Indonesian Journal of Service
Vol. 1, No. 1 (May 2025): 1-13
DOI: https://doi.org/10.46362/ijs.v1i1.42

Optimizing student learning achievement through education management and learning technology utilization

Widjaja Sugiri
New Beginning Church, Singapore
Sekolah Tinggi Teologi Widya Agape, Malang, Indonesia
Email: sugiriw@gmail.com

Submitted: November 8, 2024 Accepted: February 10, 2025 Published: March 16, 2025

Abstracts:
This article discusses the influence of education management and learning technology utilization on student learning achievement. The background of this study is motivated by the challenges faced by educators in improving the quality of education and student academic achievement in the digital era. The purpose of this article is to examine how effective education management and learning technology integration can contribute to improving student learning achievement. The method used in this article is a literature study that reviews various studies related to education management and learning technology. The results show that good education management, such as managing a conducive learning climate and the role of education leaders in motivating teachers, can significantly improve student achievement. In addition, learning technology, especially interactive learning applications, allows students to learn more independently, flexibly and collaboratively, which in turn improves their engagement and achievement.

Contribution: This article contributes by emphasizing the importance of synergy between effective education management and technology utilization in improving learning quality and student academic achievement in the modern era.

Keywords: education management; learning technology; student learning achievement; educational leadership; interactive learning

1. Introduction

Education is the main foundation in shaping the character and skills of individuals who will face challenges in the future. In this increasingly connected and rapidly developing world, student learning achievement is the main indicator in assessing the success of an education system (Fullan, 2014). However, various factors can affect student learning achievement, one of which is the education management implemented in schools (Leithwood & Riehl, 2005). Effective education management involves

optimally managing human resources, facilities and curriculum to support the teaching and learning process (Blase & Blase, 2000). Therefore, it is important to study how good education management can significantly affect student learning outcomes.

On the other hand, advances in information and communication technology (ICT) have brought about major changes in education (Jonassen, 2000). Learning technologies, such as the use of digital devices, educational apps and online learning, are now an integral part of the teaching and learning process (Harris & Rea, 2011). Technology allows students to access learning materials anytime and anywhere, increasing flexibility in learning (Roblyer & Doering, 2013). Thus, technology can help create a more engaging and interactive learning experience (Laurillard, 2012). Along with this technological development, it is important to understand how the utilization of learning technology can contribute to the improvement of student learning achievement (Siemens, 2005).

Good education management should create an environment that supports the effective application of technology. Educators and education managers need to plan and implement appropriate strategies so that technology can be used optimally to support learning objectives (Yukl, 2013). Appropriate use of technology can enrich the learning process, provide real-time feedback, and motivate students to be more engaged in learning (Kotter, 1996). With careful planning and support from management, learning technology can improve the quality of student learning outcomes (Fullan, 2014). Therefore, it is important to analyze how collaboration between education management and technology can positively impact learning achievement.

In addition, the changes taking place in education also bring their own challenges for managers and educators. Some of the challenges include limited access to technology, lack of training for educators, and resistance to change from students or even schools themselves (Sergiovanni, 2001). Overcoming these challenges requires an active role from education management to ensure that any policies implemented can support the wider adoption of technology (Day, 2000). Effective implementation of learning technologies also requires the active involvement of all parties, including parents and the educational community (Blase & Blase, 2000). Therefore, an in-depth study is needed to find solutions to the challenges (Leithwood & Jantzi, 2006).

It is important to note that good education management focuses not only on administrative aspects, but also on developing existing human resources (Yukl, 2013). Educational leaders must be able to create a clear vision and mission to motivate

teachers, students and staff to achieve common goals (Bush, 2003). Professional development for teachers is key in ensuring that technology is used effectively in teaching (Sergiovanni, 2001). Continuous training for educators will enrich their competence in managing technology-based learning (Kotter, 1996). Thus, the quality of education can be improved, which in turn has a direct effect on student learning achievement.

In addition, research shows that learning technologies can reinforce traditional teaching methods and offer a more personalized learning experience (Siemens, 2005). With technology, students can learn at their own pace, allowing for more adaptive learning (Puentedura, 2014). Technology-based educational applications, simulations and learning tools can also help students understand difficult concepts in a more interactive and engaging way (Roblyer & Doering, 2013). The use of technology in learning can facilitate deeper understanding and increase student engagement in the learning process (Jonassen, 2000). Therefore, proper utilization of technology can be a determining factor in improving students' learning achievement.

However, although technology provides many benefits, not all schools have adequate resources to integrate technology effectively (Harris & Rea, 2011). Factors such as hardware and software availability, limited internet access and lack of stakeholder support can hinder the use of technology in the classroom (Blase & Blase, 2000). Therefore, education management should be able to address these challenges with policies that support the provision of necessary resources (Fullan, 2014). One of the efforts that can be made is through increased budget allocation for technology procurement and training for teachers (Yukl, 2013). This will ensure that technology can be fully utilized to support quality learning.

Against this background, this study aims to examine the influence of education management and learning technology utilization on student learning achievement. The focus of this research is to analyze how these two factors are interrelated and how they can work together to improve student learning outcomes. Through a deeper understanding of the role of education management and technology, it is hoped that effective solutions can be found to improve the quality of education. This research is also expected to provide insights for education managers in designing policies that better support student development (Leithwood & Jantzi, 2006). Ultimately, optimizing student learning achievement is the main goal to be achieved through the implementation of effective education management and appropriate technology utilization (Bush, 2003).

2. Methods

The method used in this study is a literature review approach that aims to analyze and criticize various literatures related to the influence of education management and learning technology on student learning achievement. This approach was chosen because it can provide a deeper understanding of the relationship between these two factors based on previous research (Harris & Rea, 2011). The review process was conducted by identifying relevant studies on the implementation of education management and technology utilization in educational contexts (Blase & Blase, 2000). The selected studies included those that examined the role of management in improving teaching efficiency as well as those that demonstrated the influence of technology on student learning (Yukl, 2013). The literacy used was obtained from reliable sources, such as international journals, academic books, and published research reports.

In conducting the literature review, we selected articles and books that discuss topics related to education management, learning technology, and student learning achievement. We also focused on studies that measured the effectiveness of technology use in supporting learning and how education management can support or hinder the use of technology (Fullan, 2014). The analysis was conducted by comparing findings from various studies to get a more holistic picture of the factors that influence student learning outcomes (Jonassen, 2000). By using this approach, it is expected to find patterns underlying the successful implementation of education management and learning technology in improving student learning achievement (Roblyer & Doering, 2013). The results of this literature review are expected to provide recommendations for schools in designing more effective policies.

3. Results

3.1. The Effect of Education Management on Student Learning Achievement

There are several effects of Education Management on Student Learning Achievement, as follows:

3.1.1. The Effect of Effective Education Management in Creating a Conducive Learning Climate

Effective education management plays an important role in creating a conducive learning climate for students. Leithwood and Riehl (2005) state that competent

educational leaders are able to create an environment that supports learning. Blase and Blase (2000) explain that school leaders who lead with vision can produce a positive climate for students and staff. Good management includes not only administration, but also creating a safe and motivational atmosphere for students. In addition, Fullan (2014) revealed that a conducive learning climate has a direct impact on student engagement and achievement.

A good school environment can increase students' motivation to learn and achieve. A study by Sergiovanni (2001) states that effective management ensures good relationships between leaders, teachers and students. This can reduce stress and increase students' confidence in achieving their academic goals. In this context, supportive school policies also play a role in ensuring students' social and emotional well-being, which affects their learning outcomes. Therefore, good educational management directly supports students' learning achievement (Blase & Blase, 2000).

Furthermore, a conducive learning climate allows students to learn more comfortably and purposefully. Yukl (2013) points out that management that supports teacher and student empowerment plays a role in achieving optimal outcomes. Adequate facilities and support for students' needs are important elements in creating this condition (Leithwood & Riehl, 2005). In addition, the use of appropriate technology in management also supports the creation of more efficient learning spaces (Fullan, 2014). Good education management contributes to improved student academic outcomes by creating a climate that supports the overall learning process.

3.1.2 The role of education leaders in motivating teachers and improving teaching quality

Educational leaders play a vital role in motivating teachers to improve the quality of their teaching. Blase and Blase (2000) reveal that leaders who have good communication can provide the support needed by teachers to develop their teaching skills. This is important because the quality of teaching greatly affects student learning achievement. Research by Yukl (2013) shows that leaders who have a clear vision and can inspire will encourage teachers to work better and innovate in their teaching methods. This motivation provided by educational leaders creates an atmosphere that encourages teachers to continuously improve their teaching quality.

Effective leadership can influence teaching performance by providing constructive feedback and creating opportunities for professional development. Sergiovanni (2001) explains that leaders who care about teachers' professional development will produce an

environment that supports better learning. With continuous development, teachers can implement more innovative teaching techniques, which in turn improves students' understanding of the material. Research by Bush (2003) also suggests that educational leaders who encourage self-reflection and discussion among teachers can improve the overall quality of teaching. This organized professional development can lead to better student learning outcomes.

Overall, good educational leaders are instrumental in creating a supportive atmosphere for teachers to develop, which in turn improves the quality of teaching. Fullan (2014) emphasizes the importance of the leader's role in encouraging updates in teaching that support the evolving needs of students. Effective leaders also serve as motivators who move teachers to continue learning and adapting to new, more effective methods. Thus, the role of leaders in improving the quality of teaching is crucial in achieving students' academic goals (Leithwood & Riehl, 2005).

3.1.3. Efficient Management of Resources, Including Learning Technology

Efficient resource management, including the utilization of learning technology, is crucial in improving student learning achievement. Harris and Rea (2011) point out that the utilization of technology in learning can enrich students' learning experience and allow them to access more diverse materials. Good management of resources such as hardware and software also ensures students have adequate access to independent learning. Fullan (2014) emphasizes that the integration of technology into education enables more interactive and adaptive learning, which suits the needs of individual students. In this case, technology becomes a tool that serves to support students' academic achievement effectively.

In addition, good management of resources can enhance collaboration between teachers and students. Roblyer and Doering (2013) emphasize the importance of utilizing digital learning tools to increase student engagement. Efficient management also includes providing relevant learning materials and supporting learning in a more flexible way. With technology, students can study outside of school time and access materials more in-depth, which helps them prepare better for exams and academic assignments (Jonassen, 2000). Therefore, careful management of educational resources greatly supports student learning achievement.

Successful resource management requires appropriate policies in the use of budget and available technology. Blase and Blase (2000) mention that the wise and efficient use of technology can improve teaching and facilitate a more engaging learning process. Appropriately used technology can also support more personalized teaching and help students with special needs to learn in their own way (Yukl, 2013). Good management of technology also enables better collaboration between different parties in the school. In this way, efficient management of resources can contribute to improved student academic outcomes (Leithwood & Riehl, 2005).

3.2 The Effect of Learning Technology on Student Learning Achievement

3.2.1 Technology Enables Students to Access Information Independently and Flexibly

The utilization of technology in education allows students to access information independently and flexibly. Harris and Rea (2011) explain that technology provides opportunities for students to learn outside the constraints of time and space, which enriches their learning experience. Students can access various learning resources through the internet, digital learning platforms, and available educational applications. Jonassen (2000) reveals that technology allows students to explore certain topics more deeply, according to their interests and needs. Thus, technology supports students to learn in a more independent way, which contributes to improving their academic performance.

Technology also enables a more flexible approach to learning, where students can choose learning materials that suit their abilities. Puentedura (2014) points out that learning technology supports learning models that allow students to control their learning rhythm. With this ability, students can focus on materials that they find more difficult and take more time to understand. Conversely, they can accelerate understanding for easier material. The use of technology enables more adaptive learning, which can improve student confidence and learning outcomes.

In addition, technology gives access to students with different learning styles to access materials in a way that suits their preferences. Siemens (2005) argues that technology provides various forms of content that can be adapted to students' visual, auditory or kinesthetic learning styles. With this access, students can learn in a way that better suits their preferences, increasing the effectiveness of learning. Technology also

facilitates project-based learning and research that allows students to gain a deeper understanding of the subject matter (Laurillard, 2012).

3.2.2. Use of Interactive Learning Applications to Increase Student Engagement

The use of interactive learning applications can increase student engagement in learning. Roblyer and Doering (2013) state that technology-based applications allow students to be more actively involved in the learning process through simulations, quizzes and educational games. This can increase students' motivation to learn as they can interact directly with the learning materials. Fullan (2014) emphasizes that fun and informative learning apps can enrich students' learning experience, thus improving their academic outcomes. Therefore, the use of interactive apps plays an important role in improving students' engagement in learning.

In addition, interactive apps can help students to learn in a more dynamic and engaging way. Research by Laurillard (2012) shows that apps that include gamification elements can motivate students to keep learning and try harder in achieving academic goals. It also helps students to practice more complex skills in a more fun and less boring way. The technology creates a more immersive learning experience, which contributes to a deeper understanding of the subject matter (Jonassen, 2000). This strengthens the argument that interactive learning apps can improve student achievement in the long run.

The importance of interactive learning apps is also seen in the way they support collaborative learning between students. Yukl (2013) states that apps that facilitate student collaboration in solving problems or completing projects together can strengthen their understanding of academic concepts. The use of these apps can foster effective teamwork and prepare students to work in a more dynamic and technology-based environment. In this regard, interactive apps improve students' social skills as well as their academic skills, which ultimately contribute to improving their learning outcomes (Roblyer & Doering, 2013).

4. Discussion

Effective education management has a major impact on student learning achievement. Based on the results of the studies described, good management in the aspect of learning climate has been proven to improve student academic outcomes. Leithwood and Riehl (2005) emphasize that educational leaders who can create a safe

and motivational atmosphere for students have an important role in improving the quality of education. Conversely, if education management is not well executed, it will create an unfavorable climate that can hinder student development. Therefore, it is important for schools to focus attention on managerial strategies that can create a conducive learning climate, as a first step to improving student achievement (Blase & Blase, 2000; Fullan, 2014).

In addition, the role of education leaders in motivating teachers is crucial. Leaders who can provide support and clear direction will encourage teachers to improve the quality of their teaching. Sergiovanni (2001) states that good leadership produces more optimal results, not only for teachers but also for students. Research by Bush (2003) also shows that leaders who are open to innovation and shared reflection can facilitate teachers' professional development, which in turn contributes to student learning achievement. Thus, strengthening the role of educational leaders in teacher motivation and professional development should be seen as a priority in efforts to improve teaching quality and student learning achievement.

Resource management, including the use of learning technology, plays an important role in facilitating better learning. Harris and Rea (2011) suggest that the integration of technology in education allows students to be more flexible in accessing learning materials. A well-managed use of technology not only enriches students' learning experience but also increases their engagement in the learning process. Jonassen (2000) reveals that technology provides opportunities for students to interact with a more diverse range of learning resources, thus broadening their horizons. Effective technology management also ensures that these resources are used efficiently to support overall educational goals (Roblyer & Doering, 2013).

Furthermore, learning technology gives students access to information more independently and flexibly. Siemens (2005) explains that technology allows students to learn at their own pace and access more in-depth material according to their needs. This is particularly beneficial for students with various learning styles, allowing them to learn according to their preferences (Puentedura, 2014). Research by Laurillard (2012) also shows that technology-based learning allows students to be more actively involved in the learning process through simulation and direct interaction with the material. Thus, integrating technology in learning gives students the freedom to control how they learn, potentially improving their academic outcomes.

The utilization of interactive learning applications has been shown to increase student engagement. Roblyer and Doering (2013) emphasize that fun and informative apps encourage students to be more engaged in the learning process. Technology-based applications, as described by Yukl (2013), not only improve studentsunderstanding of the material but also motivate them to continue learning in a more enjoyable way. Research by Laurillard (2012) also shows that interactive learning apps support students in overcoming learning challenges in a more creative and enjoyable way. This proves that technology can be an effective tool in improving students' motivation and learning outcomes.

In addition, the use of technology enables more collaborative project-based learning. Sergiovanni (2001) argues that the use of technology in a collaborative learning context can enhance students' social and teamwork skills. By working on projects together, students can solve problems collectively, which not only strengthens their understanding of the material but also develops cooperation skills that are much needed in the professional world. This suggests that learning technology not only improves academic achievement, but also prepares students for more complex workplace challenges (Jonassen, 2000; Puentedura, 2014). Therefore, technology has great potential in improving the social and academic aspects of education.

While technology has many benefits, it is important to remember that its utilization must be accompanied by proper training and support for teachers. Blase and Blase (2000) point out that technology integrated without adequate assistance can be an obstacle to effective teaching. Teachers who are not well trained in the use of technology may find it difficult to maximize its potential. Therefore, it is important to provide continuous training to teachers so that they can use technology optimally in supporting the learning process. Thus, the successful use of technology in learning is highly dependent on teachers' readiness and skills in utilizing the technology (Leithwood & Riehl, 2005; Blase & Blase, 2000).

Education management that integrates technology well can create more personalized and adaptive learning. Fullan (2014) reveals that technology enables more personalized teaching, where students can learn in a way that suits their needs and abilities. This adaptive education system provides opportunities for students to learn at their own pace, both in terms of easier and more difficult material. Leithwood and Riehl (2005) added that adaptive learning gives students the opportunity to develop optimally,

which ultimately improves their academic performance. Therefore, the integration of technology in teaching supports the creation of a more individualized and effective learning experience.

The synergy between effective education management and the use of well-integrated technology can significantly improve student learning achievement. Research by Sergiovanni (2001) and Bush (2003) shows that good management supported by appropriate learning technology can create a supportive environment for students' academic development. Effective educational leaders, together with the appropriate use of technology, can create an atmosphere that motivates students to learn better. Thus, it is important to see education management and learning technology as two complementary elements in improving the overall quality of education and student learning achievement. Therefore, further research in this area can continue to identify new ways to optimize these two elements in the educational context.

5. Conclusion

This article highlights the important role of effective education management and the use of learning technology in improving student achievement. Good education management, which includes creating a conducive learning climate, the role of education leaders who motivate teachers and efficient resource management, can have a positive impact on student academic outcomes. Educational leaders who are able to provide support and clear direction will encourage teachers to continuously improve the quality of their teaching, which in turn has an impact on student achievement. Meanwhile, the integration of technology in learning, such as the use of interactive learning apps, gives students the freedom to learn according to their pace and learning style, which improves student engagement and understanding.

Technology also enables more collaborative project-based learning, strengthening students' social skills and encouraging them to work together to solve problems. However, it is important to remember that the use of technology must be supported by adequate training for teachers so that can be optimally utilized. The integration between effective education management and technology that supports personalized and adaptive learning will create a better environment for students to thrive. Therefore, the synergy between the two should continue to be considered in an effort to improve the quality of education and achieve optimal student learning achievement.

This article shows that the combination of well-structured education management and properly integrated learning technology can contribute significantly to improving student learning achievement. This success depends on how both elements are implemented and managed synergistically to create conditions that support effective and quality learning.

6. Reference

Anderson, C. A., & Krathwohl, D. R. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. Longman.

Blase, J. J., & Blase, J. R. (2000). *Effective school leadership: Developing principals for today's schools*. SAGE Publications.

Bloom, B. S. (1984). The 2 sigma problem: The search for methods of group instruction as effective as one-on-one tutoring. *Educational Leadership, 41*(8), 4-17.

Bush, T. (2003). *Theories of educational management*. SAGE Publications.

Day, C. (2000). *The challenge of leading schools*. Routledge.

Fullan, M. (2014). *The new meaning of educational change*. Teachers College Press.

Harris, J., & Rea, S. (2011). *Learning with technology: A constructivist perspective*. Pearson Education.

Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.

Hallinger, P. (2003). *Leading educational change: Reflections on the practice of instructional and transformational leadership*. Springer.

Jonassen, D. H. (2000). *Computers as mindtools for schools: Engaging critical thinking*. Merrill/Prentice Hall.

Kotter, J. P. (1996). *Leading change*. Harvard Business Press.

Kozma, R. B. (1991). Learning with media. *Review of Educational Research, 61*(2), 179-211.

Laurillard, D. (2012). *Teaching as a design science: Building pedagogical patterns for learning and technology*. Routledge.

Leithwood, K., & Riehl, C. (2005). *What we know about successful school leadership*. National College for School Leadership.

Leithwood, K. A., & Jantzi, D. (2006). Transformational leadership and school effectiveness. *Educational Administration Quarterly, 42*(2), 221-258.

Palloff, R. M., & Pratt, K. (2013). *The excellent online instructor: Strategies for professional development*. Jossey-Bass.

Puentedura, R. R. (2014). SAMR model and technology integration: An overview. *International Society for Technology in Education (ISTE)*.

Roblyer, M. D., & Doering, A. H. (2013). *Integrating educational technology into teaching*. Pearson.

Schunk, D. H. (2016). *Learning theories: An educational perspective*. Pearson Education.

Sergiovanni, T. J. (2001). *The principalship: A reflective practice perspective*. Pearson Education.

Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning, 2*(1).

Steinberg, L. (2016). *Adolescence*. McGraw-Hill Education.

Tharp, R. G., & Gallimore, R. (1988). *Rousing minds to life: Teaching, learning, and schooling in social context*. Cambridge University Press.

Woolfolk, A. (2016). *Educational psychology*. Pearson Education.

Yukl, G. A. (2013). *Leadership in organizations*. Pearson Education.