UNIVERSITI TEKNOLOGI MARA

INCORPORATION OF ARTIFICIAL INTELLIGENCE (AI) IN USER INTERFACE (UI) AND USER EXPERIENCE (UX) IN MOBILE APPLICATIONS PACKAGING DESIGN MODULE

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ABSTRACT

Intelligence Digital Packaging (iDPAC) is the incorporation of artificial intelligence (AI) in the user interface (UI) and user experience (UX) mobile applications (apps) packaging design modules digitally, newly transformed from traditional design processes in packaging design. The lack of educational resources and samples in the context of packaging design has led to ineffective communication between learners and educators. This gap results in learners producing unrealistic designs due to a lack of understanding of visual constraints and principles. Integrating AI into the creative design process, particularly in packaging design, presents opportunities and challenges. The primary study domains of AI integration are AI in UI and UX mobile apps prototypes and AI in the packaging design process, which have been thoroughly explored to optimise the advantages of AI in the creative design industry. Developing the UI and UX in the mobile apps packaging design module that integrates AI could serve as a solution and strategy to increase the effectiveness of the existing standard learning system across a wider variety of services and for more users. The qualitative methodology has involved observation and interviews with nine samples of educators, learners, and industry experts to gather insights on current potential improvements in AI integration in UI and UX mobile apps. This study employs a systematic approach called Design Developmental Research (DDR) along with the Design Thinking (DT) framework to discover what users want and need, design and create a prototype, and then test it with real users to determine whether the AI integration enhances the user experience and evaluate the usefulness of the mobile app. The combination of AI technology and DDR merged DT framework has resulted in a user-centred approach that enhances the overall user experience and usability of the iDPAC mobile apps. The DDR-employed DT framework has effectively facilitated the development of mobile apps that meet user satisfaction in the packaging design process more efficiently and effectively. This emphasises visual communication in mobile app design development and highlights the potential for AI to revolutionise the way designers approach user experience. As technology advances, incorporating AI into design processes will become essential for remaining competitive in the creative industry.

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CHAPTER 1
INTRODUCTION

1.1 Research Background

The digital revolution has rapid access to education and culture. It has made it possible for people to connect and share ideas and experiences in new and innovative ways quickly. The relationship between art and technology has always been dynamic, and in the current era, science and technology are enabling artists to create new and innovative forms of expression. Digital tools and technologies can help designers visualise complex concepts, test different ideas, and develop prototypes quickly and efficiently. Therefore, the introduction of artificial intelligence (AI) has changed the way we interact with technology, including the way we design user interfaces (UI) and user experiences (UX). AI generator tools and techniques enable designers to create interfaces that are intuitive, personalised, and efficient (Deña, 2023). Although AI tools and technologies are still in their early stages of development, there is a growing trend among creative professionals to use them to enhance their creative process (Bagree, 2023).

Despite the challenges of using AI in the creative process, there is a growing interest in its potential to help people generate new ideas, explore new possibilities, and create prototype designs. According to Brynjolfsson, Li, and Raymond (2023), by using AI assistance tools, productivity agents can boost up to 14%, which resolves more customer issues per hour. Implementing AI in designing has shortened the timing consideration in producing a clear concept and idea for the designer in a good outcome (Bagree, 2023). In addition, researchers and developers are developing various AI-powered tools and technologies that can help people generate ideas, explore new possibilities, and create prototypes in ways that were not possible before (Rezk, 2023), which means that potential AI can be explored more into the designing process in future. Meanwhile, mobile learning involves the experimental engagement of interaction of students and educators using various devices and digital technology to improve the success strategies in learning achievement (Parsazadeh, Nadia and Ali, Rosmah and Rezaei, Mehran, 2018). In addition, the study aims to construct a prototype of mobile