Interactive E-Module as a Future Classical Guitar Learning Solution

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Abstract

This study focuses on developing an interactive e-module for the Guitar M. Carcassi course in the Music Education Study Program at the State University of Jakarta. The course poses challenges for many students, particularly those without a classical guitar background, as it relies heavily on in-person instruction. To address this issue, the research employed the ASSURE instructional design model developed by Smaldino, aiming to create a self-directed, multimedia-based digital module. The development process followed six stages: analyzing student characteristics, stating learning objectives aligned with the curriculum, selecting strategies and materials, utilizing media and technology, engaging learners, and evaluating outcomes. Learner analysis revealed that 78.21% of students had auditory-visual learning styles, reinforcing the need for multimedia integration. The resulting e-module includes interactive features such as instructional videos, audio samples, metronome tools, and guided tasks, making it accessible across various devices. Expert validation results showed excellent scores, with media experts rating it at 98.4% and content experts at 97.6%. Meanwhile, student responses were overwhelmingly positive, reaching 92.29%, indicating high satisfaction and usability. This interactive module proved effective in supporting independent learning and reducing the gap for students with limited classical guitar experience. It represents an innovative learning solution that enhances student engagement and comprehension in music education. Furthermore, the module holds potential as a scalable model for digital learning in other instrumental and theoretical music subjects. By aligning with learner needs and utilizing technology effectively, this e-module contributes significantly to the modernization of music instruction in higher education.

Keywords: e-learning, classical guitar, e-module, ASSURE model, music education

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Introduction

In recent years, education has undergone a transformative shift driven by technological advancement and the digitalization of learning environments. Teaching, as a structured process originating from the act of learning, involves the interaction between educators and learners to enhance the educational experience and achieve specific goals (Dwiyogo, 2016; Rukajat, 2018). Effective teaching is not limited to the mere delivery of course content, but also involves the thoughtful selection of materials, media, tools, and evaluation methods to ensure holistic, visionary, and meaningful learning (Sudjana & Rivai, 2011).

In this context, the educator plays a pivotal role in designing learning systems that are both engaging and conducive to reaching learning objectives. The learning process must combine planning and creativity to generate an impactful and lasting educational experience (Sani, 2013). Educators are thus responsible for carefully curating learning materials, organizing classroom environments, and incorporating instructional models that align with both national curriculum standards and student needs (Kustandi & Darmawan, 2021).

The COVID-19 pandemic served as a significant catalyst for the integration of digital tools in education. The sudden shift from traditional classroom settings to online learning prompted the widespread use of platforms such as Google Classroom, Zoom, WhatsApp, and Google Meet. Additionally, digital resources like e-books, e-modules, and collaborative tools became essential in supporting distance learning (Smaldino et al., 2019; Yaumi, 2018). While face-to-face learning resumed in mid-2022, the use of digital media has persisted and evolved as a staple of modern educational practice. According to Sani (2013), effective learning is inseparable from the educator's creativity, student participation, and innovative use of educational media. Learning media consist of both physical and non-physical tools that facilitate information exchange and create interactive learning environments (Yaumi, 2018). These media support independent learning by providing access to content that may otherwise be challenging to understand through conventional methods.

Among the most popular tools today are e-books and e-modules. E-modules, in particular, have gained widespread popularity as they offer step-by-step, systematic, and interactive learning experiences. According to Partono (2019), e-modules are enhancements of traditional modules that integrate digital multimedia such as videos, audio, animations, and assessments allowing learners to study independently in an engaging and dynamic environment. Moreover, e-modules align with the concept of environmentally conscious education by minimizing paper usage (Anwar, 2022).

Digital tools like e-modules are now employed across a wide range of disciplines from science and literature to mathematics and the arts. In music education, the use of e-modules is especially pertinent due to the dual necessity of audio and visual components for theoretical and practical instruction (Pambudi & Riskiono, 2021). Music educators have found that e-modules enhance both in-class instruction and independent learning in subjects such as music theory and instrumental practice, including vocal, piano, violin, and guitar instruction.

Among these instruments, the classical guitar holds a significant place in global and Indonesian music education. Classical guitar, which uses nylon strings and does not require amplification, is widely recognized and often featured in national and international music events (Tampubolon, 2020). At the State University of Jakarta, classical guitar instruction is part of the core curriculum for students in the Music Education Study Program. Students are

required to take two sequential semesters of guitar courses: Guitar M. Carcassi in the first semester and Guitar Carulli in the second (Carcassi, n.d.).

Following the easing of pandemic restrictions, these courses returned to in-person instruction. However, all students are expected to progress through the material at the same pace, regardless of their prior experience with classical guitar. This has led to a pronounced learning gap between students who have formal training and those who are encountering the instrument for the first time. Students with no classical guitar background often find the Guitar M. Carcassi course particularly challenging, given the fast pace of the curriculum and the expectation to master complex etudes within a single semester.

Interviews with students and instructors revealed that one weekly session is insufficient for beginners to acquire the necessary technical skills. As a result, students frequently turn to external sources such as YouTube and Google for supplemental instruction. However, these platforms present their own challenges, including inconsistent quality and unreliable content. According to Simalango (2019), unverified digital sources can hinder rather than support learning, particularly when students lack the foundational knowledge to critically assess the information presented.

Furthermore, interviews with a faculty member, Johan Yudha Brata Sahertian, confirmed that the Guitar M. Carcassi course follows a rigid Semester Learning Plan (RPS), leaving little room to accommodate students who fall behind. This results in increased stress, reduced motivation, and in some cases, withdrawal from the course. To address these issues, the researcher proposed the development of an interactive, multimedia-rich e-module specifically tailored for the Guitar M. Carcassi course. This digital learning tool integrates instructional videos, visual aids, audio samples, faculty notes, metronome features, and self-assessment tasks. Designed to be accessible anytime and anywhere, the e-module supports independent practice and bridges the gap between in-class instruction and students' individual learning needs.

The aim of this research is to develop and validate an e-module that can serve as an effective learning medium for classical guitar students, especially those with limited prior experience. Through this innovation, the study contributes to the modernization of music education and the promotion of self-directed learning in the digital age (Andri, 2019; Isman et al., 2005).

Methodology

This study adopted a Research and Development (R&D) approach to develop a digital learning medium an interactive e-module for the Guitar M. Carcassi course offered by the Music Education Study Program at Universitas Negeri Jakarta. The primary objective was to assess the feasibility and long-term applicability of this instructional tool within the classical guitar curriculum. This section elaborates the detailed methodology employed to design, implement, and evaluate the e-module.

Research Participants and Setting

The study involved 21 students enrolled in the Guitar M. Carcassi course during the 2022/2023 academic year at Universitas Negeri Jakarta. Data collection and implementation were carried out from June to December 2022.

Data Collection Methods

- **Observation**: Classroom observations focused on teaching strategies, student engagement, and use of existing learning materials.
- **Questionnaires**: Pre- and post-module questionnaires assessed student learning styles, needs, and reactions to the e-module.
- **Interviews**: Conducted with the course instructor and selected students to gain qualitative insights.

Research Objective

The research aimed to develop a multimedia-based e-module tailored for classical guitar instruction, specifically targeting first-year university students with varying degrees of prior experience. The e-module was intended to support self-directed learning and supplement traditional classroom teaching. Evaluation focused on usability, effectiveness, and alignment with curricular goals.

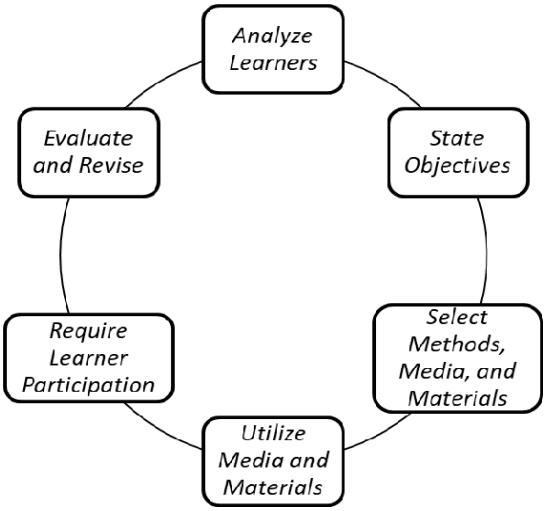
Research Design and Model

This study implemented the ASSURE instructional design model proposed by Smaldino et al. (2019), which is particularly effective for integrating technology into learning environments. The acronym ASSURE stands for:

- Analyze Learners
- State Objectives
- Select Methods, Media, and Materials
- Utilize Media and Materials
- Require Learner Participation
- Evaluate and Revise

Figure 1

Stages of the ASSURE Instructional Design Model Adapted from Smaldino et al. (2019)

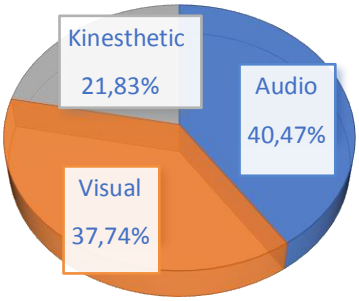


Each of these steps was adapted and applied in the context of the Guitar M. Carcassi course, as detailed below.

Analyze Learners

A learner analysis was conducted through surveys and interviews involving 21 students. The survey measured general characteristics (interest and motivation), prior competence, and learning styles. Results indicated that most students exhibited auditory-visual preferences (audio: 40.47%, visual: 37.74%, kinesthetic: 21.83%), supporting the integration of multimedia content in the module.

Figure 2
Questionnaire Results on Learning Styles of Guitar M. Carcassi Students



State Objectives

Learning objectives were derived from the official Semester Learning Plan (RPS) and formulated using the ABCD format:

- **Audience (A)**: First-year students in the Music Education Study Program
- **Behavior (B)**: Ability to perform specific classical guitar techniques and pieces
- **Condition (C)**: Learning supported by a digital e-module
- **Degree (D)**: Mastery reflected by minimum grades as per RPS (e.g., A = 86–100%, B = 71–75%)

Competency areas included knowledge of music theory, classical guitar playing skills, and proper technique for posture, finger placement, and interpretation of musical symbols.

Select Methods, Media, and Materials

After determining the learning objectives, the next step in the ASSURE instructional design model is selecting the appropriate methods, media, and materials. This research focused on developing a digital e-module that aligns with the students' general characteristics specifically their learning styles as identified in the earlier analysis. The selection of media was also based on interviews with the course instructor of Guitar M. Carcassi and a needs assessment questionnaire distributed to 21 students in the Music Education Study Program. On August 31, 2022, the researcher conducted an in-person interview with Johan Yudha Brata Sahertian, the instructor for the Guitar M. Carcassi course at Universitas Negeri Jakarta. During the interview, the instructor explained that the primary learning media used in the course were the Carcassi Method Book, YouTube, and PowerPoint. Subsequently, on November 2, 2022, a questionnaire was distributed to students to identify their needs for supplementary learning media. The responses indicated that students required modern learning tools that were accessible anytime and anywhere, and that could enhance motivation and independent learning.

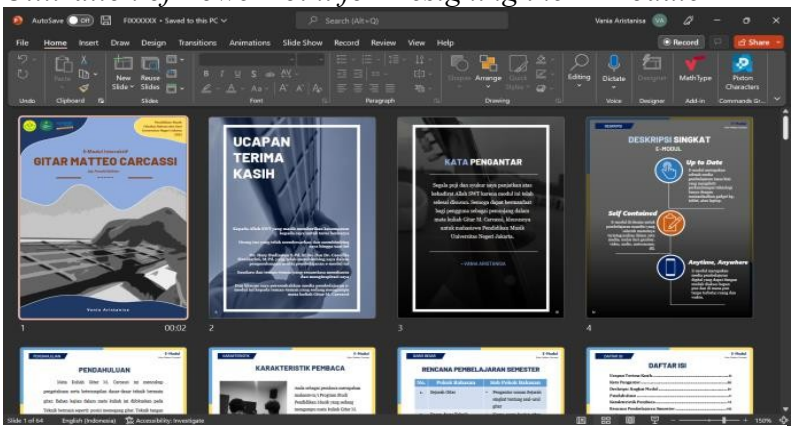
When asked about their familiarity with e-modules, 81% of respondents indicated they were aware of such media, while 19% were not. Furthermore, 90.5% of the students agreed with the integration of e-modules into the Guitar M. Carcassi course as a valuable complementary learning tool.

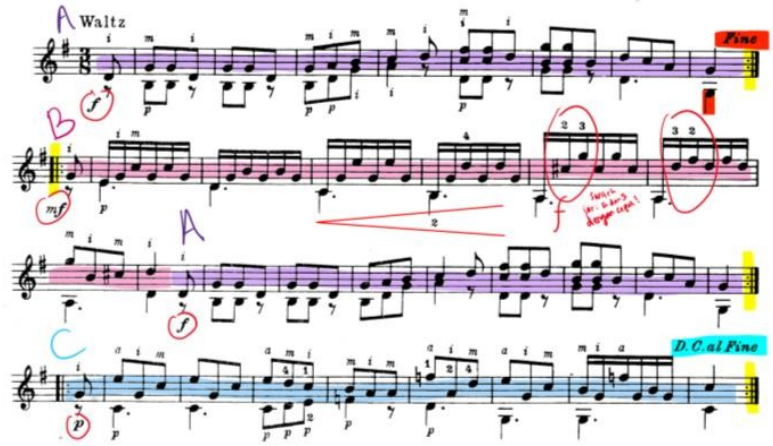
The e-module developed for this study includes a comprehensive range of materials aligned with the Semester Learning Plan (RPS). Topics include the history of the guitar, fundamental techniques (posture, finger placement, technical signs), right-hand techniques (tirando and apoyando), scales and prelude exercises in C, G, and D major, as well as chord cadences and arpeggio etudes.

In the development process, Microsoft PowerPoint was used to design the e-module, incorporating tools such as shapes, color schemes, font styles, and visual annotations. Analytical features allow students to view highlighted performance notes and techniques via virtual pens and embedded videos.

Figure 3 & 4

Utilization of PowerPoint for Designing the E-Module





These features are paired with synchronized audio and visual elements to support student understanding. Assets such as instructional images and videos were carefully produced with attention to lighting, angles, and background clarity. Audio was recorded with attention to clarity and reduced noise interference.

Figure 5

Stages of the Audio Recording Process

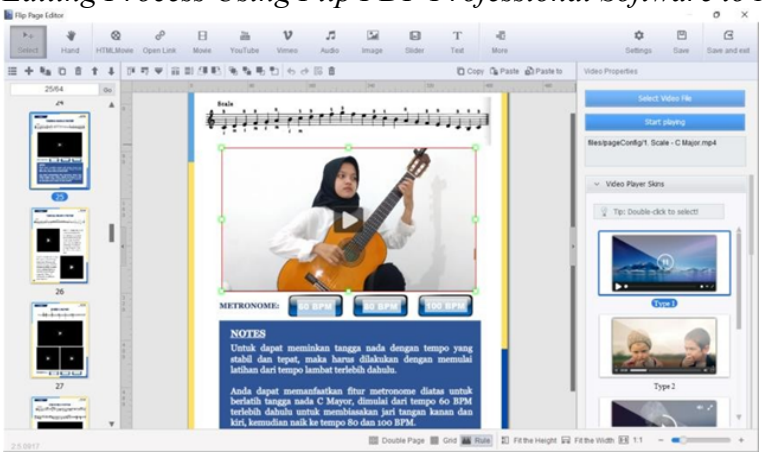
Additional audio processing was conducted using FL Studio Mobile, utilizing reverb effects to simulate authentic performance spaces.

Video recordings were made using neutral backgrounds and proper lighting to enhance clarity. These videos were edited and embedded in the module using Flip PDF Professional, which enabled the integration of multimedia elements such as videos, audio, interactive navigation, and hyperlinks. A metronome audio feature was added directly into the module to support independent practice without requiring external apps.

Furthermore, a navigation system was created via a table of contents to enable learners to easily jump between topics.

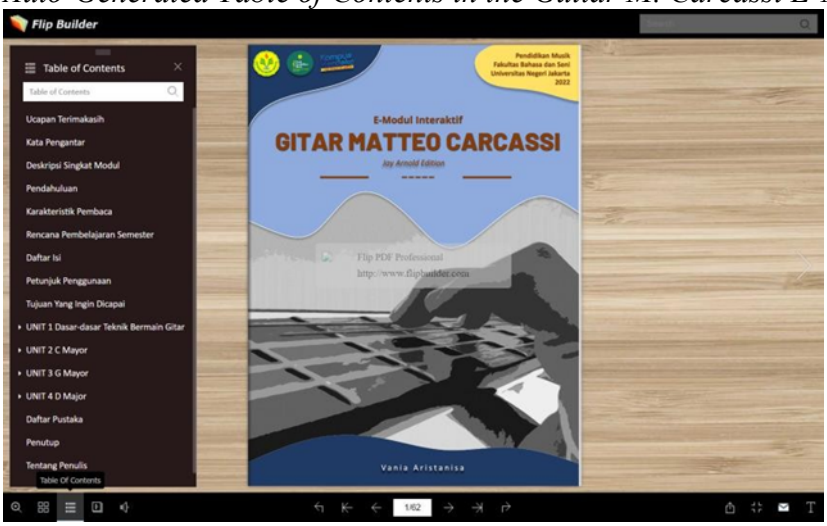
Figure 6

Editing Process Using Flip PDF Professional Software to Make It Interactive



Once all content was finalized, the module was published online under the title "UNJ E-Module Gitar Matteo Carcassi," making it accessible to students on various digital devices.

Figure 7
Auto-Generated Table of Contents in the Guitar M. Carcassi E-Module



Lastly, expert validation was conducted to evaluate the quality of the module. Dr. Dian Herdiati, M.Pd., a specialist in music and guitar education at Universitas Negeri Jakarta, reviewed the content and provided structured feedback using a rubric-based questionnaire. Her evaluation served as a critical component in ensuring the module's academic rigor and instructional effectiveness.

Utilize Media and Materials

Development was conducted using Microsoft PowerPoint and Flip PDF Professional. Multimedia assets were created by the researcher, including.

- High-resolution images of guitar techniques
- Audio recordings edited with FL Studio Mobile, using reverb features to simulate acoustic performance settings
- Instructional videos recorded with proper lighting and background settings to enhance clarity

All assets were embedded into the e-module and structured with an interactive table of contents. The module was made accessible across devices, including smartphones, tablets, and computers.

Require Learner Participation

To foster student engagement, the e-module encouraged:

- Independent study using self-paced content
- Practice using built-in metronome and play-along tracks
- Reflective learning through embedded questions and feedback forms

Instructors introduced the module in class and guided students on its usage. Students then accessed and used the module outside of classroom hours to reinforce in-class learning.

Evaluate and Revise

The module underwent multiple levels of evaluation:

- **Expert Validation**: Two experts one in media design and one in classical guitar pedagogy evaluated the module.
  - Media expert score: **98.4%**

$$100\ \%\ x\ \frac{\Sigma SP}{\Sigma SM} = SA$$

Therefore, the calculation is:

$$100\%\ x\ \frac{123}{125} = \mathbf{98{,}4\%}$$

Description:
ΣSP : Score Obtained
ΣSM : Maximum Possible Score
SA (in Bahasa) : Final Score (%)

  - Subject expert score: 97.6%

$$100\ \%\ x\ \frac{\Sigma SP}{\Sigma SM} = SA$$

Therefore, the calculation is:

$$100\%\ x\ \frac{122}{125} = \mathbf{97{,}6\%}$$

Description:
ΣSP : Score Obtained
ΣSM : Maximum Possible Score
SA (in Bahasa) : Final Score (%)

  - Both evaluations classified the module as "Excellent," requiring no major revisions
- **Student Feedback**: A Likert-scale questionnaire was distributed to 21 students post-implementation. The module received a positive response with an average score of 92.29%, indicating strong acceptance and satisfaction.

Data Analysis

Data analysis employed both qualitative and quantitative approaches:

- **Qualitative**: Thematic coding of interview transcripts and open-ended responses identified recurring themes and areas for improvement.
- **Quantitative**: Likert-scale responses were analyzed using descriptive statistics. The following criteria were used to interpret results:

Table 1
Score Range and Classification Statistics

Score Range (%)	Classification
85–100	Very Positive
70–84.9	Positive
55–69.9	Fairly Positive
40–54.9	Less Positive
25–39.9	Not Positive

Results indicated that both expert and student responses fell into the "Very Positive" category, supporting the conclusion that the module was pedagogically sound and ready for broader implementation.

Ethical Considerations

All participants gave informed consent, and their anonymity was protected. The study adhered to ethical standards for educational research set by the university.

Limitations

The sample was limited to one cohort and one university, which may affect the generalizability of the findings. Further research with diverse populations is recommended.

Conclusion

This study developed and validated an interactive e-module for the Guitar M. Carcassi course using the ASSURE instructional design model. The module was tailored to students' auditory-visual learning preferences and aimed to support independent practice, bridging the gap caused by limited classroom time. The instructional objectives followed the ABCD format and aligned with the university's curriculum. Development included multimedia content such as annotated scores, audio, video, and metronome tools, designed using accessible platforms like Microsoft PowerPoint and Flip PDF Professional. Content was structured for ease of use across various devices.

Expert reviews yielded high validation scores (98.4% for media and 97.6% for subject content), and post-implementation surveys indicated 92.29% student satisfaction. Students reported improved learning flexibility and engagement, confirming the e-module's effectiveness in enhancing classical guitar instruction. The study adhered to ethical standards, with informed consent from all participants. While the sample was limited, results suggest strong potential for broader application. The success of this e-module highlights how well-designed digital tools can modernize music education by making it more accessible, student-centered, and adaptable to various learner needs.

Further research is recommended to explore its use across diverse educational settings and musical disciplines.

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