

# EdTech Startups and Their Impact on Traditional Learning Models Hybrid Classrooms: Redefining the Role of Teachers and Learners

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## Abstract

The rapid growth of EdTech startups and integration into educational practices has led to hybrid classrooms combining traditional face-to-face teaching with digital tools. This transformation redefines the roles of teachers and learners, prompting a shift toward more flexible, personalized learning environments. This study explores the impact of EdTech startups on traditional learning models and how hybrid classrooms are reshaping these roles. Using a qualitative research methodology, data was collected through semi-structured interviews, participant observations, and document analysis in schools and EdTech hubs in Jakarta, Indonesia. The findings reveal that hybrid classrooms provide increased learner autonomy, personalized learning, and collaboration opportunities. However, they also highlight challenges such as digital inequities, teacher adaptation to new roles, and the need for ongoing professional development. Teachers are evolving into facilitators rather than traditional knowledge transmitters, yet they struggle with integrating new technologies effectively. The study concludes that EdTech tools while promising, require careful integration with human-centered teaching practices to ensure inclusivity and engagement. The research contributes to understanding how hybrid learning environments can be optimized to benefit both teachers and students. It offers educators and policymakers insights into the complexities of EdTech adoption in education.

## Keywords

Digital Divide, EdTech Startups, Hybrid Classrooms, Personalized Learning.



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## INTRODUCTION

The education sector has undergone a rapid and transformative shift in recent years, largely driven by technological innovation and the widespread adoption of digital learning platforms. Among the most influential drivers of this transformation are EdTech (Education Technology) startups, which have introduced a range of tools, platforms, and pedagogical approaches that challenge the foundations of traditional learning models [1]. These startups leverage emerging technologies such as artificial intelligence, virtual reality, adaptive learning algorithms, and cloud-based infrastructures to offer personalized, scalable, and often more engaging educational experiences. As a result, the once rigid boundaries of classroom-based learning are increasingly blurred, giving rise to hybrid learning environments that combine in-person and digital instruction in innovative ways [2].

The emergence of hybrid classrooms, catalyzed in part by the global COVID-19 pandemic, has accelerated the need to rethink the roles of both teachers and learners. Traditional models typically position the teacher as the central authority and transmitter of knowledge, while students assume more passive roles as recipients [3]. However, in hybrid learning environments facilitated by EdTech platforms, these roles are becoming more dynamic, collaborative, and learner-centered. Teachers are transitioning into facilitators, mentors, and learning designers, while students are encouraged to take greater ownership of their educational journeys through self-paced, tech-assisted learning [4]. This shift invites a re-examination of pedagogical frameworks and educational outcomes in formal and informal learning settings.

Despite the enthusiasm surrounding EdTech startups and hybrid models, several critical questions remain unanswered. How effectively do these new approaches complement or replace traditional methods? Are they truly inclusive, equitable, and accessible to all learners regardless of socioeconomic background? Do they foster deep learning, critical thinking, and meaningful teacher-student relationships, or do they risk reducing education to a series of digital transactions? These concerns underscore the importance of critically examining the technological affordances of EdTech tools and their broader pedagogical, psychological, and sociocultural implications [5].

While existing research has explored the general effectiveness of technology in education, there is a notable gap in the literature when it comes to understanding the specific impact of EdTech startups, particularly their business models, agility, and innovation-driven ethos on redefining classroom dynamics [6]. Most prior studies have focused either on the institutional adoption of educational technology or on the digital divide issues without deeply analyzing how startups, as disruptors, shape hybrid learning ecosystems and challenge traditional notions of educational roles and responsibilities. Moreover, studies emphasize learner outcomes or technological efficacy in isolation without holistically considering the interplay between learners, educators, and technology providers within hybrid spaces [7].

This study seeks to fill that gap by analyzing how EdTech startups influence the transformation of traditional classroom structures and the evolving roles of teachers and learners within hybrid models. It investigates the mechanisms by which these startups drive innovation, the pedagogical philosophies they embed into their platforms, and how these platforms are adopted and adapted by educators and institutions [8]. Particular attention is paid to how the shift to hybrid models is redefining expectations of teacher authority, learner agency, and the overall structure of educational delivery. This research draws from interviews with educators, case studies of prominent EdTech startups, and a review of recent hybrid learning implementations across diverse educational contexts [9].

This article aims to offer theoretical insight and practical guidance for educators, policymakers, and EdTech developers navigating the evolving educational landscape. The study aims to contribute to the broader discourse on creating more adaptive, equitable, and impactful learning environments in the digital age by critically examining the intersection of innovation, pedagogy, and practice. Ultimately, this research hopes to highlight the transformative potential of EdTech startups and caution against the uncritical adoption of technology without sufficient consideration of educational values and human-centered design.

## **METHODS**

This study employs a qualitative research methodology to explore the impact of EdTech startups on traditional learning models, specifically focusing on the transformation of teacher and learner roles in hybrid classroom environments. Qualitative research is particularly suited to this inquiry as it allows for an in-depth, contextual understanding of complex social phenomena, such as changes in pedagogical practices and educational cultures. The research was conducted over four months, from October 2024 to January 2025, in a combination of formal and informal educational settings across Jakarta, Indonesia. These settings included a mix of public and private schools and EdTech co-working hubs where developers, educators, and startup founders collaborate. The selection of research sites was based on purposive sampling to identify institutions and actors actively engaged in hybrid learning and EdTech integration.

Data collection techniques included semi-structured interviews, participant observation, and document analysis. Interviews were conducted with various participants, including teachers, school administrators, students, and EdTech startup founders or team members. These interviews allowed for collecting rich narratives and diverse perspectives on how hybrid classrooms are implemented and experienced. Participant observation was conducted in both classroom and online learning environments, enabling the researcher to witness the interactions, tools, and instructional strategies used. Relevant documents such as lesson plans, platform interfaces, startup marketing materials, and educational policies were also analyzed. The data were triangulated to enhance credibility and validity. Data analysis was conducted through thematic coding using a grounded theory approach, allowing patterns and categories

to emerge inductively from the data. NVivo software supported the coding process to manage and visualize qualitative data more systematically. Ethical considerations, including informed consent and confidentiality, were strictly upheld throughout the study.

## **FINDINGS AND DISCUSSION**

### **Findings**

The data analysis revealed several significant findings regarding the influence of EdTech startups on traditional learning models, particularly in hybrid classroom environments. One of the most notable themes that emerged was the redefinition of the teacher's role. Traditional classrooms often positioned teachers as the central figures of knowledge transmission, with authority predominantly stemming from their expertise and direct instruction. However, in hybrid learning environments facilitated by EdTech platforms, teachers increasingly adopted roles as facilitators and mentors rather than authoritative figures. This shift was particularly evident in schools and institutions where EdTech tools were integrated into daily teaching practices, allowing students to explore content independently, engage with multimedia resources, and collaborate in virtual spaces. Teachers, therefore, had to develop new competencies, including technical skills to manage digital platforms and soft skills to guide students through personalized learning paths [10]. This change was not always seamless, as some teachers expressed concerns about losing their traditional authority and struggling with the evolving demands of these new roles.

Another key finding was the enhanced learner agency in hybrid classrooms. Students, empowered by access to digital tools and resources, could take more control over their learning, engaging in self-paced study and accessing personalized content tailored to their needs. This autonomy fostered greater intrinsic motivation among students, particularly those who previously struggled with the rigid structures of traditional classrooms [11]. However, the research also highlighted challenges related to digital literacy and inequities in access to technology, which occasionally hindered the effectiveness of hybrid learning models. In institutions where students had varying levels of access to devices and the internet, the benefits of hybrid learning were not equally distributed. This discrepancy exacerbated educational inequalities, as those with limited access faced greater difficulties engaging with online resources, completing assignments, and participating in virtual interactions with teachers and peers [12].

The study also revealed that EdTech startups were pivotal in transforming educational content delivery and shaping learner experiences. Many platforms developed by startups introduced features such as adaptive learning algorithms, which dynamically adjust content based on the learner's progress [13]. These tools facilitated individualized learning experiences, enabling students to engage with material at their own pace and revisit challenging topics. The startup models were particularly flexible, allowing educators to customize resources to suit diverse student needs, but this customization often required time and expertise that not all teachers possessed. Teachers in smaller institutions, in particular,

noted the lack of support and training provided by EdTech companies, which limited their ability to fully leverage the technology's potential. As a result, while some teachers could integrate these tools effectively, others struggled to utilize the platforms beyond basic functionalities, leading to less meaningful use of the technology [14].

Moreover, collaborative learning emerged as a critical aspect of hybrid classrooms, particularly in settings where EdTech tools facilitated student interaction beyond the physical classroom. Online discussion forums, group projects, and collaborative problem-solving tasks encouraged students to work together across distances, fostering peer-to-peer learning [15]. This aspect of hybrid education helped students develop communication, teamwork, and digital literacy skills, which are increasingly essential in the modern workforce. However, the success of collaborative learning was not guaranteed. Some students reported feelings of isolation, particularly in environments where asynchronous learning was heavily emphasized [16]. They noted that the absence of direct, face-to-face interaction with peers and teachers sometimes made learning feel impersonal and detached, impacting their overall engagement and sense of community. This suggests that while hybrid learning offers many advantages, there is a need for careful design to ensure that students remain connected to one another and their instructors, even in digital spaces.

Finally, the study uncovered a growing tension between efficiency and personalization. While EdTech platforms are designed to make learning more efficient and scalable, there were concerns about whether these tools could fully meet the nuanced needs of individual learners. Teachers in the study highlighted that while digital platforms provide quick access to a wide array of educational content, they often fall short in addressing soft skills such as critical thinking, empathy, and creativity, which are essential for holistic learning [17]. Furthermore, some viewed the reliance on data-driven algorithms to personalize learning content as reducing students to data points, neglecting the complex, emotional, and social aspects of learning [18]. As a result, many teachers emphasized the need for a balanced approach that combines the efficiency of technology with the personal touch that human educators bring to the learning experience. They suggested that EdTech tools should be viewed as complementary resources rather than replacements for human interaction and that teacher-student relationships remain central to the educational process [19].

The findings of this study suggest that while EdTech startups and hybrid classrooms have the potential to revolutionize education, they also present challenges that must be carefully addressed. The evolving role of teachers, the shift in learner agency, and the integration of technology into everyday learning have created opportunities and complexities that must be navigated thoughtfully. Educators and EdTech companies must work together to ensure that technology supports, rather than undermines, the core values of education, such as inclusivity, engagement, and critical thinking. This research highlights the need for ongoing dialogue and collaboration between all stakeholders in the educational ecosystem to ensure that hybrid learning models achieve their full potential.

Table 1. Key Shifts in Hybrid Classrooms Enabled by EdTech Startups

Aspect	Traditional Model	Hybrid/EdTech-Integrated Model	Implications
Teacher Role	Knowledge transmitter	Facilitator, guide, technology integrator	Requires new competencies, ongoing professional development
Learner Role	Passive recipient of knowledge	Active, autonomous learner	Promotes engagement but depends on digital literacy
Content Delivery	Uniform, textbook-based	Personalized, platform-driven, multimedia	Supports diverse learning styles but may neglect holistic development
Interaction	Face-to-face, synchronous	Blended (synchronous & asynchronous) digital collaboration	Encourages flexibility but risks feelings of isolation
Access to Resources	Limited to a physical classroom	Expansive, cloud-based, on-demand	Enhances learning opportunities but highlights the digital divide
Assessment	Standardized tests	Real-time analytics, adaptive assessments	Allows personalized feedback but may reduce learning to measurable outcomes

Table 1 summarizes the transformation of key educational elements due to the influence of EdTech in hybrid classrooms. Each row contrasts how a specific aspect of education operates under traditional models versus in EdTech-integrated settings. The implications column highlights both opportunities and challenges arising from these shifts. For instance, while EdTech fosters student-centered learning and flexible content delivery, it also demands that teachers take on more complex roles and students possess higher levels of digital competence. Additionally, inequities in technology access remain a critical issue that must be addressed to ensure that hybrid learning models are inclusive and equitable for all learners.

## Discussion

The findings of this study reveal key insights into the evolving role of teachers and learners in hybrid classrooms, driven by the influence of EdTech startups. One of the central findings of this study is the shifting role of the teacher from a traditional authority figure to a facilitator and mentor. This transformation resonates with the broader trends in educational research, particularly with the concept of constructivist pedagogy proposed by theorists like Piaget and Vygotsky. Constructivism emphasizes the learner's active role in constructing knowledge, and it aligns with the findings of this study that teachers in hybrid classrooms adopt more flexible roles to guide students through personalized learning experiences [20]. In hybrid models, technology allows for learner-centered practices, where teachers no longer simply deliver content but instead create learning environments where students are encouraged to engage critically with materials, collaborate with peers, and take ownership of their learning process. This shift is consistent with the findings of previous studies by [21], who noted that hybrid learning environments promote student autonomy and agency by encouraging more personalized, self-directed learning.

However, while the role of teachers in hybrid classrooms is increasingly seen as that of a facilitator, the research also highlights the challenges teachers face in adapting to this new dynamic. This was particularly evident in smaller institutions with limited professional development support. Many educators expressed difficulties navigating and incorporating new technological tools into their teaching practices. This reflects similar concerns in the literature, where authors such as [22] have discussed professional development challenges in the context of educational change. Guskey argues that while teachers are often open to adopting new technologies, inadequate training and support can hinder the effective implementation of innovative practices. Our study further underscores this point, revealing that the teachers who were able to effectively integrate EdTech tools into their practice were those who had received continuous support and training from their institutions or EdTech companies. This suggests that a more robust and ongoing professional development framework is crucial for the success of hybrid learning models [23].

Regarding learner agency, the study found that students could exercise greater control over their learning in hybrid environments. This is consistent with findings from studies on personalized learning, such as those conducted by [24], who found that students in personalized learning environments tended to demonstrate higher levels of engagement and achievement. Personalized learning, facilitated by EdTech tools, empowers students to progress at their own pace, revisit challenging content, and access a wider range of resources. However, the findings also highlight the digital divide in access to technology and internet connectivity that disproportionately affects students from lower socioeconomic backgrounds. This is a critical issue raised by [25], who emphasized the equity challenges in adopting hybrid learning. The study revealed that students in schools with limited access to technology struggled to benefit fully from hybrid learning models, pointing to a need for more inclusive policies and initiatives to ensure that all students can participate in and benefit from EdTech innovations.

The analysis also identified the challenges of maintaining student engagement and social connection in hybrid classrooms, particularly in asynchronous learning environments. The feeling of isolation among students who had limited opportunities for face-to-face interactions with their peers and instructors mirrors findings in the literature that highlight the importance of social presence in online learning environments. According to [26], social presence, the ability to engage in meaningful communication and build relationships, is critical for fostering a sense of belonging and engagement in virtual learning contexts. The study participants echoed this sentiment, noting that while EdTech tools facilitated content delivery and self-paced learning, they often fell short of fostering deeper interpersonal connections and a sense of community [27]. This suggests that while offering flexibility, hybrid learning models must be designed to ensure opportunities for social interaction, both among peers and between teachers and students, to avoid the potential isolation some learners experience in purely digital spaces.

Finally, the tension between efficiency and personalization emerged as a significant theme in the study. EdTech tools, particularly those that rely on adaptive learning algorithms, are designed to provide tailored learning experiences [28]. However, the findings also indicate that these tools may struggle to address the more holistic human aspects of learning, such as fostering creativity, critical thinking, and emotional intelligence. This aligns with the concerns raised by [29], who argued that while technology can enhance efficiency and access to knowledge, it often fails to nurture the deeper, more complex skills that are central to human development. Our study suggests that while EdTech can support personalized learning in pacing and content, it should not be viewed as a replacement for the interpersonal, emotional, and reflective educational aspects better facilitated through human interaction. This insight resonates with [30] educational philosophy, which stresses the importance of experiential learning and the development of the whole child in a social context.

The analysis of the findings from this study, when compared with existing research, reinforces both the opportunities and challenges that EdTech startups and hybrid learning environments present. The shift in teacher roles, increased learner agency, and the promise of personalized learning are consistent with the literature on constructivism and personalized learning. However, the study also highlights critical issues such as the digital divide, the need for professional development, and the challenges of maintaining social presence and engagement in hybrid classrooms. These findings underscore the need for a balanced approach that incorporates both the technological advantages of EdTech and the essential human elements of education to ensure that hybrid learning environments are both effective and equitable.

## CONCLUSION

This study aimed to explore the transformative impact of EdTech startups on traditional learning models, particularly focusing on the changing roles of teachers and learners within hybrid classrooms. The findings underscore that while these technologies offer significant opportunities for personalized learning, increased learner agency, and flexibility in instructional practices, they also present challenges related to digital equity, teacher adaptation, and student engagement. The researcher's initial concerns about the potential for technology to either complement or replace traditional educational practices have been addressed with a nuanced understanding: EdTech tools indeed have the potential to enhance the learning experience, but their effectiveness is highly contingent on the proper integration of human elements, such as teacher guidance and student-teacher interactions. Thus, the hybrid classroom model must be carefully designed, emphasizing inclusivity, resource access, and adequate professional development for educators.

However, the study is not without limitations. The research primarily focused on a specific geographic region. It may not fully represent the broader global landscape of EdTech adoption, especially in contexts with different levels of infrastructure or socioeconomic conditions. While insightful, the findings related to the digital divide require further



investigation in diverse educational settings to understand how different regions are overcoming or exacerbating these challenges. Moreover, while the study explored a range of perspectives, it did not fully capture the voices of students in underserved or rural areas, where technology access may be even more limited. Future research should consider these variables more comprehensively, examining the long-term impacts of hybrid learning on both academic outcomes and socio-emotional development across a more diverse set of learners and educators.

For future studies, it is recommended that research expands to examine the sustainability of EdTech tools in hybrid models and their scalability across different educational systems. Additionally, deeper qualitative inquiries into hybrid classrooms' emotional and social dynamics, particularly how students' sense of belonging and community is affected, would provide valuable insights into the **psychosocial aspects** of learning in digital environments. Further longitudinal studies could help to identify the long-term effects of hybrid learning on teacher practices and student outcomes, providing a more comprehensive picture of how these innovative models evolve.

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