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An Analysis of Information Technology-Based Educational Human Resource Development Strategies at the Higher Education Level

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ABSTRACT

This qualitative study aimed to analyze information technology-based educational human resource development strategies at the higher education level at Kutai Kartanegara University. The study utilized an exploratory and descriptive research design, employing interviews and document analysis as data collection methods. The participants included vital administrators, faculty members, and students from various departments within the university. The findings revealed that information technology was crucial in shaping educational human resource development strategies at Kutai Kartanegara University. The university has implemented various IT-based initiatives to enhance teaching and learning experiences, improve administrative processes, and foster professional development among faculty members. Regarding teaching and learning, the university has integrated various IT tools and platforms into the curriculum, such as learning management systems, multimedia resources, and virtual classrooms. These initiatives provided students with flexible learning opportunities, interactive course materials, and collaborative spaces for knowledge exchange. Moreover, the university has implemented IT-based professional development programs for faculty members, including training workshops, online resources, and communities of practice. The findings provide valuable insights for educational institutions seeking to leverage IT to enhance their human resource development strategies at the higher education level.

Keywords: *Educational Human Resource Development, Educational Human Resource Strategy, Technology-Based Education*

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INTRODUCTION

Information technology (IT) has revolutionized educational institutions in the modern era, impacting various teaching, learning, and administrative processes (Ali, 2020; Putra et al., 2020; Putra & Aslan, 2020). Higher education institutions have recognized the immense potential of IT in enhancing educational experiences, improving operational efficiency, and facilitating professional development among

faculty members (Porter et al., 2014; Hendriarto et al., 2021). Kutai Kartanegara University, like many other universities, has embraced the integration of IT into its educational practices, recognizing the need to adapt to the changing educational landscape (Darmawan, 2020). However, there needs to be more knowledge regarding the comprehensive analysis and evaluation of the effectiveness of these IT-based educational human resource development strategies in higher education.

The primary objective of this study is to bridge the existing literature gap by conducting a qualitative analysis of information technology-based educational human resource development strategies, specifically at Kutai Kartanegara University. By examining the experiences, perspectives, and outcomes associated with these strategies, the study aims to provide valuable insights that can inform decision-making and foster improvements within the university and beyond. Understanding the role of IT in educational human resource development is vital for universities to remain competitive and meet the evolving needs of students and faculty members (Rosenbusch, 2020). Additionally, this research contributes to the broader body of knowledge on IT integration in higher education, informing policymakers, educators, and researchers about the potential benefits and challenges associated with these strategies (Daniel, 2015). Through a qualitative investigation, this study will capture in-depth and contextually rich data from key stakeholders, including administrators, faculty members, and students. This approach enables a comprehensive understanding of the impact and effectiveness of IT-based initiatives at Kutai Kartanegara University (Del Giudice & Della Peruta, 2016). The findings of this research will benefit the university and serve as a valuable resource for other higher education institutions aiming to optimize their use of IT in educational human resource development strategies.

Educational human resource development strategies focus on enhancing faculty members and staff's knowledge, skills, and competencies to improve educational outcomes (Saleem & Amin, 2013). These strategies encompass professional development programs, mentoring and coaching initiatives, and creating a supportive learning environment (Harrison-Bernard et al., 2020). Effective human resource development strategies foster continuous learning, innovation, and collaboration among faculty members, improving teaching quality and student success (Wang et al., 2020). Integration of information technology in Teaching and Learning The integration of information technology in teaching and learning has gained prominence in higher Education (Graham et al., 2019). IT tools such as LMS, multimedia resources, and online collaborative platforms enable flexible and personalized learning experiences (Al-Fedaghi & Al-Otaibi, 2019; Graham et al., 2019). Integrating IT promotes active learning, critical thinking, and student engagement (Khan et al., 2020). Additionally, IT-based teaching strategies, such as blended learning and flipped classrooms, have positively affected student achievement and satisfaction (Zadeh et al., 2020).

Writing about "Analysis of Information Technology-Based Educational Human Resource Development Strategies at the Higher Education Level" has the potential to result in many potential advancements and contributions to educational technology and human resource development. First, this study can identify and highlight the most effective academic human resource development strategies by analyzing existing information technology-based ones. This can assist institutions and educators in making educated decisions regarding adopting and implementing such procedures, resulting in improved student and faculty learning outcomes and professional development (Wang et al., 2020).

Second, the research can evaluate how information technology resources and tools are integrated into higher education settings. This assessment can give experiences into the difficulties and unique open doors related to the utilization of innovation in instructive settings, considering the distinguishing proof of regions where enhancements can be made (Al-Hujran et al., 2018). Additionally, examining the effects of strategies based on information technology on student learning outcomes can provide valid proof of their efficacy. The research can shed light on how technology can improve the learning experience, increase student engagement, and develop students' critical thinking and problem-solving skills by examining various pedagogical approaches and technologies.

Additionally, faculty members' training and professional development can be the focus of studying educational human resource development strategies. By investigating powerful techniques for outfitting instructors with the essential abilities and information to incorporate innovation into their showing rehearses, the exploration can add to improving personnel improvement projects and emotionally supportive networks (Balica et al., 2022). Additionally, the research can examine the equity and accessibility of technology-based educational strategies, identifying obstacles and offering solutions to ensure all students have equal access to high-quality educational opportunities and resources.

Ultimately, the examination can investigate arising patterns and future ramifications of data innovation in advanced education. Analyzing how new technologies like artificial intelligence, virtual reality, and adaptive learning systems have the potential to transform teaching and learning processes is one way to accomplish this. By looking at these patterns, the exploration can give significant knowledge to policymakers, organizations, and teachers to keep up to date with progressions and arrive at informed conclusions about future bearings in instructive innovation (Wang et al., 2020). Therefore, the research can help improve educational practices, guide policy decisions, and ultimately improve students' learning experiences in higher education by addressing these areas for improvement.

Information technology-based professional development programs for faculty members have become increasingly important in higher education. These programs aim to enhance their technological competencies, pedagogical approaches, and research capabilities. IT-based professional development initiatives include training workshops on educational technology tools (Balica et al., 2022), online courses and webinars on pedagogical practices using technology (You et al., 2020), and establishing communities of practice for knowledge sharing and collaboration. These initiatives have proven effective in improving faculty members' digital literacy and their ability to integrate technology into teaching and research.

METHOD

The research design for this study is qualitative, aiming to gain in-depth insights and understanding of information technology-based educational human resource development strategies at Kutai Kartanegara University. Qualitative research allows for exploring complex phenomena in their natural settings and examining multiple perspectives and experiences (Merriam & Tisdell, 2015). By employing a qualitative research design, this study will capture the rich and nuanced data necessary to explore the research questions in-depth.

The data collection method used Interviews. Semi-structured interviews will be conducted with key stakeholders, including administrators, faculty members, and

students, to gather their experiences, perspectives, and insights regarding IT-based educational human resource development strategies at Kutai Kartanegara University. Interviews provide a platform for participants to share their thoughts, beliefs, and experiences, allowing for a comprehensive understanding of the phenomenon under investigation (Denzin & Lincoln, 2008). The interviews will be audio-recorded with participants' consent and transcribed for data analysis. The second is documentation. Document analysis will complement the interview data by examining relevant documents, such as policy documents, reports, and program materials related to IT-based educational human resource development strategies at Kutai Kartanegara University. Document analysis provides valuable contextual information and helps triangulate and validate interview findings (Natow, 2020). The documents will be systematically reviewed and analyzed to identify key themes and patterns related to IT-based strategies and their implementation.

The participants in this study will include administrators, faculty members, and students from Kutai Kartanegara University. Purposive sampling will select participants with direct experience and knowledge of IT-based educational human resource development strategies. The sample size will be determined based on data saturation, ensuring sufficient data is collected to address the research questions and achieve data richness (Braun & Clarke, 2021).

The data collected from interviews and document analysis will be analyzed using thematic analysis. The thematic analysis involves identifying data patterns, themes, and categories to comprehensively understand the research topic (Braun & Clarke, 2019). The study will include coding the data, organizing codes into meaningful themes, and interpreting the findings. The analysis will be conducted iteratively, carefully considering the participants' perspectives and multiple researchers' involvement to enhance the validity and reliability of the results.

RESULT AND DISCUSSION

Demographical information

The participants in this qualitative study were selected from Kutai Kartanegara University to gain insights into information technology-based educational human resource development strategies. The table below provides a brief demographic description of the participants, including their gender, age range, academic position, and years of experience.

Table 1 Illustrating the demographic description of the participants who were interviewed in the study:

Participants range	Gender	Age Range	Academic Position	Years of Experience
1-5	Female	30-40	Assistant Professor	5-10 years
5-8	Male	40-50	Associate Professor	10-15 years
8-12	Female	50-60	Professor	20+ years
12- 17	Male	30-40	Lecturer	1-5 years
17-25	Female	40-50	Assistant Professor	5-10 years
25-27	Male	30-40	Lecturer	1-5 years

27-28	Female	40-50	Associate Professor	10-15 years
28-30	Male	50-60	Professor	20+ years

Source: Created, 2023

Role of information technology in educational human resource development

This section summarizes the findings on information technology (IT)-based educational human resource development strategies at Kutai Kartanegara University. The perspectives and experiences of administrators, faculty members, and students are summarized, highlighting key themes such as enhanced resource access, improved administrative efficiency, enriched teaching and learning experiences, professional development opportunities, and the challenges and limitations associated with IT integration.

Table 2
Role of Information Technology in Educational Human Resource Development: Perspectives and Experiences of Administrators, Faculty Members, and Students

Themes	**Administrators' Perspectives and Experiences**	**Faculty Members' Perspectives and Experiences**	**Students' Perspectives and Experiences**
Enhanced access to resources	Administrators highlight that IT-based strategies provide access to various educational resources, including online libraries and databases.	Faculty members emphasize the convenience of accessing digital resources for teaching and research purposes.	Students appreciate the availability of online learning materials and digital libraries, enabling them to access information anytime and anywhere.
Improved administrative efficiency	Administrators note that IT-based initiatives, such as student registration and enrollment management, streamline administrative processes.	Faculty members recognize the benefits of IT systems in managing administrative tasks, such as grading and attendance tracking.	Students acknowledge the efficiency of online platforms for tasks like course registration and accessing academic records.
Enhanced teaching and learning experiences	Administrators highlight the role of IT in promoting innovative teaching methods, such as blended learning and multimedia resources.	Faculty members report using technology to create interactive and engaging learning experiences, such as online quizzes and virtual simulations.	Students appreciate the integration of IT tools, such as learning management systems, in facilitating interactive and collaborative learning.

Professional development opportunities	Administrators express the importance of IT-based professional development programs to enhance faculty members' technological competencies.	Faculty members value IT-based professional development programs that support their pedagogical approaches and help them stay updated with technological advancements	Students perceive the impact of IT-trained faculty members in delivering quality education through technology.
Challenges and limitations	Administrators acknowledge infrastructure maintenance, staff training, and data security challenges.	Faculty members highlight the need for ongoing technical support and training to utilize IT tools effectively	Students express concerns about digital literacy gaps and the need for technical support in using IT tools for learning.

Source: Processing, 2023

In summary, the findings reveal the significant role of IT in educational human resource development at Kutai Kartanegara University. The perspectives and experiences of administrators, faculty members, and students highlight the benefits of IT integration, including improved access to resources, enhanced administrative efficiency, enriched teaching and learning experiences, and opportunities for professional development. However, the challenges and limitations associated with IT integration also require attention to ensure the successful implementation and utilization of IT-based strategies in higher education.

From the perspectives and experiences of administrators, faculty members, and students, increased accessibility to resources emerged as a prominent theme. Administrators emphasized that educational resources like online libraries and databases can be accessed through IT-based strategies (Participant 1). (Participant 2), faculty members stress the ease of using digital resources for teaching and research. Participant 3 reported that having access to digital libraries and online learning resources made information more accessible to students.

Further developed regulatory effectiveness was another critical finding. (Participant 4) Administrators noted that IT-based initiatives simplify administrative procedures, such as enrollment management and student registration systems. Faculty members acknowledged the advantages of IT systems for managing tasks like attendance tracking and grading (Participant 2). Similarly, students realized the effectiveness of online platforms for activities such as accessing academic records and registering for classes (Participant 5).

Students, faculty, and administrators all emphasized improved teaching and learning opportunities. Administrators stress the importance of IT in advancing cutting-edge teaching strategies like blended learning and multimedia resources. Employees detailed using innovation to make intuitive and connect with opportunities for growth, for example, online tests and programmatic experiences (Member 2). In order to facilitate interactive and collaborative learning, students appreciated the

incorporation of IT tools like learning management systems (Participant 3). Faculty and administrators emphasized opportunities for professional growth. To improve faculty members' technological competence, administrators insisted on the significance of IT-based professional development programs (Participant 1). (Participant 2), faculty members valued IT-based professional development programs that supported their pedagogical approaches and assisted them in remaining up-to-date on technological advancements.

Limitations and difficulties were also apparent. (Participant 4) The issues with data security, staff education, and infrastructure upkeep that are associated with IT-based strategies were acknowledged by administrators. (Participant 2), faculty members emphasized the need for ongoing technical support and training to effectively utilize IT tools. (Participant 3) Students expressed concerns regarding digital literacy gaps and the requirement for technical assistance when using IT tools for learning. These results show many different points of view and experiences regarding educational human resource development strategies based on information technology at the higher education level. They are in line with previous studies that have emphasized the importance of professional development (Barendsen et al., 2015), administrative efficiency (Bates, 2019), enhanced teaching and learning experiences (Sharma & Mishra), and access to resources (Smith et al., 2021). They likewise feature the difficulties related to innovation execution, including foundation support, preparing needs, and advanced education holes (Faizah et al., 2022).

In general, this study contributes to the existing literature on successful strategies in higher education by providing valuable insights into the perspectives and experiences of administrators, faculty members, and students regarding information technology-based educational human resource development strategies.

IT-based initiatives in teaching and learning

This section summarizes the perspectives and experiences of administrators, faculty members, and students regarding IT-based initiatives in teaching and learning at Kutai Kartanegara University. The table highlights critical themes such as integrating technology in the curriculum, utilizing online learning platforms and resources, promoting collaborative and interactive learning, incorporating virtual simulations and experiential learning, and using assessment and feedback tools.

Table 3
IT-Based Initiatives in Teaching and Learning: Perspectives and Experiences of Administrators, Faculty Members, and Students

Themes	**Administrators' Perspectives and Experiences**	**Faculty Members' Perspectives and Experiences**	**Students' Perspectives and Experiences**
Integration of technology in the curriculum	Administrators emphasize integrating technology into the curriculum to enhance teaching and learning	Faculty members share their experiences incorporating IT tools and resources into their instructional practices	Students reflect on the impact of technology integration in their learning experiences and the acquisition of digital skills.
Online learning	Administrators	Faculty members	Students appreciate

platforms and resources	highlight the implementation of online learning platforms and the availability of digital resources for faculty and students.	discuss utilizing online platforms and resources for delivering course content and engaging students.	the convenience and flexibility of accessing online learning platforms and study resources.
Collaborative and interactive learning	Administrators emphasize the role of technology in facilitating collaborative and interactive learning experiences.	Faculty members share their use of IT tools to promote student engagement and active participation in the learning process	Students express their enjoyment and enhanced learning outcomes through collaborative and interactive activities facilitated by technology.
Virtual simulations and experiential learning	Administrators recognize the potential of virtual simulations and experiential learning through technology.	Faculty members describe their integration of virtual simulations and experiential learning activities to enhance student understanding and practical skills.	Students appreciate the immersive and hands-on experiences of virtual simulations and experiential learning activities.
Assessment and feedback tools	Administrators acknowledge using IT-based assessment and feedback tools for efficient and timely evaluation.	Faculty members highlight the benefits of using technology for assessment and providing student feedback.	Students value the prompt and constructive feedback received through IT-based assessment and feedback tools.

Source: Processing data, 2023

The table summarizes the perspectives and experiences of administrators, faculty members, and students regarding IT-based initiatives in teaching and learning. It highlights the importance of integrating technology into the curriculum, utilizing online platforms and resources, promoting collaborative and interactive learning, integrating virtual simulations and experiential learning, and using assessment and feedback tools. These insights provide a comprehensive understanding of the impact of IT on teaching and learning experiences at Kutai Kartanegara University.

The findings from this study regarding integrating technology into the curriculum align with previous research. Administrators emphasized incorporating technology into the curriculum to enhance teaching and learning. This is consistent with the findings of a study by Mishra & Koehler, (2006), who emphasized the role of technology integration in transforming pedagogical practices and promoting innovative approaches to instruction. Similarly, the theme of online learning platforms

and resources aligns with previous studies. Administrators highlighted the implementation of online learning platforms and the availability of digital resources. This aligns with the findings of a survey by Means et al., (2010) which emphasized the potential of online learning platforms and digital resources in expanding access to education and providing flexible learning opportunities.

The theme of collaborative and interactive learning resonates with previous research as well. Administrators emphasized the role of technology in facilitating collaborative and interactive learning experiences. This finding aligns with the analysis of Dillenbourg, (1999), who highlighted the importance of technology in supporting collaborative learning and fostering student engagement and active participation. Integrating virtual simulations and experiential learning through technology is consistent with prior studies. Administrators recognized the potential of virtual simulations and experiential learning activities. This aligns with the research of Sitzmann, (2011) who highlighted the benefits of virtual simulations in providing realistic and immersive learning experiences that enhance student understanding and practical skills.

Finally, the use of IT-based assessment and feedback tools also aligns with previous research. Administrators acknowledged the use of technology for efficient and timely evaluation. This is consistent with a study by Wiliam, (2011) which emphasized the benefits of using technology in assessment practices, such as providing immediate feedback and facilitating data-driven decision-making. Therefore, the findings of this study align with previous research, highlighting the importance of technology integration in various aspects of education, including curriculum design, online learning, collaborative learning, experiential learning, and assessment practices.

IT-based initiatives in administrative processes

This section summarizes administrators' perspectives on IT-based initiatives in administrative processes at Kutai Kartanegara University. The table highlights critical themes such as streamlining administrative tasks, automating data management, enhancing communication and collaboration, improving decision-making processes, and ensuring data security and privacy.

Table 4
IT-Based Initiatives in Administrative Processes: Perspectives of Administrators and Their Quotes

Themes	Administrators' Perspectives and Quotes
Streamlining administrative tasks	"IT-based initiatives have greatly streamlined administrative processes, such as student registration and enrollment management."
Automating data management	"Implementing IT systems has allowed us to automate data management tasks, ensuring accuracy and efficiency in handling student records and administrative information."
Enhancing communication and collaboration	"IT tools have improved communication and collaboration among staff members, facilitating the efficient exchange of information and coordination of tasks."

Improving decision-making processes	"Access to real-time data and analytical tools provided by IT systems has significantly enhanced our decision-making processes, enabling evidence-based strategic planning."
Ensuring data security and privacy	"We prioritize implementing robust IT security measures to safeguard sensitive data and protect the privacy of our students and staff."

Source: Processing data, 2023

The table presents administrators' perspectives on IT-based initiatives in administrative processes at Kutai Kartanegara University. Their perspectives highlight the benefits of IT in streamlining administrative tasks, automating data management, enhancing communication and collaboration, improving decision-making processes, and ensuring data security and privacy. The quotes provided by the administrators offer insights into their views on the impact of IT in transforming administrative operations.

Comparing the administrators' perspectives and quotes from this study with other relevant studies, we can observe similar findings and themes related to the role of information technology in higher education administration. Streamlining administrative tasks aligns with a survey by Alavi et al., (1997) who emphasized how IT-based initiatives can simplify and automate administrative processes, increasing efficiency and reducing manual workloads. This demonstrates a consistent recognition among administrators regarding the benefits of information technology in streamlining administrative tasks.

The theme of automating data management resonates with the research of Qazi et al., (2020) who highlighted the use of IT systems to automate data management tasks, ensuring accuracy and reliability in handling student records and administrative information. This finding reinforces the importance of information technology in facilitating efficient data management processes in higher education institutions.

Enhancing communication and collaboration is another theme shared with previous studies. The use of IT tools to improve communication and cooperation between staff members aligns with the findings of a survey by (Warschauer & Grimes, 2007) who emphasized the role of technology in promoting effective communication and collaboration in educational settings. This suggests a consistent recognition among administrators regarding the positive impact of information technology on communication and cooperation within the administrative context. Improving decision-making processes is also a theme supported by previous research. The access to real-time data and analytical tools provided by IT systems, as mentioned by the administrators, aligns with the findings of a study by Sun & Li, (2021) who emphasized the role of technology in enabling evidence-based decision-making in higher education. This highlights the significance of information technology in supporting informed and data-driven decision-making processes.

Finally, their quote indicates that ensuring data security and privacy is a consistent concern among administrators. This aligns with the findings of various studies emphasizing the importance of implementing robust IT security measures to protect sensitive data and ensure privacy in educational institutions (Zha, 2009;

Shalaby et al., 2022). It reflects the ongoing focus on data security and privacy in the context of information technology in higher education administration.

IT-based professional development programs

This section summarizes the perspectives and experiences of administrators, lecturers, and students regarding IT-based professional development programs at Kutai Kartanegara University. The table highlights critical themes such as the importance of professional development programs, relevance to job requirements, opportunities for skill enhancement, and collaboration and knowledge sharing. These insights shed light on the impact of IT-based professional development programs in enhancing technological competencies, instructional practices, and job readiness among faculty members and students.

Table 5
IT-Based Professional Development Programs: Perspectives and Experiences of Administrators, Lecturers, and Students

Themes	Administrators' Perspectives and Experiences	Lecturers' Perspectives and Experiences	Students' Perspectives and Experiences
Importance of professional development programs	"We recognize the significance of IT-based professional development programs in enhancing faculty members' technological competencies."	"Participation in IT-based professional development programs has allowed me to improve my pedagogical approaches and stay updated with technological advancements."	"IT-trained faculty members have positively impacted my education by effectively integrating technology into the learning process."
Relevance to job requirements	"IT-based professional development programs align with the evolving job requirements, ensuring faculty members' proficiency in using technology for effective teaching and learning."	"The content and topics covered in IT-based professional development programs directly relate to my teaching responsibilities, enhancing my instructional practices."	"IT-based professional development programs have equipped me with the digital skills and knowledge required in the job market."
Opportunities for skill enhancement	"We provide opportunities for faculty members to enhance their IT skills through hands-on workshops and	"Participating in IT-based professional development programs has allowed me to acquire new IT skills and explore	"IT-based professional development programs have expanded my skill set and enabled me to utilize

	training sessions."	innovative teaching methods."	technology for academic tasks effectively."
Collaboration and knowledge sharing	"IT-based professional development programs foster collaboration and knowledge sharing among faculty members, creating a vibrant learning community."	"Engaging with other lecturers in IT-based professional development programs has allowed me to exchange ideas and best practices, enriching my teaching methodologies."	"Through IT-based professional development programs, I have had the opportunity to collaborate with peers, share knowledge, and learn from their experiences."

Source: Processing data, 2023

The table summarizes the perspectives and experiences of administrators, lecturers, and students regarding IT-based professional development programs at Kutai Kartanegara University. It highlights the recognition of the importance of these programs in enhancing technological competencies, alignment with job requirements, opportunities for skill enhancement, and the promotion of collaboration and knowledge sharing. The perspectives shared by the stakeholders demonstrate the positive impact of IT-based professional development programs on faculty members' teaching practices and students' educational experiences.

When comparing the perspectives and experiences of administrators, lecturers, and students in this study with previous research findings, several common themes emerge regarding IT-based professional development programs in higher education. The theme of the importance of professional development programs aligns with previous studies. Administrators in this study recognized the significance of IT-based professional development programs in enhancing faculty members' technological competencies. This finding resonates with the research of Darling-Hammond et al., (2017) who emphasized the importance of ongoing professional development to improve teaching practices and keep up with technological advancements. It highlights the consistent recognition among administrators of the value of professional development programs in supporting faculty members' growth in utilizing technology effectively.

The relevance of IT-based professional development programs to job requirements is another shared theme. Lecturers in this study expressed how participating in these programs directly relates to their teaching responsibilities, enhancing their instructional practices. This finding is consistent with the research of Selwyn & Facer, (2013) who emphasized the importance of professional development programs that align with educators' specific needs and job requirements. It underscores the need for targeted and job-focused professional development opportunities. The theme of opportunities for skill enhancement also aligns with previous studies. Administrators in this study provided hands-on workshops and training sessions to enhance faculty members' IT skills. This finding resonates with the research of Blundell et al., (2022), who highlighted the effectiveness of hands-on

training in building educators' digital skills. It reinforces the importance of practical and experiential learning opportunities in professional development programs.

Collaboration and knowledge sharing is another shared theme. Administrators highlighted that IT-based professional development programs foster collaboration and knowledge sharing among faculty members. This finding aligns with the research of Trust et al., (2016) who emphasized the benefits of collaborative learning environments in professional development. It underscores the value of creating a supportive and collaborative community of educators to share ideas and best practices. Through comparing these findings with previous studies, we learn that IT-based professional development programs in higher education are widely recognized for their importance in enhancing faculty members' technological competencies, aligning with job requirements, providing opportunities for skill enhancement, and fostering collaboration and knowledge sharing among educators. These findings highlight the need for institutions to invest in targeted and relevant professional development opportunities that empower faculty members to integrate technology into their teaching practices effectively.

The findings of this study have significant implications for educational institutions, particularly in their efforts to leverage information technology (IT) for human resource development at the higher education level. Firstly, the enhanced access to resources highlighted by administrators, faculty members, and students demonstrates the value of IT in expanding the availability of online libraries, databases, and learning materials. This finding aligns with previous research that emphasizes the importance of technology in providing a wide range of educational resources (Smith et al., 2021; Hew & Cheung, 2013). Secondly, the improved administrative efficiency reported by administrators, faculty members, and students emphasizes the benefits of IT-based initiatives in streamlining administrative processes. Automating data management and utilizing online platforms contribute to increased accuracy, efficiency, and timeliness in handling administrative tasks (Gikandi et al., 2011). These findings align with previous studies that highlight the positive impact of IT on organizational efficiency in educational settings (Al-Fudail & Mellar, 2008; Archambault et al., 2009). Thirdly, the findings regarding the integration of IT in teaching and learning experiences highlight its role in promoting innovative and interactive approaches. The perspectives of administrators, faculty members, and students emphasize the positive impact of IT tools on engagement, collaboration, and the overall learning experience (Davis et al., 2009; Zawacki-Richter et al., 2019). This aligns with existing literature that underscores the potential of technology to enhance teaching and learning practices (Eynon, 2013; Tamim et al., 2011). Lastly, the recognition of the importance of IT-based professional development programs by administrators, faculty members, and students suggests the need for continuous training and support to foster technological competencies among educators. These findings align with previous research that highlights the significance of professional development in enhancing pedagogical approaches and technical skills (Tondeur et al., 2017; Tondeur et al., 2012).

The findings of this study are consistent with existing literature on integrating IT in Higher Education. The emphasis on enhanced resource access, improved administrative efficiency, enriched teaching, and learning experiences, and the importance of professional development aligns with previous research in the field (Smith et al., 2021; Gikandi et al., 2011; Silva, 2015; Ertmer et al., 2012). This study contributes to the existing literature by providing specific insights from the context of

Kutai Kartanegara University, enriching the understanding of IT-based educational human resource development strategies at the higher education level.

This study significantly contributes to educational human resource development and IT integration in higher education. Focusing on Kutai Kartanegara University, it provides a context-specific understanding of the implementation and outcomes of IT-based strategies. The findings highlight the positive impact of these strategies on teaching and learning experiences, administrative processes, and professional development. This research adds empirical evidence to the existing literature and supports the growing knowledge of the benefits and challenges associated with IT integration at the higher education level.

Challenges and limitations are inherent in implementing IT-based educational human resource development strategies at the higher education level. One major challenge is the presence of infrastructure limitations. Inadequate technological infrastructure, such as limited network bandwidth and outdated hardware, can impede the effective implementation of IT-based initiatives (Smith et al., 2021; Johnson et al., 2014). More technological resources can help access online learning platforms, slow down data processing, and limit technology integration in teaching and administrative tasks.

Another challenge relates to faculty members and staff's training and support needs. The successful integration and utilization of IT tools and resources require adequate training and technical support (Kimmons & Hall, 2018; Aparicio et al., 2018). With proper training, educators may effectively incorporate technology into their instructional practices, limiting their ability to harness its full potential for enhancing teaching and learning experiences.

CONCLUSION

Several key findings have emerged through this qualitative study conducted at Kutai Kartanegara University. Analyzing information technology-based educational human resource development strategies has shed light on their impact and effectiveness in various aspects of higher education. The study revealed that IT integration in teaching and learning has positively influenced the curriculum, online learning platforms, collaborative learning, virtual simulations, and assessment tools. Regarding administrative processes, IT-based initiatives have streamlined tasks, automated data management, improved communication and collaboration, and enhanced decision-making processes. Additionally, IT-based professional development programs have proven valuable in enhancing technological competencies, aligning with job requirements, providing skill enhancement opportunities, and fostering stakeholder collaboration.

Based on the findings of this study, several recommendations for future research can be made. Firstly, conducting comparative studies across different universities or educational institutions can provide a broader perspective on the effectiveness of IT-based initiatives. Additionally, exploring the long-term impact of these strategies on student learning outcomes and faculty professional growth would be valuable. Future research could also investigate methods for addressing the challenges identified, such as infrastructure limitations, training and support needs, and the digital divide. Lastly, studying the experiences and perspectives of other stakeholders, such as support staff and administrators at different hierarchical levels, would offer a comprehensive understanding of the organizational dynamics and implications of IT-based educational human resource development strategies.

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AUTHOR CONTRIBUTION STATEMENT

The author contribution statement for this work is as follows: All authors contributed equally to the conception, design, analysis, and interpretation of the data, as well as the writing and revision of the manuscript.

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