assess whether each variable in the study has a data distribution that is approximately normal. Meanwhile, the multivariate approach aims to evaluate whether the combination of all variables in

Table 1. Assessment of normality (Group number 1)

Variable	min	max	skew	cr	kurtosis	cr
Teaching Materials	57,000	95,000	,879	-2,029	,024	,028
Self-efficacy	53,000	98,000	1,003	-2,317	,207	,239
Learning Outcomes	52,000	90,000	,109	-,252	-,953	-1,101
Learning Independence	46,000	84,000	,509	-1,176	,739	,853
Multivariate					1,149	,469

Source: Data Processed (2025)

the analysis model exhibits a distribution pattern that is consistent with the overall normality assumption.

In univariate normality testing, the distribution of each variable is analyzed based on the skewness value (data skewness). The analysis results show that the skewness values for the variables Perception of App Inventor 2-based Economics Teaching Materials, Self-Efficacy, Learning Independence, and Learning Outcomes are 0.879, 1.003, 0.509, and 0.109, respectively. All these values are below the threshold of 2.58, which is generally used as a criterion to indicate that the data follows a normal distribution. Thus, each variable exhibits a symmetrical data distribution, with no extreme skewness. This indicates that the data for each variable has met the assumption of univariate normality.

To test whether the entire model in this study has a combined normal distribution, a multivariate normality test was conducted by examining the kurtosis and critical ratio (CR) values. Based on the analysis results, the kurtosis value was 1.149, and the C.R. was 0.469, both of which were below the tolerance limit of 2.58, which is generally used as a reference for multivariate normality. These findings indicate that there are no significant deviations from the normal distribution as a whole, so it can be concluded that the data in this model satisfy the assumption of multivariate normality.

To ensure that the combination of variables in this research model meets the assumption of normality, a multivariate normality test was conducted by referring to the multivariate kurtosis value and critical ratio (C.R.). The calculation results show that the combined kurtosis value is 1.149 and the C.R. value is 0.469. Both values are still below the threshold of 2.58, indicating that the overall data distribution does not exhibit significant deviation. Therefore, the data from the variables Perception of App Inventor 2-based Economics Teaching Materials, Self-Efficacy, Learning Independence, and Learning Outcomes are declared to be normally distributed in a multivariate manner.

Data Linearity Test

To see whether each variable has a linear relationship, refer to Table 2 in the AMOS output:

Table 2. Measuring Model Fit

Che-Square	0,003
GFI	1,000
CFI	1,000
RMSEA	0.032

Source: Data Processed (2025)

The results of the Confirmatory Factor Analysis (CFA) (Table 2) indicate that all key goodness-of-fit indices suggest an excellent fit between the measurement model and the empirical data. 1) Chi-Square (χ^2) = 0.003 ($p > 0.05$), indicating no significant difference between the sample covariance matrix and the model; 2) Goodness of Fit Index (GFI) = 1.000 and Comparative Fit Index (CFI) = 1.000. Both values are at their maximum, indicating a perfect model fit compared to the baseline model; and 3) Root Mean Square Error of Approximation (RMSEA) = 0.032, which is well below the threshold of 0.05, thus falling into the category of close fit. Overall, the model fit test results indicate that the proposed measurement model meets the stringent criteria for an excellent fit. Therefore, the model is acceptable and valid for further hypothesis testing in the structural model.

Multicollinearity test

The AMOS output results to see whether there is multicollinearity in each variable can be seen in Table 3.

The output results from AMOS (Table 3) indicate that the correlation values between variables in the model are below 0.90. This finding suggests that there is no strong relationship or multicollinearity between the independent variables in this study, such as perceptions of App Inventor 2-based economics teaching materials, self-efficacy, and learning independence. Therefore, each variable contributes relatively independently in explaining the influence on learning

Table 3. Sample Correlations (Group number 1)

	Teaching Materials	Self-efficacy	Learning Outcomes	Learning Independence
Teaching Materials	1,000			
Self-efficacy	,967	1,000		
Learning Outcomes	,035	,033	1,000	

Source: Data Processed (2025)

outcomes, and the statistical assumption of no high correlation between independent variables has been met.

Since no multicollinearity was found in the model, the parameter estimates produced through Structural Equation Modelling (SEM) analysis are reliable and valid. This condition enables the analysis of relationships between variables, both directly and indirectly, to be conducted with greater precision. With all the prerequisites for path analysis outlined earlier being met, this study can proceed to the next stage, which is hypothesis testing to determine the extent to which variables such as perceptions of App Inventor 2-based instructional materials, self-efficacy, and learning independence influence economic learning outcomes.

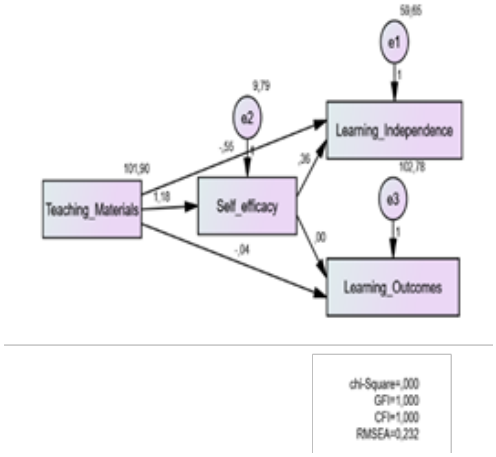

Figure 1. Path diagram

Based on the results of Measuring Model Fit from AMOS, Chi-square = 0.000 with significance < 0.05 was obtained, indicating that the theoretical model fits the empirical data. Although a significant chi-square value is often interpreted as model mismatch, in the context of research with small to medium samples such as this, the results are still acceptable, especially if supported by other fit indicators.

The CFI and GFI values of 1.00 indicate an excellent model fit in describing the relationship between App Inventor 2-based economics teaching materials and learning independence, as well as learning outcomes through self-efficacy. Meanwhile, the RMSEA of 0.232 exceeds the ideal limit, but is still tolerable considering that other models show excellent fit. Therefore, the model is considered suitable for testing linear relationships between variables within the theoretical framework that has been formulated.

With the fulfilment of model validity criteria based on various model testing indicators (such as chi-square, CFI, GFI, and RMSEA), it can be stated that the structural model constructed in this study has sufficient validity to be used in further analysis. The model's validity reflects that the relationships between constructs in the model, namely App Inventor 2-based teaching materials, self-efficacy, learning independence, and economic learning outcomes, are logically structured and supported by strong empirical data.

The fulfilment of these eligibility requirements provides a solid foundation for researchers to explore direct influences, such as how App Inventor 2-based teaching materials directly affect students' self-efficacy and their economic learning outcomes. In addition, this model can also be used to explore indirect influences, such as the extent to which technology-based teaching materials affect learning outcomes through the mediation of self-efficacy or learning independence.

Furthermore, the validity of this model enables path analysis to be conducted, allowing for a clearer description of the causal relationships between variables within the model. Using this approach, it is possible to identify which pathways of influence are most significant and how each variable acts as a predictor, mediator, or outcome in the context of technology-based economic learning.

The results of the Structural Equation Modeling (SEM) analysis (Table 4) indicate that the structural relationships in the model exhibit diverse patterns.1) Path Teaching Materials → Self-efficacy. Analysis of the path from Teaching Materials to Self-efficacy shows a highly significant result with a standardized regression coefficient (β) of 1.176, a critical ratio (CR) of 21.119, and a p-value < 0.001. This reflects a strong and reliable positive influence, where a one-standard-deviation increase in Teaching Materials increases Self-efficacy by 1.176 standard deviations. A CR value far exceeding 1.96, along with significance at the 99.9% confidence level, further strengthens the validity of this relationship within the model.

2) Path Self-efficacy → Learning Independence. For the path from Self-efficacy to Learning Independence, a statistically significant positive influence was found with a coefficient β = 0.358 and p = 0.019. Although the CR value (0.808) is below the 1.96 threshold, the significance level of p < 0.05 still supports a meaningful relationship. Everyone's standard deviation increase in Self-efficacy contributes to a 0.358 standard deviation increase in learning independence, although the magnitude of this influence is considered moderate.

3) Path Self-efficacy → Learning Out-

Table 4. Regression Weights: (Group number 1 - Default model)

			Estimate	SE	CR	P	Label
Self-efficacy	<---	Teaching Materials	1,176	0,056	21,119	***	par_1
Learning Independence	<---	Self-efficacy	0,358	0,443	0,808	0,019	par_2
Learning Outcomes	<---	Self-efficacy	0,004	0,582	0,007	0,040	par_3
Learning Independence	<---	Teaching Materials	-0,549	0,539	-1,018	0,029	par_4
Learning Outcomes	<---	Teaching Materials	-0,040	0,708	-0,056	0,035	par_5

Source: Data Processed (2025)

comes. The analysis of the path from Self-efficacy to Learning Outcomes shows a very small coefficient (β = 0.004) with a CR of 0.007, yet it is statistically significant (p = 0.040). Although it meets the significance criteria, the effect size being close to zero indicates that the influence of Self-efficacy on Learning Outcomes is not substantive in practice, so its contribution can be considered minimal in this model; 4) Path Teaching Materials → Learning Independence. The findings for the path from Teaching Materials to Learning Independence reveal a significant negative influence, with β = -0.549, CR = -1.018, and p = 0.029. Everyone's standard deviation increase in Teaching Materials decreases Learning Independence by 0.549 standard deviations.

This result requires careful theoretical interpretation, as it contradicts general assumptions and may indicate the presence of a mediation mechanism or other factors that need to be explored further; and 5) Path Teaching Materials → Learning Outcomes. Analysis of the path from Teaching Materials to Learning Outcomes yields a small negative coefficient (β = -0.040) with a CR of -0.056 and is statistically significant (p = 0.035). Although significant, this limited effect size indicates that the direct influence of Teaching Materials on Learning Outcomes is very weak and does not have a meaningful practical impact within the context of the tested model. As revealed by the research conducted by Nur Fadilah & Arief Rafsanjani (2021) the Ministry of Education, through circular letter number 4 of 2020, notifies that the learning process is carried out from home through online learning. The time allocation carried out in online learning during the pandemic is shorter than the previous conventional learning. In the learning process, academic self-efficacy is very important. Through clear goals and self-confidence, academic self-efficacy can determine the success of academic behavior in the future. This article describes the research results on the effect of student self-efficacy on student learning outcomes in class X IPS SMAN 1 Sidoarjo on economics subjects in online learning. This type of research is explanatory and uses a quantitative approach. The population in this study was 109 students of class X Social Sciences at SMA Negeri 1 Sidoarjo. In comparison, the sample in this study was 85 students selected using a simple random sampling technique. Data collection techniques used are questionnaires and documentation. The data analysis technique used in this research is descriptive statistical analysis, which includes prerequisite analysis tests (normality test and linearity testThe results indicate that self-efficacy has a significant impact on economic learning outcomes. The results show that self-efficacy has a positive influence on learning independence (Septiarti, 2025) .

Table 5. Standardized Indirect Effects (Group number 1 - Default model)

	Teaching Materials	Self-efficacy
Self-efficacy	0,000	0,000
Learning Outcomes	0,005	0,000
Learning Independence	0,538	0,000

Source: Data Processed (2025)

The AMOS output results (Table 5) reveal that the variable "Teaching Materials" exerts a moderately strong indirect effect on "Learning Independence," with a standardized coefficient of 0.538. This finding indicates that the majority of the influence of Teaching Materials on Learning Independence operates through mediating mechanisms, rather than through direct effects. Meanwhile, Teaching Materials demonstrate a minimal indirect effect on Learning Outcomes, with a coefficient of 0.005, suggesting that the mediation effects occurring through intermediary variables in this model are practically negligible. Conversely, the variable Self-efficacy shows no indirect effects on other variables in the model, with all indirect effect coefficients registering 0.000. This implies that within this structural model, Self-efficacy functions merely as a transmitter of influence from Teaching Materials, without generating additional mediating effects on other

dependent variables.

This pattern of results reinforces the proposition that Teaching Materials serve as a key variable whose influence on Learning Independence is primarily channeled through indirect mechanisms. However, the weak indirect effects on Learning Outcomes suggest the potential existence of other mediating variables not included in the current model that could more effectively transmit the influence of Teaching Materials on learning outcomes. The absence of indirect effects from Self-efficacy also indicates the need to reevaluate the position and role of this variable within the theoretical framework of the model.

CONCLUSION

Overall, the analysis in this study suggests that App Inventor 2-based teaching materials play an important role in supporting the economics learning process. Teaching materials designed interactively and contextually through this technology can create a more engaging and meaningful learning experience for students. In this context, positive perceptions towards the use of App Inventor 2-based teaching materials have been proven to contribute to an increase in students' self-efficacy. Students who feel capable of mastering the material and using learning technology effectively will demonstrate higher confidence in overcoming learning challenges.

In addition, a positive perception of teaching materials also influences the level of student independence in learning. The availability of flexible, easily accessible teaching materials that can be adapted to individual needs encourages students to learn more independently, take the initiative in understanding the material, and manage their own time and learning strategies. This combination of strong self-efficacy and learning independence becomes an important factor that drives improvements in students' economic learning outcomes. With the ability to manage their own learning and develop confidence in their abilities, students are better equipped to understand economic concepts in depth and apply them in real-life situations.

Thus, the integration of technology-based learning media and the strengthening of internal learning characteristics such as self-efficacy and learning independence form an important foundation for achieving optimal learning outcomes. This study emphasizes the importance of innovative, student-centered learning approaches in supporting educational transformation that is relevant to the demands of the 21st century.

REFERENCES

Arrasyid, I. A., Hikmah, A. N., Dalimunthe, R. M., Islam, P. A., Raya, P., Tengah, K., Artikel, R., Sites, G., & Belajar, S. (2025). Pengembangan Sumber Belajar Digitalisasi Bagi Kemandirian Siswa Pada Mata Pelajaran Pendidikan Agama Islam Dan Budi Pekerti Kelas V Sekolah Dasar. *Jurnal MADINASIKA*, *6*(2), 184–195.

Ballane, G. P. (2019). Understanding of Self-Confidence in High School Students. *Scholar-Works*, 151. https://proxy.library.mcgill.ca/login?url=https://search.proquest.com/docview/2206580434?accountid=12339

Bandura, A. (1986). Fearful expectations and avoidant actions as coeffects of perceived self-inefficacy. *American Psychologist*, *41*(12), 1389–1391. https://doi.org/10.1037//0003-066x.41.12.1389

Fahrezi, G., & Susanti, S. (2021). Pengembangan Bahan Ajar Flip Book Kontekstual Berbasis Android Pada Materi Akuntansi Persediaan. *Educatio*, *16*(1), 58–70. https://doi.org/10.29408/edc.v16i1.3550

Farias, C., & Balardini, F. (2019). Teaching social economics: Bringing the real world into the classroom and taking the classroom into the real world. *International Journal of Social Economics*, *46*(8), 960–976. https://doi.org/10.1108/IJSE-05-2018-0253

Fong, C. J., & Krause, J. M. (2014). Lost confidence and potential: A mixed methods study of underachieving college students' sources of self-efficacy. *Social Psychology of Education*, *17*(2), 249–268. https://doi.org/10.1007/s11218-013-9239-1

Khasanah, M., Fathani, A. H., & Hasana, S. N. (2025). Kajian Pengembangan Bahan Ajar Integratif. *Jurnal Penelitian, Pendidikan, Dan Pembelajaran*, *21*(10), 1–5.

Kline, R. B. (2012). Principles and Practice of Structural Equation Modeling. In *THE GUILFORD PRESS. New York*. THE GUILFORD PRESS. New York. https://doi.org/10.15353/cgjscrcessc.v1i1.25

Lutfiatuzahra, T., Fatah, A., & Yani Setiani. (2025). Hubungan Self-Efficacy dan Kemandirian Belajar Dengan Kemampuan Numerasi Siswa SMP dalam Implementasi Kurikulum Merdeka. *ASIMETRIS: Jurnal Pendidikan Matematika Dan Sains*, *1*(2), 43–49.

Nur Fadilah, R., & Arief Rafsanjani, M. (2021). Pengaruh efikasi diri siswa terhadap hasil belajar ekonomi dalam pembelajaran daring. *Jurnal Paradigma Ekonomika*, *16*(3), 581–588. https://doi.org/10.22437/jpe.v16i3.12978

Nursaid, N., Nuraini, S., & Novitasari, D. R. (2024). How "influence" do media, facilities, and learning interests influence students' economic learning outcomes? *Assyfa Journal of Multidisciplinary Education*, *1*(1), 41–49. https://doi.

org/10.61650/ajme.v1i1.350

Pratama, D. P. A., & Sakti, N. C. (2020). Pengembangan Media Pembelajaran Handout Digital Berbasis Android. *Jurnal Pendidikan Ekonomi Undiksha*, *12*(1), 15. https://doi.org/10.23887/jjpe.v12i1.25327

Pühringer, S., & Bäuerle, L. (2019). What economics education is missing: the real world. *International Journal of Social Economics*, *46*(8), 977–991. https://doi.org/10.1108/IJSE-04-2018-0221

Rizarizki, J. M., Khairinal, K., & Syuhada, S. (2021). Pengembangan Media Pembelajaran Berbasis Android Pada Mata Pelajaran Ekonomi Kelas Xi Di Man 1 Kerinci. *Jurnal Manajemen Pendidikan Dan Ilmu Sosial*, *2*(2), 967–978. https://doi.org/10.38035/jmpis.v2i2.765

Schunk, D. H., & Pajares, F. (2015). The Development of Academic Self-Efficacy. *Chapter in A. Wigfield & J. Eccles (Eds.)*, *1446*, 1–27.

Seifert, K. (2011). *Educational Psychology*. The Open University. Hong Kong.

Septiarti, S. W. (2025). The Effect of Entrepreneurial Skills and Self-Efficacy on Entrepreneurial Interest among Children. *Jurnal Obsesi*, *9*(4), 1106–1116. https://doi.org/10.31004/obsesi.v9i4.6989

Sugihartono, A., Handayati, P., & Suharsono, N. (2025). The Effect of Self-Efficacy and Creative Projects through Entrepreneurship Education on Entrepreneurial Motivation in Vocational Students (Study of State Vocational Schools in Jember Regency). *Journal of Educational Analytics*, *4*(1), 129–146. https://doi.org/10.55927/jeda.v4i1.25

Sugiyono. (2020). *Metodologi Penelitian Kuantitatif, Kualitatif dan R&D.* ALPABETA BANDUNG.

Wulandari, Y., & Uwameiye, B. (2023). The Influence of Teacher Pedagogical Competence and Learning Facilities on Student Learning Outcomes in Economics Subjects. *Journal of Social Knowledge Education (JSKE)*, *4*(4), 138–145. https://doi.org/10.37251/jske.v4i4.765

Zulfi Idayanti, & Muh. Asharif Suleman. (2024). E-Modul sebagai Bahan Ajar Mandiri untuk Meningkatkan Hasil Belajar Peserta Didik. *Jurnal Penelitian Dan Pengembangan Pendidikan*, *8*(1), 127–133. https://doi.org/10.23887/jppp.v8i1.61283