Technological Advancements in Bite-Sized Learning: Developing a Framework for Basic Jazz Guitar Reharmonization Techniques

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ABSTRACT

The capability of big data technology in online data management has made virtual learning a highly popular trend nowadays. However, vast information density makes young users lose focus in mastering one particular learning unit. This situation opens up opportunities for researchers to re-evaluate music instrument learning methods. This study aims to develop a framework for bite-sized learning of basic jazz guitar reharmonization techniques. The research methodology involves a mixed-methods design of Design and Development Research (DDR) and experimental case study. The three phases of the research include analysing the needs of jazz guitar reharmonization techniques, developing a bite-sized learning framework, and validating the conceptual framework. The results of this study will be useful for online learners of all ages who want to learn jazz guitar harmony without enrolling in formal institutions. The developed method could also potentially be commercialized as an online application for bite-sized learning and adopted as a part of heutagogy approaches.

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1. Introduction

The capability of big data technology in online data management has made virtual learning a highly popular trend nowadays [1,2,37]. Therefore, to keep pace with the fourth industrial revolution, the education system must also shift towards education 4.0 that optimizes the use of technology and education. The fourth industrial revolution has brought about significant changes in our environment through the use of the internet [15,22,45]. For instance, solving education problems [3,36,48]. The learning of knowledge today is more easily obtained through big data sources such as blogs, YouTube, Google Classroom, integration systems, and many others. With readily accessible resources, individuals tend to choose what they want to learn more selectively. Inadvertently, this changing environment has also influenced the education system, which must produce competitive, innovative, and creative students. Specifically, the changing of learning environment related to generation Z or Gen Z. Approximately 2.47 billion individuals, constituting approximately 32% of the global populace, have been raised in an internet-connected milieu, rendering it challenging for them to recollect a period devoid of this technology. These individuals are recognized for their diligent work ethic, risk aversion, and self-sufficiency ("Teaching the Next Generation: How Gen Z Learns - Chalk" n.d.). Therefore, to keep pace with the fourth industrial revolution, the education system must also shift towards education 4.0 that optimizes the use of technology and education. Consequently, this transition underscores the imperative for a comprehensive overhaul and enhancement of the prevailing educational milieu (Sok Yee and Said).

1.1 Advantages of Online Music Education

Online learning also effected many field in education, including music education [8,11,21,24,28]. Recent research has identified several benefits of utilizing technology in music education. According to a recent survey, a substantial majority of students, approximately 83%, acknowledged the significant efficacy of an online music education program in preparing them for concert performances and musical competitions [26]. This finding underscores the notable advantages of utilizing virtual platforms in music education, particularly in facilitating effective learning outcomes and enhancing students' musical proficiency. The ability to access high-quality instruction remotely and receive immediate feedback from experienced instructors can offer unparalleled benefits to students pursuing music education. Hence, the integration of online music education programs can serve as a valuable tool for students seeking to refine their musical abilities and achieve their performance goals. Besides that, in Yan, study indicate that the implementation of an online music education system based on the Sparse Code Multiple Access (SCMA) system multiuser detection algorithm and artificial intelligence can yield substantial benefits for student groups. Specifically, the analysis suggests that the proposed system has the potential to significantly enhance the learning efficiency of music audiences, resulting in improved musical proficiency. The incorporation of innovative technological tools and features such as artificial intelligence can enable students to receive personalized feedback and tailored learning experiences, leading to greater engagement and motivation. Ultimately, the use of online music education programs can serve as a valuable resource in promoting effective learning outcomes and advancing students' musical abilities. On the other hand, Fan argue that by developing relevant teaching modes incorporating computer technology can create more convenient conditions for students to engage in comprehensive learning, independent development, and in-depth exploration. Moreover, the incorporation of technology can effectively promote the development of various fields within society. In this context, the use of online music education programs has emerged as a valuable tool in promoting effective learning outcomes and

advancing students' musical abilities. As such, the implementation of computer technology in music education has significant benefits that warrant continued exploration and development.

1.2 Disadvantages of Online Music Education

Apart from the advantages in online music education, there are also potential challenges that must be address. One potential issue is the lack of physical interaction between students and instructors, which can hinder the development of interpersonal skills and hinder the learning process. Additionally, the reliability of technology and the availability of equipment and internet connectivity can pose obstacles to effective online learning. Most of online learning material are focus on speech-focus, as Martínez Hernández argued that this will emerged a significant problem on the quality of the lessons. Another facts that distinguish music education and other field of education is related to its disciplines. Rucsanda, Belibou and Cazan stated that music higher education is characterized by two distinct categories of disciplines, each presenting unique challenges and characteristics. Theoretical lessons and performance lessons, or applied skills, comprise these categories, with the former focusing on conceptual and abstract knowledge while the latter emphasizes practical skill development. Another problem is related to type of learning materials. An overabundance of learning resources can potentially hinder the process of learning in music by overwhelming the student and leading to a lack of focus and direction. Technical difficulties and issues related to audiovisual latency can result in a lack of attention and direction among students, thereby hampering the learning process [38]. This situation creates opportunities for improving music education and aligning it with current trends in education, such as bite-sized learning and heutagogy. Current educators need to reinforce, rethink and recreate education different strategies [34]. In light of this, the researcher intends to conduct a study aimed at developing a conceptual framework for bite-sized learning in the context of learning fundamental jazz guitar reharmonization techniques.

2. Methodology

This study employs a research methodology that incorporates two distinct research designs, namely experimental design and design and development research (DDR). The combination of these research designs provides a comprehensive approach to testing theoretical constructs while verifying their practicality [42]. The DDR method used in this study comprises three phases, which are aligned with established frameworks proposed by previous researchers, including Saedah Siraj *et al.,* [41] Beram *et al.,* [6]. The first phase, needs analysis, involves identifying the learning needs and requirements of the target audience. This phase aims to determine the gaps and challenges learners face in comprehending the topic under study.

The second phase, design and development, involves the creation of instructional materials that cater to the identified learning needs. This phase aims to develop a sound instructional design that is aligned with the conceptual framework and learning objectives. The instructional materials developed in this phase are designed to provide learners with effective, engaging, and practical learning experiences. Finally, the third phase, evaluation or usability testing, involves the validation and verification of the effectiveness of the instructional materials developed in the previous phase. This phase enables researchers to assess the efficacy of the developed materials and refine them based on feedback obtained from the target audience and designated experts.
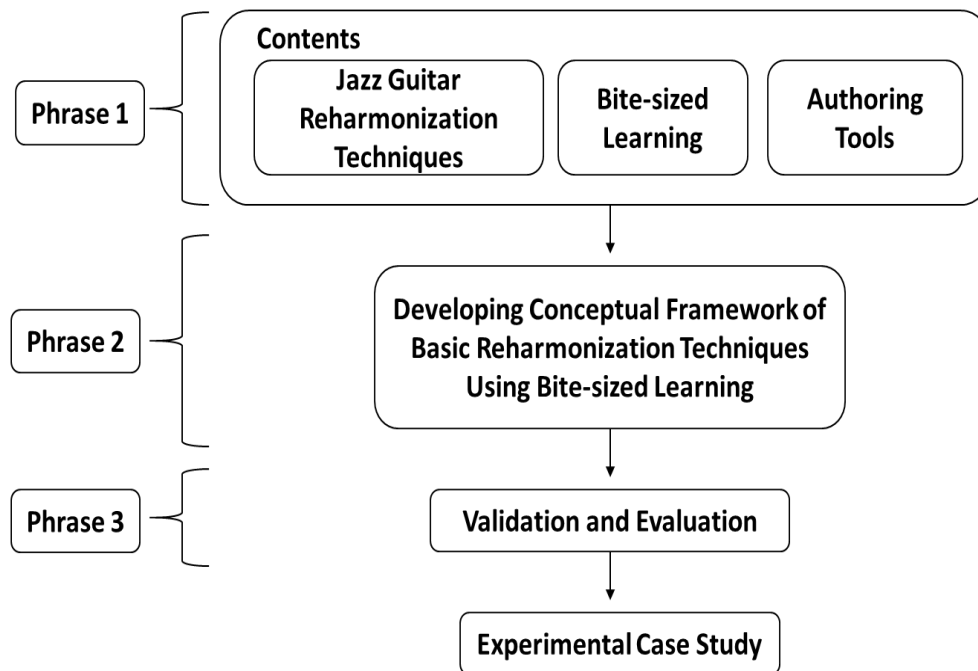
Fig. 1 Phrase in developing basic jazz guitar reharmonization techniques

3. Results

In this particular section of the study, the analysis and interpretation of the results obtained from the various phrases, which have been graphically presented in Figure 1 above, will be presented and discussed in detail.

3.1 Phrase 1

This phrase can be deconstructed into three pivotal constituents, each of which assumes a significant function in the comprehensive examination of reharmonization techniques in jazz guitar. The initial constituent pertains to the precise contents of these techniques, which constitute an indispensable aspect of the overall educational procedure. These contents were compiled via content analysis of sixteen sources, comprising videography and jazz guitar method books.

The second constituent, commonly known as the "bite-sized learning approach," is an instructional technique that focuses on delivering educational materials in a more easily manageable and comprehensible format. The approach aims to break down complex concepts and ideas into smaller, more digestible segments, which learners can absorb more efficiently [4,17,44,49,51], thus facilitating better comprehension and retention of the concepts.

Finally, the third component concerns the use of authoring tools, which enable the creation and sharing of engaging and interactive learning resources that can further enhance the overall learning experience. To develop the learning materials, we employed TikTok, a popular application utilized for creating short and succinct videos to engage learners [10,14,16,23,25,27,29,46,50,54]. The integration of these three components creates a holistic and effective approach to jazz guitar reharmonization technique education, which is both engaging and informative for learners.

3.2 Phrase 2

This phase is followed by the development of the conceptual framework for bite-sized learning and the content of basic jazz guitar reharmonization techniques. Phase 2 is carried out after the characteristics of bite-sized learning, types of basic jazz guitar harmony techniques, and authoring system have been identified.

3.3 Phrase 3

Following the acquisition and analysis of the research data, Phase 3 involves the validation and appraisal of the conceptual framework for bite-sized learning, as well as the content of fundamental jazz guitar reharmonization techniques. In this phase, refinement will be undertaken to improve the framework and content based on feedback obtained from the designated experts' assessment. The verification and evaluation phase is crucial in ensuring the quality and effectiveness of the instructional materials developed for learners ("Educational Measurement, Assessment and Evaluation"; Crocker; Munna; "Importance of Verification and Valuation of Assets - Auditing" n.d.; Cabitza *et al.,* [7]; Yogarajah, Shanmuganathan and Kuhaneswaran [53]). Through the evaluation process, experts in the field can provide insights and recommendations on areas that require further refinement, modification or improvement. The feedback received from the experts is then carefully considered and incorporated into the framework and content development process to ensure that the final product is of high quality and meets the learning objectives of the target audience.

4. Conclusions

In conclusion, the ongoing research on developing a conceptual framework for the bite-sized learning approach of basic jazz guitar reharmonization techniques is a critical step towards providing effective and practical instructional materials for learners. The combination of experimental design and design and development research methodologies provides a comprehensive approach to developing instructional materials that cater to the learners' needs and requirements. The three-phase DDR approach enables the development of effective and engaging instructional materials that are aligned with the conceptual framework and learning objectives.

Furthermore, the use of TikTok application as the authoring tool provides a unique and innovative way of delivering the learning materials in a more manageable and digestible way. The bite-sized learning approach allows learners to engage with the materials at their own pace and provides opportunities for active learning and knowledge retention. The ongoing research aims to refine and improve the conceptual framework and instructional materials based on feedback obtained from experts and learners, ensuring that the final product is of high quality and meets the learning objectives of the target audience. Overall, the development of the conceptual framework and instructional materials using the bite-sized learning approach is a promising avenue for providing effective and practical learning experiences for learners in the field of jazz guitar reharmonization techniques.

data collection and analysis, and enabling the dissemination of findings through various academic channels. The authors of this study express their gratitude towards Universiti Pendidikan Sultan Idris for their generous support and investment in the advancement of knowledge in this field.

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