INTERNATIONAL JOURNAL OF EDUCATIONAL INNOVATION

NAWALA

Volume 1, Number 2, 2022

Pedagogical Innovation and Interactive Media in Promoting Student Autonomy at the Junior High School Level

Mega Cahyaningsih[1*]

[1] Universitas Negeri Yogyakarta, Yogyakarta, Indonesia

Article history:
Received: July 16, 2022
Revised: August 22, 2022
Accepted: September 28, 2022
Published: December 30, 2022

Keywords:
Educational Technology,
Interactive Media,
Junior High School,
Learning Independence,
Pedagogical Innovation.

Identifier:
Nawala
Page: 94-108
https://nawala.io/index.php/ijei

Abstract

This research explored how innovative learning design and interactive media enhance junior high school students' learning independence. A review of twenty scholarly articles from Google Scholar highlighted essential insights. Findings indicate that pedagogical models such as Project-Based Learning, flipped classrooms, and inquiry-based learning effectively foster students' active involvement and responsibility for their own progress. These strategies move education from a teacher-centered framework toward a student-centered orientation, motivating learners to manage their academic growth. In addition, interactive media like educational videos, digital simulations, and online quizzes enrich the learning process. Such tools deliver immediate feedback and enable personalized learning, supporting students to progress at their own pace in ways that fit their preferences. The integration of innovative design and interactive media establishes a learning environment that promotes autonomy, reflection, and metacognitive development. For this approach to succeed equitably, strong policy backing and substantial investment in teacher professional development are essential to ensure effective, inclusive implementation.

*Corresponding author:
megacahya51@gmail.com (Mega Cahyaningsih)

©2022 The Author(s).
This is an open-access article under CC-BY-SA license (https://creativecommons.org/licence/by-sa/4.0/)

1. Introduction

The rapid growth of information and communication technology has brought major changes in education, particularly at the junior high school level. This development is not limited to infrastructure or media but also extends to pedagogical practices used in classrooms. The demands of the 21st century require students to acquire skills that allow them to learn independently, supported by technology and innovative strategies, rather than depending solely on teachers. In this regard, learning independence emerges as a crucial competency that must be nurtured early. As noted by Pratama (2021), independent learning reflects students' ability to manage time and materials effectively, while also showing intrinsic motivation to continue learning without relying fully on direct teacher instruction. The paradigm shift from teacher-centered to student-centered learning is a key step in meeting the needs of today's learners. Traditional teacher-centered approaches are less effective in fostering autonomy, as students tend to become passive and heavily reliant on teachers' explanations.

This limits opportunities for exploration and independent growth. Consequently, innovative approaches that place students as active participants are being developed. Innovative learning design involves systematic planning that integrates contextual strategies, teaching methods, and media to optimize engagement and achievement. By applying this strategy, the learning process becomes more adaptive, flexible, and focused on developing students' individual potential, which helps build autonomy and deeper understanding. In practice, innovative learning designs are frequently combined with interactive media

supported by digital technology, including online applications, educational videos, and e-learning platforms. These tools are not merely supplementary resources but essential elements in strengthening learning independence. As explained by Binti Ishak et al. (2017), interactive media contribute to creating dynamic classroom environments and enhance students' comprehension of subject matter.

The availability of such media enables learners to access information independently, receive instant feedback, and construct a stronger conceptual grasp. Furthermore, interactive media provide opportunities for students to adapt their learning style and pace, which is fundamental to the process of independent learning. Thus, interactive media can be considered catalysts for encouraging students to take greater responsibility for their education. Many studies confirm that innovative learning designs supported by interactive technologies have positive effects on learning independence. Lestari et al. (2021) found that such approaches improve participation, foster self-regulation, and increase students' confidence in handling academic tasks. Classrooms enriched with diverse stimuli visual, auditory, and kinesthetic help students become more engaged and comfortable when dealing with challenging material. Moreover, interactive media allow for the accommodation of various learning styles, making education more inclusive and responsive to diverse student needs.

Despite their promise, the implementation of innovative learning designs and interactive media still faces considerable challenges. Access to adequate technology remains uneven, particularly in disadvantaged schools where internet connectivity and digital devices are scarce. Another obstacle lies in teacher preparedness. Many

educators lack experience in integrating technology-based approaches into their practice, requiring further training and capacity building. According to Budiana (2021), the lack of professional development opportunities often hampers teachers from utilizing interactive media effectively. Addressing these challenges demands continuous training, mentoring, and policy support to ensure educators can confidently apply innovative methods. For these reasons, further research is essential to identify best practices and strategies in designing innovative learning that effectively enhances independence. A systematic exploration of approaches will help identify models that can be widely applied while addressing constraints such as limited access to technology and varying levels of teacher readiness.

Such investigations are particularly relevant at the junior high school stage, where students are in a critical developmental phase and need structured opportunities to build autonomy and higher-order thinking skills. Innovative learning, when combined with interactive media, can create meaningful learning environments that are both adaptive and student-centered (Peng et al., 2019). This literature study, therefore, aims to examine various innovative learning designs and explore the role of interactive media in promoting learning independence among junior high school students. The review highlights how both components complement one another: innovative designs provide structure, strategies, and pedagogy, while interactive media deliver the tools that foster engagement, reflection, and autonomy. Together, they create learning conditions that are flexible, inclusive, and capable of nurturing individual potential. Ultimately, adopting these

approaches contributes to building an education system that is more adaptive, responsive, and aligned with the competencies required in the future.

2. Literature Review

Innovative learning design is defined as an instructional approach that emphasizes students' active participation through the integration of creative, contextual, and problem-solving strategies. Several models widely recognized as part of this approach include Problem-Based Learning (PBL), Project-Based Learning (PjBL), flipped classroom, and blended learning. These models are considered effective in encouraging student responsibility and building learning independence (Fajri et al., 2021; Ratu et al., 2021). The application of such strategies also reshapes the teacher's role, shifting from being the primary source of information to acting as a facilitator, while positioning students as the central focus in the learning process. A crucial element that reinforces innovative learning design is the use of interactive media. This component encompasses diverse forms of digital technology, such as instructional videos, educational applications, simulations, and interactive quizzes that are easily accessible through various devices.

According to Mawwadah et al. (2019), interactive media significantly enhance students' interest and motivation by presenting learning materials in visual, auditory, and kinesthetic formats. Furthermore, these tools provide learners with direct feedback, facilitate quicker comprehension of concepts, and enable adjustment of learning pace according to individual capacity. Learning independence itself refers to students' ability to plan, monitor, and evaluate their study processes

autonomously, without relying entirely on teachers. This skill is considered vital in 21st-century education since it is closely linked to lifelong learning competencies (Subekti & Jazuli, 2020). Empirical evidence further demonstrates that innovative learning design, when integrated with interactive media, makes a notable contribution to strengthening students' independence in learning, particularly within junior high school education (Puspitasari, 2017).

3. Methods

This study adopts a literature review method with the objective of systematically analyzing previous research relevant to innovative learning design, interactive media, and the development of learning independence among junior high school students. The literature review approach was selected because it enables researchers to identify, interpret, and synthesize findings from a wide range of published studies, thereby providing a holistic perspective on the issues examined. The review process was conducted by searching articles from databases such as Google Scholar and Elsevier, ensuring that the selected sources were recent, credible, and aligned with current technological developments and educational policies.

To guarantee the relevance and validity of the studies reviewed, several inclusion criteria were established. First, the research needed to explicitly discuss innovative learning designs or interactive media implemented at the junior high school level or equivalent, covering offline, online, or hybrid learning contexts. Second, the selected articles were required to examine learning independence either

as a core research variable or as an important supporting element within the study design. Third, only peer-reviewed journal articles were considered, to ensure methodological rigor and scientific reliability.

Conversely, articles that failed to meet these requirements were excluded from consideration. These included non-academic writings, opinion pieces, institutional reports without references, as well as theses or dissertations that had not been formally published. Following the selection, analysis was performed through a thematic approach, which involved identifying central themes from each relevant article. Themes explored included the types of innovative learning models applied, such as PBL, flipped classroom, or inquiry-based methods; the forms of interactive media employed, such as educational videos, learning applications, or digital platforms; the indicators of learning independence, including time management, self-regulation, and intrinsic motivation; and the results and implications highlighted in each study.

The thematic approach also allowed researchers to examine linkages and contrasts across studies, highlighting patterns, shared trends, and research gaps requiring further exploration. Ultimately, several articles were selected that fulfilled the inclusion criteria and were deemed suitable for deeper analysis. Each article was reviewed carefully, focusing on methodological clarity, contextual application in learning environments, and its overall contribution to enhancing understanding of junior high school students' learning independence. The results of this analysis are presented systematically in the results and discussion sections, aiming to describe the

interplay between innovative learning design, interactive media, and the cultivation of independence at the junior secondary education level.

4. Results and Discussion

Based on the review of several scientific articles, it was discovered that the implementation of innovative learning designs along with the integration of interactive media had a substantial effect on improving students' learning independence, especially at the junior high school level. The innovative designs developed by educators generally move toward project-based learning (PjBL), flipped classrooms, inquiry-based instruction, and blended learning approaches. These methods create flexible spaces for students to actively participate in the learning process, both individually and collaboratively, while simultaneously encouraging responsibility for their own learning outcomes. Research by Fajri et al. (2021) and Ratu et al. (2021) confirms that both PjBL and flipped classrooms significantly strengthen student engagement and accountability. By using these methods, students are no longer fully dependent on teachers for content delivery; instead, they are motivated to access information from multiple sources before classroom interaction, which demands that they plan their own strategies, manage resources, and later evaluate the success of their learning.

In addition, a study conducted by Afendi et al. (2020) demonstrated the effectiveness of inquiry-based learning in cultivating critical and independent thinking. Students within inquiry settings are guided to generate their own questions, investigate information, and draw evidence-based conclusions. Such processes

naturally develop their independence, as they must take responsibility for their choices and reasoning. Lestari et al. (2021) also reinforce this by showing that when students are engaged in contextual and exploratory task-based learning, there are visible improvements in time management, goal setting, and the ability to reflect independently on achieved outcomes. These findings collectively reveal that innovative pedagogical designs not only shift the classroom dynamic but also reposition learners as central actors in the educational process, laying an essential foundation for strengthening learning autonomy. Parallel to pedagogical shifts, the rapid growth of digital technologies has made interactive media a vital factor in the success of innovative learning. Various interactive tools such as animated learning videos, online quizzes, simulations, and mobile-based applications have been widely employed across different subjects.

According to Mawaddah et al. (2019), game-based learning media can enhance focus and endurance, particularly in subjects like mathematics and science that demand conceptual rigor. The principal advantage of interactive media is its capacity to deliver real-time feedback, which allows students to instantly recognize mistakes or successes and promptly revise or reinforce understanding. Al Mawaddah et al. (2021) further highlight how platforms like Quizizz, Google Classroom, and Kahoot significantly boost student initiative, as these platforms allow learners to revisit material according to personal pace and needs, thereby nurturing independent study habits. Another strength of interactive media lies in its capacity to personalize learning. Students can learn according to their own rhythm and style, which supports independence. Binti Ishak et al. (2017) observe that learners with access to

interactive resources exhibit higher self-efficacy in managing tasks. Moreover, interactive technologies provide diverse materials from visual graphics and audio explanations to complex simulations making concepts easier to understand. Consequently, students are transformed from passive consumers into active participants who can explore, interact, and even construct new knowledge from their digital experiences.

Learning independence, which is the primary focus of this research, can be identified through several indicators: students' ability to plan study schedules, establish learning goals, determine strategies, and engage in reflective evaluation of outcomes. Puspitasari (2017) found that learners participating in project-based activities supported by interactive media exhibited notable increases in intrinsic motivation, self-regulation, and accountability toward their learning processes. Similarly, Subekti and Jazuli (2020) reported that approaches emphasizing inquiry and exploration positively influenced students' metacognitive awareness, equipping them with skills to monitor, regulate, and refine their strategies consciously. In the post-pandemic context, as online and hybrid models expand, interactive media has gained even more significance in sustaining independence. Sutrisno (2021) showed that students accustomed to learning with digital media developed greater confidence in facing academic challenges, as they were more familiar with flexible and open learning rhythms. Therefore, learning independence should not merely be understood as an individual skill but also as an attribute connected with digital literacy, adaptability, and critical information evaluation.

Nevertheless, despite strong evidence of benefits, challenges in applying innovative designs and interactive media remain substantial. Recurring barriers identified in the literature include insufficient infrastructure in remote areas, teachers' limited digital competence, and cultural resistance toward shifting away from traditional teacher-centered practices. Budiana (2021) note that teachers lacking adequate training often struggle to create effective technology-based lessons and to fully embrace their role as facilitators rather than sole knowledge providers. Addressing these barriers requires systematic support: schools and governments need to implement comprehensive training programs, mentoring, and continuous professional development so that educators gain both confidence and competence in integrating interactive resources effectively. Beyond training, supportive education policies play an essential role in sustaining innovation. Progressive policies and flexible curricula that encourage integration of technology with innovative approaches open opportunities for teachers to experiment, adapt, and align strategies with diverse student needs.

Without policy backing, the innovations risk remaining isolated practices. National strategies must, therefore, embed the use of innovative pedagogy and interactive media as part of improving basic education quality. Such integration is crucial for fostering students who are independent, critical, and adaptable to social and technological changes. The findings of this study establish a strong link between innovative learning design, the role of interactive media, and the growth of learning independence among junior high school students. Innovative approaches such as project-based learning, flipped classrooms, blended learning, and inquiry-based

methods nurture responsibility and encourage critical decision-making. Interactive media, meanwhile, provides flexible environments, direct feedback, and opportunities for personalization, all of which reinforce autonomy. Together, these components create a learning ecosystem that goes beyond conventional knowledge transfer, moving toward meaningful, contextual, and student-driven education. The synergy between pedagogical innovation and digital resources not only enhances individual skills but also prepares students for lifelong learning. Thus, innovative learning designs and interactive media should not be viewed as mere technical supplements but as strategic educational instruments. When integrated effectively, they contribute to shaping junior high school students who are capable of independent learning, adaptive to rapid change, and equipped with critical thinking. The implications extend beyond classroom practice, influencing educational systems and policies toward creating environments that sustain meaningful and future-ready learning.

5. Conclusion

Based on a review of several scientific articles, it can be concluded that innovative learning design and the application of interactive media have a significant influence on enhancing the learning independence of junior high school students. Innovative learning design, through models such as Project-Based Learning, flipped classrooms, and inquiry-based approaches, is effective in fostering students' active participation and shaping a critical as well as reflective way of thinking. These approaches emphasize positioning students as the central actors in acquiring

knowledge while simultaneously training them to plan, manage, and evaluate their own learning strategies.

At the same time, interactive media reinforces the learning process by creating experiences that are engaging, contextual, and aligned with the diverse learning styles of students. By using simulations, animations, and digital quizzes, students are not only recipients of knowledge but also active explorers who interact directly with the material. This involvement leads to improvements in motivation, self-discipline, and responsibility for academic performance. Nevertheless, the implementation of innovative designs and digital media continues to face obstacles, including limitations in technological infrastructure and insufficient teacher competence in digital pedagogy. Addressing these issues requires supportive education policies, continuous professional development for teachers, and strengthened infrastructure. With these supports in place, the integration of innovative learning designs and interactive media has the potential to become a strategic solution for cultivating student independence and preparing education systems to meet the demands of the 21st century.

References

Afendi, A. H., Darmini, M., Sutisno, A. N., & Aziz, N. A. (2020). Penerapan Model Pembelajaran Inkuiri Dalam Meningkatkan Nilai Kemandirian Belajar Siswa Sekolah Dasar. *Jurnal PGSD*, *8*(1), 47-52.

Al Mawaddah, A. W., Hidayat, M. T., Amin, S. M., & Hartatik, S. (2021). Pengaruh penggunaan media pembelajaran quizizz terhadap hasil belajar siswa pada

mata pelajaran matematika melalui daring di sekolah Dasar. *Jurnal basicedu*, *5*(5), 3109-3116.

Binti Ishak, H., Nor, Z. M., & Ahmad, A. (2017). pembelajaran interaktif berasaskan aplikasi kahoot dalam pengajaran abad ke-21. *Buku Panduan Pelaksanaan Pendidikan Abad ke21. Institut Pendidikan Aminuddin Baki, Kementerian Pendidikan Malaysia.*

Budiana, I. (2021). Menjadi guru profesional di era digital. *JIEBAR: Journal of Islamic Education: Basic and Applied Research*, *2*(2), 144-161.

Fajri, I., Yusuf, R., & Yusoff, M. Z. M. (2021). Model pembelajaran project citizen sebagai inovasi pembelajaran dalam meningkatkan keterampilan abad 21. *Jurnal Hurriah: Jurnal Evaluasi Pendidikan Dan Penelitian*, *2*(3), 105-118.

Ratu, T., Sari, N., Mukti, W. A. H., & Erfan, M. (2021). Efektivitas project based learning terhadap efikasi diri dan kemampuan berpikir kritis peserta didik. *Konstan-Jurnal Fisika Dan Pendidikan Fisika*, *6*(1), 1-10.

Lestari, W., Pratama, L. D., & Sulistiowati, L. (2021). Efektifitas pembelajaran berbasis m-PBL dalam menunjang pembelajaran matematika secara daring. *Jurnal Magister Pendidikan Matematika (JUMADIKA)*, *3*(1), 35-44.

Pratama, A. F. (2021). Bimbingan Belajar Dengan Pendekatan Student Centered Learning Untuk Pembiasaan Belajar Mandiri Di Masa Pandemi Covid-19. *Proceedings UIN Sunan Gunung Djati Bandung*, *1*(71), 1-20.

Puspitasari, R. D. (2017). *Pengaruh Pembelajaran Berbasis Proyek Terhadap Kemandirian Belajar Fisika Peserta Didik Kelas X Smkn7 Bandar Lampung* (Doctoral Dissertation, Uin Raden Intan Lampung).

Mawaddah, W., Ahied, M., Hadi, W. P., & Wulandari, A. Y. R. (2019). Uji kelayakan multimedia interaktif berbasis PowerPoint disertai permainan Jeopardy terhadap motivasi belajar siswa. *Natural Science Education Research (NSER)*, *2*(2), 174-185.

Peng, H., Ma, S., & Spector, J. M. (2019). Personalized adaptive learning: an emerging pedagogical approach enabled by a smart learning environment. *Smart Learning Environments*, *6*(1), 1-14.

Subekti, F. E., & Jazuli, A. (2020). Peningkatan kemampuan pemecahan masalah dan kemandirian belajar mahasiswa melalui pembelajaran berbasis masalah. *JNPM (Jurnal Nasional Pendidikan Matematika)*, *4*(1), 13-27.