

# Just In Time Teaching Technique (JiTT) consideration in Edtech Products

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## Summary

*In the ever-evolving landscape of education technology (EdTech), the incorporation of effective teaching methodologies is crucial for optimizing learning outcomes. One such technique gaining traction is Just-In-Time Teaching (JiTT), a dynamic approach that bridges the gap between in-classroom instruction and online learning. This article delves into the significance of JiTT in EdTech products, highlighting how its implementation can enhance student engagement, facilitate personalized learning experiences, and ultimately revolutionize the way education is delivered in the digital age.*

## JiTT: A review

The pedagogical approach known as Just-in-Time Teaching (JiTT) endeavours to facilitate active learning and foster student engagement through the incorporation of pre-class preparation and in-class activities (DeHaan, 2009). The pedagogical approach of pre-class preparation entails furnishing pupils with preliminary materials, such as online quizzes or readings, prior to the commencement of the class. The responses of the students to these materials are then utilised to steer the in-class activities and discussions (Hutton, 2020).

The Just-in-Time Teaching (JiTT) approach has been widely adopted across multiple academic fields, demonstrating favourable outcomes in terms of enhancing students' academic performance and knowledge acquisition. The active learning approach is one of the primary advantages of Just-in-Time Teaching (JiTT). According to Llanos et al. (2021), involving students in pre-class activities, such as reading assignments or online quizzes, enhances their readiness to engage in class discussions and activities. DeHaan (2009) posits that this particular methodology fosters a sense of accountability among students towards their own learning, thereby facilitating the cultivation of analytical and problem-solving proficiencies.

Moreover, the Just-in-Time Teaching (JiTT) approach enables educators to detect and tackle misunderstandings or deficiencies in comprehension prior to their entrenchment (Llanos et al., 2021). In the context of Just-in-Time Teaching (JiTT), the utilisation of technological tools, such as online platforms or clickers, is frequently implemented to aid in the gathering and evaluation of student feedback (DeHaan, 2009).

According to Walline (2020), these instruments facilitate expeditious evaluation of students' comprehension and enable instructors to adapt their pedagogical approach accordingly. As per Hutton's (2020) suggestion, educators can utilise the information gathered from online quizzes or clicker responses

to recognise prevalent misunderstandings or perplexing topics. Subsequently, they can focus on these concerns during instructional sessions. Numerous academic investigations have documented favourable results linked to the adoption of Just-in-Time Teaching (JiTT). An investigation carried out in a physics course revealed that the implementation of Just-in-Time Teaching (JiTT) resulted in enhanced academic achievement and involvement among students when compared to conventional lecture-based teaching methodologies (Llanos et al., 2021).

According to Natarajan and Bennett's (2014) research, the implementation of Just-in-Time Teaching (JiTT) in a calculus course resulted in enhanced student learning and better retention of essential concepts. Moreover, research conducted by Barikhlana et al. (2019) has demonstrated that Just-in-Time Teaching (JiTT) can improve students' motivation and overall satisfaction with the learning process.

The efficacious execution of Just-in-Time Teaching (JiTT) necessitates meticulous preparation and contemplation of diverse elements. Kauppinen et al. (2004) suggest that effective teaching practises involve the provision of pertinent pre-class materials, the creation of well-designed in-class activities, and the provision of sufficient support and guidance for students. According to Kauppinen et al. (2004), proficient facilitation and consulting play a crucial role in assisting teams to embrace novel processes or techniques.

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## The role of Edtech Companies in supporting Just in Time Teaching Technique

The development of innovative solutions by edtech companies that align with the principles of Just-in-Time Teaching (JiTT) can be instrumental in providing support for this pedagogical approach. Edtech companies can facilitate Just-in-Time Teaching (JiTT) by furnishing interactive digital platforms that enable students to conveniently access course materials and resources at any time and from any location. Online learning platforms offer various tools and functionalities, such as video-based lectures, interactive assessments, and virtual discussion boards, that facilitate students' active participation and comprehension of the course material prior to attending in-person sessions.

Providing students with pre-access to course materials enables them to acquaint themselves with the subject matter and arrive equipped with inquiries and insights to contribute to classroom discourse. Moreover, educational technology enterprises have the potential to create instruments that enable instantaneous evaluation and appraisal. Online platforms may incorporate functionalities that enable students to submit their responses to quizzes or problem sets and obtain prompt evaluations of their performance. The provision of feedback can assist students in recognising their areas of proficiency and deficiency, and direct their educational progression.

Furthermore, educators have the ability to utilise this information to customise their classroom exercises and cater to the individual requirements of their pupils. Edtech companies can further facilitate the implementation of Just-in-Time Teaching (JiTT) by incorporating collaborative learning tools within their platforms. Collaborative learning is a crucial element of Just-in-Time Teaching (JiTT) methodology, as it fosters a cooperative environment where students collaborate to resolve issues and exchange ideas. Educational technology solutions may encompass functionalities such as virtual group workspaces, which facilitate students' collaborative efforts on assignments and projects.

The utilisation of such tools can additionally enhance the exchange of information and engagement among pupils and educators, thereby enabling prompt evaluation and direction. Furthermore, educational technology enterprises have the potential to utilise data analytics in order to furnish valuable observations regarding student learning and involvement. Through the examination of data derived from student engagement with digital learning platforms, educational technology solutions can discern recurring patterns and trends that may serve as valuable inputs for instructional decision-making. Instructors have the ability to adapt their pedagogical strategies in response to a significant number of students encountering difficulties with a specific concept. Moreover, the utilisation of data analytics has the potential to identify students who are susceptible to academic underachievement, thereby enabling timely intervention and provision of assistance.

## The role of schools in implementing Just-in-Time Teaching (JiTT) approach

Through the utilisation of educational technology tools, educational institutions can optimise the efficacy of Just-in-Time Teaching (JiTT) and furnish learners with a more individualised and engaging pedagogical encounter. Initially, educational institutions ought to guarantee the presence of a sturdy framework that can sustain the implementation of educational technology solutions. The aforementioned factors encompass dependable internet connectivity, ample bandwidth, and contemporary hardware and software. The successful implementation of Just-in-Time Teaching (JiTT) through Educational Technology (Edtech) tools may be impeded in the absence of a robust technological infrastructure, resulting in dissatisfaction and reduced productivity. In addition, it is recommended that educational institutions offer opportunities for teacher professional development aimed at augmenting their digital literacy competencies and pedagogical expertise pertaining to educational technology tools.

It is imperative that educators receive proper training on the proficient integration of technology within their pedagogical approaches, as well as the utilisation of educational technology tools to effectively facilitate Just-in-Time Teaching (JiTT) activities. The training programme ought to emphasise both the technical facets of tool utilisation and the pedagogical approaches for integrating them into JiTT lessons. In addition, educational institutions ought to meticulously choose and assess educational technology resources that are consistent with the aims and purposes of Just-in-Time Teaching (JiTT). A plethora of educational technology solutions are currently accessible, encompassing a wide spectrum of tools such as learning management systems and interactive multimedia resources. It is recommended that educational institutions take into account various aspects when selecting technological tools for their pedagogical activities.

These aspects may include the level of user-friendliness, compatibility with pre-existing systems, and the presence of features that facilitate Just-in-Time Teaching (JiTT) practises, such as instantaneous feedback and assessment functionalities. Furthermore, educational institutions ought to promote cooperation and correspondence between educators, learners, and guardians by means of utilising educational technology tools. Online discussion forums and collaborative platforms can serve as effective tools for promoting peer-to-peer learning and cultivating a sense of community among students in the classroom.

Facilitating active engagement and knowledge sharing among students can potentially augment the efficacy of Just-in-Time Teaching (JiTT). Finally, educational institutions ought to conduct periodic assessments to determine the effectiveness of educational technology solutions in facilitating Just-in-Time Teaching (JiTT) implementation. The process of gathering and scrutinising data, including but not limited to academic metrics

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of students, evaluations from educators and learners, and assessments of classroom interactions, can facilitate this endeavour. Through ongoing monitoring and evaluation of the efficacy of educational technology tools, educational institutions can make well-informed decisions regarding their implementation and pinpoint opportunities for enhancement.

## Conclusion

Just-in-Time Teaching (JiTT) is an educational methodology that fosters dynamic learning and learner involvement by merging preliminary groundwork and in-class exercises. Research has demonstrated that it can enhance academic achievement, student involvement, and drive across diverse fields of study. The utilization of technology, such as digital platforms or response devices, expedites the execution of Just-in-Time Teaching (JiTT) by providing educators with the means to gather and evaluate student feedback.

Nevertheless, the achievement of successful implementation necessitates meticulous planning and provision of assistance to both educators and learners. In general, the Just-in-Time Teaching (JiTT) method is a beneficial strategy for augmenting student education and fostering participatory involvement within the academic setting. Additionally, Edtech enterprises hold a significant responsibility in contributing to this process.

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