

Student experiences of agile-blended learning in emergency online education: insights from a participatory case study

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Abstract

Purpose – This study examined the implementation of an agile-blended learning (ABL) approach in a master-level early childhood research course and assessed its impact on the learning experience. The purpose was to understand how incorporating ABL concepts affected flexibility, learner autonomy, collaboration and technology mediation, the core principles of ABL.

Design/methodology/approach – A participatory case study methodology was employed to gather insights from 40 students regarding their experiences in the redesigned research course. Data were collected through interviews, observations and document analysis. Qualitative data were thematically analyzed and quantitative data descriptively analyzed.

Findings – ABL fostered flexibility, convenience and learner autonomy. However, students desired richer interpersonal interactions. Technological integration enhanced learning, but social presence was lacking.

Research limitations/implications – The study was limited to a specific master-level early childhood education course and focused on a particular group of students. Further research is needed to examine the generalizability of the findings in different educational contexts and student populations.

Practical implications – Recommendations include ongoing professional development and support systems to optimize ABL realization. Sustaining ABL practices necessitates flexible, empowering institutional structures.

Originality/value – This study contributes to the literature by exploring the potential of ABL in the context of early childhood research education. It provides empirical evidence of the benefits of ABL for increased flexibility, learner autonomy, collaboration and technology mediation. The case study design adds to the originality by offering insights into the practical implementation of ABL in an educational setting.

Keywords Agile-blended learning, Case study, Pedagogical innovation, Institutional support, Student-centered learning

Paper type Research paper

Introduction

The global higher education landscape has undergone immense transformation in recent years due to the integration of digital technologies and shifting student demographics

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(Mohamed Hashim *et al.*, 2022). This process of change accelerated rapidly with the outbreak of the COVID-19 pandemic, necessitating innovative solutions to sustain the continuity of teaching and learning amid public health restrictions. As physical classrooms transitioned online *en masse*, educators confronted new pedagogical challenges associated with teaching via digital platforms (Crawford *et al.*, 2020). This disrupted environment highlighted the pressing need to explore engaging and flexible online education models capable of meeting diverse student needs (Bryson and Andres, 2020).

In this context, agile-blended learning (ABL) emerges as a pioneering pedagogical approach designed explicitly for higher education in metropolitan areas, emphasizing flexibility, productivity and engagement (Li, 2023a, b). ABL integrates the principles of blended learning, combining face-to-face and online modalities, with agile methodology, drawing on adaptive, collaborative and experimental processes conducive to learner-focused education (Graham, 2013; Noguera *et al.*, 2018; Picciano *et al.*, 2014). This innovative approach addresses the unique needs of metropolitan areas and offers a promising solution to navigate the challenges emerging from crises like the ongoing pandemic. By thoughtfully integrating classroom and digital activities, ABL has the potential to enhance learning accessibility, effectiveness and student-centeredness, paving the way for educational transformation (Li *et al.*, 2023). However, to fully optimize the outcomes of ABL, its practical applications must be explored in various pedagogical contexts.

In light of these considerations, the present investigation aimed to assess the potential of implementing the concepts of ABL to enhance the teaching and learning experience of a master-level early childhood research course. Adopting a participatory case study methodology, the research examines students' experiences in the redesigned course, providing insights into the benefits and limitations of ABL. The study addresses the following research questions:

- (1) How did incorporating the concepts of ABL affect the learning experience, especially regarding the four core principles of ABL: flexibility, learner autonomy, collaboration and technology mediation?
- (2) What were the perceived benefits and challenges experienced by students in the ABL environment?

What is agile-blended learning?

Agile methodology originated in software development and emphasizes the need for speediness, flexibility, regular review and reflection, collaboration, learner autonomy and technology mediation. Agile methodologies prioritize flexible and iterative workflows to swiftly adapt to changing requirements and environments (Kadenic and Tambo, 2023). The success of agile projects relies on collective effort and collaboration and recognition of the dynamic nature of project needs. Short planning cycles, accompanied by regular review and reflection, enable teams to make the necessary adjustments and align their efforts with evolving objectives (Brhel *et al.*, 2015).

Furthermore, agile principles have been applied in education to enhance learner-centered practices (Noguera *et al.*, 2018). Educators adopting agile methodologies engage in reflective experimentation, respond to evolving student needs and foster a culture of ongoing inquiry during curriculum development (Lang, 2017). In this way, agile pedagogies empower students by involving them in rapid planning-doing-review cycles, granting autonomy and active participation in goal-setting, teaching and evaluation. Technology is crucial in an agile learning environment, facilitating seamless communication, resource access and interactive engagement (Li *et al.*, 2023). This integration of technology supports collaboration and enhances the learning experience.

On the other hand, blended learning, a pedagogical approach that integrates face-to-face and online learning activities, encompasses several essential elements (Graham, 2013; Picciano *et al.*, 2014). It offers flexibility by reducing reliance on strict schedules and physical classrooms and thereby provides learners greater access to educational opportunities (Puah *et al.*, 2021; Sahni, 2019). This flexibility enhances educational accessibility, continuity and persistence (Dziuban *et al.*, 2018; Huang *et al.*, 2022). Blended learning also combines the advantages of active, interactive and collaborative experiences through a strategic blend of in-person and technology-mediated modalities (Garrison and Kanuka, 2004; Graham, 2013). Leveraging online and face-to-face components promotes learner autonomy and empowers students to take charge of their learning journey. Blended learning often provides additional learning time and materials, offering students increased autonomy in navigating the curriculum (Means *et al.*, 2009).

Collaboration in blended learning is usually facilitated through technology mediation. By leveraging technology tools and platforms, blended learning creates opportunities for students to engage in collaborative activities, exchange ideas and learn from one another. These additional collaborative activities enhance the learning process and contribute to a sense of community within the learning environment (Means *et al.*, 2009). Through online discussions, group projects, virtual teamwork and other interactive tools, students can actively participate in collaborative learning experiences, regardless of their physical location. Technology mediation enables seamless communication and collaboration and promotes the development of the important interpersonal and teamwork skills needed to succeed in the digital age.

Incorporating the principles and elements of agile methodology and blended learning, Li and his team (see Li, 2023a, b) developed a constructivist pedagogical approach known as ABL. This innovative approach is tailored to meet the educational needs of busy adults in metropolitan areas, prioritizing learning effectiveness, efficiency and flexibility to accommodate their demanding schedules.

The ABL framework draws on the principles of both agile and blended learning, combining their core elements to create a comprehensive and effective educational model (Li, 2023a, b). Among the seven principles integrated into the ABL framework, four are significant, as they are common to both agile and blended learning (Figure 1).

Flexibility is emphasized in ABL to accommodate diverse learning styles and adapt instructional strategies to individual needs. Learners can access learning materials through various devices anytime and anywhere. Multiple modes of student-instructor interaction are

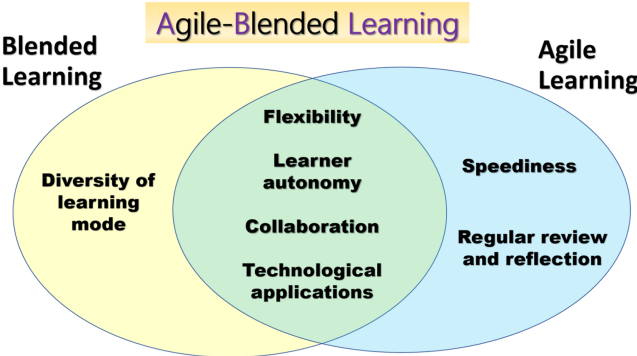


Figure 1.
Core principles of AB
learning

Source(s): Li, (2023b)

offered to accommodate learners' work or family commitments, enabling them to engage with instructors and actively seek support at their convenience.

Furthermore, learner autonomy is promoted in ABL, which enables students to take ownership of their learning journey, set goals and make informed decisions about their educational path. Adopting a self-directed approach, students can plan, design and implement their education based on their unique needs and interests. This self-directedness facilitates learner autonomy through self-regulation and independent decision-making.

ABL also encourages collaboration to enhance learning effectiveness. Group work, discussions and peer feedback opportunities are provided to foster knowledge sharing and understanding. Both in-person and online collaboration allow learners to engage in cooperative learning activities and benefit from diverse perspectives and collective problem-solving efforts. Collaboration deepens understanding, develops critical thinking skills and improves teamwork abilities, contributing to positive learning outcomes in the ABL framework.

Finally, technology mediation plays a vital role in ABL, in which educational technologies are used to enhance the learning experience. Online tools such as video conferencing, discussion forums and multimedia presentations are leveraged to facilitate seamless communication, access to resources and interactive engagement. Learners choose whether to engage in face-to-face or online learning, synchronously or asynchronously. As such, technology mediation enriches the learning environment and facilitates effective and flexible learning experiences.

By combining these core principles, ABL provides a dynamic and adaptable approach to education, enabling busy adult learners in metropolitan areas to engage in their studies while maintaining flexibility and autonomy. These principles serve as the foundation of the ABL framework, shaping its implementation and guiding the design of instructional strategies for optimal learning outcomes.

While ABL is a new instructional approach, [Li et al. \(2023\)](#) provided comprehensive guidelines for its implementation, covering key stages such as course planning, design/redesign and implementation. They recommend adopting ABL in an undergraduate distance learning English language course. However, the authors acknowledge the challenges that may hinder successful ABL implementation. For example, a significant challenge arises from potential limitations imposed by institutional structures, policies and support systems, which may restrict instructors' flexibility in modifying their pedagogical approaches to align with ABL principles. These structures and policies may lack the necessary frameworks or support mechanisms needed for instructors to embrace and fully implement ABL. In addition, inadequate preparation for both instructors and students during the transition to ABL could impact its overall effectiveness. Further research is needed to gather evidence and explore the practical implementation and effectiveness of ABL in open education and distance learning contexts.

Research context

During the COVID-19 pandemic, which resulted in the suspension of face-to-face classes in many institutes, the author of this paper had an unexpected opportunity to explore the ABL approach. Although the Hong Kong government did not officially suspend tertiary institutes to enforce social distancing measures, most voluntarily halted face-to-face classes for an extended period ([Wong and Tang, 2021](#)). It was within this unique context that the "Investigations in Early Childhood Education" course had to be reimaged, serving as a distinctive foundation for the research conducted in this study.

At this university, despite being categorized as "distance learning," all courses, including the aforementioned year-long course, integrate face-to-face components alongside self-study

materials. For the course in question, the self-study materials comprised five book chapters, each dedicated to a different aspect of early childhood education research. The face-to-face component comprised 30 lectures and 15 tutorials, each lasting two hours. Half of the lectures were devoted to introducing research methodology in early childhood education, covering quantitative and qualitative methods. The remaining ones critically examined research studies related to early childhood education, complementing the content covered in the self-study materials. In addition, students were guided through the process of conducting their individual miniresearch studies during the tutorials. This hands-on experience enabled them to apply their knowledge and skills, culminating in the production of a research report as the final learning output.

In response to the suspension of face-to-face classes during the COVID-19 pandemic, a comprehensive course redesign was initiated, incorporating the four core principles of the ABL framework: flexibility, learner autonomy, collaboration and technology mediation.

To address flexibility, the course structure was modified to accommodate remote learning. Lectures and tutorials were conducted in real-time via Zoom, enabling students to participate from any location. For students seeking in-person support, the option to attend tutorials on campus was provided. In addition, video recordings of each lesson and relevant course materials were made accessible on the course's online platform, allowing students to review the materials at their convenience and pace.

To promote learner autonomy, individual consultations with the tutor were introduced via various communication channels such as Zoom, text messaging (WhatsApp) or phone. These personalized sessions empowered students to seek tailored guidance, take ownership of their learning journey and progress at their preferred pace.

Collaboration was fostered by dividing students into small groups of four or five. Rather than focusing solely on lectures and discussing predetermined research studies, each group was encouraged to select their own area of interest. They conducted investigations and delivered online presentations via Zoom, fostering collaboration, knowledge sharing and peer learning. Anonymous feedback forms facilitated immediate feedback, enabling classmates to provide constructive criticism and contribute to each other's growth.

Technology mediation played a crucial role in the course redesign. Zoom was the primary tool for lectures, tutorials, individual consultations and online presentations, ensuring seamless communication and interaction despite physical separation. Finally, the course's online platform and discussion board facilitated access to video recordings, resources and materials, effectively mediating the learning process through technology.

Guided by the research questions mentioned earlier, the following section outlines the methodology employed in this study.

Methodology

Participants

Initially, 42 adult students were enrolled in the course. Their ages ranged from 26 to 61 years. The mean age of participants was 39.55 years ($SD = 11.23$). The majority (97.6%) were female. Additional demographic and background variables of the sample are presented in [Table 1](#). However, 2 female students later withdrew from the course, resulting in a final sample size of 40 students.

Instrumentation

The instruments used in this study included online questionnaires and in-class/online discussion platforms. These instruments were selected to collect data on students' feedback and experiences in the ABL environment.

Item	Respondent %
<i>Current occupation and position</i>	
Principal at kindergarten	21.4
Headteacher at kindergarten	23.8
Teacher at kindergarten	40.5
Others	14.3
<i>Highest qualification obtained</i>	
Bachelor of education in early childhood education	85.0
Other bachelor's degrees	10.0
Other master's degrees not in the field of early childhood education	5.0
<i>Studied some research methods</i>	
Yes	66.7
No	33.3
<i>Studied statistics</i>	
Yes	31.0
No	69.0
<i>Experience with distance learning</i>	
Undergraduate program/course	23.8
Postgraduate program/course	26.2
No experience with distance learning	50.0

Table 1.
Demographic
information of
respondents

Source(s): Table by the author

Online questionnaires. Two online questionnaires were developed using Google Forms to gather quantitative and qualitative data. The first questionnaire, administered at the beginning of the course, focused on obtaining baseline information about students' educational and professional backgrounds. This information included demographic variables such as age, gender and academic qualifications. It also aimed to capture students' learning expectations to inform the course development process. The second questionnaire, administered at the end of the course, comprised closed-ended and open-ended questions. The closed-ended questions aimed to assess students' satisfaction with the course. These were measured on a five-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree). These questions explored various aspects of the course, including content, delivery methods and overall learning experience. The open-ended questions allowed students to provide detailed written responses about the perceived benefits and challenges encountered in the ABL environment. These qualitative responses added depth and context to the quantitative data obtained from the Likert-scale questions.

In-class and online discussion platforms. Students' feedback was also collected through ongoing in-class discussions and discussion boards. In-class discussions provided a platform for real-time interactions through which students could actively participate, share their thoughts and engage in dialogue with their peers and instructors. The online discussion boards, accessible through the course's online platform, facilitated asynchronous communication, enabling students to contribute to discussions at their convenience. These platforms provided a rich source of qualitative data, capturing students' reflections, insights and experiences throughout the course.

Data collection procedures

The participants were directed to access the online pre-course and post-course questionnaires through the links provided during the initial and final online lectures.

Adequate time was allotted for them to complete both questionnaires, with an estimated completion time of approximately 10 min for each. The students' responses were automatically collected and stored securely on the Google Forms platform.

Throughout the course, in-class discussions were conducted during scheduled class sessions, allowing students to actively participate and share feedback. Online discussion boards were available on the course's online platform, and students were encouraged to contribute their thoughts and insights at any time during the duration of the course.

Data integrity and confidentiality

The author took several measures to ensure data integrity and confidentiality. Informed consent was obtained from all participants before the data were collected to ensure their awareness and voluntary participation in the study. The online questionnaires were securely hosted on Google Forms, and access to the collected data was limited to the research team. Personal identifiers were removed from the dataset to maintain anonymity, and only aggregated and de-identified data were reported in the study to ensure individual privacy.

Data analysis

The collected data were analyzed using a mixed-methods approach that included both quantitative and qualitative methods. The quantitative data obtained from the questionnaires were analyzed using descriptive statistics computed with Google Sheets, providing a summary of the data and allowing for a quantitative understanding of students' feedback and satisfaction levels.

The qualitative data underwent an inductive thematic analysis involving open coding, category generation and theme identification following established guidelines (Braun and Clarke, 2006). Initially, a research assistant and the author independently coded the qualitative data, identifying meaningful information units. These codes were then organized into themes, which were finalized through subsequent discussions and comparisons. The themes are presented in the tables in the Results section. These were then further analyzed quantitatively and interpreted by the author in relation to the research questions. To provide illustrative examples, selected quotes from various data sources such as the questionnaires, in-class discussions, email communications and online discussion boards were included. These quotes were used to highlight key points and provide context to the findings.

Results

Table 2 presents participants' initial expectations of the course and their assessment of the associated difficulties. In terms of their initial expectations, the majority (51.4%) expressed a desire to acquire knowledge and skills related to conducting research. Furthermore, 24.3% hoped to apply these newly acquired skills in their daily practice, highlighting the practical relevance they attributed to the course.

Regarding the expected difficulties, the most commonly anticipated challenge was related to the research method/process, with 39.5% of participants indicating potential difficulties. This suggests that they recognized the complexity of conducting research and acknowledged the need for guidance and support in navigating the research process.

Other difficulties identified included data collection and analysis (15.8%), deciding on a research topic (7.9%), completing assignments on time (13.1%), finding groupmates (5.3%), obtaining reference materials (7.9%) and technological problems (2.6%). These findings clarify the potential hurdles students anticipated and provide valuable insights for designing interventions and support mechanisms to address these challenges effectively.

Item	Respondent %	
<i>Expected difficulties</i>		
Research method/process	39.5	
Data collection and analysis	15.8	
Deciding on a research topic	7.9	
Completing assignments on time	13.1	
Finding groupmates	5.3	
Obtaining reference materials	7.9	
Technological problems	2.6	
None	7.9	
<i>Expectations on the course</i>		
Learn about research methods	51.4	
Be able to use these skills in daily practice	24.3	
Teachers of the course to provide more guidance and support	5.4	
Complete the course and graduate	18.9	
Source(s): Table by the author		Table 2. Students' expected difficulties and expectations on course

The ongoing collection and analysis of student feedback throughout the course allowed for continuous refinement of and support for the implementation of the course. It also enabled evaluation of the impact of incorporating the concepts of ABL on the overall learning experience.

Enjoying flexibility and convenience

The findings indicate that most students (67.9%; [Table 3](#)) emphasized the importance of flexibility and convenience when asked about the advantages of the ABL arrangement in this course. The ABL approach proved particularly valuable during the pandemic, allowing students to choose between attending classes in person or online. Participants highly appreciated this flexibility, as it catered to the diverse needs of students with different circumstances. For example, Student A expressed her gratitude for this arrangement, stating,

I appreciate this arrangement a lot because it provides students like me who work full-time with the flexibility to arrange my learning without being restricted by location. It saves me the trouble of commuting and allows me to attend classes promptly.

Item	Respondent %	
<i>Advantages</i>		
Flexible and convenient (e.g. saves commute time and flexible location)	67.9	
Learner autonomy (e.g. arranging own learning time and pace)	21.4	
Safety during the pandemic	10.7	
<i>Disadvantages</i>		
Lack of interactions	46.4	
Lack of immediate guidance from teachers	14.3	
Easily distracted	10.7	
None	28.6	
Source(s): Table by the author		Table 3. Perceived advantages and disadvantages of the new learning approach

Echoing Student A's comment, many students' responses to the open-ended question on the advantages of ABL in the end-of-course survey emphasized that it enabled them to learn at their preferred pace in any location. This aspect proved especially advantageous for working adults with busy schedules, as it effectively saved them commuting time. Students recognized that not having to travel to campus for every class meant they could allocate their time more efficiently and provided them with additional time for studying or other commitments.

Moreover, students highlighted that the ABL approach empowered them to choose when and how they wanted to learn, improving their comprehension of the coursework and increasing their engagement in attending lessons. By having control over their learning environment and pace, students felt more motivated and involved in their educational journey.

Appreciating learner autonomy

Our study revealed that approximately 21.4% of students emphasized the promotion of learner autonomy through the ABL approach. These students highlighted that the ABL approach allowed them to make decisions regarding their study schedule, location and learning methods (Table 3). This autonomy was considered a key advantage of the approach.

The individual consultations and multiple feedback methods proved crucial, especially considering that students were researching topics of their choice. This personalized support facilitated a sense of ownership over their studies, enabling them to learn according to their individual preferences and develop improved time management skills. As a result, students perceived this autonomy as instrumental in facilitating more effective learning experiences.

For instance, according to Student B, "*Students could learn according to their own needs.*" This underscores the ability to tailor the learning experience to students' specific requirements.

Longing for more interpersonal interactions and collaborations

The course in this study implemented various strategies to foster collaboration and interaction among students as well as between students and teachers. However, our findings indicate that while students found online interactions valuable for their learning and appreciated the timely guidance and feedback provided by teachers, they expressed a desire for increased interpersonal interactions and collaborations. Despite the inclusion of group discussions and projects, students felt that a lack of immediate real-life interactions posed a challenge to their learning. This sentiment was echoed by 46.4% of students who indicated the absence of face-to-face interactions as a difficulty they experienced (Table 3). Below are selected responses from students illustrating their longing for more interpersonal interactions:

- (1) Student C: "*The online classes lacked student-teaching interactions and opportunities to collaborate with peers.*"
- (2) Student D: "*I missed having discussions with peers during the online classes.*"
- (3) Student E: "*I struggled to adapt to the reduced peer interaction and limited opportunities for sharing during the online classes.*"

Enhancing learning and access to course materials through technological integration

Finally, the findings highlight the significant advantages of integrating technology into teaching within the ABL mode, particularly in enhancing learning effectiveness and efficiency. The primary online learning tools used in this study were Zoom, the course's

online platform and WhatsApp. Students acknowledged the important role of these tools in facilitating communication and interaction and in bridging the gap created by physical separation. Moreover, the online learning platforms provided easy access to course materials, effectively mediating the learning process.

The quantitative findings in Table 4 corroborate the qualitative feedback received, as students emphasized the timeliness of teacher guidance during online classes. The

Item	Strongly agree %	Agree %	Neutral %	Disagree %	Strongly disagree %
<i>Course-related</i>					
The course was well-organized and ran smoothly	35.0	65.0	0.0	0.0	0.0
The course was stimulating and useful	35.0	50.0	15.0	0.0	0.0
The course has improved my competency in related academic/professional contexts	35.0	50.0	15.0	0.0	0.0
<i>Learning outcome</i>					
Learning outcomes of the course were clear	30.0	65.0	5.0	0.0	0.0
The course materials (e.g. course readings, textbooks, notes, audio-visual materials, etc.) helped me achieve the learning outcomes	20.0	55.0	15.0	10.0	0.0
The course activities (e.g. tutorials, day schools, discussions, assignments, etc.) helped me achieve the learning outcomes	25.0	55.0	20.0	0.0	0.0
The course met the stated learning outcomes	25.0	60.0	15.0	0.0	0.0
<i>Course materials</i>					
The course materials were well-written and organized in a manner that effectively guided my study	20.0	70.0	10.0	0.0	0.0
Self-tests/activities/exercises in the course materials facilitated my learning of the course	20.0	50.0	0.0	0.0	0.0
Multimedia and/or online course materials were effectively integrated to maintain my interest in the subject	25.0	55.0	0.0	0.0	0.0
<i>Online teaching and learning</i>					
I am satisfied with the online teaching of the course (e.g. audio and video quality, timely publishing of recordings, online interaction, etc.)	35.0	55.0	5.0	5.0	0.0
Real-time interactive online classes for this course were effective for my learning	30.0	70.0	0.0	0.0	0.0
Overall, I am satisfied with the tutor	40.0	50.0	10.0	0.0	0.0
<i>Assessment and feedback</i>					
Assessments (e.g. assignments, tests, projects, etc.) were appropriate and relevant to the course	30.0	60.0	10.0	0.0	0.0
Assessment requirements were communicated clearly in advance	25.0	60.0	15.0	0.0	0.0
Feedback on my assignments/projects was timely and useful for my study	25.0	60.0	15.0	0.0	0.0

Source(s): Table by the author

Table 4.
End-of-course
evaluation results

quantitative results also indicate that most students agreed that online interactions (90%) and interactive online lessons (100%) were highly beneficial for their learning in this course. The use of online tools enabled students to attend classes and complete projects, overcoming the significant challenges posed by the pandemic.

One student, Student F, expressed gratitude toward the instructors for their commitment to monitoring each students learning progress. This personalized attention further enhanced the learning experience in the ABL environment, demonstrating the positive impact of technological integration on student–teacher interactions and support.

Discussion

Interpretation of findings

This study explored the potential of adopting ABL concepts to facilitate the teaching and learning of the “Investigations in Early Childhood Education” class. The new pedagogical practices of ABL implemented in this course include conducting lectures and tutorials via Zoom for remote flexibility, with in-person support and online access to recorded lessons and materials. Learner autonomy was promoted through individual consultations via various communication channels, allowing personalized guidance. Collaboration was enhanced by organizing students into small groups for research projects and online presentations, which enabled immediate peer feedback. Technology mediation was integral. To this end, Zoom was used for the interactive sessions and as an online resource access and seamless communication platform. The findings identified several benefits of ABL, including greater flexibility, convenience and learner autonomy for students. These results are consistent with previous research on blended learning (Huang *et al.*, 2022; Li and Wong, 2019; Owston, 2018; Puah *et al.*, 2021) and agile methodology (Lang, 2017; Noguera *et al.*, 2018) in higher education, supporting the efficacy of these approaches. The integration of technology and online resources offered students increased flexibility and opportunities for active learning and personalized feedback. The use of agile methodology promotes a student-centered approach to teaching and learning, emphasizing flexibility, experimentation and continual improvement. These advantages can potentially enhance students’ interest and motivation in learning, ultimately contributing to lifelong learning, a crucial aspect of employability in urban settings (English and Carlsen, 2019; Leow and Billet, 2022; Owston, 2018).

However, while these practices promote a student-centered approach, learners in the class still desired in-person exchanges, underscoring the importance of social presence (Garrison *et al.*, 1999). The lack of real-time, immediate interactions with instructors and peers might stem from various factors, including technological barriers, reduced face-to-face engagement, time management challenges, individual learning preferences, the initial adjustment period to ABL and the critical role of instructor facilitation. These problems may be exacerbated if these practices are scaled up to larger courses.

Despite the integration of advanced technological tools, some students faced difficulties in effectively utilizing them for interaction. Issues such as unreliable internet connections and lack of familiarity with digital platforms hindered seamless communication and interaction. Traditional face-to-face interactions, which have an important role in building rapport and fostering a sense of community, were significantly reduced. Although online platforms facilitated some level of interaction, the absence of physical presence affected the quality and depth of interpersonal connections.

While beneficial in many ways, the flexibility of ABL also led to challenges in coordinating synchronous activities. Students with diverse schedules and commitments found participating in real-time discussions and collaborative sessions difficult, leading to a perceived lack of interaction. Some students expressed a preference for independent study

over collaborative learning. This preference impacted their participation in group activities and discussions, contributing to the overall perception of insufficient interactions.

The transition to ABL required an initial adjustment period during which students and instructors adapted to the new interaction methods. This adjustment phase may have contributed to early perceptions of inadequate interactions, even though these perceptions might have improved over time. Here, the role of the instructor in facilitating interactions is pivotal. In some instances, students felt there was a lack of proactive facilitation and encouragement to engage in interactive activities, which could have mitigated the sense of disconnection.

According to [Li et al. \(2023\)](#), one of the main challenges is the need for educators to adapt to the changing nature of teaching and learning, which requires them to apply agile techniques and have the technical skills and knowledge to effectively use various online tools and resources. While a range of technologies such as Learning Management Systems (LMS), adaptive learning technologies, virtual and augmented reality (VR/AR), AI-powered tutors and mobile learning applications can be employed, workshops and training sessions are needed to keep educators updated on the latest technological tools and pedagogical strategies to enhance their ability to effectively facilitate ABL.

Also important is preparing students for the transition to ABL. Orientation sessions that familiarize them with the ABL framework, tools and expectations can help mitigate initial challenges and anxieties. Providing ongoing support such as academic advising and access to learning resources can enhance the student experience. Furthermore, educators could improve student engagement and interaction through clear communication, regular feedback and the design of collaborative activities that promote interaction and a sense of community among students.

Importance of institutional support

In the aftermath of the pandemic, the university has transitioned back to face-to-face teaching for all distance learning courses, including the “Investigations in Early Childhood Education” class. However, a notable change is that the face-to-face lessons are now being recorded for students’ future reference. While this arrangement ensures that students have access to recorded materials, it has sparked feedback from instructors and students expressing their preference for the previous synchronous Zoom lessons.

Echoing [Li et al.’s \(2023\)](#) concern regarding the restrictions imposed by institutional structures, policies and support systems, the university’s decision to preserve traditional in-person learning structures may inadvertently constrain instructors’ ability to leverage the hybrid modalities cultivated during the emergency period. By limiting the flexibility of instructors to adapt their teaching methods, such policies risk rolling back the learner-centered pedagogy fostered through ABL during the pandemic.

The shift back to face-to-face lessons has raised concerns among students who valued the flexibility of the previous synchronous Zoom format. They find that attending face-to-face lessons restricts their flexibility, particularly when they anticipate being late for a lesson or have other commitments that may clash with the scheduled class time. Consequently, some may opt to watch the recorded lesson videos at home instead. While this flexibility allows students to access course materials at their convenience, it limits their opportunities to participate in real-time activities and engage with the instructor and peers.

To sustain the innovative, student-focused approaches ABL promotes, institutes must re-examine rigid pre-pandemic norms and enable continued flexible course design that adapts to diverse learning preferences. Supportive policies are needed to empower instructors as agents of pedagogical change, trusting their expertise to determine optimal blended modalities that balance structure with autonomy on a course-by-course basis. Institutes should also establish

Conclusion

This study explored the implementation of an ABL approach in a master-level early childhood research course and examined its impact on the learning experience. Using a participatory case study methodology, the research provided valuable insights into the benefits and limitations of ABL. The findings revealed that ABL significantly fostered flexibility, convenience and learner autonomy, concepts that align well with the core principles of ABL. Students appreciated the ability to access learning materials and engage with the course at their own pace and from various locations. The integration of technology played a crucial role in enhancing the learning experience by providing seamless communication and access to resources. However, the study also highlighted a notable gap in rich interpersonal interactions, suggesting that while technological mediation facilitated learning, it did not wholly substitute the need for social presence.

The study contributes to the literature by offering empirical evidence of the advantages of ABL in early childhood research education, particularly its impact on flexibility, learner autonomy, collaboration and technology mediation. The case study design adds originality by providing practical insights into the implementation of ABL in a specific educational context. The practical implications of this study include the need for ongoing professional development and support systems to optimize the realization of ABL. As such, institutes should strive to create flexible and empowering structures to sustain ABL practices in education.

Despite its contributions, it is essential to acknowledge the limitations of this study, including a relatively small sample size and focus on a specific master-level early childhood education course and a particular group of students. These factors should be considered when interpreting the findings. Future research should address these limitations by conducting larger-scale studies across different educational contexts and student populations, incorporating objective measures of learning outcomes. In addition, exploring strategies to optimize the implementation of ABL and address the challenges identified in this study would be beneficial. Furthermore, investigating the long-term effects of ABL on academic achievement, engagement and retention would provide valuable insights into its overall effectiveness.

Nevertheless, even with these preliminary findings, it is evident that integrating ABL into higher education holds substantial promise for creating more flexible, autonomous and technology-enhanced learning experiences. As the educational landscape continues to evolve, especially in the wake of global disruptions like the COVID-19 pandemic, innovative approaches such as ABL are not just beneficial – they are essential. By embracing the principles of agility and blended learning, educators can craft dynamic and resilient learning environments that cater to the diverse needs of today's learners. The journey toward fully realizing the potential of ABL is ongoing, but as this study demonstrates, the path forward is laden with opportunities for transformative educational practices. Let us continue to innovate, adapt and strive for excellence in education, ensuring that every learner has the chance to thrive in an ever-changing world.

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