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UNIVERSITI TEKNOLOGI MARA

MODELLING CHILD PERSONA FOR SOCIAL BEHAVIOURS IN SOCIAL NETWORK SITES

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Thesis submitted in fulfillment
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Doctor of Philosophy

Faculty of Computer and Mathematical Sciences

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ABSTRACT

Children are becoming dependent on social network sites (SNS) to gratify their social needs. They are increasingly becoming users of SNS and emerging as an important user group. Despite much literature on children, not much is known about the social behaviour of the children when they gain access to SNS. It is due to limited access to children due to policy, legal or ethical reasons. This research identified children social behaviour to understand how they behave in SNS. Subsequent to this, a child persona was modelled to represent children as a social networker. The creation of persona involved three steps, including collecting user data, segmenting data into groups and transferring data into persona. In user research, qualitative approach was carried out through self-reporting method such as cultural probes and interviews. It involved seven children between the ages of 10-12 years old. The initial phase in user research involved designing children's probes for capturing social behaviour. Then, the research conducted a contextual data collection in situ and over time, as part of children's daily life. The findings showed that the probes approach can be a potential method for children to self-report their social behaviour related to SNS. The identification of social behaviour was done by analysing qualitative data to generate related themes, categories and codes. The classification of these themes can be made into social connectivity, social activity and social goal. Consequently, the findings exhibited a behavioural pattern that was used as a basis of segmentation and persona creation. The segmentation process was carried out to cluster children into several segments based on their similarities. The segment was further transformed into child persona in which was later evaluated by researcher, children and experts. The research findings highlight a set of child personas which can contribute to the understanding of the children social behaviour in SNS. These personas are significant as user model for presenting data from user research that will help researchers to identify real child users of SNS.

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LIST OF ABBREVIATIONS

Abbreviations	
CCI	Child Computer Interaction
HCI	Human Computer Interaction
Ofcom	Office of Communications
UNICEF	United Nations Children's Fund
SNS	Social Network Sites/ Social Networking Sites
UK	United Kingdom
US	United States

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CHAPTER ONE
INTRODUCTION

1.1 OVERVIEW

This chapter gives an overview of the research. First, it examines the research background and follows with the research motivation and research problem. The chapter then provides the problem statements, which leads to the formulation of research questions and objectives. The chapter followed with the scope of the research and significance of the research. Finally, the chapter concludes with an outline of the thesis structure. The overall structure of the chapter is depicted in Figure 1.1.

Section	Description
1.1 Overview	Introduces the chapter and gives an overview of the sections
1.2 Research Background	Describes the background of the research
1.3 Research Motivation	Describes the motivation of the research
1.4 Research Problem	Describes the problem of the research
1.5 Problem Statement	Describes the problem statement of the research
1.6 Research Questions	Describes the research questions
1.7 Research Objectives	Describes the research objectives
1.8 Scope of the Research	Describes the scope of the research
1.9 Significance of the Research	Describes the significance of the research

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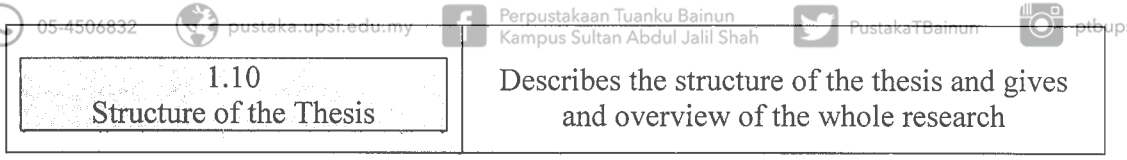

Figure 1.1: Organisation of Chapter 1

1.2 RESEARCH BACKGROUND

Social Network Site (SNS) is a communication platform that allows people to connect with each other virtually. Since its introduction, SNS such as Facebook, Instagram and Twitter have attracted millions of users around the world. Surprisingly, the users includes younger children who have taken up SNS with alacrity, eagerness and further integrated these sites into their daily lives (Livingstone, Ólafsson, & Staksrud, 2013; Sarabdeen & De-miguel-molina, 2010). However, most of these SNS were designed for and primarily used by people above 13 years (Weeden, Cookenn, & McVey, 2013). Despite the ethical constraints, it was clearly that SNS is a popular activity amongst children who are deemed 'underage' by the site owners. The studies were reported some of children under 13 years are by-passing the age restrictions on SNS (Livingstone et al., 2013; Ofcom, 2008c; Weeden et al., 2013). The evidence from empirical data shows that more than half (51.0%) of the children started using SNS at the early age of 11-13 regardless of the permitted entry age of 13 years (Baboo, Prasad, Pandian, & Rao, 2013). According to UNICEF (2014) in Malaysia, the number of children's digital activities and opportunities are growing at an exponential rate in 2014. Around 78% of children use the Facebook and 75% use Instant Messaging compared to E-mail (41%), Twitter (38%), Chatroom (29%) and Skype (23%) (Omar, Daud, Hassan, Bolong, & Teimmouri, 2014). They prefer communicating through SNS and consider email "so yesterday" (Grail Research, 2011).

The interactive nature of the SNS offers children many opportunities for growing existing and new friendships, for exploring their identities, for entertainment, and for education and learning (UNICEF, 2014). Furthermore, the memberships are free and there are no age checks on the children once they access to SNS (Weeden et al., 2013). SNS gives the children a lot of benefits in their social interaction. In particular, it reshapes youthful practices of social connection (Shapiro & Margolin, 2014), communication, identity, and relationship management (Patchin & Hinduja,

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2010). Due to such benefits, SNS usage among children is highly reported and making them recently emerged as an important user group (Ofcom, 2011, 2014a, 2016). Their emergence has been identified as digital natives who are born and grow up into digital world and have been exposed to SNS at their early age. This generation is influenced by different experiences that shape their social behaviour (Grail Research, 2011). Their online behaviour has been influenced by age, life-stage, family circumstances, peers and wider society (Ofcom, 2016). Due to this, children online social interaction is seen relevant in the digital age as their social interaction arises from basic need of human beings to stay together in groups forming a community (Das & Sahoo, 2011).

SNS have changed the way children interact, which makes research on online social behaviour increasingly relevant to explore why and how these underage children use SNS. It has been the focus of much recent research aimed in understanding children behaviour. Particularly, there have been several studies conducted on children social behaviour in SNS (Ofcom, 2008a, 2008c, 2014a, 2016). However, such studies are relatively limited and little knowledge was discovered among Malaysian children under 13 years (UNICEF, 2014). Baboo et al. (2013) stated that previous studies on SNS focused more on adolescents and youth. Therefore, it is vital to understand the children social behaviour by exploring their patterns of SNS behaviour in Malaysia. The exploration of children behaviour in SNS creates a better understanding of children social behaviour which attempted to fill the gap of knowledge in CCI research and thus benefited the parents.

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The lack of research in related area also partly due to limited accessibility to the children (UNICEF, 2014). In order to get access this group of user, the suitable user model is needed to represent children SNS behaviour. In HCI, persona is an effective tool for design, considerable rigor in identifying the significant and meaningful patterns in user behaviour that represent target users (Cooper, Reinmann, Cronin, & Noessel, 2014). With the potential benefits of persona, it suggested that persona is suitable user model that could be used in assisting designer to understand the real children behaviour and at the same time, design safe SNS for children. Since the child persona in specific context of SNS has not been studied, such development of persona is very important as the main contribution of this research. The child persona is important in modelling user behaviour that directly addresses the current children's goal, need, abilities and experience with SNS (Antle, 2005).

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1.3 RESEARCH MOTIVATION

This research is motivated by the following research opportunities.

1.3.1 Changing of Children's Behaviour

Nowadays, children are changing radically (Prensky, 2001; Read & Markopoulos, 2013) They were born into the digital world and have been growing up with technology such as Internet, mobile phones, and SNSs. The rapid growth of SNS has transformed the role of children, shifting from a passive user to an active user. They are increasingly users of SNS and emerging as an important user group. Today's children have become avid and experienced users of technology (Druin, 2002; Hatch, 2011). The children are always connected to SNS, making it a critical part of how they are connected (Grail Research, 2011). Their connectedness has created new kinds of interaction and peer-to-peer relationships that are considerably different from previous generations (Cabral, 2011). These changes mean that children have different capabilities, expectation and related technologies, therefore their roles is completely different (Read & Markopoulos, 2013). Read and Markopoulos (2013) predict that in the future, children, their technologies and therefore their lives, will be very different than they are now that yet cannot be imagined. As the children become increasingly more reliant and absorbed in SNS, it opens the opportunities for the research to understand their social behaviour.

1.3.2 Nature of Interest in Child Computer Interaction

A study of the activities, behaviours, concerns and abilities of children interaction with computer technologies is the nature of interest in CCI (Read & Bekker, 2011). The CCI research community has emerged as a research sub-discipline within HCI, focusing on children users (Read, Markopoulos, & Druin, 2012). According to Read and Bekker (2011), the behaviour and roles of children were highlighted as something relatively unique to CCI. The research area still has many concepts of interest to explore. According to Read and Markopoulos (2013), one of the key challenges for the Child–Computer Interaction Community is to provide a body of research to 'better inform' the designs of the technologies through

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development of models that could guide the design. One way to represent children behaviour is by creating child abstractions. With regards to this research, personas have been identified as a user model to understand and represent child users' behaviour. The persona is much needed as it is a powerful tool for interaction design used by designers to inform design of technologies (Cooper et al., 2014).

1.3.3 Importance of User Characteristics

The trend towards diversity of SNS users and contexts of use create special attention to characterize the children who were initially not considered but are now growing important as users of SNS (Read & Markopoulos, 2013). The importance of user characteristics is always stressed, since user characteristics can influence the use situation and thus have an impact on the product design (Preece, 2002). The user characteristics can define the users' abilities and limitations in the use situation (Liu, Osvalder, & Karlsso, 2010). Specifically, Lapointe, Boudreau-Pinsonneault, and Vaghefi (2013) have looked at the different characteristics of behaviour associated with technology use whereby these characteristics were used as a guide to identify behaviours and have helped researchers to better understand the behaviours. Considering the importance of user characteristics, many researchers have carried out user studies and classified users on the basis of user characteristics through user profile or persona (Liu et al., 2010). With regards to this research, persona appears to become increasingly important to understand children behaviour towards SNS uses. Therefore, persona is needed as method of presenting data from user characteristic studies.

1.4 PROBLEM BACKGROUND

The research is conducted by the following problems in research:

1.4.1 SNS Usage among Underage Children

The presence of underage users on SNS has been reported in several researches (Livingstone et al., 2013; Weeden et al., 2013). Recent studies have revealed that children below 13 years old were the active user of SNS although SNS

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