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Instructional Design Factors Associated with Adult Learners' Satisfaction in an Online Adult Music Theory Course

(Faktor Reka Bentuk Instruksional yang Berkaitan dengan Kepuasan Pelajar Dewasa dalam Kursus Teori Muzik Dewasa Secara Dalam Talian)

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ABSTRACT

In music theory or any other skill-focused areas, the quality and retention in adult online learning are primarily assessed based on learner satisfaction. However, there are limited findings on the influence of instructional design on adult learners' satisfaction in online music education. Addressing that, the current study explored instructional design factors associated with adult learners' satisfaction in an online music theory course. The course was developed using the ASSURE model, guided by the theory of multiple intelligences (MI theory), and included clear learning objectives, a logically sequenced content progression based on the ABRSM Grade 1–3 Music Theory syllabus, diverse MI-based activities addressing visual-spatial, logical-mathematical, verbal-linguistic, musical, interpersonal, intrapersonal, and bodily-kinaesthetic intelligences, formative assessments, and structured feedback for constructive alignment. This study employed a mixed-methods design, involving adult undergraduate students, and employed Student Learning Satisfaction in Online Learning Environment (SLS–OLE) instrument, complemented by semi-structured interview sessions. Findings identified four instructional design factors associated with participants' satisfaction: (1) structured guidance and clarity, (2) instructor presence and feedback, (3) active and interactive learning activities, and (4) technology and pacing. In conclusion, online music theory education, particularly higher education course design for adult learners, should leverage pedagogical coherence and theory-informed instructional design as its primary elements to support learner satisfaction, instead of relying solely on technological tools.

Keywords: Adult online learning; instructional design models; learner satisfaction; multiple intelligences theory; music education

ABSTRAK

Dalam teori muzik atau bidang lain yang berfokuskan kemahiran, kualiti dan pengekalan dalam pembelajaran dalam talian bagi pelajar dewasa dinilai terutamanya berdasarkan kepuasan pelajar. Walau bagaimanapun, dapatan berkaitan pengaruh reka bentuk instruksional terhadap kepuasan pelajar dewasa dalam pendidikan muzik secara dalam talian masih terhad. Sehubungan itu, kajian ini meneroka faktor-faktor reka bentuk instruksional yang berkaitan dengan kepuasan pelajar dewasa dalam kursus teori muzik secara dalam talian. Kursus ini dibangunkan menggunakan model ASSURE, berpandukan Teori Kecerdasan Pelbagai (Multiple Intelligences, MI), serta merangkumi objektif pembelajaran yang jelas, perkembangan kandungan yang disusun secara logik berdasarkan sukatan pelajaran Teori Muzik ABRSM Gred 1–3, pelbagai aktiviti berasaskan MI yang merangkumi kecerdasan visual-ruang, logik-matematik, verbal-linguistik, muzik, interpersonal, intrapersonal dan kinestetik-jasmani, pentaksiran formatif, serta maklum balas berstruktur bagi memastikan penjajaran konstruktif. Kajian ini menggunakan reka bentuk kaedah campuran yang melibatkan pelajar prasiswazah dewasa dan menggunakan instrumen Student Learning Satisfaction in Online Learning Environment (SLS–OLE), yang dilengkapi dengan sesi temu bual separa berstruktur. Dapatan kajian mengenal pasti empat faktor reka bentuk instruksional yang berkaitan dengan kepuasan peserta, iaitu: (1) panduan berstruktur dan kejelasan, (2) kehadiran pengajar dan maklum balas, (3) aktiviti pembelajaran yang aktif dan interaktif, serta (4) teknologi dan kadar pembelajaran. Kesimpulannya, pendidikan teori muzik secara dalam talian, khususnya reka bentuk kursus pendidikan tinggi untuk pelajar dewasa, perlu mengutamakan kesepaduan pedagogi dan reka bentuk instruksional yang berasaskan teori sebagai elemen utama dalam menyokong kepuasan pelajar, dan bukan bergantung semata-mata pada penggunaan teknologi.

Kata kunci: pembelajaran dalam talian dewasa; model reka bentuk instruksional; kepuasan pelajar; Teori Kecerdasan Pelbagai; pendidikan muzik

INTRODUCTION

The expansion of online higher education to fulfil the growing demands for accessibility and flexibility has transformed how knowledge and skills are taught. Learner satisfaction is a key quality indicator for online education engagement, persistence, and experience (Kuo et al., 2016; Martin et al., 2020), especially among adult learners who typically prioritise the alignment of the relevance and organisation of their learning experience with learning goals and prior knowledge. However, it is challenging for music education, especially music theory, to embrace online learning approach due to the complex learning concepts involved (e.g., harmony, notation, and rhythm). Without proper guidance and support, adult learners without musical background would struggle to grasp these concepts. Despite the substantial empirical investigations on how online music education contributes to knowledge and performance improvement, studies on the impact of instructional design elements on learners' satisfaction and overall learning experience have remained lacking.

According to recent studies, online learners' satisfaction has been found to be influenced by technology and the quality of instructional design (e.g., course organisation, clarity of objectives, feedback, and interaction) (Mayer, 2020; Rapanta et al., 2020). Taking the case of the ASSURE model, this systematic instructional framework aligns learners' characteristics, learning objectives, instructional techniques, and assessment procedures. Meanwhile, the theory of multiple intelligences (MI theory) takes into account the variability of learners' cognitive strengths, presenting a teaching framework that outlines different learning engagement pathways. Both ASSURE model and MI theory contribute to the development of a more inclusive and adaptive learning environment for learners. Moreover, the ABRSM Grade 1–3 Music Theory syllabus provides a scaffolded framework that facilitates the development of gradual learning through structured content progression, mitigating cognitive overload for adult beginners and cultivating the systematic learning of core concepts before learners progress to more complex subjects. However, the empirical evidence on the impact of these instructional design elements on adult learners' satisfaction has remained scarce within the context of an online music theory course. Addressing these gaps is essential to improving online music education and ensuring the alignment of instructional design with adult learners' learning needs.

Thus, this study aimed to explore instructional design factors associated with adult learners' satisfaction in an online music theory course based on the following questions:

1. What instructional design factors are associated with adult learners' satisfaction in an online music theory course?
2. How do adult learners perceive these instructional design factors as shaping their satisfaction with the online music theory course?

LITERATURE REVIEW

ADULT ONLINE LEARNING

For online adult learners, their unique traits influence their way of engaging with educational resources. Based on the adult learning theory, they generally display self-directed and goal-oriented traits and are driven by relevance due to their preference for applicable structured learning experiences (Knowles et al., 2015). However, the demands for flexibility and independence in an online learning environment influence the formation of these traits due to adult learners' need to balance academic responsibilities with professional and personal commitments. Recent findings have highlighted the significant benefits of clear instructional structures, organised material presentation, and meaningful learning engagement opportunities for online adult learners (Bawa, 2020; Martin et al., 2020). Otherwise, they may struggle with cognitive overload or learning disengagement, especially when they encounter complex learning topics like music theory. This clearly justifies the crucial role of instructional design in offering clarity, guidance, and progress for adult learners.

LEARNER SATISFACTION IN ONLINE LEARNING

As a key quality indicator of online education, learner satisfaction influences both engagement and retention (Kuo et al., 2021). Learner satisfaction refers to learners' evaluation of their learning experience that constitutes the structure of the learning course, the clarity of the instruction, interaction, and feedback. Satisfied learners are generally motivated, display perseverance, and experience favourable learning outcomes (Martin & Bolliger, 2018). Rapanta et al. (2020) identified the quality of instructional design and pedagogical practices as the primary determinants of learner satisfaction, instead of technology tools. Some related core drivers to learner satisfaction include clear learning objectives, organised content, meaningful active participation, and prompt feedback. Therefore, it is imperative to identify instructional design elements that can effectively enhance learner satisfaction within the context of online learning.

INSTRUCTIONAL DESIGN IN ONLINE LEARNING

Instructional design constitutes the alignment of organised planning and structuring of learning experience with specific learning objectives. For online learning, it is crucial that instructional design ensures clarity, coherence, and engagement, especially when abstract learning concepts or topics (e.g., music theory) are involved. Fundamentally, instructional design prioritises the integration of learning objectives, activities, and assessment tasks (Biggs & Tang, 2011; Ellis & Goodyear, 2019). Through constructive alignment, learners can better understand expectations and actively participate in learning tasks. Otherwise, learners experience confusion and reduced satisfaction. Besides that, reduced cognitive load due to the structured instructional design allows learners to acquire knowledge gradually without feeling overwhelmed (Mayer, 2020). As online learning environment often compels learners to heavily rely on the organisation and clarity of learning materials without immediate physical oversight, structured instructional design is particularly crucial.

ASSURE INSTRUCTIONAL DESIGN MODEL

The structure of the ASSURE model offers a systematic approach of instruction design and implementation, especially when it comes to technology-enhanced educational settings. Accordingly, the ASSURE model consists of six stages (Smaldino et al., 2019):

1. Analyse learners
2. State objectives
3. Select methods, media, and materials
4. Utilise media and materials
5. Require learner participation
6. Evaluate and revise

Based on its principle, online learners are provided with learner-centred, well-organised instructional experience. Its first stage ensures the alignment of the instructional design with learners' characteristics, including prior knowledge and learning needs. The next two stages prioritise clarity and coherence, while the fifth stage includes interactive exercises that promote active engagement. Bond et al. (2020) highlighted improved engagement and satisfaction of online learners through organised instructional design approaches. The ASSURE model presents a practical framework that integrates instructional elements and supports effective learning experience.

MULTIPLE INTELLIGENCES (MI) IN MUSIC LEARNING

According to Gardner's MI theory, learners display various cognitive strengths, such as musical intelligence, logical-mathematical intelligence, visual-spatial intelligence, verbal-linguistic intelligence, interpersonal intelligence, intrapersonal intelligence, and bodily-kinaesthetic intelligence. Through MI-informed instruction, learners are provided with various learning opportunities to engage with the materials according to their skills. The inherently multimodal nature of music education makes MI theory particularly relevant in music education. For instance, students may interact with music theory through aural listening (musical intelligence), graphic notation (visual-spatial intelligence), analytical work (logical-mathematical intelligence), and collaborative projects (interpersonal intelligence). Through a combination of different teaching methods, Tomlinson (2021) found learners, especially of those from diverse backgrounds, demonstrated increased engagement, accessibility, and satisfaction. For online learners with diverse learning preferences and prior experiences, MI-informed design introduces cognitive inclusivity, promotes learner engagement, and addresses the limitations of rigid education.

METHODOLOGY

RESEARCH DESIGN

With a quasi-experimental mixed-methods design, this study incorporated quantitative component, which involved an experimental group receiving the newly developed online music theory module (n = 32) and a control group receiving traditional instruction (n = 31), and qualitative component, which consisted of semi-structured interviews with 20 participants (10 participants from each group). Both pre-test and post-test in the quantitative component incorporated the measurement of online learning satisfaction using the SLS-OLE questionnaire. ANCOVA was used to compare post-test satisfaction scores between the experimental and control groups while controlling for baseline pre-test scores. Meanwhile, the qualitative component was intended to provide further insights on adult learners' perceptions of the module's design and delivery.

RESEARCH SAMPLE/PARTICIPANTS

For the quantitative phase, 63 adult undergraduate students from a Malaysian public university were assigned to complete the Student Learning Satisfaction in Online

Learning Environment (SLS–OLE) instrument. Overall, these participants were between 20 and 25 years old and mostly beginners in music theory considering their zero to one year of musical training. The qualitative phase involved semi-structured interview sessions to explore their perceptions of the instructional design and its influence on learner satisfaction. In the qualitative stage, a total of 20 students were recruited as the participants of semi-structured interviews, with an equal number of students recruited from each of the two groups, respectively. The main objective of conducting the interviews was to acquire more in-depth perspectives on how students would perceive the instructional framework and its corresponding influence on their learning satisfaction.

INSTRUMENTS

First, the SLS–OLE instrument covered course organisation, instructional clarity, engagement, and overall learning experience, which were intended to quantitatively measure learner satisfaction using a Likert-scale approach. The SLS-OLE questionnaire consisted of 24 items organised into four subscales: course content, course delivery, interaction, and assessment. All items were rated on a five-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (5), with higher scores indicating higher levels of online learning satisfaction. The instrument demonstrated good internal consistency, with previous studies reporting Cronbach's alpha values of above .80. In the present study, Cronbach's alpha coefficients exceeded the recommended threshold of .70, indicating acceptable reliability. Second, the use of open-ended questions for semi-structured interview sessions was intended to obtain in-depth perspectives of online adult learners' learning experience with the proposed instructional design, particularly in regards of course organisation, clarity of learning objectives, learning activities, interaction, and feedback. The obtained qualitative insights supported the analysis of instructional design elements influencing learner satisfaction.

DATA COLLECTION METHOD/ INSTRUMENTATION

A sequential process of data collection was implemented to obtain a more comprehensive understanding on the influence of instructional design elements on learner satisfaction in an online music theory course. The developed online music theory course was conducted online on digital platforms like Zoom, delivering live instruction with the use of interactive digital tools. The SLS-OLE questionnaire was administered to both experimental and control groups as a pre-test before the intervention and as a post-test after the intervention. The experimental group received the ASSURE- and MI-based online music theory module, while the control group received traditional instruction. Following the post-test, 20 participants, comprising 10 from each group, participated in semi-structured online interviews. Overall, these sessions lasted between 15 and 20 minutes. Anonymity and confidentiality were assured, and participants were informed of their voluntary participation in the study. With the informed consent from participants, interviews were recorded and transcribed for analysis.

DATA ANALYSIS METHOD

For the gathered quantitative data, descriptive statistics were used to summarise pre-test and post-test satisfaction scores, while ANCOVA was conducted to compare post-test satisfaction between the experimental and control groups after controlling for pre-test satisfaction scores. Interview transcripts were analysed using Braun and Clarke's (2006) six-phase thematic analysis, primarily to identify instructional design factors associated with learner satisfaction. Inductive coding allowed the study to discern the emerging patterns from the participants' descriptions of the module's structure, learning activities, instructional delivery, and online tools. Subthemes were identified from the initial codes, which were then refined into four broader themes: (1) structured guidance and clarity, (2) instructor presence and feedback, (3) active and interactive learning activities, and (4) technology and pacing. With an interpretive approach, the study explored participants' satisfaction and learning experience in response to the specific instructional design elements. Theme development ensured the alignment with the study's focus on instructional design techniques, not broad learning outcomes. Combining both quantitative results and qualitative findings presented a more detailed understanding of the relationship between instructional design and learner satisfaction within the context of online learning.

ETHICAL APPROVAL

Ethical approval was acquired for this study. Participants were assured of both anonymity and confidentiality. Their voluntary participation in the study was ensured as well.

FINDINGS

Descriptive results showed the increase of the experimental group's mean online learning satisfaction score from the pre-test ($M = 2.48$, $SD = .38$) to the post-test ($M = 2.62$,

SD = .39). In comparison, the control group's mean satisfaction score increased from M = 2.34 (SD = .41) at pre-test to M = 2.43 (SD = .40) at post-test. ANCOVA was subsequently conducted to determine whether the post-test difference between groups was statistically significant after controlling for pre-test satisfaction scores. The obtained results revealed statistically significant difference in post-test satisfaction between the experimental and control groups, $F(1, 60) = 4.90$, $p = .03$, partial $\eta^2 = .08$. The small effect size indicated modest magnitude of the group effect, although the intervention was associated with significantly higher post-test satisfaction.

INSTRUCTIONAL DESIGN FACTORS ASSOCIATED WITH LEARNER SATISFACTION

Based on the findings of thematic analysis, four key instructional design factors associated with adult learners' satisfaction emerged: (1) structure, guidance, and clarity, (2) instructor presence and feedback, (3) active and interactive learning activities, and (4) technology and pacing.

STRUCTURED GUIDANCE AND CLARITY

Findings revealed structured guidance and clarity as important instructional design factors associated with adult learners' satisfaction. One participant explained that *"... the manner in which you explain the topics is very easily understood, and you ascertain that everyone understands clearly before moving on by utilising thumbs up or thumbs down"* (Experimental group, Z). Similarly, another participant commented, *"... your pace is fine and your instructions and guidelines are very clear"* (Control group, F). These responses suggested that adult learners gain confidence and satisfaction with the online learning experience when clear explanations and structured guidance are in place. Participants were able to approach unfamiliar music theory concepts with ease, acknowledging how clear explanations, systematic guidance, appropriate pacing, and regular checks helped with their understanding of music theory content. This structured approach also demonstrated the ASSURE model's systematic organisation and delivery of instructional content.

INSTRUCTOR PRESENCE AND FEEDBACK

Instructor presence and feedback emerged as another important factor associated with learner satisfaction: *"Yes, because when we enquire and receive feedback, it motivates me to ask more"* (Experimental group, S); *"I prefer face-to-face class. We can immediately enquire and receive direct feedback"* (Control group, J). These responses indicated the contributions of prompt feedback and instructor responsiveness to adult learners' perceptions of support, engagement, and satisfaction. Participants valued the opportunities for them to ask questions, receive clarification, and obtain timely feedback. Such responsiveness provided instructional support and encouraged them to participate more actively, particularly within the online learning environment. Findings demonstrated the ASSURE model's emphasis on learner participation and evaluation.

ACTIVE AND INTERACTIVE LEARNING ACTIVITIES

Active and interactive learning activities were also associated with learner satisfaction. In line with the module's MI-informed design to incorporate musical, visual-spatial, logical-mathematical, and interpersonal learning opportunities, the inclusion of games, quizzes, practical activities, listening tasks, digital notation, and collaborative exercises in the course allowed participants to engage with music theory content through varied ways: *"... incorporating games enhances satisfaction"* (Experimental group, Q); *"For me, not really, because we did not really have any games or activities that we could use to connect with each other"* (Control group, C). However, peer interaction was not always consistent, with one participant describing group work with participants unwilling to speak as a *"silent game"*. These findings suggested that interactive activities, with more structured facilitation for online collaborative activities, can support learner satisfaction and engagement.

TECHNOLOGY AND PACING

Technology and pacing emerged as factors that could both support and constrain learner satisfaction. Participants appreciated the convenience and flexibility of attending online lessons from different locations, describing online learning as *"very convenient"* because classes could be attended from different locations (Control group, N). However, some experienced difficulties with digital tools, multiple-device requirements, and the time available to complete activities. One participant reported difficulties using MUSESCORE that resulted in *"some kind of confusion"* (Experimental group, R). Pacing was also important, particularly for practical activities: *"In one hour, there's not enough time. Sometimes I felt rushed and unable to finish the activities"* (Experimental group, S). These findings indicated that, while technology can increase accessibility and flexibility, appropriate tool selection and

sufficient time for learning activities are crucial for learner satisfaction with online learning experience.

DISCUSSION

INSTRUCTIONAL DESIGN AS A MECHANISM SHAPING LEARNER SATISFACTION

Findings revealed perceived instructional design as an important contributor to learner satisfaction with the online music theory course, underscoring pedagogical organisation as a critical influencing factor (Martin et al., 2020; Rapanta et al., 2020). Based on the ABRSM Grade 1–3 Music Theory syllabus, the organised flow of the online music theory course content served as scaffolding that supported participants' learning progression from pitch, notation, and other basic topics to intervals, scales, harmony, and other more advanced topics. Prior studies similarly noted reduced cognitive load and higher level of satisfaction among adult learners when a structured learning progression was in place (Bawa, 2016; Mayer, 2020).

Additionally, the adoption of the ASSURE model systematically supported pedagogical coherence and alignment across instructional components, which served as a key mechanism shaping learner satisfaction. The first stage of the ASSURE model ("Analyse learners") ensured the delivery of the course according to the needs and traits of the participants (e.g., a beginner in music theory). Meanwhile, the second ("State objectives") and third ("Select methods, media, and materials") stages of the ASSURE model facilitated the development of appropriately structured instructional resources according to well-defined learning objectives. As for the fifth stage of the model ("Require learner participation"), the designed course included various interactive activities like quizzes, group discussions, and practical music tasks to boost learning engagement and learner satisfaction in an online learning environment (Bond et al., 2021). The sixth and final stage of the model ("Evaluate and Revise") prioritised the alignment between the course design and participants' needs through continuous improvement of instructional strategies.

MI-based activities emerged as another key mechanism shaping learner satisfaction, promoting cognitive inclusivity. Such approach allowed participants' engagement with the course content through various pathways. A multimodal approach, involving notation mapping and score visualisation tasks (visual-spatial intelligence), interval calculation and scale construction exercises (logical-mathematical intelligence), aural recognition and melodic dictation (musical intelligence), terminology explanation and written responses (verbal-linguistic intelligence), collaborative discussion and group composition tasks (interpersonal intelligence), reflective learning activities (intrapersonal intelligence), and keyboard demonstrations and practical application tasks (bodily-kinaesthetic intelligence), offered more accessible and engaging learning experience, reducing monotony for enhanced learner satisfaction. Prior studies also linked instructional approach with enhanced engagement and satisfaction, especially in diverse adult learning environments (Tomlinson, 2021; Ni et al., 2024).

Recognising the direct relationship between instruction and assessment, participants in this study displayed higher levels of confidence and perceived importance. Evidently, constructive alignment emerged as an instructional design feature that participants associated with greater clarity, confidence, and satisfaction. The consistency among learning objectives, instructional activities, and assessments through constructive alignment established clear expectations and promoted self-regulated learning, a key trait of adult learners (Biggs & Tang, 2011; updated applications examined in Ellis & Goodyear, 2019).

Besides that, both interaction and feedback proved to be crucial in this study. With the emphasis on establishing social and instructional presence in online learning, the study's course design incorporated real-time discussions (e.g., Zoom), interactive quizzes, and immediate feedback mechanisms, which provided participants various opportunities to interact and obtain feedback. Through such instructional design features, concept clarification and enhanced learner satisfaction were supported. Prior studies also highlighted similar views on the positive influence of immediate feedback and relevant engagement on the satisfaction of online learners (Kuo et al., 2013; Martin & Bolliger, 2018).

Overall, the findings suggested that participants associated their satisfaction with four interconnected aspects of instructional design: structured guidance and clarity, instructor presence and feedback, active and interactive learning activities, and technology and pacing. These themes emerged inductively from participants' interview responses and were subsequently interpreted in relation to the ASSURE model and MI theory. Instead of demonstrating a causal or mediating effect, these findings provided insights on how adult learners in this study perceived these instructional design features as contributing to meaningful and satisfying online music theory learning experience.

CONCLUSION

With respect to the study's objective, findings identified four instructional design factors associated with adult learners' satisfaction: structured guidance and clarity, instructor presence and feedback, active and interactive

learning activities, and technology and pacing. Participants in this study perceived clear and systematic instruction, responsive instructor support, and interactive learning opportunities as supporting their satisfaction, while technology and pacing could either facilitate or constrain their online learning experience. The findings further demonstrated how the ASSURE model and MI theory provided useful theoretical frameworks for interpreting these learner experiences. This study's findings on the significance of pedagogical design in shaping learner satisfaction also contributed to the current literature, extending beyond the role of technological tools in an online learning environment. Moreover, the integration of the ASSURE model and MI theory in this study provided a unified framework for developing an online learning course, leveraging both cognitive diversity and instructional clarity.

IMPLICATIONS OF STUDY

This study presented significant implications for teaching methods and instructional design in online music education. Organised instructional planning with clear material sequencing, well-defined learning objectives, and constructive alignment may support positive learner experiences and satisfaction, which should be taken into account in the design and implementation of an online course for adult learners. As demonstrated by the ABRSM Grade 1–3 Music Theory syllabus, a syllabus-based progression serves as systematic scaffolding that can facilitate learners' understanding of complex theoretical concepts.

Additionally, with MI-based activities promoting cognitive inclusivity, online adult learners with different cognitive strengths are provided with more engaging, meaningful, and relevant learning experience. These include visual aids, analytical tasks, collaborative interactions, and practical applications. Focusing on the alignment of instructional strategies with learners' traits, the ASSURE instructional design model provides a structured approach that enhances course structure and effectiveness.

Furthermore, the effectiveness of online music theory course relies on more than just technical skills, extending to thoughtful, theory-driven teaching design. Considering that, the development of an online course for adult learners should prioritise the development of well-structured, inclusive, and responsive learning experiences.

LIMITATIONS OF STUDY

First, this study's sample of undergraduate students from a Malaysian public university restricted the generalisability of the findings in other settings or learner groups. Moreover, the recruited participants' limited prior experience in music education may influence how instructional design elements are perceived, which potentially differ from how more experienced learners perceive these elements. Third, the use of self-reported data may introduce response bias. The gathered interview responses provided valuable insights on participants' views, but the comprehensiveness of the findings may be restricted due to the absence of objective engagement measures or behavioural data.

FUTURE RESEARCH

It is recommended for future research to consider sampling different populations, such as students with various levels of musical experience or those enrolled in formal music programmes. The inclusion of different institutions or cultural contexts may provide valuable insights on the influence of instructional design on learner satisfaction across diverse learning environments. Besides that, future research should consider employing a longitudinal approach to explore how learner satisfaction changes over time and its relationship with long-term learning outcomes and retention. Additionally, leveraging behavioural data (e.g., learning analytics) in a mixed-methods design can offer a more in-depth understanding of learner engagement and interaction patterns. Exploring the influence of different instructional design approaches or pedagogical frameworks on learner satisfaction within the context of online music education may also provide pertinent findings.

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