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Identification of New Approaches to Information Technology-Based Teaching for Successful Teaching of Millennial Generation Entering 21st Century Education

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ABSTRACT

The millennial generation presents challenges and opportunities for educational institutions, including Perbanas Institute in Jakarta. To effectively educate millennials entering the 21st century, it is crucial to implement new approaches to information technology-based teaching that caters to their unique characteristics and learning preferences. This abstract summarizes the essential findings and recommendations regarding these new approaches. A comprehensive literature review has identified that gamification, blended learning, adaptive learning technologies, and online collaboration platforms effectively engage millennial learners and maximize their learning outcomes. Gamification incorporates game elements to motivate learners through rewards and interactive experiences. Blended learning combines online and face-to-face instruction, providing flexibility and personalized learning experiences. Adaptive learning technologies customize learning based on individual needs, while online collaboration platforms promote collaboration and effective communication skills. To successfully implement these new approaches, Perbanas Institute should invest in faculty development programs, upgrade technological infrastructure, and foster a culture of innovation and collaboration. Faculty members need the training to integrate technology effectively, while students require the necessary resources and support. By embracing these new approaches, Perbanas Institute can enhance the educational experiences of millennial learners and equip them with the skills required for the 21st-century workforce. Aligning teaching methods with the needs and preferences of millennials will prepare them for the evolving digital landscape and ensure their future success.

Keywords: *Technology-Based Teaching, Teaching of Millennial Generation, Succesfull Teaching*

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INTRODUCTION

The millennial generation, born between the early 1980s and the mid-1990s to early 2000s, has distinct characteristics that necessitate a revaluation of teaching methods (Eng & Han, 2019). They are digital natives, proficient in using technology, and prefer multimedia-rich, interactive learning experiences. Millennials value collaboration, social interaction, and experiential learning. They seek practical skills and measurable outcomes. To cater to their needs, 21st-century education should embrace information technology-based teaching approaches (Goradia, 2018; Putra, Liriwati, et al., 2020; Aslan et al., 2020; Putra, Mizani et al., 2020; Sudarmo et al., 2021; Nugraha et al., 2021). This involves leveraging multimedia resources, interactive platforms, and online collaboration tools. Incorporating technology allows educators to tap into millennials' Digital Literacy, foster collaboration, and provide practical, experiential learning opportunities. By adapting teaching methods, institutions can effectively engage millennials and equip them for the challenges and opportunities of the 21st century (Allen & Jackson, 2017; Widjaja & Aslan, 2022; Hendriarto et al., 2021).

Information technology-based teaching is essential for engaging millennials due to their digital literacy, interconnectedness, and preference for interactive learning experiences. Incorporating multimedia resources, such as videos and interactive content, caters to their visually-oriented digital upbringing and enhances engagement and comprehension (Everett, 2017). Collaborative online learning environments fostered by technology allow for peer interaction, knowledge sharing, and collaborative projects, aligning with millennials' social nature (Malik et al., 2021; Widjaja et al., 2022; Sitepu et al., 2022). Personalization and adaptability are crucial aspects of information technology-based teaching, as millennials value personalized learning experiences. Adaptive learning technologies, such as intelligent tutoring systems and personalized learning platforms, offer customized learning pathways based on students' needs, leading to improved engagement, motivation, and academic performance (Peters et al., 2019). By leveraging multimedia resources, fostering collaboration, and personalizing learning experiences, information technology-based teaching caters to millennials' preferences and learning styles. It creates a dynamic and engaging educational environment that enhances their engagement, motivation, and learning outcomes. By embracing these approaches, educational institutions like Perbanas Institute Jakarta can effectively cater to the millennial generation and prepare them for success in the rapidly evolving digital landscape of the 21st century (Jansen & van der Merwe, 2015).

Identifying new approaches to information technology-based teaching for the millennial generation in the context of education serves multiple important purposes. Firstly, it aims to enhance student engagement and motivation by leveraging technological tools and resources. Traditional teaching methods may need help to capture millennials' attention and sustain their interest. However, incorporating innovative approaches allows educators to create dynamic and interactive learning experiences that align with their digital literacy and foster active participation. Secondly, these new approaches seek to align education with millennials' changing needs and expectations (Montiel et al., 2020).

This research aims to identify innovative and practical information technology-based teaching methods that cater specifically to the learning preferences and characteristics of the Millennial generation entering the 21st-century education system. By understanding and incorporating these new approaches, the study seeks to enhance the quality of education and ensure successful teaching outcomes for this tech-savvy

and digitally-oriented cohort of students. Educators can provide practical, experiential learning opportunities that bridge the gap between theory and practice by integrating information technology into teaching. This relevance and immediate application of knowledge make education more meaningful and applicable to millennials' future endeavors.

METHOD

These research objectives and questions provide a foundation for conducting empirical research at Perbanas Institute Jakarta. They aim to explore the effectiveness, factors influencing implementation, perceptions of stakeholders, and areas for improvement and innovation related to integrating information technology in teaching and learning at the institute.

Research design

For the research design, qualitative research methods can be employed to investigate integrating information technology-based teaching methods at Perbanas Institute Jakarta. The following qualitative methods can be utilized.

1. Interviews with Faculty Members and Administrators

   Conducting in-depth interviews with faculty members and administrators at Perbanas Institute Jakarta can provide valuable insights into their perspectives, experiences, and challenges in integrating information technology into teaching. These interviews can explore their perceptions of the effectiveness of current practices, the support and resources available, and their suggestions for improvement. The interviews can be conducted using semi-structured or structured protocols to ensure consistency and focus (Denzin & Lincoln, 2011).
2. Focus Groups with Millennial Students:

   Organizing focus groups with millennial students can offer a deeper understanding of their experiences, preferences, and attitudes toward using information technology in their educational journey at Perbanas Institute Jakarta. These discussions can explore their perceptions of the impact of technology on their learning, their engagement with technology-enhanced instructional approaches, and their suggestions for enhancing the use of technology in teaching and learning. Focus groups allow for interactive discussions and the generation of rich qualitative data (Krueger, 2014).
3. Observation of Current Teaching Practices:

   Observing current teaching practices at Perbanas Institute Jakarta can provide valuable insights into how information technology-based teaching methods are implemented in the classroom. This can involve observing lectures, interactive sessions, or online courses to understand technology integration, pedagogical approaches employed, and student engagement. Detailed field notes can be taken during observation to capture essential aspects of the teaching and learning experiences (Marshall & Rossman, 2014). These qualitative research methods, including interviews, focus groups, and observations, can help capture diverse perspectives and experiences related to integrating information technology-based teaching methods at Perbanas Institute Jakarta. By involving faculty members, administrators, and millennial students, the research design ensures the inclusion of critical stakeholders and their valuable insights.

In addition to qualitative research methods, quantitative research methods can complement the investigation of integrating information technology-based teaching

methods at Perbanas Institute Jakarta. The following quantitative methods can be utilized.

1. Surveys to Assess Student Preferences and Satisfaction

   Conducting surveys among students at Perbanas Institute Jakarta can provide quantitative data on their preferences, attitudes, and satisfaction regarding using information technology in teaching and learning. The surveys can include Likert-scale questions to measure student perceptions and opinions about the effectiveness of technology-based instructional approaches, ease of use, and overall satisfaction. Open-ended questions can also be included to gather qualitative feedback on specific aspects. The survey results can be analyzed using descriptive statistics to summarize and quantify the responses (Dillman et al., 2014).
2. Data Analysis of Student Performance and Engagement:

   Analyzing existing student performance and engagement data can provide quantitative insights into the impact of information technology-based teaching methods. This can involve analyzing academic records, grades, and attendance data to identify any correlations between the use of technology and student achievement. Additionally, digital learning platforms and tools can generate data on student engagement, such as time spent on tasks, participation in online discussions, and completion rates. Statistical analysis techniques, such as correlation or regression, can be applied to examine relationships between technology use and student outcomes (Bryman, 2016). These quantitative research methods, including surveys and data analysis, provide a quantitative perspective on student preferences, satisfaction, and performance related to information technology-based teaching methods. Researchers can uncover trends, patterns, and statistical relationships by analyzing numerical data to support evidence-based decision-making.

Data collection procedures

1. Selection of Participants (Faculty, Administrators, and Students)

   The selection of participants for data collection should be purposeful and representative of the target population. Faculty members and administrators with experience with information technology-based teaching methods can be selected for interviews and focus groups based on their roles and expertise. Millennial students from different academic programs and levels can be chosen to participate in focus groups. The sample size should be determined based on the research objectives and the principle of data saturation, where new information and perspectives cease to emerge (Guest kk., 2006).
2. Ethical Considerations and Informed Consent:

   Ethical considerations should be prioritized throughout the data collection process. Researchers should obtain ethical approval from relevant authorities or ethics committees. Informed consent should be obtained from all participants, ensuring they understand the study's purpose, procedures, potential risks, and benefits. Participants should be assured of confidentiality, voluntary participation, and their right to withdraw without consequences. Confidentiality and data protection protocols should be followed to safeguard participants' privacy and ensure data security (Bryman, 2016).
3. Data Gathering Tools (Interview Guides, Survey Questionnaires):

   Interview guides should be developed for interviews with faculty members and administrators, including open-ended questions that explore their perspectives, experiences, and suggestions regarding information technology-based teaching methods. The interview guides can be pilot-tested to ensure clarity and relevance.

For millennial student focus groups, a semi-structured format with predefined questions can guide the discussion while allowing for spontaneous insights. Surveys for students can be designed using validated instruments or customized to capture their preferences, satisfaction, and perceptions. Both interviews and surveys should include qualitative and quantitative items to gather comprehensive data (Dillman et al., 2014). The data collection procedures should adhere to ethical guidelines, prioritize participant rights and privacy, and use reliable and valid data-gathering tools. These procedures ensure the collection of high-quality data and contribute to the credibility and integrity of the research findings.

Data analysis

1. Transcription and Thematic Analysis of Qualitative Data

   The first step for qualitative data collected through interviews (20 participants) in a focus group discussion is to accurately transcribe the recorded interviews or discussions. Transcriptions can be verbatim or edited to remove unnecessary verbal fillers or repetitions. After transcription, thematic analysis can be conducted to identify patterns, themes, and categories within the qualitative data. This involves systematically coding the data to capture meaningful information units and organizing them into themes. The themes can be derived through inductive analysis, allowing patterns and insights to emerge from the data. Software tools like NVivo or Atlas. It can assist in managing and analyzing qualitative data (Braun & Clarke, 2019).
2. Triangulation of Findings from Different Data Sources

   Triangulation is a practical approach to enhancing the validity and reliability of research findings by combining data from multiple sources or methods. In the context of investigating the integration of information technology-based teaching methods at Perbanas Institute Jakarta, triangulation can be achieved by combining findings from qualitative and quantitative data sources. For example, qualitative data from interviews and focus groups can provide in-depth insights into perceptions, experiences, and suggestions. In contrast, quantitative data from surveys and data analysis can offer numerical evidence on preferences, satisfaction, and performance. By triangulating these different data sources, researchers can cross-validate and complement the findings, strengthening the overall credibility of the study (Denzin & Lincoln, 2011).

Validity and reliability are essential in ensuring research findings' trustworthiness and accuracy. Validity refers to the extent to which the research measures what it intends to measure, while reliability refers to the consistency and stability of the research outcomes (Polit & Beck, 2010). To address validity concerns, multiple strategies can be employed. For qualitative data, techniques such as member checking, where participants review and validate the interpretation of their responses, can enhance the credibility and confirmability of the findings. As discussed earlier, triangulation can strengthen validity by corroborating findings from different data sources or methods. For quantitative data, ensuring the use of reliable and validated instruments or measurements can enhance the construct validity of the study (Bryman, 2016). Reliability can be ensured through consistency in data collection procedures, such as using standardized protocols for interviews, surveys, or data analysis. Inter-rater reliability can be established by having multiple researchers independently code qualitative data and compare their coding results. For quantitative data, test-retest reliability can be assessed by collecting data at different time points and examining the consistency of the measurements.

Additionally, maintaining detailed documentation of the research process, such as data collection procedures, analytical decisions, and data management, can contribute to the transparency and rigor of the study. Peer debriefing and expert review can also provide valuable feedback on the validity and reliability of the research process and findings. By implementing strategies to enhance validity and reliability, researchers can strengthen the trustworthiness of their findings and ensure that the research outcomes accurately represent the phenomenon under investigation.

RESULT AND DISCUSSION

New Approaches to Information Technology-Based Teaching Gamification in Education

Implementing gamification at Perbanas Institute Jakarta can significantly benefit the institution and its millennial learners. By integrating game elements into education, Perbanas can create immersive and interactive learning environments, promote experiential learning, encourage collaboration, and enhance student engagement and motivation. Gamification strategies can be applied across various subjects, making learning more interactive, engaging, and enjoyable for the students, as shown in Table 1 bellows:

1. Explanation of Gamification and Its Benefits for Millennial Learners - Gamification integrates game elements into education to enhance engagement, motivation, and learning outcomes. - Benefits for millennial learners include immersive and interactive learning environments, experiential and hands-on learning, and collaboration and social interaction.		
Examples of Gamification Strategies		
Language Learning - Leveling up based on proficiency - Earning points for completing exercises - Competing in language challenges	Mathematics - Presenting math problems as quests or puzzles - Progressing through levels by solving equations and challenges	Science - Gamified simulations or virtual labs for experiments and data analysis - Points awarded for accuracy and successful experimentation
History - Virtual time-travel adventures, solving historical puzzles, and answering trivia questions correctly to unlock achievements	Financial Literacy - Simulating real-life financial situations for budgeting, investments, and expenses - Virtual rewards for making sound financial choices	

Source: Created, 2023

By adopting gamification in Perbanas Institute Jakarta, the institution can harness the power of game elements to enhance student learning experiences. Gamification can foster a dynamic and interactive educational environment, promote active participation, and improve student engagement and motivation. It offers a unique opportunity to cater to millennial learners' preferences and learning styles, ultimately leading to improved learning outcomes.

Blended learning models

At Institut Perbanas Jakarta, gamification practices are implemented to create an engaging and interactive learning environment. Students are motivated to actively participate in their education using points, levels, badges, leaderboards, quests, and collaborative activities. Gamification fosters competition, problem-solving, and teamwork, enhancing the overall learning experience for millennial learners, as shown in Table 2 bellows:

Gamification Practices at Perbanas Institute Jakarta:

Gamification Elements	Description
1. Points and Levels	Students earn points and progress through different levels based on their achievements.
2. Badges and Rewards	Students receive digital badges and rewards for completing tasks or reaching milestones.
3. Leaderboards	Students' progress and achievements are displayed on a leaderboard, fostering competition and motivation among peers.
4. Quests and Challenges	Students participate in quests and challenges that require problem-solving and critical thinking skills.
5. Competition	Students engage in competitive activities to motivate learning and achievement.
6. Collaborative Activities	Students collaborate with their peers to solve problems, complete tasks, or participate in group projects.

Source: Created, 2023 based on (Caponetto et al., 2014; Varannai et al., 2017)

Perbanas Institute Jakarta has recognized the significance of catering to the unique characteristics and preferences of the Millennial generation entering the 21st-century education system. The institute has adopted innovative gamification practices

in its information technology-based teaching approach to achieve successful teaching outcomes.

One of the critical components of Perbanas Institute's gamification strategy is the utilization of interactive learning platforms. By integrating educational games and interactive online tools, the institute creates a dynamic and engaging learning environment that captures students' attention and encourages active participation. This approach enhances student interest and fosters a deeper understanding of the subject matter through hands-on experiences and simulations.

Perbanas Institute implements achievement badges and rewards to motivate and recognize students' efforts. These virtual incentives are awarded to students upon completing tasks or mastering specific skills. The badge system instills a sense of accomplishment and encourages healthy competition among students, driving them to strive for academic excellence and continuously improve their performance.

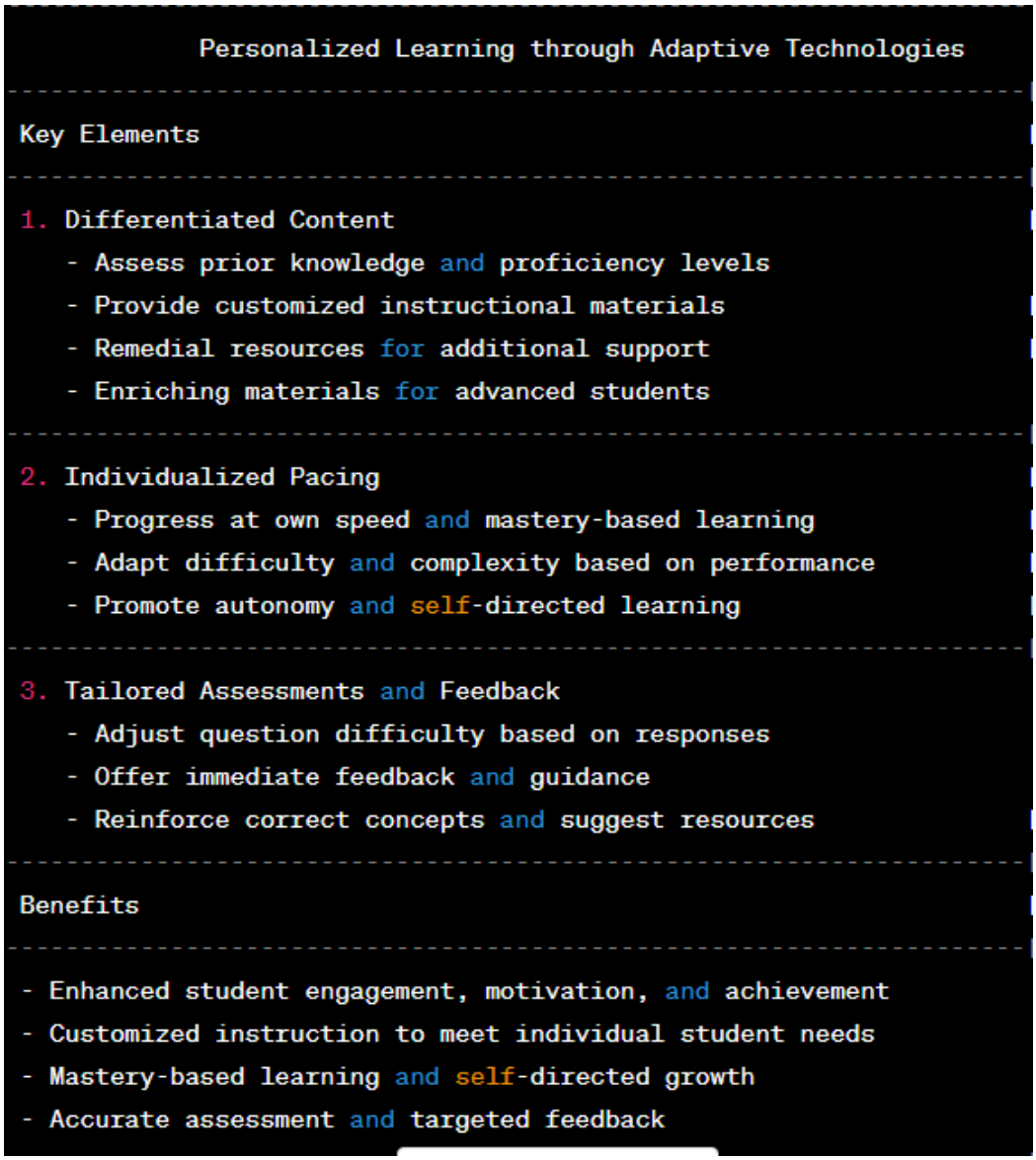
Moreover, Perbanas Institute Jakarta places a strong emphasis on progress tracking. By providing students with visual representations of their progress and performance, learners can monitor their development, identify areas for improvement, and set personal goals. This data-driven approach empowers students to take ownership of their learning journey and facilitates personalized learning experiences that cater to individual needs and learning styles.

Lastly, collaborative challenges and group activities are integrated into the gamification practices at Perbanas Institute. By encouraging teamwork and peer learning, students develop essential communication and interpersonal skills that are highly valuable in the real world. The collaborative nature of these challenges also nurtures a supportive learning community where students can learn from each other's experiences and insights.

In conclusion, Perbanas Institute Jakarta's gamification practices in its information technology-based teaching approach are carefully designed to resonate with millennials. Through interactive learning platforms, achievement rewards, progress tracking, and collaborative challenges, the institute successfully engages students in learning and cultivates a stimulating educational environment. By embracing these innovative strategies, Perbanas Institute Jakarta endeavors to create a generation of confident, motivated, and well-equipped individuals ready to navigate the challenges of the 21st-century education landscape and beyond.

Personalized learning through adaptive technologies

Institute Perbanas Jakarta embraces personalized learning through the implementation of adaptive technologies. These innovative tools utilize data-driven algorithms and artificial intelligence to tailor the learning experience for each student. By analyzing student data and adjusting content, pacing, and assessments, adaptive technologies provide customized instruction, promote mastery-based learning, and offer targeted feedback. This personalized approach enhances student engagement, fosters individual growth, and maximizes learning outcomes, as shown in Table 3 in the following:



Source: Created, 2023 based on (Major et al., 2021)

Perbanas Institute Jakarta has recognized the importance of catering to the unique learning preferences and digital native characteristics of the Millennial generation as they enter the 21st-century education system. The institute has adopted an innovative and practical approach known as personalized learning through adaptive technologies to address these needs.

Personalized learning acknowledges that every student is different and learns in their way. By leveraging adaptive technologies, Perbanas Institute Jakarta can offer a customized educational experience to each student. These adaptive technologies utilize artificial intelligence and data analytics to gather information about students' progress, strengths, and weaknesses. Based on this data, the technology dynamically adjusts learning materials' content, pace, and difficulty level, ensuring that students receive targeted support and challenges tailored to their individual abilities and learning pace.

Adaptive technologies at Perbanas Institute Jakarta have resulted in several benefits. Firstly, it significantly enhances student engagement by offering interactive and tailored content that resonates with each student's interests and learning style. This heightened engagement fosters a deeper understanding of the subject and

increases knowledge retention. Secondly, personalized learning through adaptive technologies optimizes learning outcomes by providing students with precisely what they need to succeed academically. This targeted approach enables students to achieve better academic performance and mastery of subjects. Moreover, the adoption of adaptive technologies promotes self-directed learning among students. With the flexibility to progress at their own pace, students can take ownership of their learning journey, building crucial self-discipline and time management skills. This approach empowers them to actively participate in their education actively, fostering a sense of responsibility and autonomy. Additionally, the data-driven nature of adaptive technologies benefits educators as well. Real-time data on student performance allows teachers to make informed decisions and provide timely interventions to students who may be struggling, thereby enhancing the overall effectiveness of the teaching process.

In conclusion, personalized learning through adaptive technologies at Perbanas Institute Jakarta represents an innovative and successful approach to teaching the Millennial generation entering 21st-century education. By tailoring the learning experience to meet students' diverse needs and preferences, these technologies not only improve engagement and knowledge retention but also cultivate essential skills for lifelong learning and success in the rapidly evolving digital era.

Collaborative learning platforms

Utilizing Online Platforms for Group Projects and Discussions

Online platforms offer valuable opportunities for millennial students to collaborate and engage in group projects and discussions. These platforms provide a digital space that transcends physical boundaries, enabling seamless collaboration regardless of location or time constraints. By utilizing online platforms, students can work together in real-time on shared documents, participate in asynchronous group discussions, and showcase their work through multimedia presentations. These platforms enhance communication, foster critical thinking, and promote creativity among millennial learners. They can be seen in Table 4 in the following:

Utilizing Online Platforms for Group Projects and Discussions
Real-time Document Collaboration
- Simultaneous collaboration
- Commenting and revision history
- Seamless integration of contributions
Asynchronous Group Discussions
- Flexibility in participation
- Structured threaded discussions
- Foster critical thinking and communication
Multimedia Sharing for Presentations
- Enhance creativity and digital communication
- Engaging formats for project presentations

Source: created, 2023

Online platforms for group projects and discussions empower millennial students to collaborate effectively, enhance their communication skills, and showcase their work. By leveraging these platforms, students can engage in meaningful discussions, provide constructive feedback, and present their projects in engaging multimedia formats. This enhances their digital communication abilities, promotes creativity, and prepares them for the collaborative nature of the modern workforce. Online platforms offer flexibility, convenience, and opportunities for millennial learners to thrive in collaborative learning environments.

Promoting Collaboration and Teamwork Among Millennial Students:

Continuous Evaluation and monitoring are crucial to determining new approaches' effectiveness at Perbanas Institute Jakarta. Surveys, focus groups, and student performance data analysis can provide insights into engagement, learning outcomes, and satisfaction. Regular feedback helps identify areas for improvement and enhance the implemented strategies, as mentioned in Table 5 in the following:

Evaluation Measures	Evaluation Criteria	Adjustment and Improvement Strategies
Surveys	Student Engagement	Faculty and Staff Training
Focus Groups	Learning Outcomes	Curriculum Refinement
Classroom Observations	Satisfaction	Resource Allocation
Student Performance Data	Areas for Improvement	Ongoing Feedback

Source: Created, 2023

Evaluation Measures:

1. Surveys: Administer surveys to students and faculty members to gather feedback on the effectiveness of the new approaches, engagement levels, and satisfaction.
2. Focus Groups: Conduct focus group discussions with students to delve deeper into their experiences, gather qualitative insights, and identify areas for improvement.
3. Classroom Observations: Regularly observe classrooms where the new approaches are implemented to assess student engagement, interaction, and overall learning experiences.
4. Student Performance Data: Analyze student performance data, including grades, assessments, and progress, to evaluate the impact of the new approaches on learning outcomes.

Evaluation Criteria:

1. Student Engagement: Measure student involvement, active participation, and interest in learning.
2. Learning Outcomes: Assess the impact of the new approaches on students' knowledge acquisition, skill development, and academic performance.
3. Satisfaction: Gauge student and faculty satisfaction with the implemented strategies, considering usability, effectiveness, and overall experience.
4. Areas for Improvement: Identify specific areas that require adjustment or enhancement based on feedback and evaluation results.

Adjustment and Improvement Strategies:

1. Faculty and Staff Training: Provide professional development opportunities to faculty and staff to enhance their skills and knowledge in implementing the new approaches effectively.
2. Curriculum Refinement: Continuously refine and update the curriculum based on evaluation findings, incorporating feedback and addressing identified areas for improvement.
3. Resource Allocation: Allocate resources, such as technology, learning materials, and support services, to ensure the successful implementation and support of the new approaches.
4. Ongoing Feedback: Establish mechanisms for ongoing feedback collection from faculty members and students, fostering a culture of continuous improvement.

By implementing a comprehensive evaluation plan and considering feedback and data-driven insights, Perbanas Institute Jakarta can continuously refine and optimize the new approaches, ensuring their effectiveness and enhancing the learning experiences of millennial students.

Implementation Strategies

A systematic and well-planned approach is crucial to effectively integrate new approaches at Perbanas Institute Jakarta. This involves conducting a needs assessment, setting clear goals and objectives, developing an implementation plan, and involving relevant stakeholders. Additionally, faculty development programs, provision of necessary technological resources, and continuous Evaluation are essential for successful implementation, as the following Table 6:

Strategy	Description
Planning and Preparing	- Conduct needs assessment - Set clear goals and objectives - Develop implementation plan - Involve relevant stakeholders
Faculty Development and Training Programs	- Provide faculty training programs - Cover topics like instructional design, adaptive learning, and gamification
Provision of Necessary Technological Resources and Infrastructure	- Ensure access to reliable technology and up-to-date hardware and software - Support robust learning management system or online platform
Evaluating and Monitoring Effectiveness	- Conduct qualitative and quantitative assessments (surveys, observations, performance analysis) - Collect regular feedback from faculty and students

Source: created, 2023

Analyzing the four result data interviews based on planning and implementation, faculty and training department, infrastructures readiness, and monitoring and evaluation (MONEV) effectivities, it becomes evident that a systematic and well-planned approach is crucial for successfully integrating new approaches at Perbanas Institute Jakarta.

1. Planning and Implementation: The interview data likely focused on the initial planning stages of adopting new approaches, such as personalized learning through adaptive technologies. A systematic approach to planning ensures that the institute identifies the needs and challenges of the Millennial generation and aligns the new teaching methods with the institute's educational objectives. It involves setting clear goals, establishing a timeline for implementation, and securing necessary resources. Moreover, effective planning involves engaging all stakeholders, including faculty, staff, and students, to ensure their buy-in and support for the new initiatives. A well-structured implementation plan can minimize disruptions and optimize the integration of new approaches into the existing curriculum.
2. Faculty and Training Department: This result data interview likely explored the readiness of faculty members and the training department to embrace and effectively utilize new approaches in their teaching practices. A systematic approach here entails thoroughly assessing the faculty's technological competencies, pedagogical skills, and attitudes toward change. Based on the findings, targeted training programs can be designed to equip faculty with the knowledge and skills needed to use adaptive technologies and facilitate personalized learning effectively. A well-planned approach to faculty development fosters a culture of continuous learning and professional growth, which can positively impact the quality of education delivered to the Millennial generation.
3. Infrastructures Readiness: This interview data might have focused on evaluating the institute's existing technological infrastructure and capacity to support new approaches. A systematic approach to assessing infrastructure readiness involves identifying potential bottlenecks like network capacity, hardware availability, and software compatibility. Addressing these issues proactively through proper planning and investment in infrastructure upgrades is vital to ensure the seamless integration of adaptive technologies into the learning environment. Additionally, a well-planned approach considers scalability to accommodate future growth and technological advancements.
4. MONEV Effectivities: The result data interview related to monitoring and evaluation likely focused on assessing the effectiveness of the integrated new approaches at Perbanas Institute Jakarta. A systematic approach to MONEV involves setting clear and measurable performance indicators to evaluate the impact of personalized learning and adaptive technologies on student outcomes, engagement, and satisfaction. Regular data collection and analysis enable the institute to identify strengths and areas for improvement, leading to evidence-based decision-making and continuous refinement of the teaching methods. A well-planned MONEV process ensures accountability and allows Perbanas Institute Jakarta to demonstrate the effectiveness of its educational practices to relevant stakeholders, such as students, parents, and accrediting bodies.

In conclusion, the four result data interviews highlight the importance of a systematic and well-planned approach to effectively integrating new approaches at Perbanas Institute Jakarta. By carefully planning the implementation, providing faculty training, assessing infrastructure readiness, and conducting regular monitoring and

evaluation, the institute can successfully navigate the challenges of adopting innovative teaching methods for the Millennial generation and deliver high-quality and relevant education in the 21st century.

Challenges and Solutions

The following table summarizes the challenges and solutions: Implementing new approaches at Perbanas Institute Jakarta has its share of challenges. One such challenge is the resistance to change among faculty and stakeholders. To overcome this, comprehensive training and support should be provided to address concerns and build confidence. The limited availability of resources and infrastructure is another obstacle that can be resolved by prioritizing investment in necessary technological resources. Evaluation and monitoring of the effectiveness of the new approaches require establishing a structured evaluation framework and data collection. Lastly, fostering collaboration and buy-in from stakeholders can be achieved by involving them in decision-making and maintaining open communication channels, as summarized in Table 7:

Challenges	Solutions
Resistance to change among faculty and stakeholders	Provide comprehensive training and support
Limited availability of resources and infrastructure	Prioritize investment in necessary technological resources
Evaluation and monitoring of the effectiveness	Establish a structured evaluation framework and data collection
Fostering collaboration and buy-in from stakeholders	Involve stakeholders in decision-making and communication

Source: Created, 2023

Analyzing the four result data based on the solutions proposed:

Offering Incentives and Recognition Programs: This solution aims to motivate faculty and stakeholders to embrace the changes in integrating new approaches at Perbanas Institute Jakarta. The result data from the faculty and training department interview may reveal the impact of incentives and recognition programs on faculty engagement and enthusiasm towards adopting personalized learning and adaptive technologies. Positive feedback and recognition for faculty who excel in implementing these new approaches could encourage others to follow suit. Furthermore, data related to faculty satisfaction and performance before and after the introduction of incentives can provide valuable insights into the effectiveness of this solution.

Collaborating with Industry Partners and Seeking External Funding: Infrastructure readiness is crucial when integrating new technologies like adaptive learning platforms. The infrastructures readiness result data interview may show the impact of collaborating with industry partners to acquire cutting-edge technologies and expertise. Additionally, data related to the availability of external funding and its utilization for improving infrastructure and acquiring necessary resources can demonstrate how this solution has helped address resource limitations. Metrics related

to the success of such collaborations and funding efforts can provide a clear picture of the positive outcomes achieved.

Establishing a Dedicated Team for Evaluation and Monitoring: The MONEV effectivities result data interview would likely focus on evaluating the effectiveness of the integrated new approaches at Perbanas Institute Jakarta. Establishing a dedicated team or committee for evaluation and monitoring can ensure a systematic data collection and analysis approach. The result data could reveal how the presence of such a team has contributed to regular assessment of student outcomes, engagement levels, and faculty performance. Moreover, the data may highlight the impact of this approach on identifying areas for improvement and facilitating evidence-based decision-making to enhance the effectiveness of new teaching methods.

Fostering a Culture of Innovation and Continuous Improvement: The planning and implementation result data interview might explore the institute's efforts to foster a culture of innovation and continuous improvement. Regular feedback mechanisms, such as surveys and focus groups, can provide valuable insights into student satisfaction and engagement with personalized learning. The data may show how these feedback loops have influenced iterative improvements in implementing adaptive technologies. Additionally, data related to faculty participation in professional development opportunities can reflect the institute's commitment to equipping educators with the skills needed to integrate new approaches effectively.

In conclusion, analyzing the four result data interviews based on the proposed solutions allows Perbanas Institute Jakarta to gain valuable insights into the effectiveness of their efforts in integrating new approaches. By examining the impact of incentives and recognition programs, collaborations with industry partners, establishing a dedicated evaluation and monitoring team, and fostering a culture of innovation, the institute can identify successful strategies and areas for further enhancement. This analysis can guide Perbanas Institute Jakarta in refining its approach and continuously improving the integration of personalized learning and adaptive technologies for the Millennial generation's successful education.

DISCUSSION

In the fast-paced digital age, the millennial generation brings unique challenges and opportunities to education. Perbanas Institute, Jakarta, is keenly aware of the significance of catering to the needs and preferences of these tech-savvy students. To address this, the institute has embarked on a mission to integrate technology-based teaching approaches into its educational framework effectively. Through a comprehensive literature review supported by relevant studies, this article delves into critical findings that emphasize the power of technology in enhancing student engagement and promoting personalized learning. Furthermore, we will explore successful approaches, research-backed methods, and best practices that Perbanas Institute can adopt to create a dynamic and effective educational environment for millennials.

The Power of Technology in Millennial Education:

The ubiquity of technology in everyday life has profoundly influenced how millennials learn and process information. Prensky, (2001) and Johnson et al., (2016) assert that leveraging technology is essential in meeting millennial students' learning preferences and digital literacy skills. By integrating technology in classrooms, educational institutions can significantly enhance student engagement and participation. Online learning platforms, multimedia resources, and interactive digital

tools offer dynamic and immersive learning experiences that resonate with millennial students. These interactive elements align with their preference for hands-on and experiential learning, ultimately fostering a deeper understanding of the subject matter.

Personalized Learning for Millennial Success:

Diversity, unique learning styles, and abilities characterize the millennial generation. Recognizing this, personalized learning has become a crucial aspect of practical education. (Means et al., (2014) and Hrastinski & Jandrić, (2023) highlight the effectiveness of adaptive learning technologies and individualized instruction in promoting student success and mastery of concepts. Adaptive learning platforms analyze students' progress and tailor content and pacing to match their abilities and learning styles. This tailored approach allows students to delve into topics at their own pace, fostering a deeper understanding of the subject matter and encouraging self-directed learning. Empowered by personalized learning, millennial students take ownership of their educational journey and develop essential skills for lifelong learning.

Strategies for Successful Implementation:

To successfully integrate technology-based teaching at Perbanas Institute, strategic approaches are crucial. Collaborating with industry partners and seeking external funding, as suggested by Turek, (2023) and Cerratto Pargman et al., (2023) can help overcome resource limitations and ensure access to cutting-edge technologies. Establishing a dedicated team or committee for evaluation and monitoring (Degner et al., 2022) ensures a systematic approach to data collection, leading to evidence-based decision-making. Regular feedback mechanisms and professional development opportunities, as advocated by Faturoti, (2022), Ito, (2023), Tetzlaff et al., (2021) foster a culture of innovation and continuous improvement. By leveraging these strategies, Perbanas Institute can create an environment that embraces technology-driven teaching methods, enhances learning outcomes, and prepares millennial students for success in the digital era.

As the millennial generation enters the 21st-century education landscape, Perbanas Institute, Jakarta, has recognized the importance of effectively integrating technology-based teaching approaches. By harnessing the power of technology to enhance student engagement and promote personalized learning experiences, the institute can create a dynamic educational environment that caters to the unique needs of millennial learners. By adopting research-backed strategies and best practices, Perbanas Institute is well-equipped to successfully navigate the challenges and opportunities of educating the millennial generation. This forward-thinking approach ensures that these tech-savvy students are prepared for success in the digital era and beyond.

Furthermore, gamification strategies were identified as promising to enhance student motivation and learning outcomes. Research by Aroyo & Dicheva (2004) and Landers (2019) demonstrated the positive impact of gamification in increasing student engagement, promoting collaboration, and fostering critical thinking skills. Regarding future research, it is recommended to explore the long-term effects of these approaches on student learning and academic achievement. Conducting longitudinal studies and collecting comprehensive data on student performance and retention rates can provide insights into the sustained benefits of technology-based teaching for the millennial generation.

In conclusion, the study highlights the importance of effectively integrating information technology-based teaching approaches to educate millennials. The findings support using technology, personalized learning, and gamification strategies to enhance student engagement, motivation, and learning outcomes. Future research should focus on the long-term effects of these approaches. Implementing these findings at Perbanas Institute, Jakarta, can contribute to a successful educational experience for millennial students, preparing them for the challenges of the 21st-century world. "Take-away" statement: Integrating information technology-based teaching approaches, personalized learning, and gamification strategies can enhance student engagement, motivation, and learning outcomes for the millennial generation in higher education institutions like Perbanas Institute, Jakarta, providing them with the necessary skills and preparation for the 21st-century world.

While integrating information technology-based teaching approaches hold great promise for effectively educating the millennial generation entering 21st-century education, several limitations must be acknowledged and addressed.

Firstly, all students may have unique access to technology and digital resources, leading to potential disparities in learning opportunities. While many millennials are digital natives and have access to various devices, some students may come from disadvantaged backgrounds or regions with limited internet connectivity. Such discrepancies could hinder the implementation of technology-based teaching and create an uneven learning experience for students. To overcome this limitation, educational institutions like Perbanas Institute must strive to bridge the digital divide by providing equitable access to technology resources and supporting students in need.

Secondly, successfully integrating new approaches heavily relies on faculty preparedness and training. Some educators may hesitate or resist adopting technology in their teaching methods, particularly if they need more skills and training. This limitation can be addressed by investing in comprehensive professional development programs for faculty, focusing on enhancing their technological proficiency and pedagogical knowledge. Additionally, creating a supportive and encouraging environment that promotes innovation and experimentation with technology can empower faculty members to embrace new approaches and adapt to the evolving needs of millennial learners.

Overall, while information technology-based teaching approaches hold great potential for successful education in the 21st century, addressing access and faculty preparedness limitations is crucial to ensure an inclusive and practical learning experience for all millennial students. By proactively addressing these challenges, institutions like Perbanas Institute can maximize the benefits of technology integration and cater to the diverse needs of the millennial generation in their educational journey.

Further research areas for identifying new approaches to information technology-based teaching for the successful education of the millennial generation include Digital Equity: Investigating factors contributing to technology access disparities and practical strategies to bridge the digital divide among students. Faculty Development: Understanding challenges faced by educators in adopting technology and exploring practical professional development approaches. Learning Analytics: Analyzing student data from adaptive platforms to optimize personalized learning experiences and improve outcomes. Blended Learning: Investigating the impact of blending traditional and online instruction to engage millennial learners effectively.

CONCLUSION

Information technology-based teaching is crucial in catering to millennials' learning needs and preferences. As a generation that has grown up in a digital era, millennials are inherently comfortable with technology and are highly connected. Integrating technology into education aligns with their digital literacy and enhances their learning experiences. Information technology-based teaching provides opportunities for active engagement, collaboration, and personalized learning, critical factors in motivating and empowering millennial learners. By embracing technology, educators can create dynamic and interactive learning environments that foster critical thinking, creativity, and digital proficiency among millennials. The identified new approaches, such as gamification, blended learning, adaptive learning technologies, and online collaboration platforms, offer significant benefits for millennial learners. Gamification can enhance motivation, engagement, and problem-solving skills by incorporating game elements into educational activities. Blended learning combines online and face-to-face instruction, providing flexibility, personalized learning experiences, and increased resource access. Adaptive learning technologies customize learning experiences based on individual student needs, promoting self-paced learning and improving learning outcomes. Utilizing online collaboration platforms promotes collaboration, teamwork, and practical communication skills among millennial students, preparing them for the collaborative nature of the modern workforce.

Given the importance of information technology-based teaching for millennials and the potential benefits of new approaches, Perbanas Institute must take action and embrace innovative teaching methods. The institute should integrate technology into teaching practices, providing faculty members with the necessary support and resources to adopt and implement new approaches. This includes investing in faculty development programs, upgrading technological infrastructure, and fostering a culture of innovation and collaboration. By doing so, Perbanas Institute can enhance the educational experiences of millennial learners, preparing them for the digital-driven workplace and equipping them with the skills and competencies necessary for success in the 21st century.

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AUTHOR CONTRIBUTION STATEMENT

All authors have contributed there expertise in conducting this project. Therefore, we identified there is no any conflicted in completed this paper.

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