

# The Adoption of Digital Games Among Older Adults

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**Abstract**—The revolution of technology brings many benefits towards diverse population. Digital game is one of the digital technologies that has potential to facilitate older adults' daily routine. However, some of them faces challenges to adopt the usage of digital games in their daily lives, one of which is that most commercial games are not suitable for older people. This paper discusses the investigation into the challenges associated with the older adults' adoption of digital games, their interaction, and experiences with digital games and specifically explores the andragogical perspectives, and game design attributes. A set of questionnaires consisted of open-ended and close-ended questions were distributed, targeting the older adults across Malaysia, using online and non-probability sampling technique. 81 respondents were recruited, and 56 respondents (n=56) were eligible in this study. Four participants were recruited for informal interview session. The analysis of the results indicates that the older adults' perception of digital games and game design aspects are the major factors influencing their digital game adoption. Game designs are important to attract many older adults to experience and interact with digital games.

**Keywords**—Digital games; Malaysia; older adults; technology

## I. INTRODUCTION

The number of older adults in Malaysia has increased from 3.4 million in 2019 to 3.5 million in 2020, and by 2030, more than 15% of the Malaysian population will be the older population [1]. [2] stated that in Malaysia older adults aged 60 and over are categorised based on the United Nations (UN) age capping. Two main factors that contribute to the increasing number of the older population in Malaysia are lower birth rates and the declining Total Fertility Rate (TFR) [3]. Older adults tend to experience negative ageing effects such as declining in cognitive abilities and physical abilities. The advancement of digital technology such as digital games can help to facilitate the negative ageing. Digital game technology has benefits beyond the purpose of enjoyment, where it has increasingly been applied as a tool for psychological, cognitive, and neuropsychological rehabilitation for older adults [4]. Despite the benefits of digital game technology for the older population, certain older adults may confront difficulties and challenges when it comes to experiencing and participating in it.

The main problem is the game design is not suitable for older adults and does not consider their incapacity. Most of the commercialized digital games are design and develop for the general type of game and aiming for the younger user in mind.

Games specifically designed for older adults are not commercially available yet [5]. Some of the exergames can be used as a tool for exercising however, older adults who

experience a decline in physical abilities might not be able to obtain a complete gaming experience due to limited physical movements. Some digital games were designed with a complex interface. Older adults who experience cognitive issues might have difficulties interacting with these games.

This paper discusses the challenges faces by the older adults aged 55 to 75 within the Malaysian context, their gaming experiences and interactions with digital games, and the associated influencing factors associated with the andragogical perspectives, and game design attributes. There are two research questions aimed to be addressed in this study:

Research question 1: What are the challenges related to older adults' interaction with digital game technology that needs to be considered?

Research question 2: How can their gaming experiences inform design considerations?

## II. LITERATURE REVIEW

Various studies have highlighted challenges associated with older adults' experience of digital games. One of the critical factors that often influence their engagement with digital technology is the psychological factor. For instance, the fear of their inability to use technologies correctly often affects their confidence and level of readiness and acceptance [6]. Blažič and Blažič [7] suggested the root of the problem is the gap in knowledge on how to use digital devices effectively. Other factors include the natural ageing characteristics such as the decline in cognitive and physical abilities, which was not considered during the design of technologies such as games.

Game designs are classified as mechanics, dynamics, and aesthetics. Game mechanics and dynamics design refer to the interaction aspect and how the game operates. Aesthetics, on the other hand, covers the interface design in the game, the look and feel as perceived by the player. Garcia et al. [8] revealed in their study that participants have difficulties remembering certain features in the game and are confused with the game interface that presents too many options. It is essential for digital games designed for older players to have a user-friendly interface, on easy-to-use platform, and are simple to learn [9]. The number of researchers that design and develop games for older adults is still relatively limited. As stipulated by [10], most games do not consider older adults' needs and interests. There is also a lack of research that correlates the attributes of game technology with andragogical considerations and challenges faced by the target group.

To overcome the challenges, it is crucial to embed andragogical perspectives while designing and developing the