

# **A NEW WAY TO IMPROVE THE ABILITY OF SOCIAL INTERACTION ON ELDLY PEOPLE FROM THE ASPECT OF MENTAL HEALTH**

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## **ABSTRACT**

**Aging society becomes a serious issue in the world. Medical staffs focus on ease the pain of elder people but they neglect mental health in elder people's life. This study examines such constructs as knowledge usefulness, perceived enjoyment, social interaction and intention, helping elderly to increase the abilities of social interaction. The aim is to explore how those constructs affect elderly in knowledge acquiring, enjoyment, and social interaction in order to arouse their intention to win their confidence. A questionnaire survey of 146 respondents was conducted using purposive sampling in Taiwan. The results show that knowledge usefulness and perceived enjoyment toward to social interaction are positively influence. Second, perceived enjoyment also positively influence on intention. Third, social interaction positively influences on intention.**

**Key words: Aging society, Technology Acceptance Model, knowledge usefulness, social interaction**

## **INTRODUCTION**

The greater improvement on medical technology, public hygiene and nutrient supplement leads to expand human lifespan. Besides, Peterson described an incredible numbers of people that we addressed postwar baby booming, become elderly people and the decreasing of birth rate make makes developed countries become elderly society[1]. Bureau also depicted the lower birth rate is the critical reason forming elderly society and the unbalance of the demography may cause government financial problems[2]; therefore it aroused government to concern the issue of aging.

Facing continually increasing numbers of elderly people, most medical services focused on curing ailment and increasing their physical ability such as physical surveillance, robots and medical rehabilitation products. Only few people regarded building up a sound mental healthy rather important than physical illness.

In 1990, World Health Organization stated the concept of active aging and by the year of 2002 it proposed a framework of policy by offering more opportunities to maintain health and social participation[3]. Institute for Information Industry pointed out elderly products and service that needed to equip with the functions of merging to the daily life, ease of use, and social linkage. In order to make the elderly people enjoy their daily life, this study focuses on building up a sound mental health computer game to restore their social abilities.

## LITERATURE REVIEW

### *Elderly people*

Elderly people are also addressed senior citizens or silver people. Most countries adopt chronological age as standard. Japan regulates the legal age of retirement is sixty years old. The age of retirement in England, Germany, Italy, America, and Canada is sixty. France is sixty two years old, Denmark is sixty seven and Taiwan is the age above sixty five years old. Finally, World Health Organization defines the age above sixty five years old as elderly people.

### *Game industry and market for elderly people*

The population of elderly people is dramatic increasing in the world especially in Europe. From the direction finance, Gray Gamers is roughly five percent of market share and the output value is estimated 2.6 billion dollars. Games not only help elderly people with promoting both physical and mental health.; but expend their social linkage[4]. A well known game developer, Nintendon, developed many interaction games to help elderly people on thinking, hands, and eyes coordination. The charm of games also attracts senior citizens and increases interesting topics among them. It is obviously that the coming of aging society is an enormously potential market and it also intrigues game developers highly interested to develop the needs of elderly market.

### *Technology Acceptance Model*

Davis added up two variables such as perceived Usefulness and Perceived Ease of Use from Theory of Reasoned Action and proposed Technology Acceptance Model[5]. The model provides a theory of foundation and it describes perceived Usefulness influence intention. It means if users feel technology brings useful knowledge and the perceptions will positive influence on intention. Venkatesh and Morris depicted perceived Usefulness will influence users' intention[6]. Hu, Chau, Sheng, and Tam indicated Technology Acceptance Model has been verified thousands of times being simplicity, clear constructs, and powerful theoretical foundation[7].

Owing to the literature review, I modified the perceived Usefulness into Knowledge Usefulness. Therefore I make the first hypothesis.

*Hypothesis 1a: The more perceived knowledge usefulness that elderly people learn, the greater intention that elder people have*

### *Perceived enjoyment*

Holt described consumer behavior is divided into Utilitarian and Hedonic Systems[8]. Utilitarian system focused on improving efficiency; but Hedonic System is aimed at experiencing enjoyment. Besides, Davis mentioned when using technology system, users can experience the degree of different pleasure and enjoyment[9]. Furthermore, Heijden depicted perceived enjoyment is a key element when forecasting on information system of enjoyment orientation[10]. Therefore I make the second hypothesis.

*Hypothesis 2a: The more perceived enjoyment that elderly people emerge, the greater intention that elder people have*

## *Social interaction*

Turner regarded interaction representing the influence between people and it is the processes of creativity, maintaining, and changing[11]. Mdredge described interactions is built up on the foundation of communication and individuals interact with others by communication as interface[12]. Sellers long term interactions will influence the relationship and acquire social enjoyment[13]. Hsu & Lu Games not only provide Interactions but build up community of cohesion[14]. According to the literature above, I make hypothesizes as following.

*H1b: The more perceived knowledge usefulness that elderly people learn, the greater influences that the elderly people involve on social interaction.*

*H2b: The more perceived enjoyment that elderly people emerge, the greater influences that the elderly people engage in social interaction.*

*H3: The more social interaction that elderly people engage, the greater intention that elder people have*

## **METHOD**

First, we depicted the framework of knowledge Usefulness, Perceived Enjoyment, Social Interaction and Intention. Second, we modified constructs and questionnaires of perceived usefulness and perceived enjoyment from Davis' Technology Acceptance Model in 1986 and social interaction from Hsu and Lu in 2007 as operational definition. Third, we only adopt age over 65 elderly people as our samples and the only 146 questionnaires are valid. Fourth, SPSS and SEM are the statistic method in this study. Finally, we developed an orchid game to make the elder people acquiring the knowledge for plating orchid, emerging in enjoyment and strengthening social interaction for building up the confidence to social with people in this case.

## **RESULTS**

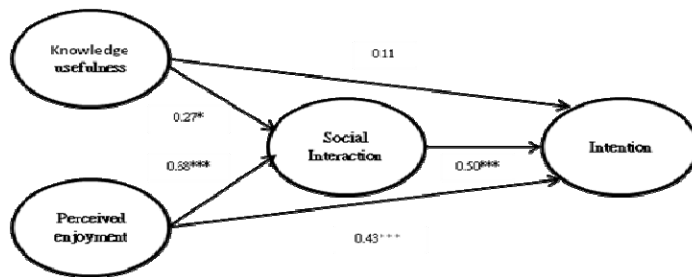
### *Validity and reliability (EFA)*

The criteria for proving validity and reliability are as following: factor loading  $>0.5$ , eigenvalue  $>1$ , KMO  $>0.5$ , communality  $>0.5$ , Cronbach's alpha  $>0.7$ , and item-total correlation  $>0.6$ . We kept six items and the factor loading are 0.84, 0.85, 0.88, 0.85, 0.81, and 0.82 for intention ( $\alpha=0.92$ ). Independent variables: based on the literature review, we kept three items, Useful1, 2, and 7 and the factor loading are 0.85, 0.83, 0.74 for knowledge usefulness ( $\alpha=0.88$ ) We kept six items and the factor loading are 0.86, 0.90, 0.87, 0.89, 0.88, and 0.84 to measure perceived enjoyment ( $\alpha=0.93$ ). We modifies and developed six items for social interaction, all of which were retained 0.90, 0.87, 0.91, 0.91, 0.91, and 0.81 ( $\alpha=0.94$ ).

### *Confirmatory Factor Analysis*

CFA was used to examine the constructs' validity and reliability, and the goodness-of-fit of the model. In the end, we only kept 1, 2 and 7 items on usefulness, 1,3,5, and 6 for entertainment, 1,4,5, for social interaction and 1,2,6 items for intention. The results show that the items' factor loading values were between 0.782 and 0.932, with all items higher than 0.5, and t values being significant. The CR values are 0.88, 0.90, 0.93, and 0.90 and they are higher than 0.6 and the AVE values are 0.72, 0.69, 0.81, and 0.76 and the figures are above 0.5. The Square Root of AVE are 0.85, 0.83, 0.90, and 0.87 which fit the requirement of Hair stating that the square root of AVE should be higher than all co-variances or correlation coefficients between the constructs, or higher than 75% of total constructs[15]. The Goodness of Model Fit of figures are Chi-square/df =1.49, GFI= 0.91, NFI = 0.95, RFI=0.93, IFI = 0.98, TFI = 0.97, CFI = 0.98, and RMSEA = 0.058. This demonstrates presents that the CFA

model fit is acceptable and the Goodness of Model Fit for SEM are Chi-square/df = 3.0, IFI = 0.92, TFI = 0.90, CFI = 0.92 is also acceptable. The hypothesis 1b, 2a, 2b, and 3 are positively supported and the figures are 0.27\*, 0.43\*\*\*, 0.68\*\*\*, and 0.50\*\*\*. But the hypothesis 1 is not supported.



## CONCLUSIONS

*The relationship among knowledge usefulness, social interaction and intention :*

We found out when elderly people played this orchid game, they learned new knowledge, improving memories, increasing frequency of social interaction with others, and enhancing their intention to play the game. First, elderly people learned some computer and orchid knowledge for example the knowledge of cultivating orchids, solving the problems of worms, and the conditions of environment for planting orchids. Second, the game provides a scenario to make elderly players to think, memorize, and concentrate on the game. It is a very good training. It is not only improving memories but also preventing them having the problem of dementia. Third, this game also provides chances to increase social interactions between grandparents and grandchildren. The younger generation can teach their grandparents how to play with computer games. By the intensive interactions with their grandchildren, they will mend the generation gap and they will enhance and cherish their relationship. Fourth, the benefits will drive elderly people to have stronger intention to play the orchid game.

*The relationship among perceived enjoyment, social interaction and intention :*

We observed elderly people had fun and enjoyment while playing the game when they saw the virtuous blossom orchids that they had planted. In order to continually pursue the pleasure feeling, elderly people have to do further studies in finding the relationship among temperature, sunshine, and watering knowledge on changing environment in orchid game. Therefore, learning an interesting knowledge makes people relax and willing to discuss. Thus, building up a platform for people to share their information and knowledge or even creating a topic increases the frequency of social interaction on elderly people. The more people use the platform and it represents the more social interactions they had engaged and it also drives more people to have higher intention to play orchid game.

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