



Authentic assessment in intensive training (*bootcamp*) of higher education students as well as feedback on the learning experience process

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ABSTRACT

Authentic assessment in competency-based education should create opportunities that allow students to integrate learning and practice, resulting in mastery of the professional skills students will need in their future workplaces. Authentic assessment provides students with opportunities to engage in authentic tasks to develop, use and expand their knowledge, higher-order thinking and digital skills competencies. The role of authentic assessment in intensive training (Bootcamp) can prepare learners to improve their ability to be ready to practice when in the world of work based on tasks undertaken after completing a program in higher education. This study aims to describe the authentic form of assessment as an evaluation process used in intensive training (Bootcamp) for students to describe feedback on the Bootcamp learning experience process as consideration for improvement in the implementation of the following program. The author uses a descriptive method to provide an overview of the phenomenon studied through a literature study of existing documents. Authentic assessment activities in Bootcamp learning activities for each session per day ended with the assignment of a project called "Challenge," which was group in nature and was carried out for approximately two weeks. Students were asked to express what they had understood and done during the project. Students can also give/convey feedback to each other. This is done so students can understand the material better and develop their skills.

ARTICLE INFO

Article History:

Received: 2 Aug 2023

Revised: 11 Dec 2023

Accepted: 16 Dec 2023

Available online: 22 Dec 2023

Publish: 21 Feb 2024

Keyword:

Assessment authentic; bootcamp; learning experiences



Open access

Inovasi Kurikulum is a peer-reviewed open-access journal.

ABSTRAK

Penilaian otentik dalam pendidikan berbasis kompetensi harus menciptakan peluang yang memungkinkan mahasiswa untuk mengintegrasikan pembelajaran dan praktik, menghasilkan penguasaan keterampilan profesional yang akan dibutuhkan mahasiswa di tempat kerja masa depan mereka. Tujuan dari penilaian otentik adalah untuk memberikan mahasiswa kesempatan untuk terlibat dalam tugas-tugas otentik untuk mengembangkan, menggunakan dan memperluas pengetahuan mereka, keterampilan berpikir tingkat tinggi dan keterampilan digital. Peran penilaian autentik dalam pelatihan intensif (Bootcamp) dapat mempersiapkan mahasiswa untuk meningkatkan kemampuannya untuk siap mempraktikkan ketika dalam lingkup dunia kerja berdasarkan tugas-tugas yang dikerjakan setelah menyelesaikan program di pendidikan tinggi. Tujuan studi ini adalah untuk mendeskripsikan bentuk penilaian otentik sebagai proses evaluasi yang digunakan dalam pelatihan intensif (Bootcamp) bagi mahasiswa, mendeskripsikan umpan balik terhadap proses pengalaman pembelajaran Bootcamp sebagai bahan pertimbangan untuk perbaikan pada pelaksanaan program berikutnya. Penulis menggunakan metode deskriptif untuk bertujuan memberikan gambaran tentang fenomena yang sedang dikaji melalui studi literatur terhadap dokumen-dokumen yang telah ada. Kegiatan penilaian otentik dalam kegiatan pembelajaran Bootcamp untuk setiap sesi per harinya diakhiri dengan pemberian penugasan proyek dengan sebutan challenge atau penugasan yang mengharuskan peserta untuk mengungkapkan apa saja yang telah mereka pahami dan lakukan selama proyek berlangsung. Sehingga mahasiswa dapat saling memberi/menyampaikan umpan balik kepada satu sama lain. Hal ini dilakukan agar mahasiswa dapat memahami materi dengan lebih baik dan mengembangkan keterampilannya.

Kata Kunci: Pelatihan intensif; pengalaman pembelajaran; penilaian otentik

How to cite (APA 7)

Barkah, T. (2024). Authentic assessment in intensive training (bootcamp) of higher education students as well as feedback on the learning experience process. *Inovasi Kurikulum*, 21(1), 267-286.

Peer review

This article has been peer-reviewed through the journal's standard double-blind peer review, where both the reviewers and authors are anonymised during review.



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INTRODUCTION

Education is one of the most important aspects of human life. Individuals can acquire the knowledge and skills needed to improve and succeed through education. A current trend in education to address potential gaps in education and training is intensive training or bootcamps. Intensive training or bootcamps are short, intensive training programs aligned with employers, specifically appealing to career changers since their emergence in 2012, initially focusing on web development and software. Today, bootcamps have evolved into other digital careers, such as user experience and user interface design (UX/UI) (Yashmi et al., 2021).

Researchers believe bootcamps have quickly become an important intermediary for digital competence development and an effort to address challenges within the scope of technological innovation through reskilling and upskilling, enabling individuals to be productive and adapt to new jobs in the future. This is particularly important as challenges and concerns arise about technology replacing various jobs, with millions of people potentially facing job losses due to economic structural changes and automation. Dzvapatsva et al. (2023) reveal that bootcamps target two groups: students or learners from educational institutions and organizations employing their workers. The students or learners and specific organizations targeted by bootcamps are ideal candidates for the current disruptive innovation development. Bootcamps can be used to acquire the necessary skills to obtain jobs in the technology sector that cannot be found in higher education (Bell & Sarlo, 2020).

Bootcamp is an intensive training program with content relevant to career needs in specific fields. Initially, bootcamps focused only on the IT field, such as coding bootcamps. Over time, many bootcamps are available for various areas of expertise, such as digital marketing, UI/UX, SEO, copywriting, and many others. Generally, bootcamps focus on skills that are in high demand by companies. Examples include SEO, data visualization, data analytics, digital marketing, Microsoft Excel, copywriting, UI/UX, software engineering, and more. Bootcamps can be conducted synchronously (live online bootcamps) or asynchronously (online bootcamps) (Jaggars, 2021; Lissinna et al., 2022). Synchronous (live online bootcamp) refers to activities where the instructor and bootcamp participants meet on a platform for discussion. Classes are usually held according to a predetermined schedule. The instructor and participants can interact via the media, such as video calls, online meetings using Zoom, Google Meet, and chatting. Asynchronous (online bootcamp) refers to bootcamp activities conducted without a fixed schedule. Participants can independently access and complete learning materials and tasks within deadlines. During online bootcamps, participants and instructors cannot interact directly. If the bootcamp participants are full-time workers with busy schedules, this online training could be a suitable option. Bootcamps offer various benefits: 1) Learning from experienced mentors/practitioners; 2) Building a portfolio through real-world projects; 3) Networking; and 4) Learning new skills quickly.

Bootcamps largely enhance flexibility in delivery, with providers offering training and tutorial sessions at various times throughout the day, including evenings and weekends. The activities include individual work, co-designing with researchers, and group discussions. Before starting each boot camp session, participants complete a preparation worksheet that guides them in setting up the online training tools and security measures to ensure they are ready for the boot camp training. At the end of each bootcamp session, participants are asked to complete a survey to provide feedback on the bootcamp (Hu et al., 2021).

Merdeka Belajar Kampus Merdeka (MBKM) is a policy from the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia, aimed at encouraging students to master various fields of knowledge as preparation for entering the workforce (Arisandi et al., 2022). This MBKM policy aligns with the Peraturan Menteri Pendidikan dan Kebudayaan Nomor 3 Tahun 2020 tentang Standar Nasional

Pendidikan Tinggi, which stipulates that the fulfillment of the learning period and workload for students in undergraduate or applied bachelor's programs can be carried out: 1) by completing the entire learning process in the study program at the university according to the prescribed learning period and workload; and 2) by completing part of the learning process in the study program to meet part of the learning period and workload, with the remaining part being completed through learning activities outside the study program. Through MBKM, students are allowed to pursue learning outside their study program or university, through 8 (eight) MBKM activities, which are: 1) conducting internships or work practices in the industry or other workplaces; 2) carrying out community service projects in villages; 3) teaching in educational units; 4) participating in student exchanges; 5) conducting research; 6) engaging in entrepreneurial activities; 7) creating independent studies or projects; and 8) participating in humanitarian programs. Through the MBKM policy, higher education study programs can expand opportunities for students to participate in internships and independent studies. Study programs can provide equivalency for activities worth 20 credits for activities that meet the required activity hours, which was previously limited to a maximum of 12 credits. The MBKM program offers more opportunities for internships and independent studies, so students are no longer limited to the companies or institutions currently partners in their study programs.

Lecturers must acknowledge the shift in focus and their roles in higher education. Students now play a more significant role in meeting their learning needs, in styles and models that best suit them. Traditionally, lecturers were seen as the source of information, imparting knowledge and skills to students. The internet has changed this dynamic, as data can now be freely accessed anywhere, anytime, on any topic (Haleem et al., 2022). Therefore, lecturers' role has shifted toward developing the skills and tools to assist students in critically analyzing the vast amount of available information and understanding how to apply it.

Evaluation in education is an essential element in the learning process, including in higher education. This evaluation assesses students' learning outcomes and the effectiveness of the teaching methods used by lecturers, as quality instructors produce quality learning. Assessment is a crucial component of teaching and learning that affects many stakeholders and partnerships within the education community, such as instructors, parents, guardians, students, policymakers, and administrators. Assessment is any form of measurement and evaluation of what students know and can do, including themselves. Assessment plays an integral role in identifying the level of effectiveness of a particular process and the outcomes of the learning itself. However, learning outcomes are highly dependent on the effectiveness and accuracy of the developed assessments (Karim et al., 2018). Two main subgroups are used when describing assessment: traditional and authentic.

Traditional assessment is limited to paper-and-pencil/standard pen-based tests, emphasizing objective measurement. This standard assessment uses closed-item formats, such as multiple choice, matching, essays, short-answer questions, or true/false. Using these item formats is considered to improve the efficiency of test administration, objectivity of assessment, reliability of test scores, and cost-effectiveness because processing software is used in the evaluation. As a result, large-scale test items can be administered. However, it is widely acknowledged that traditional testing limits the assessment of higher-order thinking skills and other essential 21st-century competencies due to its item-based format (Shorten et al., 2020; Sitthimongkolchai et al., 2022).

Traditional assessments focusing on cognitive skills through written or oral exams can effectively assess the ability to memorize and redefine components of knowledge-based tasks. Ajjawi et al. (2020) argue that using traditional assessments is insufficient to measure learning and skills, unless traditional assessments are integrated with performance-based assessments, such as authentic assessments, to reflect the achievement of expected standards, especially in higher education. Assessment is part of the teaching process based on the constructivist learning approach. It is conducted at the beginning and end of learning and throughout the entire learning process.

The constructivist approach, which focuses on the process, requires various measurement instruments or methods rather than traditional approaches (Ozan, 2019). Conventional assessments cannot capture actual changes in students' knowledge. On the other hand, assessment methods that emphasize the learning process and encourage students to engage in metacognitive and reflective activities are compatible with the constructivist perspective. Authentic assessment or performance assessment is an alternative assessment methodology. The assessment is based on authentic learning tasks that focus on tests and diverse learning processes to produce the final output (Makransky et al., 2019; Ozan, 2019). In the context of higher education, the quality of assessments must be measured according to students' actual abilities. Moreover, the exact purpose of assessment must be clarified: to achieve learning, not just to evaluate learning (Widiastuti et al., 2020). Students must be involved in the assessment process to understand the meaning of authentic assessment truly.

In the current digital era, teaching, learning, and assessment processes need to be reconsidered to align with real-world needs, contributing to the development of 21st-century skills, including communication and collaboration, creativity and innovation, and the ability to work with technology. Mohmmmed et al. (2020) argue that assessment tests that are limited by time or reference-free tests may no longer be relevant, especially in distance education. In the context of online training with the concept of connectivism, the learning process occurs through connections between people, platforms, types, and levels of knowledge (Brieger et al., 2020; Sozudogru et al., 2019). Currently, the world is facing unpredictable changes, and teaching, learning, and assessment must remain relevant and adapt to the various possibilities technology offers.

Authentic assessment in vocational training includes competency-based training programs and assessments. The assessment tasks used in vocational training should resemble those individuals will face in their future professional practice (Ajjawi et al., 2020). Authentic assessment in competency-based education, particularly in higher education, must create opportunities to integrate learning and practice, resulting in the mastery of professional skills students will need in their future workplaces. Authentic assessment aims to provide opportunities for students to engage in authentic tasks to develop, use, and expand their knowledge, enhance higher-order thinking skills, and other 21st-century competencies (Rapanta et al., 2020). Therefore, the role of authentic assessment in intensive training (bootcamps) in the context of higher education is to prepare students to enhance their abilities, ensuring they are ready to apply their skills in the workplace based on the tasks completed after finishing the intensive training (bootcamp) program.

Authentic assessment in intensive training programs (bootcamps) in the context of higher education is expected to enhance graduates' competencies in both hard skills and soft skills, as well as their readiness to face the workforce through direct learning experiences, such as those in the workplace (experiential learning), especially for students during their independent study program. This authentic assessment can be used to determine whether the students' learning objectives have been achieved and to what extent students' competencies have improved after participating in the independent study. Through this study, the author examines the form of authentic assessment used in one of the intensive training programs (bootcamps) to enhance students' digital competencies. Based on the above issue review, the objectives of this study are: 1) to describe the form of authentic assessment as an evaluation process used in intensive training (bootcamps) for students. 2) to describe the feedback on the bootcamp learning experience process as consideration for improvements in the implementation of future programs.

LITERATURE REVIEW

Assignments and Authentic Assessment

In higher education, authentic assignments are tasks that assess students' performance or authentic study and evaluate their abilities, such as perseverance in solving complex problems, positive thinking habits, growth mindset, resilience, grit, and self-directed learning. Analytical or holistic rubrics are an essential component of authentic assessment, providing criteria and standards for descriptive feedback, self-assessment, and peer assessment. An important aspect is receiving timely and formative feedback from instructors and/or peers to improve their performance and work (Mahapatra, 2021).

Authentic assessment refers to a process based on reflection on teaching, learning, achievement, motivation, and attitudes during the teaching and learning process (Karim et al., 2018). This assessment determines whether students can apply the knowledge they have gained in real-world conditions (Hajian, 2019), including for students in the context of higher education. Some authentic assessment instruments used include portfolios, projects, and journals. These assessment instruments allow students to express their knowledge about the material they have learned in their way. The results obtained from the authentic assessment process can be used to assist and guide their development and learning process (Miller & Konstantinou, 2022). Authentic assessment is considered an adequate measure of intellectual achievement or ability because it requires students to demonstrate their deep understanding, higher-order thinking skills, and problem-solving abilities through basic task performance. Therefore, authentic assessment can serve as an instrument to assess 21st-century competencies, especially for students in the context of global educational reform, such as allowing students to practice these skills in real-life situations that can be assessed through authentic assessment. This activity allows students to transfer their knowledge and skills to real-world scenarios.

The research by Villarroel et al. (2020) shows that authentic assessment can be a valuable instrument to encourage students' motivation in writing essays by utilizing their critical thinking potential. Furthermore, the results indicate that the students observed in this study were enthusiastic about completing the assigned tasks on time. Thus, authentic assessment helps educators assess students' writing skills. Additionally, research by Wylie and Lyon (2020) proves that participants' perceptions of assessment significantly influence their learning approaches. Students' learning methodologies affect their perceptions of evaluation and assessment. In this case, students prefer multiple-choice exams over short essay-type questions, a traditional assessment instrument. However, compared to authentic assessment methods, students prefer using this innovative assessment method because they feel adequately evaluated.

Authentic assessment can be defined as assessment activities that consist of real-world professional replicas. Through authentic assessment, students can practice real-life problem-solving skills, communication, critical thinking, collaboration, and networking (Aziz et al., 2021). From a socio-cultural perspective, authentic assessment provides students with a platform to learn with their peers, as it encourages the development of social aspects through active participation and deep learning. This perspective relates to the social constructivist theory, which discusses aspects such as critical thinking, teamwork, problem-solving, effective communication, and reflective practice, commonly used in authentic assessment activities in the classroom (Kricsfalusy et al., 2018). Authentic assignments engage students by working with their peers in a socially supportive learning environment. The nature of learning in this context varies, such as problem-based learning for student-centered pedagogy. In this way, the assessment process can be conducted by peers, where students are introduced to paralogy learning, which creates peer support, learning from peers, and sharing ideas. Social-constructivist theory is important in shaping 21st-century assessment, resulting in authentic assessment in classroom learning processes.

Embedding Skills and Reflection through Training

Training programs that require students to apply critical thinking skills prepare them to tackle the complex problems they may encounter in the workplace. Work-based training programs are commonly used to connect theory, practice, and skills into the curriculum. [Alanson et al. \(2020\)](#) explain that such training should be designed to offer opportunities for completing modules aligned with industry-relevant curricula and involving professionals. These training initiatives should foster the development of workplace-required skills and create strong linkages between theory and practice. In higher education, the *Merdeka Belajar Kampus Merdeka* (MBKM) program serves as a bridge to connect academic theory with practical experience by offering students opportunities to learn beyond the classroom environment.

Reflection is integral to developing the necessary skills and the ability to bridge theory and practice. Based on this perspective, students, particularly those in higher education, must be explicitly taught how to engage in reflective practices. Doing so allows them to produce meaningful evidence of how they think and approach new ways of doing things. [Veine et al. \(2020\)](#) similarly argue that reflection helps students learn how to navigate interdisciplinary and global challenges. [Kornelakis and Petrakaki \(2020\)](#) further highlight a gap in higher education and professional practice regarding how reflection can be effectively utilized as a foundation for lifelong learning and the potential limitations when applied only partially.

A skills-focused advantage stems from the increasing perception among businesses and industries that transferable skills are more valuable than academic degrees when hiring graduates ([Succi & Canovi, 2020](#)). It is also important to acknowledge that modern careers have become increasingly dynamic, requiring individuals to self-manage transitions between roles and sectors and to adapt to change continuously. Therefore, for higher education institutions aiming to embed employability skills in their students, it is crucial to recognize that employability is a multidimensional concept. It must include often-overlooked elements such as achieving work-life balance and fostering lifelong learning ([Cheng et al., 2022](#)). Industry experts have highlighted the urgency of rethinking the skills graduates need as they enter the post-COVID-19 workforce.

Summative Assessment in Higher Education

In light of the previous discussion, a growing need exists for higher education curricula that adequately prepare students for the workforce. Despite ongoing criticism that assessment in higher education often produces graduates ill-equipped for employment ([Fischer et al., 2023](#)), there remains a strong call for recognizing the value of assessment for and as learning. However, competency-based criteria and assessment still dominate the post-secondary education landscape ([Miller & Konstantinou, 2022](#)). Employers have expressed concerns that graduates often lack essential skills. Moreover, a disparity often exists between how employers assess graduates' competencies and how graduates evaluate themselves. Research shows that graduates overestimate their skills and competencies compared to employer assessments ([Miller & Konstantinou, 2022](#)). This gap highlights the pressing need for higher education institutions to design curricula and assessment methods that effectively embed employability skills, ensuring that graduates are better aligned with workplace demands.

Traditional assessments in education often require students to recall or recognize factual knowledge. While this approach may be practical for measuring content acquisition within a specific discipline, it does not accurately reflect how knowledge is evaluated in real-world professional settings. A key purpose of higher education is to prepare students to transition smoothly into the workplace ([McGunagle & Zizka, 2020](#)). Industry stakeholders strongly prefer assessments that mirror real-life tasks rather than those confined to academic environments. They especially value students' abilities to identify areas for improvement, respond constructively to feedback, and enhance the quality of their work, skills essential in the workplace ([Fischer et al., 2023](#)). This aligns more closely with formative assessment, which resembles

the types of evaluation found in professional settings. Nonetheless, summative assessment still plays an important role, providing students with qualifications and credentials. Professional organizations have increasingly sought to bridge the gap between higher education and the values and practices of the workplace (Miller & Konstantinou, 2022), emphasizing the need for assessment models that reflect both academic standards and employability outcomes.

Authentic assessment more closely replicates the challenges found in the real world and presents a range of tasks that reflect the priorities and challenges encountered in high-quality learning activities. This assessment approach has also been identified by Miller and Konstantinou (2022) as a way to engage students by offering opportunities to develop knowledge and skills that are valued and needed by industry. In workplace learning, assessment must provide evidence that students are reflective practitioners capable of self-development, understanding the world of work, knowing the rules of the profession or workplace settings, and acting professionally. The conception of authentic assessment in workplace learning adds value for students who are not yet employed.

Authentic and Reflective Assessment of Employability Skills

Problem-based learning is an approach to authentic assessment that can prepare students for entering the workforce. Students are at the center of this learning approach; they are required to solve unstructured problems with the guidance of a tutor or facilitator. Problem-based learning becomes effective when it is designed to resemble real workplace settings (Mabley et al., 2020), as such environments have the potential to provide stimulating challenges that enhance the development of formal operational abilities.

The alignment between a job and assessment is crucial for authentic assessment, as in this case, students design their assessment tasks based on real-world problems they are likely to face in the workplace. Thus, the main challenge lies in creating opportunities for meaningful assessment for students who have not yet entered the workforce. Reflection is one way to bridge this gap, as self-assessment forms are valued and practiced across various industries (Burton et al., 2020).

Critical reflection has long been important in many professions, including business. In this case, students must learn to reflect and self-assess to understand feedback, determine whether their work meets acceptable standards, and recognize when to ask for help or pursue further learning (Fischer et al., 2023). Therefore, in creating authentic work-based assessments, it is necessary to rely on students' critical reflection, which allows them to develop a range of professional skills and, perhaps most importantly, begin to understand how they can improve their professional practice skills. Reflection becomes a key skill value for recruiters in the business/industry world, enabling students to explore and develop other essential work skills. Miller and Konstantinou (2022) state that for students, particularly those who are not yet employed, the consequences of developing skills and reflective approaches are one way to meet feedback requirements, as developing skills and performing tasks that require reflection on their skill development must yield real outcomes and impacts for the students.

Ozan (2019) identified seven criteria for authentic assessment: (1) Authentic assessment is realistic. In higher education, when students' knowledge, skills, and/or tendencies are assessed in real-life contexts, students should be assessed on authentic tasks. (2) Authentic tasks require students to make good, creative, and innovative decisions to solve complex, non-routine problems and perform tasks in new situations. (3) Authentic assessment or tasks allow students to participate in a subject or discipline through critical thinking and inquiry. (4) In authentic assessment, students can repeat, practice, find valuable resources, and receive timely feedback to improve performance or product quality. (5) Authentic tasks seek multiple performance evidence from students, with descriptions or explanations behind the success and failure of a performance. (6) A dual assessment system is used, and assessment criteria should be

clear. Clear assessment criteria with students will enable them to understand and internalize the criteria for achievement. (7) Students' self-assessment should be very important in authentic assessment.

Thus, authentic assessment is a form of assessment for learning. Authentic assessment is one of the approaches in alternative assessment, which reflects students' learning and performance aligned with their motivations and attitudes (Aziz et al., 2020). Additionally, in intensive training (bootcamps), instructors may still have limited knowledge of authentic assessment, even though it should be part of their assessment practices, preventing them from applying the best authentic assessment techniques in their teaching. The support of authentic assessment by formal educational institutions is crucial, as it represents a strong effort to generate various activities that instill authentic assessment in the classroom. Although some shifts toward more authentic assessment had started before the pandemic, the emergency transition to online learning during the pandemic became a catalyst for deeper reflection on pedagogical practices and assessment. Furthermore, enhancing authentic assessment can reduce the risk of cheating and plagiarism while better preparing students for their professional practice. As we enter the digital era, assessment innovations continue to evolve. Hence, instructors/mentors/facilitators must understand that electronic assessments such as blogs, simulations, and scenarios are examples of e-assessment opportunities for higher-order cognitive skills, which can be assessed beyond the typical multiple-choice quizzes that usually assess cognitive ability only. Raynault et al. (2021) describe five methods of authentic e-assessment as approaches to supporting the development of 21st-century learning and literacy skills, including (1) collaborative assignments, (2) recording video presentations and/or podcasts, (3) presentations, (4) blog and social media posts, and (5) e-portfolios. In particular, Authentic and reflective assessments can help develop self-management skills and prepare students for how their work will be evaluated in real-world/industry settings (Miller & Konstantinou, 2022).

METHODS

In writing this article, the researcher uses a descriptive method to provide an overview of the studied phenomenon. This helpful method, which is carried out according to the current situation (Al-Ababneh, 2020), helps obtain a detailed illustration of the entire study.

This study's secondary data collection method was conducted through a literature review. A literature review can be defined as a data collection technique that involves sorting and gathering various information and data using available online and offline library sources. The literature review was done by examining, reading, and taking notes on various literature relevant to the research topic. The secondary data can include journals/articles and data related to a learning activity connected to authentic assessment, which can be used in intensive training (bootcamp), as well as feedback forms from the learning experience gathered from participants and facilitators.

RESULTS AND DISCUSSION

Results

Authentic Assessment in UI/UX Intensive Training (Bootcamp)

Authentic assessment in bootcamp learning activities for each daily session can be concluded with the assignment of a project referred to as a challenge, or a group task completed over approximately two weeks. In the context of higher education, students are asked to express what they have understood and accomplished throughout the project. The challenge aims to measure participants' competence in the material they have studied and serves as a prerequisite for the next stage. In addition, students can share their experiences related to the learning materials they have obtained, followed by reflection sessions

between instructors and students to implement upcoming projects. Throughout the learning and discussion process, students are guided directly by instructors/facilitators. Therefore, if participants need assistance or have immediate questions, they can consult the instructor/facilitator directly. Beyond their role as mentors, facilitators may also provide feedback on the results of the challenges or assignments completed by the participants, allowing students to give and receive feedback with one another. This approach is implemented to help students gain a deeper understanding of the material and to develop their skills. **Table 1** below presents an overview of the intensive training (bootcamp) learning activities.

Table 1. Overview of Learning Activities in the Intensive Training (Bootcamp)

No.	Activity	Description
1.	<i>Group Discussion Class</i>	Students engage in enjoyable discussion activities with facilitators and fellow students in the class, focusing on the material in the current chapter.
2.	<i>Group Challenge</i>	Students work on challenges in groups or teams to gain experience in collaboration within a team setting.
3.	<i>Scrum Methodology</i>	Throughout the learning process, students frequently apply Scrum to tackle various case studies that reflect real-world conditions.
4.	<i>Study with Team</i>	Learning activities are conducted in the classroom, with facilitators directly guiding students. They are also allowed to learn collaboratively with other students in team-based formats.

Source: Challenge Documentation 2022

The method used in the boot camp is flipped learning. [Zainuddin et al. \(2019\)](#) explain that the flipped classroom positively impacts learning activities such as academic performance, learning motivation and/or engagement, social interaction, and self-directed learning skills. Therefore, the flipped learning method is effective for instructors/facilitators and enhances collaboration in students' thinking processes. This occurs because the method changes students' perspectives and attitudes toward the learning process and their interaction with facilitators, whose role is more focused on addressing unanswered questions from the self-directed learning materials.

In addition, students also become more independent in using the tools utilized during class sessions because they have already learned how to use them beforehand. Students can also develop their critical thinking skills, as the self-directed learning process often leads to new questions that are later addressed during class discussion forums. Flipped learning also introduces a new methodology for teaching and learning that transforms the role of the facilitator from being at the front of the class to taking on a more cooperative and collaborative role in the teaching and learning process. Flipped learning enables instructors/facilitators to dedicate more class time to engaging and interactive learning activities and supervise more practice-oriented projects. Students are expected to participate in face-to-face sessions, collaborative group discussions, and presentations during class activities. In line with this, a study by [Zainuddin et al. \(2019\)](#) confirms that flipped learning targets perceived competence, autonomy, engagement, better performance, and the ability to achieve strong assessment outcomes.

There are three levels of learning in both traditional classroom learning and the flipped classroom model. For the *remembering* level, face-to-face learning takes place in traditional classrooms, while lectures and pre-recorded videos are used for the learning process in flipped classrooms. Regarding the *understanding* level, Q&A sessions are typically used in traditional classrooms, whereas peer-to-peer discussions are the main instruments used in flipped classrooms to achieve this level. Finally, for the *analysis* level of learning,

homework assignments are used in traditional classrooms, while in flipped classrooms, it is achieved through projects and presentation tasks.

Lasting 1–3 hours, live classroom activities aim to explore participants’ problem-solving and solution development abilities. During the discussion session, each team brings a topic of discussion and tackles a problem derived from the challenge matrix as a reference point. As team members, participants are expected to contribute actively and take on the role of problem-solvers to find the best solution to the problem at hand. The facilitator acts as a moderator during the discussion forum. Participants are trained to recognize their gaps in understanding based on their self-study experiences, allowing them greater freedom to discuss with facilitators and peers during the forum session. Facilitators may also offer various references that participants can use to consider alternative solutions. An example of a challenge used as an authentic assessment instrument can be seen in **Table 2**, where UI/UX bootcamp participants learn to apply the design sprint method. By the end of the chapter, they are expected to use it as an introduction to project management.

Table 2. Challenge Matrix as a Form of Authentic Assessment

Skill Metric	Delivery	Criteria
Applying documented Scrum management	Documentation of tasking and design processes during the design sprint using management tools such as Trello	Students can apply the documented Scrum method on a board using a management tool
Implementing Design Sprint in the UX design process	Documentation of the sprint evaluation analysis conducted through retrospective	Students can plan one (1) sprint that includes one (1) UX design process
Enhancing efficiency and speed by conducting a one-week sprint	Final prototype of the product created based on feedback received during the sprint	Students can produce one (1) product prototype and user feedback within one week
Creating documentation of the UX design process and product prototype feedback		Students can document the entire design process and evaluate their work through retrospective
Evaluating the design process completed during one sprint		

Source: Challenge Documentation 2022

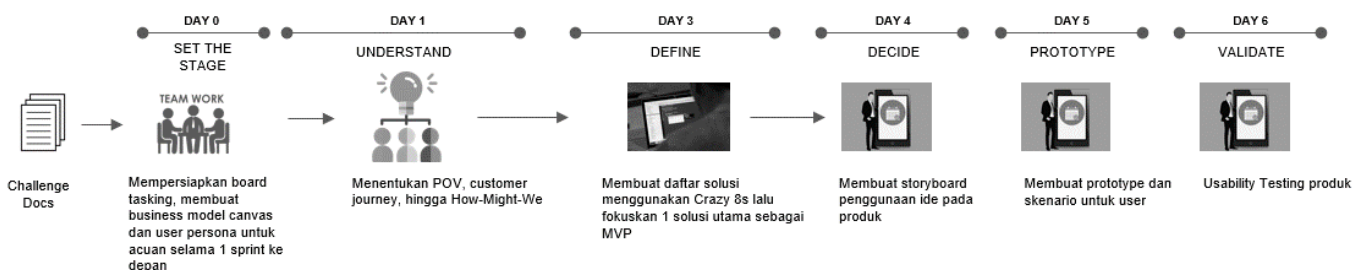


Figure 1. Illustration of Students Working on the Challenge

Source: Challenge Documentation 2022

Figure 1 illustrates students working on the challenge. Students must learn about application design, front-end and back-end workflows, logic, problem-solving skills, and communication. The challenge assignment

is given over two weeks, during which participants must ensure they have studied the self-learning materials and sought additional references. Once all challenge assignments are completed, a challenge review or assessment, including quantitative and qualitative reviews, takes approximately four days. The announcement of the challenge assessment results indicates that participants are ready to proceed to the next topic and marks the end of the previous one. Upon completing all materials, students are assigned a final project to evaluate their comprehensive understanding and ability to apply the knowledge gained throughout the program, from the first to the last topic. Students must identify a problem based on a predetermined theme and then design a product as a mobile or web application that can address the problem. The features and functions of the product are flexible, as long as they align with the problem the participants aim to solve.

Table 3 presents the challenge matrix for the students' final project to provide an overview of the challenge.

Table 3. Final Project Challenge Matrix

Skill Metric	Delivery	Criteria
Simulating working with the Product Management (PM) team by creating a project according to what has been planned with the PM team, thus forming a UX portfolio on online platforms like Dribbble.com for design portfolio publication and Medium.com for writing publication to practice the participants' storytelling skills.	Applying Scrum Methodology with the Product Management (PM) team.	Participants can identify problems to solve through digital solutions.
		Participants can discuss the problem to ensure the scope is neither too broad nor too narrow.
	Applying Hybrid Design Sprint, where the Understand and Define phases are done in groups, while the Sketch & Decide, Prototype, and Validate phases are done in teams.	Publishing the project completed previously through online portfolio publication platforms like Dribbble and Medium.
	Publishing a UX portfolio that includes the projects completed during the Bootcamp.	Explaining and narrating the role of a UX designer in the final product development project.
		Presenting the UX portfolio uploaded on the online publication platform.

Source: *Challenge Documentation 2022*

After the students complete the final project in teams, one representative from each team is selected to present their project's initial findings, process, and results for 10 minutes to the examining team and other students. The authentic assessment criteria used in the final project can be seen in **Table 4**.

Table 4. Assessment Criteria for the Final Project in UI/UX Bootcamp

Product	User flow	High Fidelity	Visual	Collaboration
Able to communicate how the product helps users and the business	Able to create and communicate the user flow effectively and understandably	Able to create high-fidelity designs using Figma	Able to display attractive and engaging visual designs	Able to collaborate effectively with other UX team members during the design process

Source: Final Project Document 2022

Next, students are required to upload their work documenting the entire design process through written content and images, high-fidelity designs, UX research results, and usability testing by posting on their portfolio/blog platforms such as Medium, LinkedIn, etc., as illustrated below in **Figure 2**.

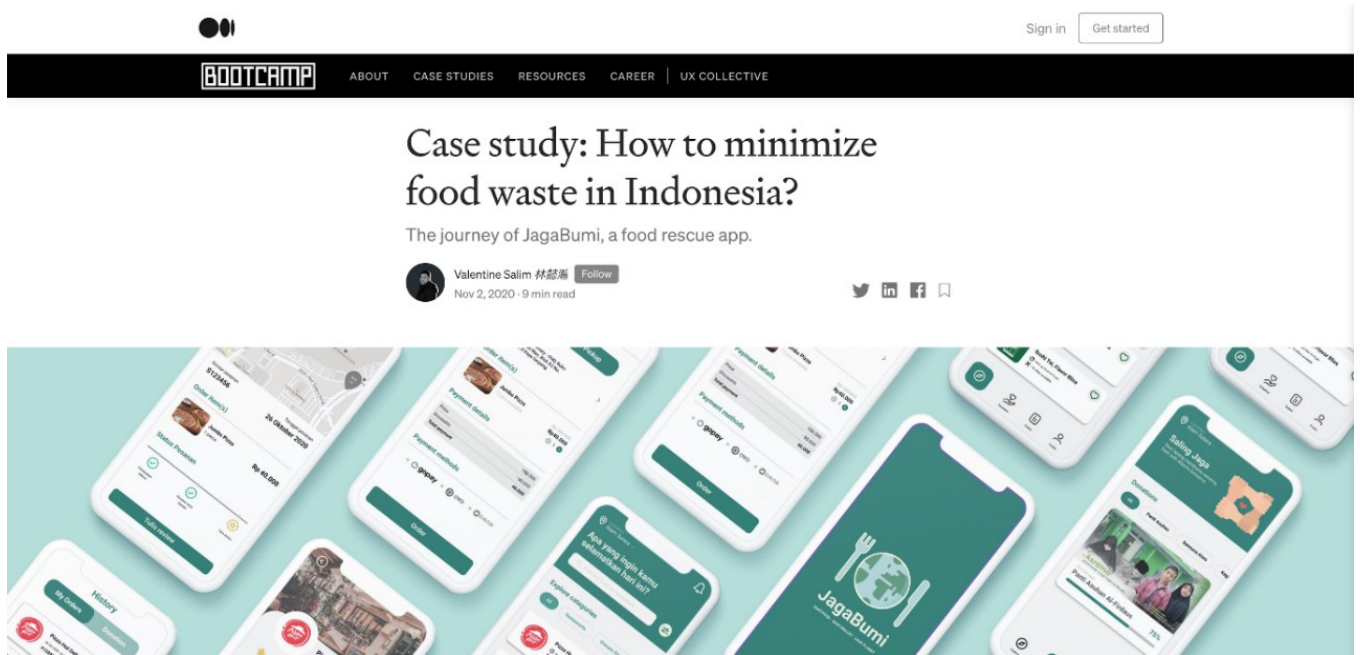


Figure 2. Project Upload Results on the Medium Platform as a Form of Authentic Assessment

Source: Medium (<http://bit.ly/UXPortofolio>) 2020

Feedback on the Learning Experience Process of the UI/UX Bootcamp

Table 5. Feedback on the Learning Experience Process of the UI/UX Bootcamp

No	Aspect	Source	Suggestions/Inputs
1	Learning Journey/Syllabus	Facilitators and Participants	<ol style="list-style-type: none"> 1. The Learning Journey/Syllabus has accommodated the industry's development needs, but it needs to be expanded to include more required areas, especially design systems, etc. 2. The daily research and design system material schedule needs to be extended. 3. The Project-Based Learning (PBL) method should include more cases aligned with the theories studied and incorporated into the material, which participants will solve through workshops before completing the challenges.

No	Aspect	Source	Suggestions/Inputs
2	Reading Materials/Module	Facilitators and Participants	<ol style="list-style-type: none"> 1. The material introducing the history of UI/UX should be reviewed because it is supplementary knowledge that does not need to be included in Chapter 1. As an alternative, it could be combined with other, lighter topics. Additionally, there should be a theory part followed by practice. 2. Chapter 1's introduction to basic knowledge contains too much, and the challenge only revisits history, which participants find interesting. However, the relevance of the challenge should be better aligned with the concept of design thinking. 3. The introduction to the history of UI/UX should be reviewed and combined with other lighter topics, with theory followed by practice.
3	Quizzes & Challenges	Facilitators and Participants	<ol style="list-style-type: none"> 1. Some options for answers still contain bias, where two answers seem correct. 2. The instructions for each challenge/assignment should be clarified further, such as what the expected output should look like, and examples should be provided. 3. <i>The challenge flow and expected output standards need to be clarified with examples of the expected results.</i> 4. References and hyperlinks in reading materials/modules help participants explore the material and broaden their knowledge, especially on UI/UX topics they previously did not know.

Source: Data Feedback 2022

Based on **Table 5** above, the feedback received consists of three aspects: the learning journey/syllabus, reading materials/self-learning resources, and quizzes and challenges/assignments. The feedback serves as a consideration for improving the presentation of the following bootcamp learning process. One week before conducting the presentation/exhibition, the instructional designer provides information about interviews via a meeting application to students and facilitators, which will be conducted after the presentation/exhibition. Since student feedback is received as recommendations on how curriculum implementation can be improved, the data can be used to inform the meaningful delivery of the course. However, not all feedback from students is constructive—unstructured recommendations may arise, and not all suggestions can be considered valid from an academic and implementation perspective. After facilitators and students provide feedback on the implementation of the curriculum, if apparent shortcomings are observed following the learning activities, then the curriculum design will be revised. Qualitative course feedback provides student- and facilitator-centered access to the teaching and learning experience related to the course. Since feedback from students and facilitators is received as recommendations on how the course can be improved, the data can be used to inform meaningful additions or changes to the course. Furthermore, the data obtained through evaluation requires sufficient

analysis time and resources. By raising unstructured qualitative feedback from students and facilitators, one risks not receiving sufficient input on issues that may be relevant to the academic project.

As a result of implementing the feedback received from students and facilitators, based on the table of qualitative survey results, several elements need to be added to the curriculum design: expansion of material, learning time sequence, learning methods for delivering material, assignment strategies, and the structure of the reading material including the order of theory and practice. Program and curriculum development through iterative refinement helps reduce learning gaps and positively impacts student learning outcomes. Content can be divided into relatively small segments with short-term, easy-to-understand learning using microlearning approaches in the bootcamp (Wibowo & Veronika, 2022). This allows students to focus on acquiring more specific skills rather than learning many different things simultaneously. Due to the increasing specialization and demand for unique expertise, this development also drives the need for higher skill levels. The bootcamp is equipped with project-based learning. Using projects allows students to adapt more quickly to the learning process. Qualitative assessment offers a student-centered perspective on the teaching and learning experience. However, the data obtained from the evaluation requires significant time and resources to be analyzed (Wibowo & Veronika, 2022). Feedback from facilitators and students is crucial for designing an improved bootcamp curriculum. By minimizing student learning difficulties, particularly in product design or UI/UX bootcamps, curriculum refinement is essential when learning gaps are identified prior to the start of instruction. As this study suggests, qualitative evaluation of bootcamp courses can provide valuable insights into the dimensions of teaching and learning that students perceive as relevant. Thus, it can be an important resource in bootcamp course design and development. Furthermore, the emerging themes from qualitative course evaluation can inform the development of more holistic, context-specific quantitative evaluations that focus on students' learning experiences and contribute to meaningful improvements and innovations in bootcamp courses.

Discussion

Collaborative assignments can serve as a form of authentic assessment and are beneficial in fostering higher levels of abstraction and deeper content understanding compared to other assessments focusing on lower-order cognitive skills, such as rote learning strategies and knowledge retention (Raynault et al., 2022). These authentic collaborative tasks avoid using multiple-choice questions that typically assess lower-order cognitive objectives. Collaborative assignments engage students in higher-order cognitive processes such as creation, analysis, or solving complex problems (Fishovitz et al., 2020). This approach also helps alleviate students' anxiety around assessments, thereby enhancing struggling students' performance and academic outcomes, enabling them to achieve higher performance (Parsazadeh et al., 2021).

Presentations have been modified to engage participants in authentic tasks, as there are very few opportunities where someone is given more than 5 to 10 minutes to present a perspective. Therefore, this format increases awareness of time constraints and the value of covered content. Another specific example of using social media in authentic assessment involves asking participants to publish a blog post on a digital platform. Blog creation includes several steps, whether public or accessible only to students within the same group. First, it is essential to understand what a blog is and to identify the tone used in writing posts that are accessible and engaging for the target audience (Raynault et al., 2022). This understanding can also contribute to participants' perception of the authenticity of the assessment.

The presentation of such assignments can be delivered as an e-portfolio, which can be used as an engaging tool for authentic assessment. In this context, participants are asked to reflect on their learning journey during a training program, collect and present digital documentation of key content covered during

the training, and provide evidence of what they have learned through their productions. E-portfolios have become increasingly popular among educators as learning tools. Some studies even suggest that e-portfolios can facilitate the development of self-directed learning skills. These skills include self-assessment of performance, formulation of learning goals, and the selection of future tasks (Beckers et al., 2016; Yan, 2020). When portfolios are integrated into educational routines, instructors can regularly guide participants with levels of support tailored to their cognitive abilities to enhance motivation. Furthermore, portfolios are designed to facilitate, at the very least, goal setting, task analysis, implementation planning, and self-evaluation.

To be authentic for students' professional development, the e-portfolio must be presented so that it can be submitted along with a résumé. Even without this possibility, the e-portfolio is authentic for students because they develop it for a broad audience, including their peers and instructor, similar to real-world blogs or websites they are familiar with. In addition to using the e-portfolio to collect reflections on readings and digital tools they have explored, they must build and present two course assessments electronically in separate sections of the e-portfolio. The first consists of a critical reflection on integrating technology in higher education with several key sub-questions, and the second focuses on how they would improve the sequence of teaching and learning activities, from the problem encountered to a planning calendar to prepare the new sequence. Unlike written essays, they must think about how to present information about digital support. It was found that students made significant progress from the first to the second e-assessment in terms of critical analysis, synthesis, and digital presentation skills. Thus, students genuinely reflect and find ways to synthesize important information and present it clearly and analytically (Raynault et al., 2022).

E-portfolio is a learning tool that holds potential. It can be developed so that the e-portfolio offers process-dependent feedback, provides support tailored to the student, and is precisely adjusted to personal preferences. However, the e-portfolio also presents challenges, namely, complexity and technical demands for both users and the system to provide space for implementation. In this regard, intensive bootcamp training programs prompt students to work in the realm of digital production during the training period (e.g., digital and/or interactive presentations or posters, infographics, blog posts), and push them to go beyond reading and writing tracks, while at the same time helping them develop digital creativity and communication and practice working with technological skills on real-world problems. Like blogs, e-portfolios must also be built on user-friendly digital platforms, even those specifically designed for this purpose. Students should be encouraged to visit each other's e-portfolios to make suggestions and as an additional strategy to improve their own. In addition to encouraging the development of digital skills, a key benefit of e-portfolios is that they make students' learning paths more transparent, thus offering a way to continuously monitor their progress throughout the semester, if students regularly contribute to their portfolios.

The results can be used to measure students' abilities to present their products and obtain competency/certification during the learning process. Throughout the learning process, students gain a fundamental understanding of product design, UI/UX, and problem-solving in understanding user needs in product design. They also apply introductory knowledge of the programming world, such as the history of applications, product concepts, SDLC, Tech Stack, and programming languages. In both theory and practice, students can understand the app development workflow by understanding client needs and the ability to communicate and manage projects. This can challenge students when meeting industry demands through case studies and controlled projects.

CONCLUSION

Various variations of authentic assessment can be used in the learning process. The role of the instructor/facilitator can creatively use various methods to give and receive feedback from teaching activities. Assessment tasks closely resemble tasks that students will face in their future careers, but they also promote student learning and mastery of higher-level skills. The lessons learned from authentic assessment in practice emphasize the importance of considering values such as social justice, equality, and equal opportunity for success. This requires students to have opportunities and choices for digital activities, topics, and/or tools that meet their diverse needs and preferences for engagement and motivation to learn. Moreover, authentic assessment must also include clear instructions, meet the planned and previously announced goals, and align with preparatory activities equipped with digital tools throughout the semester (aligning technology, pedagogy, and context). Finally, digital technology facilitates opportunities for exchange/interaction between students and instructors/facilitators with students. Authentic electronic assessment should provide diverse opportunities for direct and indirect feedback (between students and from instructors) so that both instructors and students can monitor their learning progress.

AUTHOR'S NOTE

The authors of this study declare that there is no conflict of interest related to the publication of this article. The authors affirm that the data and content of the article are free from plagiarism.

REFERENCES

- Ajjawi, R., Tai, J., Huu Nghia, T. L., Boud, D., Johnson, L., & Patrick, C. J. (2020). Aligning assessment with the needs of work-integrated learning: The challenges of authentic assessment in a complex context. *Assessment & Evaluation in Higher Education*, 45(2), 304-316.
- Al-Ababneh, M. (2020). Linking ontology, epistemology, and research methodology. *Science & Philosophy*, 8(1), 75-91.
- Alanson, E. R., Alanson, E. M., Arthur, B., Burdette, A., Cooper, C., & Sharp, M. (2020). Re-envisioning work-integrated learning during a pandemic: Cincinnati's experiential explorations program. *International Journal of Work-Integrated Learning*, 21(5), 505-519.
- Arisandi, D., Widya Mutiara, M., & Christanti Mawardi, V. (2022). Dampak kegiatan Merdeka Belajar Kampus Merdeka (MBKM) magang dan studi independen dalam meningkatkan kompetensi mahasiswa. *Jurnal Muara Ilmu Sosial, Humaniora, dan Seni*, 6(1), 174.
- Aziz, M. N. A., Yusoff, N. M., & Yaakob, M. F. M. (2020). Challenges in using authentic assessment in 21st-century ESL classrooms. *International Journal of Evaluation and Research in Education*, 9(3), 759-768.
- Beckers, J., Dolmans, D., & van Merriënboer, J. (2016). e-Portfolios enhancing students' self-directed learning: A systematic review of influencing factors. *Australasian Journal of Educational Technology*, 32(2), 32-46.
- Bell, L., & Sarlo, R. (2020). Those boots need more support: The boot camp model lacks what many students need. *Reflections: Narratives of Professional Helping*, 26(4), 16-24.

- Brieger, E., Arghode, V., & McLean, G. (2020). Connecting theory and practice: Reviewing six learning theories to inform online instruction. *European Journal of Training and Development*, 44(4), 321-339.
- Burton, E. P., Behrend, T. S., Matray, S., Hudson, C., & Ford, M. (2020). Development and validation of a high school STEM self-assessment inventory. *School Science and Mathematics*, 120(8), 477-490.
- Cheng, M., Adekola, O., Albia, J., & Cai, S. (2022). Employability in higher education: A review of key stakeholders' perspectives. *Higher Education Evaluation and Development*, 16(1), 16-31.
- Dzvapatsva, G. P., Risinamhodzi, D. T., & Matobobo, C. (2023). Bridging unemployment gaps through ICT Bootcamps: A reality or precarity to equitable learning?. *Ukrainian Journal of Educational Studies and Information Technology*, 11(3), 177-197.
- Fischer, J., Bearman, M., Boud, D., & Tai, J. (2023). How does assessment drive learning? A focus on students' development of evaluative judgement. *Assessment & Evaluation in Higher Education*, 48(7), 1-13.
- Fishovitz, J., Crawford, G. L., & Kloepper, K. D. (2020). Guided heads-up: A collaborative game that promotes metacognition and synthesis of material while emphasizing higher-order thinking. *Journal of Chemical Education*, 97(3), 681-688.
- Hajian, S. (2019). Transfer of learning and teaching: A review of transfer theories and effective instructional practices. *IAFOR Journal of education*, 7(1), 93-111.
- Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers*, 3, 275-285.
- Hu, X., Chiu, M. M., Leung, W. M. V., & Yelland, N. (2021). Technology integration for young children during COVID-19: Towards future online teaching. *British Journal of Educational Technology*, 52(4), 1513-1537.
- Jaggars, S. S. (2021). Introduction to the special Issue on the COVID-19 emergency transition to remote learning. *Online Learning Journal (OLJ)*, 25(1), 1-8.
- Karim, A. A., Abduh, A., Manda, D., & Yunus, M. (2018). The effectivity of authentic assessment based character education evaluation model. *TEM Journal*, 7(3), 495-500.
- Kornelakis, A., & Petrakaki, D. (2020). Embedding employability skills in UK higher education: Between digitalization and marketization. *Industry and Higher Education*, 34(5), 290-297.
- Kricsfalusy, V., George, C., & Reed, M. G. (2018). Integrating problem- and project-based learning opportunities: Assessing outcomes of a field course in environment and sustainability. *Environmental Education Research*, 24(4), 593-610.
- Lissinna, B., Rashid, M., Foulds, J. L., & Forbes, K. L. (2022). Embracing uncertainty: Medical student perceptions of a pediatric bootcamp developed in response to mandated changes during the pandemic. *BMC Medical Education*, 22(1), 1-9.
- Lyon, L. A., & Green, E. (2021). Coding boot camps: Enabling women to enter computing professions. *ACM Transactions on Computing Education (TOCE)*, 21(2), 1-30.
- Mabley, S., Ventura-Medina, E., & Anderson, A. (2020). 'I'm lost'-a qualitative analysis of student teams' strategies during their first experience in problem-based learning. *European Journal of Engineering Education*, 45(3), 329-348.

- Mahapatra, S. K. (2021). Online formative assessment and feedback practices of ESL teachers in India, Bangladesh and Nepal: A multiple case study. *The Asia-Pacific Education Researcher*, 30(6), 519-530.
- Makransky, G., Borre-Gude, S., & Mayer, R. E. (2019). Motivational and cognitive benefits of training in immersive virtual reality based on multiple assessments. *Journal of Computer Assisted Learning*, 35(6), 691-707.
- McGunagle, D., & Zizka, L. (2020). Employability skills for 21st-century STEM students: The employers' perspective. *Higher Education, Skills and Work-based Learning*, 10(3), 591-606.
- Miller, E., & Konstantinou, I. (2022). Using reflective, authentic assessments to embed employability skills in higher education. *Journal of Work-Applied Management*, 14(1), 4-17.
- Mohammed, A. O., Khidhir, B. A., Nazeer, A., & Vijayan, V. J. (2020). Emergency remote teaching during Coronavirus pandemic: The current trend and future directive at Middle East College Oman. *Innovative Infrastructure Solutions*, 5, 1-11.
- Ozan, C. (2019). The effect of authentic assessment on academic achievement and attitude towards educational measurement and opinions of prospective teachers. *International Journal of Evaluation and Research in Education*, 8(2), 299-312.
- Parsazadeh, N., Cheng, P. Y., Wu, T. T., & Huang, Y. M. (2021). Integrating computational thinking concept into digital storytelling to improve learners' motivation and performance. *Journal of Educational Computing Research*, 59(3), 470-495.
- Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online university teaching during and after the COVID-19 crisis: Refocusing teacher presence and learning activity. *Postdigital science and education*, 2(1), 923-945.
- Raynault, A., Heilporn, G., Mascarenhas, A., & Denis, C. (2022). Teaching experiences of e-authentic assessment: lessons learned in higher education. *Journal of Teaching and Learning with Technology*, 11(1), 3-17.
- Römngens, I., Scoupe, R., & Beausaert, S. (2020). Unraveling the concept of employability, bringing together research on employability in higher education and the workplace. *Studies in Higher Education*, 45(12), 2588-2603.
- Shorten, G. D., De Robertis, E., Goldik, Z., Kietai, S., Niemi-Murola, L., & Sabelnikovs, O. (2020). European Section/Board of Anaesthesiology/European Society of Anaesthesiology consensus statement on competency-based education and training in anaesthesiology. *European Journal of Anaesthesiology (EJA)*, 37(6), 421-434.
- Sitthimongkolchai, N., Viriyavejakul, C., & Tuntiwongwanich, S. (2022). Blended experiential learning with e-portfolio learning to enhance creative imagination. *Emerging Science Journal*, 6, 25-39.
- Sozudogru, O., Altinay, M., Dagli, G., Altinay, Z., & Altinay, F. (2019). Examination of connectivist theory in English language learning: The role of online social networking tool. *The International Journal of Information and Learning Technology*, 36(4), 354-363.
- Succi, C., & Canovi, M. (2020). Soft skills to enhance graduate employability: Comparing students and employers' perceptions. *Studies in Higher Education*, 45(9), 1834-1847.
- Veine, S., Anderson, M. K., Andersen, N. H., Espenes, T. C., Søyland, T. B., Wallin, P., & Reams, J. (2020). Reflection as a core student learning activity in higher education - Insights from nearly two decades of academic development. *International Journal for Academic Development*, 25(2), 147-161.

- Villarroel, V., Boud, D., Bloxham, S., Bruna, D., & Bruna, C. (2020). Using principles of authentic assessment to redesign written examinations and tests. *Innovations in Education and Teaching International*, 57(1), 38-49.
- Wibowo, T., & Veronica, J. (2022). IT curriculum for boot camp: An iterative development in applying OBE in computer science education for non-formal institution. *Journal of Education Technology*, 6(4), 598-606.
- Widiastuti, I. A. M. S., Mukminatien, N., Prayogo, J. A., & Irawati, E. (2020). Dissonances between teachers' beliefs and practices of formative assessment in EFL classes. *International Journal of Instruction*, 13(1), 71-84.
- Wylie, E. C., & Lyon, C. J. (2020). Developing a formative assessment protocol to support professional growth. *Educational Assessment*, 25(4), 314-330.
- Yan, Z. (2020). Self-assessment in the process of self-regulated learning and its relationship with academic achievement. *Assessment & Evaluation in Higher Education*, 45(2), 224-238.
- Yashmi, N., Momenzade, E., Adibzade, P., Taghipour Anvari, S., Saghafi, M., Tajbakhsh, S., ... & Sarikhani, M. (2021). Design thinking-based internship; An efficient alternative for hiring product designers. *Journal of Design Thinking*, 2(1), 61-70.
- Zainuddin, Z., Haruna, H., Li, X., Zhang, Y., & Chu, S. K. W. (2019). A systematic review of flipped classroom empirical evidence from different fields: What are the gaps and future trends?. *On The Horizon*, 27(2), 72-86.