Jurnal SPORTIF: Jurnal Penelitian Pembelajaran
Vol. 11 No. 2, August 2025, pp. 258 - 274
https://doi.org/10.29407/js_unpgri.v11i2.24904

Enhancing student engagement in sports learning: The role of e-modules, teacher creativity, and technology

Frendy Aru Fantiro[1abce], Abdurrohman Muzakki[1abdf], Bayu Budi Prakoso[2cde], Setiya Yunus Saputra[1bd], Adelya Dwi Cendani Putri[1a].

[1]Department of Primary School Teacher Education, Faculty of Teacher Training and Education, University of Muhammadiyah Malang, Malang, East Java, Indonesia
[2]Department of Sport Science, Faculty of Sports Science and Health, State University of Surabaya, Surabaya, East Java, Indonesia.

Received: 13 February 2025; Revised: 11 April 2025; Accepted: 11 July 2025; Available online: 01 August 2025.

Abstract

Student engagement in physical education is essential for promoting active participation and effective learning. However, traditional teaching methods often struggle to maintain students' interest and motivation. In response to technological advancements, this study explores how e-module development, teacher creativity, and technology use affect student engagement in sports education, with technology acting as a moderating variable. A quantitative approach was applied, involving 150 Indonesian high school students selected through purposive sampling, focusing on those actively participating in physical education and using e-modules. Data were collected via structured questionnaires measuring e-module development, teacher creativity, technology use, and student engagement. The data were analyzed using Partial Least Squares (PLS) 4.0. The results show that e-modules ($\beta = 0.420$, $t = 7.746$, $p < 0.001$), teacher creativity ($\beta = 0.212$, $t = 3.668$, $p < 0.001$), and technology ($\beta = 0.200$, $t = 4.392$, $p < 0.001$) significantly enhance student engagement. Moreover, technology strengthens the influence of both e-modules ($\beta = 0.303$, $t = 5.908$, $p < 0.001$) and teacher creativity ($\beta = 0.214$, $t = 3.783$, $p < 0.001$) on student engagement. These findings underscore the importance of integrating digital tools and creative teaching strategies in physical education. The study provides practical implications for educators aiming to boost student involvement through innovative, technology-supported instruction.

Keywords: E-module, teacher creativity, technology, student engagement, physical education.

How to Cite: Fantiro, F. A., Muzakki, A., Prakoso, B. B., Saputra, S. Y., & Putri, A. D. C. (2025). Enhancing student engagement in sports learning: The role of e- modules, teacher creativity, and technology. *Jurnal SPORTIF: Jurnal Penelitian Pembelajaran*, *11*(2), 256–272. https://doi.org/10.29407/js_unpgri.v11i2.24904

Authors contribution: a – Preparing concepts; b – Formulating methods; c – Conducting research; d – Processing results; e – Interpretation and conclusions; f - Editing the final version.

INTRODUCTION

Education through sports plays a vital role in supporting students' holistic development, fostering both physical competence and active participation in learning (Brunsdon, 2022). Physical education (PE) aims to

Correspondence author: Abdurrohman Muzakki, University of Muhammadiyah Malang, Malang, East Java, Indonesia.
Email: muzakki@umm.ac.id

improve motor skills and serves as a platform for cultivating engagement in the learning process. However, student engagement in PE remains a persistent challenge, particularly as traditional teaching methods often fall short in sustaining attention and motivation, especially in today's technology-driven learning environments (Wallhead et al., 2020; Kerner & Prescott, 2023).

In response to these challenges, the integration of digital e-modules and the enhancement of teacher creativity have emerged as essential strategies for creating more flexible, interactive, and student-centered learning experiences (Fernandez-Rio & Casey, 2020; Vavenkov, 2022). E-modules allow students to access learning materials independently and at their own pace, incorporating multimedia content such as instructional videos, quizzes, and simulations to reinforce understanding and encourage active participation (Brunsdon, 2023; Waqas, 2022). These features are particularly beneficial in PE, where theoretical knowledge and practical application must be closely integrated.

Moreover, teacher creativity plays a key role in transforming e-modules from static resources into dynamic learning experiences. Creative pedagogical approaches, such as real-world applications and varied instructional activities, enhance the relevance and enjoyment of learning, thereby increasing student engagement (Miller et al., 2023).

Beyond content and pedagogy, technology functions as a moderating variable that strengthens the impact of both e-modules and teacher creativity on student engagement (Coote-Thompson, 2023; Goodyear, 2024). When effectively integrated, technology improves interactivity, provides immediate feedback, and facilitates personalized learning. Tools such as fitness trackers, educational apps, and virtual simulations empower students to track progress, set personal goals, and engage more deeply with the material (Kerner & Prescott, 2023; Hananingsih & Imran, 2020).

Recent studies emphasize that integrating e-modules, teacher creativity, and technology can significantly enhance student engagement

https://doi.org/10.29407/js_unpgri.v11i2.24904
11 (2) 2025| 258-274

in physical education by fostering an interactive and student-centered learning environment (Brunsdon, 2023; Goodyear, 2024). As visualized in Figure 1, this study's framework illustrates how each variable, e-module, teacher creativity, and technology, interacts to influence student involvement.

The development of e-modules provides accessible, structured, and multimedia-rich content that supports independent and flexible learning, which has been shown to boost motivation and participation in physical education contexts (Waqas, 2022; Hananingsih & Imran, 2020). At the same time, teacher creativity enhances this process by transforming static digital content into engaging experiences that cater to diverse student needs, increasing the relevance and appeal of learning activities (Fernandez-Rio & Casey, 2020).

Moreover, the role of technology as a moderating variable is critical. Its integration enables more dynamic and interactive instruction, amplifying the impact of both e-modules and creative teaching on student engagement (Miller et al., 2023; Coote-Thompson, 2023). The framework not only conceptualizes these relationships but also guides the study in empirically examining how each factor contributes to more meaningful student participation in physical education settings.

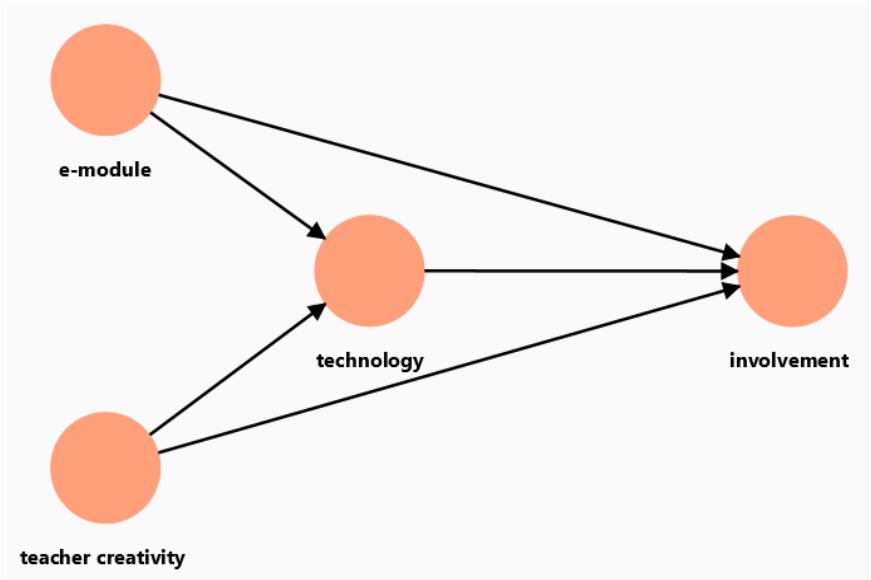

Figure 1. Investigation Framework

https://doi.org/10.29407/js_unpgri.v11i2.24904
11 (2) 2025| 258-274

Figure 1 presents the conceptual framework outlining the interrelationships between e-modules, teacher creativity, technology, and student engagement in physical education. The framework suggests that e-modules, when designed to be accessible and interactive, serve as effective tools for increasing student participation in learning activities. This aligns with research emphasizing the benefits of digital resources in enhancing engagement, particularly in practical subjects like physical education (Brunsdon, 2023; Hananingsih & Imran, 2020).

Teacher creativity complements this by enabling educators to design lessons that are not only informative but also engaging and adaptive to diverse learning preferences. Creative instructional strategies have been shown to significantly improve student motivation and active involvement (Fernandez-Rio & Casey, 2020). Technology, meanwhile, functions both as an independent influence and a moderating factor, strengthening the effects of both e-modules and teacher creativity on student engagement (Coote-Thompson, 2023; Miller et al., 2023).

Therefore, the integration of these three components—e-modules, teacher creativity, and technology—creates a synergistic effect that supports a more interactive, flexible, and motivating learning environment in physical education. This framework not only informs the study's hypotheses but also reflects current pedagogical shifts towards technology-enhanced learning.

METHOD

Research Design

This study uses a quantitative method with the Partial Least Squares (PLS) 4.0 approach to analyze data obtained from a survey of students and teachers in the context of sports learning (Castro & Morgan, 2025). PLS is chosen for its ability to test complex relationship models and handle data that often violates the assumption of normality, a common issue in social and educational research. Additionally, PLS is effective in identifying the key factors that influence student involvement in sports

https://doi.org/10.29407/js_unpgri.v11i2.24904
11 (2) 2025| 258-274

learning. The table below summarizes the investigation indicators used to analyze the relationship between the variables, providing a clearer overview of the aspects evaluated in this study.

Table 1. Investigation Indicators

Variable	Investigation Indicators
E-Module	X12: Development of e-module materials that are easily accessible to students
	X13: E-module providing interactive learning content
	X14: Ease of use of e-modules in the learning process
	X15: Availability of e-modules that can be accessed at any time
	X11: E-module containing relevant information related to the learning topic
Technology	Z1: Use of technology that supports interactive learning
	Z2: Integration of technology in learning to facilitate information access
	Z3: Utilization of technology tools to enhance learning motivation
Teacher Creativity	X22: Teacher creativity in designing learning materials using technology
	X23: Use of creative teaching methods by the teacher
	X24: Innovation in the way teachers deliver content to students
	X25: Teachers using various media and resources in teaching
Student Involvement	Y1: Active student participation in learning activities
	Y2: Willingness of students to interact during learning
	Y3: Motivation of students to learn more and better
	Y4: Student activity in discussions and group activities
	Y5: Student satisfaction with learning that uses e-modules and technology

Population and Sample

The population in this study consists of all students participating in athletics classes at high schools within the research area. The relevant group for this study includes students who are involved in the athletics program and use e-modules for physical education learning. To obtain a sample of 150 students, the researcher first identifies schools offering athletics programs and utilizing e-modules. For instance, if there are 5 schools that meet these criteria, the researcher could select 30 students from each school, resulting in a total sample of 150 students. This selection process ensures that each chosen student meets the established criteria. While purposive sampling is used to ensure that the sample consists of students with direct experience in the learning process involving e-modules, a larger sample size or additional criteria could be considered in future studies to enhance the representativeness of the findings.

https://doi.org/10.29407/js_unpgri.v11i2.24904
11 (2) 2025| 258-274

Data Collection

Data were collected using a structured questionnaire designed to measure four key variables: e-module development, teacher creativity, technology use, and student involvement (Abbad, 2021). The instrument was adapted from validated scales in previous research on educational technology and physical education to ensure contextual relevance for sports education.

Each variable was assessed through multiple statements rated on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree), which is widely recognized for its clarity and reliability in capturing attitudes and perceptions.

To establish content validity, the questionnaire was reviewed by experts in educational technology and physical education. Their evaluations confirmed that the items appropriately reflected the constructs being measured. The adaptation of established scales further strengthened the instrument's construct validity, ensuring its suitability and reliability for data collection in this study.

Data Analysis

The data collected for this study were analyzed in a sequential process using PLS 4.0 software. The analysis was conducted in three main stages: Measurement Model Testing, Structural Model Testing, and Hypothesis Testing.

1. **Measurement Model Testing (Outer Model)**

   The outer model was tested to assess the validity and reliability of the constructs. Construct validity was examined through factor loadings and Average Variance Extracted (AVE), while internal consistency reliability was measured using Cronbach's Alpha and composite reliability (Robitzsch, 2020). Indicators were considered valid and reliable if they met the thresholds: factor loading > 0.70, Cronbach's Alpha and composite reliability > 0.70, and AVE > 0.50.

https://doi.org/10.29407/js_unpgri.v11i2.24904
11 (2) 2025| 258-274

2. **Structural Model Testing (Inner Model)**

   The inner model analysis tested the hypothesized relationships between the independent variables (e-modules, teacher creativity, and technology) and the dependent variable (student engagement). Path coefficients, t-statistics, and p-values were examined using the bootstrapping procedure to determine the strength and significance of these relationships (Wei, 2020). Additionally, the moderation effects of technology on the relationships between e-modules, teacher creativity, and student engagement were tested.

3. **Hypothesis Testing**

   Hypotheses were evaluated based on the t-statistic (> 1.96) and p-value (< 0.05). Hypotheses were accepted if the results met these significance criteria, indicating a statistically significant relationship between the variables examined (Pranata, 2024).

After completing the model testing, the results from the structured questionnaire used as the instrument in this study were analyzed to ensure that the data collected were both valid and reliable. Before moving on to structural model testing, the validity and reliability of the instrument were checked using metrics such as Cronbach's Alpha, composite reliability, and AVE. The results of these tests showed that the instrument used in the study was both reliable and valid for measuring the intended variables.

Content validity was also assessed by involving experts in educational technology and physical education, who reviewed the relevance of each item in the questionnaire. This ensured that the questions effectively represented the constructs being measured. This process guaranteed that the instrument was not only reliable but also appropriate for the context of this study.

https://doi.org/10.29407/js_unpgri.v11i2.24904
11 (2) 2025| 258-274

RESULT

The following diagram presents the results of the structural model analysis conducted using Partial Least Squares (PLS) 4.0. The diagram illustrates the relationships between the key variables, e-modules, teacher creativity, technology, and student involvement, with the path coefficients indicating the strength of each relationship.

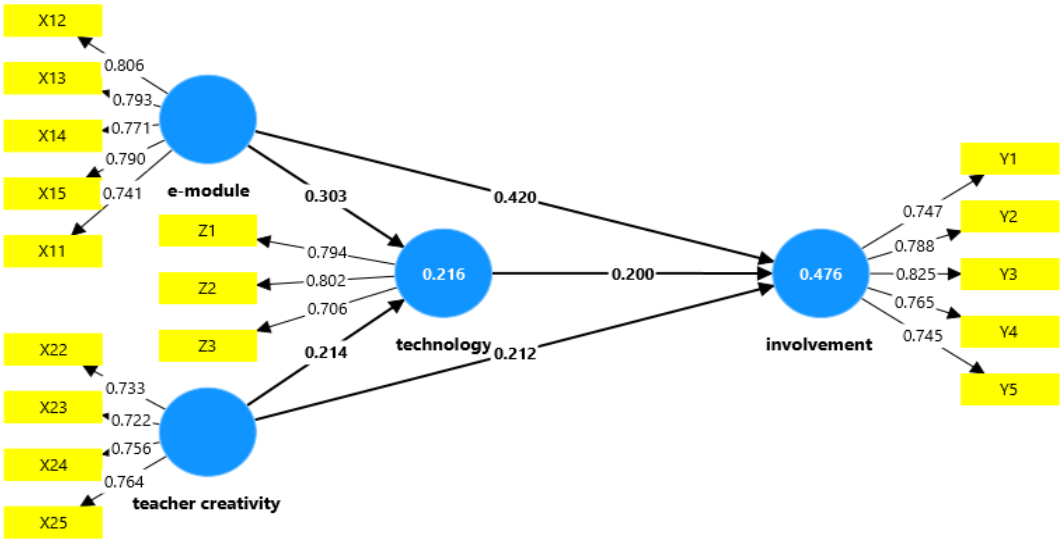

Figure 2. PLS-SEM results

Figure 2 presents the results of the structural model analysis using PLS-SEM. The model reveals that e-modules, teacher creativity, and technology each have a significant positive effect on student engagement. E-modules exhibit the strongest direct influence (β = 0.420), followed by teacher creativity (β = 0.212). Additionally, technology not only impacts engagement directly (β = 0.420) but also functions as a moderating variable, strengthening the influence of both e-modules (β = 0.303) and teacher creativity (β = 0.214) on student engagement.

The results indicate that well-designed, accessible e-modules enhance student motivation and participation, while also facilitating the integration of interactive technologies. Similarly, creative teaching practices contribute to the effective use of technology in the classroom, which in turn reinforces student engagement in physical education contexts.

https://doi.org/10.29407/js_unpgri.v11i2.24904
11 (2) 2025| 258-274

All constructs demonstrated strong measurement validity, with high loading factors confirming good model fit and construct reliability. These findings support the conclusion that the combined use of e-modules, creative pedagogy, and technology integration plays a critical role in creating engaging and interactive learning experiences.

Measurement Model Testing (Outer Model)

Table 2. Outer Model

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	The average deviation extracted (AVE)
e-module	0,840	0,843	0,886	0,609
involvement	0,833	0,834	0,882	0,600
teacher creativity	0,732	0,733	0,832	0,554
technology	0,754	0,763	0,812	0,591

Based on the analysis of the outer model in this study, it can be concluded that all variables e-modules, student involvement, teacher creativity, and technology meet the criteria for validity and reliability. This conclusion is drawn from the Cronbach's Alpha and Composite Reliability values, both of which are above 0.7 for all variables. These values indicate that the indicators used to measure these latent variables are reliable and consistent. In addition, the Average Variance Extracted (AVE) values for all variables are above 0.5, which demonstrates good convergent validity. This means that the indicators are able to explain more than 50% of the variance of each variable.

For the e-module parameter, the Cronbach's Alpha value is 0.840, and the AVE is 0.609. This suggests that indicators such as material relevance, ease of access, and interactivity are valid and reliable in measuring the e-modules. The validity of these indicators is supported by their strong correlation with the e-module construct and their ability to consistently represent the concept of e-modules in the context of the study.

The student involvement parameter shows a Cronbach's Alpha value of 0.833 and an AVE of 0.600, indicating high reliability and validity. This confirms that indicators such as active student participation, learning

https://doi.org/10.29407/js_unpgri.v11i2.24904
11 (2) 2025| 258-274

motivation, and student satisfaction are effective in measuring the level of student involvement. These indicators align with the theoretical understanding of student engagement in educational contexts, making them a reliable measure of the construct.

For the teacher creativity and technology variables, the Cronbach's Alpha values are 0.732 and 0.754, respectively, and the AVE values are 0.554 and 0.591. These results indicate that both variables have adequate reliability and validity. This suggests that creativity in lesson design and the integration of technology into the learning process are measured consistently and effectively by the selected indicators.

Given that the measurement model (outer model) meets the required validity and reliability criteria, the next step in the analysis can proceed to the structural analysis stage (inner model) to test the relationships between the variables and the proposed hypotheses. These results provide a strong foundation for the subsequent analysis of the study.

Structural Model Testing (Inner Model)

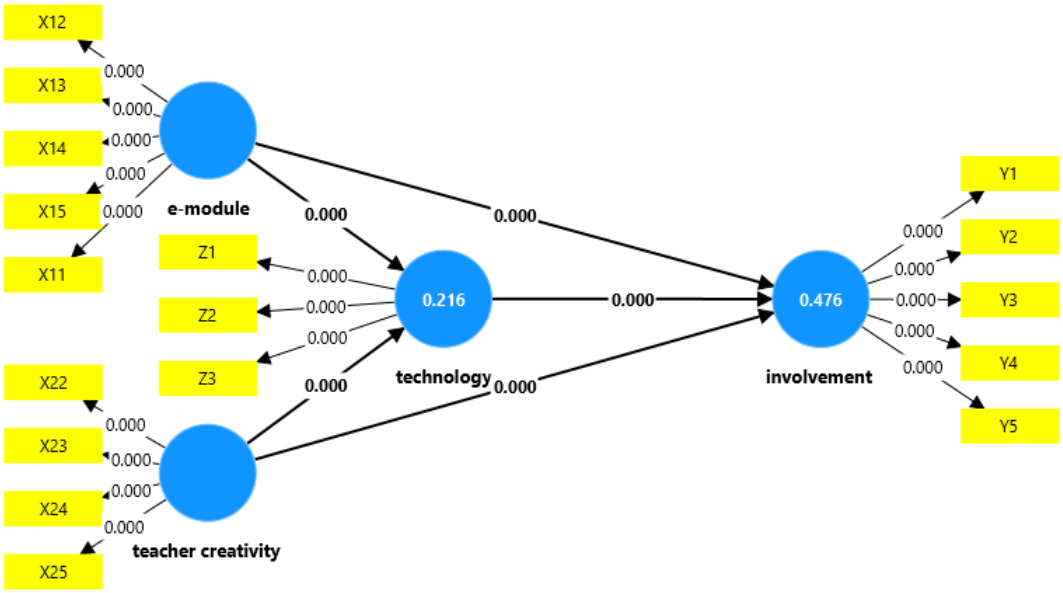

Figure 3. Bootstrapping results

Figure 3 displays the bootstrapping results from the structural model analysis, outlining the relationships among the latent variables: e-

modules, teacher creativity, technology, and student engagement. The findings indicate that e-modules have a significant direct effect on student engagement (β = 0.476), highlighting their role in creating more interactive and motivating learning environments.

E-modules also positively influence the use of technology in learning (β = 0.216), suggesting that their implementation encourages greater technological integration, which aligns with the broader trend of digitalizing educational practices to enhance instructional effectiveness.

Interestingly, while teacher creativity does not exhibit a strong direct effect on student engagement within this model, technology emerges as a crucial mediating factor. It significantly enhances student involvement (β = 0.476), indicating that when learning is supported by technological tools, whether embedded in e-modules or used independently, it promotes more active student participation.

These results underscore the central role of technology in bridging instructional strategies and learner engagement, particularly in the context of physical education.

Table 3. Inner Model

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
e-module -> involvement	0,420	0,421	0,054	7,746	0,000
e-module -> technology	0,303	0,303	0,051	5,908	0,000
teacher creativity -> involvement	0,212	0,212	0,058	3,668	0,000
teacher creativity -> technology	0,214	0,217	0,057	3,783	0,000
technology -> involvement	0,200	0,201	0,046	4,392	0,000

Based on Table 3. In the inner model, it can be concluded that the data support all hypotheses proposed in this Investigation. E-module significantly influences student involvement with an Original Sample (O) value of 0.420, T Statistics of 7.746, and P Values of 0.000. The analysis shows that good e-module development, such as providing relevant, easily accessible, and interactive material, can significantly increase student involvement in sports learning. This conclusion is based on the strong path coefficient (0.476) and statistical significance, indicating that well-structured and engaging e-modules play a critical role in enhancing student participation and motivation in the learning process.

https://doi.org/10.29407/js_unpgri.v11i2.24904
11 (2) 2025| 258-274

Additionally, teacher creativity significantly influences student engagement, with a path coefficient of 0.212, a T-statistic of 3.668, and a p-value of 0.000. These results indicate that when teachers use innovative methods, creatively design learning materials, and present the content in an engaging way, students are more likely to be actively involved in the learning process.

Technology also has a significant impact on student engagement, with a path coefficient of 0.200, T-statistics of 4.392, and a p-value of 0.000. This suggests that integrating technology into learning, through tools like interactive platforms and easy access to information, can enhance student motivation and participation.

Moreover, e-modules and teacher creativity both significantly positively influence the use of technology in learning, with path coefficients of 0.303 and 0.214, respectively. These findings suggest that the development of e-modules and the creative approaches used by teachers encourage the integration of technology into the learning process. Furthermore, technology acts as a mediator that strengthens the relationship between e-modules and student engagement, as well as between teacher creativity and student engagement. This mediation effect highlights the crucial role of technology in amplifying the impact of e-modules and teacher creativity on student involvement.

The results of this analysis provide empirical evidence that integrating e-modules, teacher creativity, and technology can significantly increase student involvement in sports learning. These findings support the conclusion that technology, e-modules, and teacher creativity all play an essential role in fostering higher levels of student engagement, offering practical recommendations for educators to use these elements to create more engaging and effective learning experiences in the digital age.

Hypothesis Testing

The hypothesis testing results confirm that all proposed relationships in the model are statistically significant. The development of e-modules shows a strong positive effect on student engagement (β =

https://doi.org/10.29407/js_unpgri.v11i2.24904
11 (2) 2025| 258-274

0.420, t = 7.746, p < 0.001), indicating that well-structured and interactive digital materials contribute significantly to a more participatory and motivating learning experience.

Teacher creativity also positively influences student engagement (β = 0.212, t = 3.668, p < 0.001), suggesting that innovative instructional methods enhance students' willingness to participate actively in sports education.

Technology, as an independent variable, has a notable effect on engagement (β = 0.200, t = 4.392, p < 0.001), confirming its role in enriching learning environments through digital tools and media.

Moreover, technology functions as a significant moderating variable. It enhances the relationship between e-modules and student engagement (β = 0.303, t = 5.908, p < 0.001), as well as between teacher creativity and engagement (β = 0.214, t = 3.783, p < 0.001). These results indicate that the effectiveness of both e-modules and creative teaching strategies is strengthened when supported by appropriate technological integration.

DISCUSSION

The findings of this study reaffirm the pivotal role of teacher creativity in enhancing student engagement, particularly through the use of interactive, varied, and student-centered instructional strategies. As highlighted by Saputra and Barikah (2021), creative teaching fosters a positive and enjoyable learning atmosphere, which is essential in physical education, where active student participation is foundational. In such practical subjects, creativity not only captures attention but also sustains motivation, emotional investment, and behavioral involvement in learning activities.

In parallel, this study confirms that the development of well-structured e-modules significantly contributes to student engagement. As a form of technology-based learning, e-modules offer key advantages including flexibility, interactivity, and multimedia integration, which are especially effective in domains that combine theoretical knowledge with physical

https://doi.org/10.29407/js_unpgri.v11i2.24904
11 (2) 2025| 258-274

application (Brunsdon, 2023; Hananingsih & Imran, 2020). The ability of students to access content at their own pace, revisit instructional materials, and engage with diverse learning formats makes e-modules particularly powerful in supporting autonomy and self-directed learning, two factors closely linked to sustained engagement.

Furthermore, teacher creativity and e-modules are not mutually exclusive; rather, they work synergistically. Creative educators can transform e-modules from static content into dynamic learning experiences by integrating gamified elements, real-life scenarios, collaborative tasks, and cross-media content. This aligns with the findings of Fernandez-Rio and Casey (2020), who emphasize that teacher-led innovation significantly affects students' emotional, cognitive, and behavioral engagement, particularly in physically active learning environments like sports education.

In this study, technology plays a dual role: as an independent factor and a moderating variable that strengthens the influence of e-modules and teacher creativity on student engagement. Technological tools such as virtual simulations, instructional videos, interactive platforms, and real-time feedback systems enrich the learning environment by increasing accessibility, immediacy, and immersion (Miller et al., 2023; Goodyear, 2024). These tools facilitate a deeper connection between students and the learning content, bridging the gap between abstract concepts and physical practice.

Technology amplifies the positive effects of both digital content and instructional design when effectively aligned with pedagogical goals. This supports previous research by Coote-Thompson (2023), which illustrates that well-integrated educational technologies can promote personalized learning, improve motivation, and increase theoretical comprehension and practical performance in physical education settings. The combination of creative pedagogy, digital resources, and responsive technology fosters a robust, student-centered learning model capable of addressing the diverse needs of modern learners.

https://doi.org/10.29407/js_unpgri.v11i2.24904
11 (2) 2025| 258-274

Despite these promising findings, this study is not without limitations. It focused solely on senior high school students from a specific geographic area, which may limit the generalizability of the results to broader populations. Moreover, the research did not incorporate other potentially influential factors such as socioeconomic status, peer influence, school culture, or infrastructural support, all of which could moderate student engagement.

To build upon these findings, future research should consider expanding the demographic coverage and employing longitudinal or experimental designs to explore the sustained effects of integrating technology and e-modules into sports education. Investigating mediating and moderating variables such as self-efficacy, digital literacy, and institutional readiness would offer a more comprehensive understanding of student engagement mechanisms in digital and physical learning contexts.

CONCLUSION

Based on the analysis results, this study concluded that the development of e-modules, teacher creativity, and the use of technology have an important positive effect on student engagement in sports learning. E-modules have been shown to increase student engagement by providing structured, easily accessible, and interactive materials. Teacher creativity also plays an important role in creating a fun learning atmosphere, which encourages student participation. In addition, technology not only directly affects student engagement, but also strengthens the relationship between e-modules and student engagement, as well as between teacher creativity and student engagement. Thus, technology increases the effectiveness of e-modules and teacher creativity in creating more interesting and interactive learning. These findings prove that integrating e-modules, teacher creativity, and technology significantly increases student engagement in sports learning. This targeted design ensures that the e-modules are relevant to the context of sports learning, providing students with the tools to engage with both theoretical and practical aspects of physical education.

https://doi.org/10.29407/js_unpgri.v11i2.24904
11 (2) 2025| 258-274

REFERENCES

Abbad, M. M. M. (2021). Using the UTAUT model to understand students' usage of e-learning systems in developing countries. *Education and Information Technologies*, *26*(6), 7205–7224. https://doi.org/10.1007/s10639-021-10573-5

Brunsdon, J. J. (2022). Toward the virtuous mover: a neo-Aristotelian interpretation of physical education. *Physical Education and Sport Pedagogy*. https://doi.org/10.1080/17408989.2022.2135693

Brunsdon, J. J. (2023). 'it's about bringing people together': one middle school physical education teacher's attempt at deploying character education. *Physical Education and Sport Pedagogy*. https://doi.org/10.1080/17408989.2023.2256753

Castro, J., & Morgan, K. (2025). Critical application of TGfU in sports coaching. In *Physical Education and Sport Pedagogy* (pp. 1–15). Informa UK Limited. https://doi.org/10.1080/17408989.2024.2446780

Coote-Thompson, C. (2023). Balancing Sport Prowess with Sport Education in the Caribbean. In *Canada International Conference on Education (CICE-2023) and World Congress on Education (WCE-2023)* (p. 23). Infonomics Society. https://doi.org/10.20533/cice.2023.0003

Fernandez-Rio, J., & Casey, A. (2020). Sport education as a cooperative learning endeavour. In *Physical Education and Sport Pedagogy* (Vol. 26, Issue 4, pp. 375–387). Informa UK Limited. https://doi.org/10.1080/17408989.2020.1810220

Goodyear, V. A. (2024). Digital Natives in Sport Education. In *Digital Natives in Sport Education*. Routledge. https://doi.org/10.4324/9780367766924-ress98-1

Hananingsih, W., & Imran, A. (2020). Modul Berbasis Pendekatan Saintifik Dalam Pembelajaran Pendidikan Jasmani Olahraga Dan Kesehatan. *JUPE: Jurnal Pendidikan …*. https://ejournal.mandalanursa.org/index.php/JUPE/article/view/1593

Kerner, C., & Prescott, A. (2023). Body Image in Sport Education. In *Body Image in Sport Education*. Routledge. https://doi.org/10.4324/9780367766924-ress62-1

Miller, J., Pierce, D., Johnson, J., & Stokowski, S. (2023). Undergraduate sport management curricula in the United States: A content analysis. In *Journal of Hospitality, Leisure, Sport & Tourism Education* (Vol. 33, p. 100457). Elsevier BV. https://doi.org/10.1016/j.jhlste.2023.100457

Pranata, S. P. (2024). Digital Literacy, Skills, and Security: Impact on Digital Leadership in Higher Education. *Al-Tanzim: Jurnal Manajemen Pendidikan Islam*, *8*(3), 775–791. https://doi.org/10.33650/al-tanzim.v8i3.8538

Robitzsch, A. (2020). Why Ordinal Variables Can (Almost) Always Be Treated as Continuous Variables: Clarifying Assumptions of Robust Continuous and Ordinal Factor Analysis Estimation Methods. *Frontiers in Education*, *5*. https://doi.org/10.3389/feduc.2020.589965

Saputra, R., & Barikah, A. (2021). Spiritual Dengan Prestasi Belajar Pendidikan Jasmani. *UPT Publikasi Dan Pengelolaan Jurnal Universtas Islam Kalimantan Muhammad Arsyad*, *4*(1), 60–68. http://dx.doi.org/10.31602/rjpo.v4i1.4985

Vavenkov, M. V. (2022). VR/AR technologies and staff training for mining industry. *Mining Science and Technology (Russian Federation)*, *7*(2), 180–187. https://doi.org/10.17073/2500-0632-2022-2-180-187

Wallhead, T. L., Hastie, P. A., Harvey, S., & Pill, S. (2020). Academics' perspectives on the future of sport education. In *Physical Education and Sport Pedagogy* (Vol. 26, Issue 5, pp. 533–548). Informa UK Limited. https://doi.org/10.1080/17408989.2020.1823960

Waqas, A. (2022). Predicting Remission among Perinatal Women with Depression in Rural Pakistan: A Prognostic Model for Task-Shared Interventions in Primary Care Settings. *Journal of Personalized Medicine*, *12*(7). https://doi.org/10.3390/jpm12071046

Wei, H. C. (2020). Online learning performance and satisfaction: do perceptions and readiness matter? *Distance Education*, *41*(1), 48–69. https://doi.org/10.1080/01587919.2020.1724768