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Animated Instructional Medium in Structural Foundation

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ABSTRACT

Complicated concepts in designs are difficult to explain in traditional media, such as still slides. Animation seems to provide an advantage in delivering a better rendition of these concepts. This study aimed to develop an Animated Instructional Medium in Structural Foundation, which could be used by Drafting Technology Students of Carlos Hilado Memorial State College, Talisay, Negros Occidental and will serve as a viable instructional material in teaching drafting technology subjects. Specifically, it sought to design and develop an Animated Instructional Medium in Structural Foundation with the following features: animated, interactive, and quality. It also determined the acceptability of the project in terms of animation, user control, interactivity, and images. Moreover, formulate an instructional guide for using the project. Descriptive and developmental methods were used in this study involving one hundred forty respondents comprising architects, civil engineers, drafting instructors, and students for project evaluation. The findings of the study showed that the Animated Instructional Medium in Structural Foundation was rated highly acceptable in terms of technical features and very acceptable in terms of animation, user control, interactivity, images, and text. An instructional guide was formulated to serve as an instructional medium for teaching basic structural

foundations in Architectural Drafting. This study is beneficial to the BSIT Drafting students, construction foremen, construction workers, homeowners, instructors, and researchers.

Keywords **—** Education, Architectural Drafting, Instructional Material, descriptive and developmental design, Philippines

INTRODUCTION

In today's world of rapid technological change and increasing global competitiveness, South Asian countries need a well-educated and skilled workforce to sustain long-term growth. With the unknown kind of abilities that future occupations will require, schools and teachers must equip pupils with more than just fundamental reading and writing skills. Students must be able to analyze data, create judgments, be creative, communicate effectively, collaborate well, and be resilient (World Bank, 2019). Unfortunately, the teacher was found to lack innovative instructional media in teaching and had no other ways to teach about the subject aside from lecture method and notes, which bring less positive effect on the students (Sukardi et al., 2017). The major audio-visual aids used in schools are chalkboards and whiteboards, while about 60% of schools used pictures, maps, models, charts, and multimedia (Ali et al., 2010).

The traditional ways of delivering instructions to the students were also applied in the architectural drafting subject. Architectural drafting is primarily about developing schematics, drawings, blueprints, and other design plans. Design Plans like architectural design, structural design, electrical designs, and more. One of the structural designs is a foundation plan. A foundation plan is a plan view drawing, in sections, showing the location and size of footings, piers, columns, foundation walls, and supporting beams that are located below the ground (Jefferis et al., 2016). The utilization of still pictures presentation during the post-pandemic era, especially in architectural drafting, led the students to conduct a site visit for the actual observation and understanding of the latter.

Moreover, the COVID-19 pandemic has sent the global economy into a tailspin and has had a significant impact on education. Face-to-face classrooms have migrated to online learning platforms due to the abrupt shutdown of campuses as a social distancing mechanism to avoid community transmission. This has shifted the attention to eLearning tools and platforms for effective student participation, which may be out of reach and budget for many students.

The epidemic has exposed the flaws in today's higher education system and the necessity for greater digital technology training for instructors to adapt to the world's quickly changing educational atmosphere (Rashid & Yadav, 2020).

With the development of technology, innovations are being brought up; teachers use different audio-visual aids to facilitate the teaching process (Das & Al Mamon, 2014). With technology advancement at a breakneck speed and gadgets becoming commonplace, digital gadgets delivering content on every topic are expected to replace printed books. The power of interactive gadgets is huge as they cater to more than just books. This awareness of digital learning will propel the industry forward (Singh, 2014). However, in the presence of animated medium available, none has prioritize foundation detailing, and the animations lack proper information and discussion, which very essential.

It is in this premise that an Animated Instructional Medium was developed. It is a computer-based material that can provide fundamental instruction in ways that are not possible within the limitations of traditional textbook and lecture formats. This Instructional medium offers from several actual settings and provides real-life examples in the arrangement of foundation components (Brown & Green, 2015). It has a knowledge structure with instructional methods that will be the most appropriate fit for students working toward that learning objective (McIver et al., 2016). It is strongly believed that animation is good supplementary material for students, particularly for learning complicated concepts (Hwang et al., 2012). In the context of these developments, multimedia plays a vital role as an instrument in the transfer of learning because it offers various experiences such as viewing and interacting through a computer-mediated setting. Lastly, an animated instructional medium in a structural foundation is stimulating so that students can make learning activities more freely anywhere and anytime, without depending on a teacher.

OBJECTIVES OF THE STUDY

This study aimed to develop an Animated Instructional Medium in Structural Foundation, which could be used by Drafting Technology Students of Carlos Hilado Memorial State College, Talisay, Negros Occidental and will serve as a viable instructional material in teaching drafting technology subjects.

More specifically, the study sought to (1) design and develop an Animated Instructional Medium in Structural and (2) Foundation with the following features: a. animated; b. interactive; c. quality. (3) determine the acceptability

of the Animated Instructional Medium in Structural Foundation in terms of: a. animation; b. user control and interactivity; c. images; d. text, and (4) formulate an instructional guide in teaching Animated Instructional Medium in Structural Foundation.

METHODOLOGY

Research Design

The study made use of the descriptive method of research utilizing the Developmental Method to design and develop an Animated Instructional Medium in Structural Foundation.

Participants

The respondents of the study were architects, civil engineers, architectural drafting instructors, and architectural drafting students who were informed about the nature of the study.

Instrumentation

The research instruments were composed of two sets intended to gather responses from architects, civil engineers, instructors, and architectural drafting students of Carlos Hilado Memorial State College with regard to the acceptability of the developed "Animated Instructional Medium in Structural Foundation." They were asked to indicate the level of acceptability in terms of features on the following criteria: animation, user control, interactivity, images, and text by responding to a five-point scale with corresponding values.

A researcher-made questionnaire was developed and has passed the validity and reliability testing and was used to determine the technical acceptability of an Animated Instructional Medium in Structural Foundation using the Mean and Standard Deviation. However, all information obtained from research participants was treated with confidentiality.

Scope of the study

This study focused on developing an Animated Instructional Medium in Structural Foundation, which covers the foundation details like wall footing, wall, column footing, column, floor slab, and their respective reinforcement bars. The study had drafting course students and other related professionals as respondents.

Limitations of the Study

This study will not cover the other house components that are not included in the foundation plan. The respondents of the study should be enrolled or work in CHMSC.

RESULTS AND DISCUSSION

Table 1. Mean scores on the Acceptability of Animated Instructional Medium in Structural Foundation according to variables

Variables	Mean	Interpretation
Animation	4.11	High
User Control And Interactivity	4.33	Very High
Images	4.26	Very High
Text	4.14	High
Total	4.21	Very High

As shown in the table, the overall rating of the experts and end-users resulted in a mean score of 4.21, interpreted as very high. This implies that the medium fits classroom use, makes learning a long-term, thinking-centered process, supports learning with a powerful presentation, focuses on the development factors, and is easy to carry using a flash drive or a compact disc.

The table further shows the mean scores in terms of animation, user control, interactivity, images, and text. The obtained mean score was 4.11, interpreted as high. This implies that the animated instructional medium in structural foundation in terms of motion, picture and sound quality, clarity of voice, audio synchronization to the animated objects is user friendly and easy to use, and has a user control instructional manual.

The table further shows the mean scores in terms of images. The obtained mean score was 4.26, interpreted as very high. The result implies students' exposure to the instructional medium will achieve a substantial beginning skill level and proficiency in the structural foundation.

The table further shows the mean scores in terms of text. The obtained mean score was 4.14, interpreted as high. The result implies that the text is clear and readable as perceived by the viewers. The results of the study will likewise lead to future enhancement of various instructional media related to the delivery of quality instruction in the College of Industrial Technology. Furthermore, it will be beneficial to students and instructors by utilizing various teaching methods and techniques in teaching technology subjects.

Generally, the animated instructional medium in the structural foundation was rated high in terms of motion quality, picture quality, sound quality, clarity of voice, and audio synchronization to the animated object.

Generally, the animated instructional medium in the structural foundation was rated very high in terms of animation, user control and interactivity, images, and text.

The animated instructional guide that has been formulated in this study is user-friendly and easy to operate.

CONCLUSIONS

In view of the aforementioned findings, the following conclusions are drawn:

The animated instructional medium in the structural foundation can enhance the knowledge and skills of architectural drafting students in terms of column footing with required reinforcement bars, a column with required reinforcement bars, wall footing with required reinforcement bars, a wall with required reinforcement bars, and floor slab with required reinforcement bars.

The animated instructional medium in the structural foundation can be used in any course that focuses on the study of the structural foundation of a one-story residential house.

The animated instructional guide can enhance the instructional delivery system in teaching selected topics in Architectural Drafting.

TRANSLATIONAL RESEARCH

It is highly suggested all static instructional aid in architectural drafting should be enhanced into an instructional animation to bring more efficiency to the delivery of learning to the students. Appropriate computer programs will be used for the high performance of the instructional medium and to becoming more user-friendly.

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