

## CONTINUOUS INTENTION CRITERIA OF SNS APPROPRIATION PROCESS IN FAMILY CONTEXT: A SYSTEMATIC LITERATURE REVIEW

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### Article history

Received

30 October 2014

Received in revised form

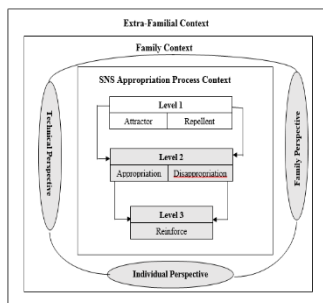
22 January 2015

Accepted

15 June 2015

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### Graphical abstract



### Abstract

Communication technologies such as Social Network Sites (SNSs) are increasingly being used within family settings to support and extend the family relationships. Although many previous researchers have highlighted the impact of SNSs in family environment, criteria of SNS adoption and use in family context have received little research attention. This paper highlights selected SNS appropriation process criteria in family, individual and technical perspectives in order to understand why and how the SNS is being used in family context. Using the procedure of Bandara *et al.* (2011), NVivo 9.0 was employed to conduct content analysis of 284 articles published between the year of 2006 until 2014. As a result, the adoption and use criteria of SNS appropriation process were identified, and has been categorized in family, individual and technical perspectives using the Family Appropriation Process of Social Network Site (FAPSNS) framework. The understanding of the criteria could assist in effective and healthy adoption and use of SNSs among family members. However, this paper is merely focusing on level 2 and level 3 of SNS appropriation process in family, individual and technical perspectives.

**Keywords:** Social network site, family, model of technology appropriation, socio-technical theory, family intergenerational solidarity

### Abstrak

Teknologi komunikasi seperti Social Network Sites (SNSs) semakin sering digunakan di kalangan keluarga untuk menyokong dan memperluaskan hubungan kekeluargaan. Sebelum ini, ramai penyelidik telah menekankan kesan SNSs di kalangan keluarga, tetapi penyelidikan tentang kriteria penerimaan dan penggunaan SNS di dalam konteks kekeluargaan tidak dibuat kajian sepenuhnya. Oleh itu artikel ini menekankan kriteria mengenai proses guna pakai SNS di dalam perspektif keluarga, individu dan teknikal untuk memahami mengapa dan bagaimana SNS digunakan di dalam konteks kekeluargaan. Menggunakan prosedur Bandara *et al.* (2011), NVivo 9.0 telah digunakan untuk menjalankan analisis kandungan sebanyak 284 artikel yang telah diterbitkan di antara tahun 2006 hingga 2014. Hasil daripada analisis, kriteria mengenai proses guna pakai SNS telah dikenal pasti, dan telah dikategorikan di dalam perspektif keluarga, individu dan teknikal dengan menggunakan kerangka Family Appropriation Process of Social Network Site (FAPSNS). Pemahaman kriteria ini dapat membantu ahli keluarga untuk menerima dan menggunakan SNS secara berkesan dan sihat. Walau bagaimanapun, artikel ini hanya memberi tumpuan kepada tahap 2 dan tahap 3 proses guna pakai SNS di dalam

perspektif keluarga, individu dan teknikal.

*Kata kunci: Social network site, keluarga, model of technology appropriation, socio-technical theory, family intergenerational solidarity*

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## 1.0 INTRODUCTION

Communication using the Internet has become a very important part in family system over the past decade. Currently, Social Network Sites (SNSs) such as Facebook, Google+, Twitter, LinkedIn and many others have become prominent in online communication (comScore, 2011a, 2011b). SNS is defined as “web-based systems that aim to create and support specific types of relationships between people” (Coenen, 2006). Meanwhile, the term family has been defined in different ways. For example, Popenoe (1993) defines nuclear family as a “relatively small domestic group of kin consisting of at least one adult and one dependent person”, whereas Bengtson (2001) extends the notion and argues that nuclear families need extended family members such as grandparents for physical and emotional support. This paper follows closely Bengtson’s definition of familial relationship, which involves family members of several generations. In Malaysia, the relationships among family members are very strong and close. However, due to various factors such as busy schedule, economic and educational migration, family members often find it difficult to spend time together except during special occasions. Therefore, the adoption and use of SNS could support family members to stay connected with each other. However, prior researches have focused much on the SNS adoption criteria rather than after adoption phases which makes the continuance intention towards SNS is not clear (Chang & Zhu, 2012). Adoption phase occurs when the users are in the stage of getting to know SNS, while after adoption reflects a continuation and deeper evaluation through actual use of SNS. Since SNS has been widely accepted among Malaysians within the households (Eng & Dayang Aidah, 2009; thestar.com, 2010), it is essential to explore how it is adopted and used among family members who are living within and outside the family circle.

The introduction of SNS has changed the quality of family system in beneficial and deleterious ways. It has been reported in the local newspapers that SNS usage could cause divorces, sex crimes, identity frauds, blackmails and other online crimes which lead to the offline misdemeanors (Aruna, 2011; Lokman, 2012; thestar.com, 2011). Despite the negative concerns, previous studies have highlighted that SNS could help geographical distance family to be connected, provide family support, information sharing, improve communication as well as bridging and bonding the family relationships (Bartholomew, Schoppe-Sullivan,

Glassman, & Kamp Dush, 2012; Brandtzaeg, 2010; Padilla-Walker, Coyne, & Fraser, 2012). Nonetheless, the in-depth research on adoption and use of SNS in family context is still absent. Thus, it is not clear to what extent the family members have adopted and used SNS to support the communications and relationships in their daily life.

The outline of this paper begins with the background of the research which includes the description of research framework and research objectives. Next, the following sections describe the SLR procedures. Then, followed by the identification of SNS appropriation criteria based on the articles that are found from SLR procedures. Lastly, the paper concludes by outlining the discussion, research contribution and conclusion.

### 1.1 FAPNSN Framework

Prior studies in Information Systems (IS) models and frameworks, as well as criteria and factors have focused more on the initial introduction of the technology compared to the later phases, which makes the continuity of technology utilization is usually unknown (Nor Zairah & Rose Alinda, 2010). By detailing family’s adoption and use of SNS, deeper understanding of the appropriation process including appropriate, disappropriate and reinforce criteria are gained. Hence, Model of Technology Appropriation (MTA) (Carroll, Howard, Vetere, Peck, & Murphy, 2001) could be used as one of the lenses to look at how families understand and use SNS to achieve their benefits. Technology appropriation process is defined as “the way that users evaluate and adopt, adapt and integrate a technology into their everyday practices” (Carroll, Howard, Peck, & Murphy, 2003). The MTA represents three levels: Level 1 – users’ first encounter with the technology. At this level, the outcome could be either the users are attracted to the technology and lead to the decision to adopt which initiates the process of appropriation, or they are not interested with the technology which results to non-adoption; Level 2 – deeper evaluation through using the technology. If the users are attracted by a technology, they will explore it through appropriation process. Two possible outcomes at this level are user continued to evaluate the technology or reject the technology; Level 3 – Reinforces or users’ persistent act to maintain use where the technology is considered stabilized. Technology appropriation has been studied in various including teenagers (Carroll, Howard, Peck, & Murphy, 2002), education (Mendoza, Stern, & Carroll, 2007), organisation (Fidock & Carroll, 2006; Nor

Zairah & Rose Alinda, 2010) and rural area (Dey, Binsardi, Prendergast, & Saren, 2013), but until now, studies in family context is still absent.

In addition, many extant research on communication technologies which include SNS have focused much on the outcomes of individual level, even when examined in a family level (e.g., Brandtzaeg, 2010; Lanigan, Bold, & Chenoweth, 2009; Padilla-Walker et al., 2012). This makes the understanding of SNS appropriation process criteria in family context as a whole is still absent. Thus, MTA is extended with Family Intergenerational Solidarity (Bengtson & Schrader, 1982) and Socio-Technical Theory (Trist, 1963) to develop a framework named Family Appropriation Process of Social Network Site (FAPSNS), as shown in Figure 1. It is important to examine technology adoption and use in a variety of family relationships in order to understand how technology affects the family as a whole (Coyne, Nathanson, & Bushman, 2012). Thus, Family Intergenerational Solidarity is applied to capture the types of family relationships. Meanwhile, Social-Technical Theory emphasizes the interrelationship between user criteria and SNS criteria in understanding the family context. Thus, this research tends to fill the gap by studying the SNS appropriation criteria in order to not only understand the family perspective, but also the capacity of the individual and technical perspectives toward adoption and use.

Also, prior research have found that external criteria not only could increase an individual's perceived value of a product or service, but also to his/her positive affective and cognitive beliefs towards the product or service (Lin & Bhattacharjee, 2008). Further, external criteria in computer-mediated communication applications have been widely applied to the Information Systems (IS) technology adoption, but not after the technology adoption phase (Gao & Bai, 2014). Since external criteria play a positive role in the adoption and use of a technology (Zhou & Lu, 2011), it will be relevant to include this perspective into the FAPSNS framework. However, the focus of this paper is merely on Level 2 and Level 3 of SNS appropriation process criteria in family, individual and technical perspectives (as been highlighted in Figure 1).

The description of FAPSNS framework for each level in SNS Appropriation Context is described in Table 1. Also, the description of family, individual, technical and extra-familial perspectives in Family Context is explained in Table 2.

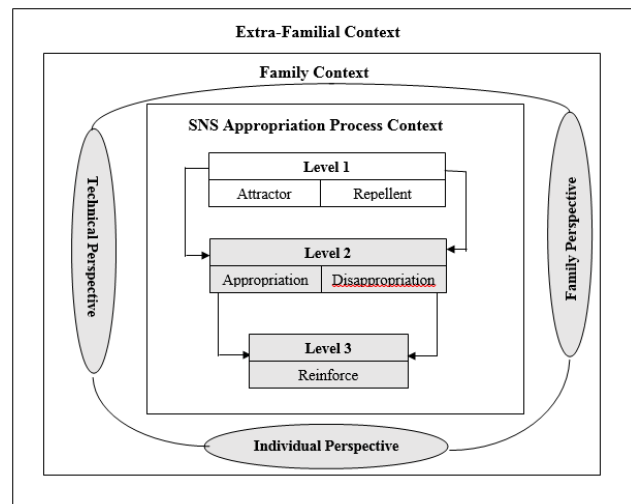


Figure 1 FAPSNS framework

Table 1 Levels of SNS appropriation process in family context

Level	Description
Level 1	The family members are in the stage of getting to know Social Network Site (SNS) and exploring the possibilities whether to adopt or not to adopt it.
Level 2	The family members have already adopted Social Network Site (SNS) but is still exploring and evaluating its usage while trying to adapt its application.
Level 3	Appropriation occurs when the Social Network Site (SNS) functions are stabilized and becomes an integral part of family members' activities.

Table 2 Family, individual, technical and extra-familial perspectives of SNS appropriation process in family context

Perspective	Description
Family	Concern with the capability of the family members to adopt and use SNS. It looks at various family relationships which include immediate and extended families perspective toward the technology.
Individual	Rely on the individual family member's perception towards SNS adoption and use. It may be based on their personal experience on how the encounter and usage with SNS shape their interest and understanding towards the technology.
Technical	Refer to the competency of SNS in the family context. The criteria could be seen from two different perspectives which are SNS technology that is being appropriated and other technologies that are affected by the appropriation process.
Extra-Familial	External family criteria that influences the family, individual and technical perspectives. This layer could alter any of the criteria within the three perspectives during the SNS appropriation process.

## 1.2 Research Objective

In recent years, a considerable body of research examining the content and communication processes in SNS area has emerged. However, up till now there is no published work that has attempted to systematically synthesise findings across the research studies in order to explore the family, individual and technical perspectives of communication technologies during adoption and use in their daily usage. The identification of criteria during systematic literature analysis is mapped according to the FAPSNS framework. Gaining clearer understanding of SNS appropriation process in family context could form a strong foundation in developing the guidelines on the design, adoption, adaptation, implementation and use within family settings which could help to create family communications more effectively (Carroll, 2004; Tee, Brush, & Inkpen, 2009). Therefore, a structured approach was devised and applied to systematically review the SNS appropriation process criteria in family context as been reported in multi-disciplinary domains. Since this paper is focusing on level 2 and level 3 of SNS appropriation process, hence, the paper addresses the research question of "what are continuous intention criteria of SNS appropriation process in family context that have been reported by previous scholars in multi-disciplinary fields?"

## 2.0 METHOD

Following the procedures of Bandara, Miskon, and Fiel (2011), the researchers employed a four-stage method to extract, analyze, codify and report the literatures. The first stage is the process of identifying relevant literatures which started with selecting the sources and then extracting the articles. The second stage involved designing and executing a detailed protocol on how to capture and analyze data. The third stage emphasized on how the coding would be conducted using node codification. Lastly, the fourth stage involved analyzing and reporting the literature findings. Detail explanation for each stage is discussed in the next subsections.

### 2.1 Identification and Extraction of Articles

In first stage, the identification of sources primarily came from online databases which were provided by Universiti Teknologi Malaysia (UTM). 11 online databases have been used in searching for the conference and journals articles: ACM, EBSCOHost, Emerald, IEEE Xplorer, JSTORE, SAGE Journal, Science Direct, Scopus, Springerlink, Taylor & Francis and Web of Knowledge. Since Information Systems (IS) is a multidisciplinary subject and often includes from other domains of studies (Levy & Ellis, 2006), thus the searching of articles were in the domain of human-computer interaction, communication, social network sites, computer-mediated communication and family. Next, the extraction of articles occurred in two steps.

First step, the articles were extracted using search terms of synonym or alternative words. Then, use the Boolean 'OR' to incorporate the synonym and alternative words. To link the identified search terms, Boolean 'AND' were used (see Table 1). At first, the articles were search in the title, abstract and keywords using the identified search terms. But the result disclosed at most 5 articles in each database, and none of the articles were relevant to answer the research questions. Then, using the same search terms, the articles were searched in full text. However the results displayed more than one thousands articles in each database. It is infeasible to go through entire articles. Thus, practical screening (which is to sort the relevant and non-relevant papers need to be conducted) to reduce the amount of articles was done. The publication language must be in English, the type of publication must be journals and academic conference, and the year range is between 2006 until the current year. This yielded the total of 48 articles from journals and 45 articles from conferences (the total of 93 articles was referring to 'primary' set of papers).

**Table 3** Concatenation of all possible words Using Boolean 'OR' Then 'AND'

Search Terms
(Social Network Site OR Online Social Network OR Social Network Service OR Facebook) AND
(Appropriation OR Acceptance OR Diffusion OR Use OR Practice OR Post-Adoption OR Continuance) AND
(Criteria OR Factors OR Themes) AND
(Family OR Familial OR Household OR Kinship)

After the initial articles were identified, backward searching was conducted to obtain deeper literature background about the phenomenon under study. *Backward search* reviews the citation of the identified articles in the first step to determine prior articles that are relevant (Levy & Ellis, 2006). The total of 11 journal and 2 conference articles were found in backward searching, known as 'secondary' set of papers. However, these articles merely could contribute in the family perspective of FASNS framework, but not in the perspectives of individual and technical. Thus, further searching need to be conducted by using the same search terms and practical screening guideline such as publication language must be in English, the type of publication must be journals and academic conference, the year range is between 2006 until the current year, and focus on SNS for individuals (e.g., teenagers, retiree and disable people). The result shows the total of 178 articles (59 conference articles and 119 journal articles) has been found and is known as 'secondary' set of articles. Thus, in this stage the total of 284 articles was analyzed in order to answer research question (93 primary and 191 secondary).



## 2.2 Preparing for Analysis

In second stage, a detailed protocol was developed as a guideline to prescribe how the extracted papers were stored in database, how the papers were coded and analyzed, and how the results were captured and presented. All 284 papers were imported as 'PDFs' files and have been saved as 'Sources' in NVivo 9.0 software. In the sources pane, the articles could be saved under different folders (e.g., primary and secondary papers). All the articles were renamed to the meaningful names in order to trace the origins of the articles. The format that was used is Category\_Author\_Year (e.g., SNS\_byod& Ellison\_2007). By doing so, it would be easier to capture relevant and important information during the analysis and writing phases.

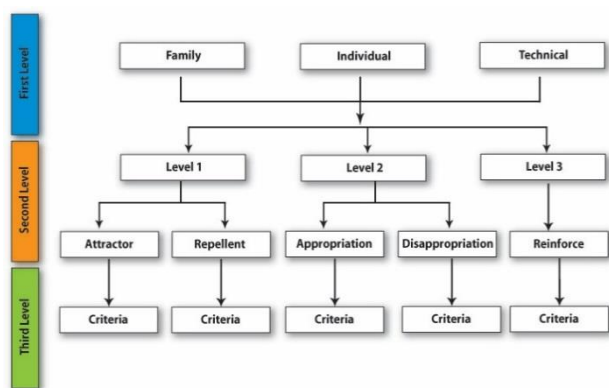


Figure 2 Tree-level nodes coding

Then, tree-level nodes was created to capture the related content within each node as shown in Figure 2. For pre-coding guideline, three level nodes was designed to conduct the overall coding. The goal of first-level-node was to capture the content that are related to the three perspectives of FAPSNS framework named family, individual and technical perspectives, as well as extra-familial perspective. In the second-level-node, the goal is to code content that are relevant to the three levels of FAPSNS framework which is known as level 1 (attractor and repellent), level 2 (appropriation and disappropriation) and level 3 (reinforces) resulting from the first-level-node. Meanwhile, the extra-familial-level-node coded the content of external criteria that influence the adoption, adaptation and use of SNS in family and individual daily life. Lastly, the third-level-node coded the content of technology appropriation process criteria from the second-level-coding to synthesis and derive further findings from the coded data.

## 2.3 Actual Coding

Third stage involved overall analysis with three levels of coding. The first-level of analysis is to capture all content that relates SNS appropriation process criteria in family context and place it as main tree-level node

named 'family', 'individual' and 'technical'. According to Felt, Bandara, Miskon, and Gable (2013, p. 6) "a node is a physical location where you store the groups of idea that would be coded, and these nodes can be organized in branches (like a folder-tree) or as free nodes; meanwhile, coding is a process of labeling certain aspects of the data and to sort information in distinct categories". The protocol stated that each paper was manually scanned within NVivo to identify criteria deductively and inductively from the data (using an open coding approach). The coding involved mapping relevant statements or sentences into the nodes.

In second-level analysis, coded content of 'family', 'individual' and 'technical' node was reviewed in detail to deductively derive the three levels of MTA from the data coded. Two codes in level 1 were named as 'level 1-attractor' (criteria that encouraged family members to adopt SNS) and 'level 1-repellent' (criteria that encouraged family members not to adopt SNS); another two codes in level 2 were named as 'level 2-appropriation' (criteria that encouraged family members to adapt SNS after exploring it for some times) and 'level 2-disappropriation' (criteria that encouraged family members not to adapt SNS after exploring it for some times); and in level 3, a code was named as 'level 3-reinforcers' (criteria that encouraged family members to continuously use SNS and became an integral part in their daily activities). For 'extra-familial' node, any relevant labels inductively derived from first-level analysis were created to group the statements that describe about the same criteria.

Third-level of analysis coded content from the nodes of second-level analysis to inductively derive the level 1, level 2 and level 3 criteria. In this node, the relevant labels were created to group the statements that describe the same or similar within these criteria. According to protocol, it is permitted to code single statement into two or more criteria. A sample of papers, which taken from primary and secondary papers was coded by merely one researcher due to lack of time and physical distance with the other researchers. The coding protocol was strictly followed in order to assist in maintaining rigor of placing criteria into the suitable appropriation process levels and perspectives.

## 2.4 Analysis and Write Up

In the final stage, analyzing and reporting the finding were conducted in stage four of research method. Two external reviewers were used to check the criteria reliability during the analysis and write up phase. The overall research findings of level 2 and level 3 of SNS appropriation process criteria in family, individual and technical perspectives are presented in detail in the next section.

### 3.0 RESULTS

Level 2 and Level 3 criteria of SNS appropriation process have been identified from the selected papers using research method that has been explained in previous section. Table 4, Table 5 and Table 6 presents each level of SNS appropriation process criteria in family, individual and technical perspectives. Although the table explains quantitatively on the citation numbers, such as number of coding references and number of sources, but the objective here is to identify the criteria and not to imply degree of importance of a criteria. Thus, to ensure the list of criteria was not to be left out, those that had only one citation were also included in the list.

#### 3.1 Family Perspective

Table 4 summarised the SNS appropriation process criteria in family perspective. The order of criteria for each level is constructed from the highest number of sources until the lowest.

**Table 4** SNS appropriation process criteria in family perspective

MTA Level	Criteria	No. of Source	No. of Coding Reference	Example List of Source
Level 2 – Appropriation	Family Bonding	7	12	Wen <i>et al.</i> (2011), Pettigrew (2009), Mesch (2006)
	Family Support	3	4	Bartholomew <i>et al.</i> (2012), Vitak <i>et al.</i> (2011), Colineau & Paris (2011)
	Family Awareness	2	4	Wen <i>et al.</i> (2011), Pettigrew (2009)
	Active Family Mediation	2	3	Kalmus <i>et al.</i> (2013), Mesch (2006)
	Family Sharing Resources	2	2	Bernheim Brush <i>et al.</i> (2008), Mesch (2006)
Level 2 – Disappropriation	Family Conflict	2	3	Kerkhof <i>et al.</i> (2011), Mesch (2006)
	Family Privacy	2	3	Padilla-Walker <i>et al.</i> (2012), Bernheim Brush <i>et al.</i> (2008)
	Family Misinterpretation	1	1	Gonzalez <i>et al.</i> (2012)
	Inactive Family Mediation	1	1	Tee <i>et al.</i> (2009)
Level 3 – Reinforcers	Family Connectedness	5	10	Padilla-Walker <i>et al.</i> (2012), Bernheim Brush <i>et al.</i> (2008), Wei & Lo (2006)
	Family Cohesion	2	3	Lanigan (2012), Mesch (2006)

#### 3.1.1 LEVEL 2–Appropriation Criteria

There are five appropriation criteria of SNS appropriation process in family perspective. The description of each criteria in separately level is enlightened as below according to the highest number of sources until the lowest.

- Family Bonding:** The Internet could be used in family context to strengthen the family boundaries and to create memories among family members which makes users continuously use this platform as one of their communication tool (Mesch, 2006). After some times adopting the Internet, communication technologies such as SNS was used to strengthen the boundaries of families by doing the activities together such as playing online games and work together on family projects (e.g., discussion on family vacation) (Mesch, 2006). This could develop the feeling of connectedness by allowing family members to participate together on the Internet. SNS games such as QQ Farm has greatly strengthen the family relationships as this game created frequently interaction in the game and family space regardless of whether they were resided in the same household or not (Wen, Kow, & Chen, 2011). Sometimes staying nearby or living in the same household could create intense relationships due to different opinion between family generations. However, playing SNS game together could avoid this conflict as they could share and discuss the information about game when they meet (Wen *et al.*, 2011). Also, SNS game could help to connect with relatives who were living distant as they could help one another in the game space (Wen *et al.*, 2011). In addition, SNS could also provide a sense of presence in absence for family members who are living far from each other as they could exchange photographs that captures a significant, humorous or even a routine occurrence to share their life experience (Pettigrew, 2009).
- Family Support:** The consistency of family support in terms of social and technical has encouraged family members to adapt SNS. However at this level, extant researches have focused more on the continuation of social support rather than technical support. The reason might because relatives have educated their family members who are not good at using the technology during the adoption phase. Connection through SNS signifies a closer offline relationship with family members by receiving the social supports (Vitak, Ellison, & Steinfield, 2011). Bartholomew *et al.* (2012) research has found that new parents continuously use Facebook to receive social support from their family members about the knowledge in transition to parenthood. Greater Facebook use would be associated with better adjustment to parenthood for new mothers and fathers as it serves important function in the

acquisition of social capital and social support resources.

3. **Family Awareness:** One of the reason why family members continue to adopt SNS is because it provides an awareness function. For examples, the SNS game space gives remote family members the opportunity to observe each other's online activities and real life daily activities (Wen et al., 2011). Family members could view one another activity log to discover a typical behaviours in retrieving awareness information on one another such as when a relative was busy, the game will be left unattended for a while, but the game will be updated when available.
4. **Active Family Mediation:** The continuation of family members in adopting SNS occur after they were actively using it together. Spending time together on online activities could positively related to family cohesion and negatively related to family conflicts (Mesch, 2006). Research analysis by Kalmus, Blinka, and Olafsson (2013) has shown that active parental mediation of Internet use such as encouraging, discussing and sharing the child's online activities tends to prevent children's exposure to online activities (Kalmus et al., 2013). It also proved that supportive and healthy atmosphere in the family online mediation resulted to a positive impact on the psychological and personality development of adolescents although they might have experienced something negative online (Kalmus et al., 2013).
5. **Family Sharing Resources:** The continuation of sharing resources among family members has influenced them to constantly adapt SNS. The sharing effort such as technologies, photos, messages and other information has contribute to their relationships preservation rather than blurring the family boundaries (Bernheim Brush, Inkpen, & Tee, 2008; Mesch, 2006).

### 3.1.2 Level 2–Disappropriation Criteria

Four disappropriation criteria of SNS appropriation process criteria in family perspective is described in detail as below. Each level of criteria is described starting from the highest number of sources until the lowest.

1. **Family Conflict:** Using SNS for social purposes, namely playing online games, communication with friends and participation in group discussions was found to be positively associated with family conflicts (Mesch, 2006). Compulsive Internet users would lead to low family commitment, relationship dissatisfaction and feelings of exclusion (Kerkhof, Finkenauer, & Muusses, 2011). The extensive use of SNS could also expose family information to others who are not members of the family unit. This flow of information weakens the families boundaries

since it could be exposed to dangerous among individuals within family setting which include sexual harassment and victimization (Mesch, 2006). The potential risk might contribute to family conflicts as older adults or parents attempt to protect their family members through rules that required them to comply unwillingly. The feeling of stress makes users to disappropriate from using this communication platform with their family members in order to avoid any conflict.

2. **Family Privacy:** Another concern of using SNS between family members is supporting sharing while respecting privacy. Sometimes sharing too much information such as photos, events and comments could upset the relatives which makes them feel uncomfortable to 'friend' them on SNS (Bernheim Brush et al., 2008). A survey conducted by Kaplan Test Prep found that about 13% teenagers were actually denied friend requests from their parents on Facebook after accepting them (Padilla-Walker et al., 2012). The reason is because they feel that Facebook is a private platform for them and they prefer to 'friend' with the same age group. Further, some adolescents may feel that their parental activity on Facebook was considered as intrusive, such as posting 'mushy' messages on their wall or using the platform to monitor them (Padilla-Walker et al., 2012). This situations have made teenagers decided not to continue to become 'friend' with their parents on Facebook.
3. **Family Misinterpretation:** Sometimes, sharing information such as text and photos could result to misinterpretations and raise concerns unnecessarily due to its lack of communication cues (Gonzalez, Jomhari, & Kurniawan, 2012). The reader might blame individuals for posting unnecessarily information which is actually not their real intention. This misinterpretation somehow makes individuals feel reluctant to continue on posting information with their family members.
4. **Inactive Family Mediation:** Lack of feedback or negative feedback that received from the recipients about their sharing practice could cause individuals to stop sharing with their family members (Tee et al., 2009). The effort that they have went through to share information with their family members seems not to be appreciated when they did not receive any responds at all.

### 3.1.3 Level 2–Reinforcers Criteria

Two reinforcers criteria of SNS appropriation process criteria in family perspective is identified. The description for each criterion in every level is described as below. The criteria sequence is from the utmost number of sources until the lowest.

1. **Family Connectedness:** According to Bernheim Brush et al. (2008, p. 629), connectedness is defined as a “positive emotional appraisal, characterized by a feeling of staying in touch within ongoing social relationships”. People with high connectedness tend to feel very close with other people, easily identify with others, perceive others as friendly and approachable, and participate in social groups and activities, meanwhile, people with low connectedness tend to feel interpersonally distant from other people and from their world at large which they often see themselves as outsiders, feel misunderstood by others, have difficulty relating with social world, and feel uncomfortable in social situations (Wei & Lo, 2006). SNS could foster family connectedness through communication and togetherness by doing the online activity together (Padilla-Walker et al., 2012). The constancy of communication and sharing information among family members contribute to the feeling of connectedness, especially those who are located far among each other (Bernheim Brush et al., 2008). The feeling of connectedness could reinforce family members to use SNS in their daily activities due to the sense of presence that they received during the communication process.

2. **Family Cohesion:** Cohesion is conceptualized as “how a family balances separateness and togetherness. It include emotional bonding, internal and external boundaries, coalitions and decision making” (Lanigan, 2012, p. 601). The usage of Internet could have positive effects on family cohesion. For instance, Internet could be used to facilitate the conservation of family boundaries by providing a tool of communication among family members who reside far from them especially among the empty-nest families (Mesch, 2006). Rather than serving to blur family boundaries, the Internet contributes its preservation by sharing the information through messages and photographs. Thus, the family cohesion that appears during online communication makes family members to reinforce SNS into their daily routine.

### 3.2 Individual Perspective

The SNS appropriation criteria in individual perspective is briefly shown in Table 5. For each level, the criteria sequence are listed from the highest number of sources until the lowest.

**Table 5** SNS appropriation process criteria in individual perspective

MTA Level	Criteria	No. of Source	No. of Coding Reference	Example List of Source
Level 2 – Appropriation	Social Relationships	12	33	Al Omoush et al. (2012), Cao et al. (2012), Burke et al. (2011)
	Enjoyment	4	4	Balakrishnan&Azra (2013), Cao et al. (2012), Cheung et al. (2011)
	Adapting to Change	2	10	Wisniewski et al. (2014), Zhao et al. (2013)
	Information	2	5	Quan-Haase& Young (2010), Zhao et al. (2013)
	Value	2	2	Hsu et al. (2013), Al Omoush et al. (2012)
	Flow Experience Usefulness	1	1	Chang & Zhu (2012)
Level 2 – Disappropriation	Privacy and Security	10	36	Waters & Ackerman (2011), Wang et al. (2011), Ji et al. (2010)
	Loss of Control or Addiction	5	16	Holmes (2013), Balakrishnan&Azra (2013), Kang et al. (2011)
	Lack of Familiarity	3	15	Wisniewski et al. (2014), Zhao et al. (2013), Brandtzaeg& Heim (2008)
	Time Consuming	3	7	Baker & White (2011), Brandtzaeg& Heim (2008)
	Lack of Friends and Families Intrusiveness	2	6	Robards (2012), Brandtzaeg& Heim (2008)
Level 3 – Reinforcers	Identity	28	79	Al Omoush et al. (2012), Hum et al. (2011), Amichai-Hamburger & Vinitzky (2010)
	Belongingness	4	5	Agosto et al. (2012), Bevan et al. (2012), Biemans et al. (2009)
	Ownership	3	10	Clayton et al. (2013), Marshall & Shipman (2011), Brandtzaeg et al. (2010)



### 3.2.1 Level 2–Appropriation Criteria

Seven appropriation criteria of SNS appropriation process criteria in individual perspective is described in detail as below. Each level of criteria is described starting from the highest number of sources until the lowest.

1. **Social Relationships:** In SNS environment, ties strength between network members is the most frequently measured aspect of the interaction and relationships. Cited from Al Omoush, Yaseen, and Alma'aitah (2012, p. 2390), tie strength is defined as "a multidimensional construct that represents the strength of the dyadic interpersonal relationships in the context of social networks". For example, with Facebook functions such as share photos, join groups, play games, broadcast news and exchange private messages, this SNS has become successful in supporting existing offline connections or new online connections (Al Omoush et al., 2012; Burke, Kraut, & Marlow, 2011; Cao et al., 2012). Further, higher levels of social presence will encourage individuals to continue in using SNSs to interact with others (Kwon & Wen, 2010). Social presence is defined as "the degree of salience of the other person in the interaction and the consequent salience of interpersonal relationships" (Short, Williams, & Christie, 1976, p. 65). Cheung, Chiu, and Lee (2011) highlighted that when individuals feel that communicating in SNS is similar to face-to-face environment, they would willing to continue using this platform. Therefore, the higher the level of social presence user perceive, the more likely they will obtain encouragement from other users (Cao et al., 2012). Further, Rau, Gao, and Ding (2008) indicated that the main motivation for individuals to participate and subsequently affect continuance intention in using SNSs because of the emotional belonging that they felt during the communication process such as seeking social support. Emotional belonging refers to "intimate feelings between individuals and emotional contact, including contact strength and moral support" (Tolstedt & Stokes, 1983).
2. **Enjoyment:** Another motivation for individuals to continue in using SNS, specifically Facebook is because of the enjoyment feeling to check out their friends' status updates (Balakrishnan & Azra, 2013). Cheung et al. (2011) found that entertainment or enjoyment value has a significant effect on continuing usage intentions of SNS users. Further, Balakrishnan and Azra (2013) research also concludes that enjoyment criterion is one of the main motives for individuals to use Facebook in Malaysia. Usually, the feeling of enjoyment will have an effect on users' behavior intention to become a loyal users in SNS environment (Cao et al., 2012). Users will obtain psychological satisfaction and are more likely to continue using the SNS service when users perceive that this communication technology could fulfil their happiness needs (Cao et al., 2012). In the perspective of service providers, to increase users' enjoyment, they need to increase social presence on SNS through the emotive text, human pictures, personalized greetings, and human audio video (Chen, 2013). Thus, SNS such as Facebook promotes an open, social, interactive, and responsive culture to create enjoyment among users in continuing using this technology.
3. **Adapting to Change:** User adaptation is defined as "the efforts put forth to successfully cope with technological change within one's environment" (Beaudry & Pinsonneault, 2005). In Wisniewski, Xu, and Chen (2014) research, they have examined SNS users' transition to Facebook timeline. Most of the Facebook users have accepted that Facebook had to change its interface in order to improve the system. Users did mentioned that they felt stressed during the transition process of Facebook Timeline, but they believed that learning the new interface is worth the efforts (Wisniewski et al., 2014). Further, Facebook Timeline can increase the users' level of privacy control and high levels of control as they can make decision about creating and managing content for current self-presentation needs (Wisniewski et al., 2014; Zhao et al., 2013). Although initially many users became outraged when they found out that Timeline would become mandatory, but the positive appraisals that have been mentioned earlier have encouraged users to continue in using Facebook.
4. **Information:** Quan-Haase and Young (2010) research indicated that the reason for users to continue using Facebook is due to social information. Apart from maintaining contact with family, friends and peers, users use Facebook as a space for them to obtain information about the activities and events that their network friends involve in, to find out general news that are important to community, and to learn about users' relationship status (Quan-Haase & Young, 2010; Zhao et al., 2013). Without having to communicate with their online friends directly or face-to-face, it will be much easier to obtain their current information by viewing profiles and posted content. This would avoid the issues of social inclusion such as maintaining contact with offline family and friends, as well as to keep up-to-date with their activities and events (Quan-Haase & Young, 2010).
5. **Value:** After participating in SNS, users are constantly evaluating the value of their membership and building their own perception towards the benefit and cost of being users in this network (Al Omoush et al., 2012). Several researchers (e.g., Al Omoush et al., 2012; Tufekci,

2008) confirmed that members continually negotiate between risks and benefits of using SNS. Previous researchers (e.g., Dwyer, Hiltz, & Passerini, 2007; Stutzman, Capra, & Thompson, 2011) agreed that due to risks and benefits of SNS use, users might change their evaluation of membership over time. For instance, Al Omoush et al. (2012) reported that SNS is just a fashion due to something new and the usage will decline once the novelty wears off. The level of membership value is affected based on user's behaviour overtime such as frequency of visits, regularity of usage, frequency of changing and updating the information, frequency of contact, strength of ties, types of exchanges, and time spent on site (Al Omoush et al., 2012; Dwyer et al., 2007; Tufekci, 2008). Thus, as long as the value of SNS benefits overcome the risks, users will still continue on using this platform to communicate with their online friends.

6. **Flow Experience:** The concept of flow is known as "the holistic experience that people feel when they act with total involvement" (Csikszentmihalyi, 1975). Chang and Zhu (2012) have noted that flow experience is a useful criterion for describing human-computer interactions. However, this criterion has received little attention in building SNS users' continuance intentions. Therefore, it will be relevant to include this criterion although it is mentioned by one researcher only.
7. **Usefulness:** According to IS perspective, usefulness is an important criterion for users' continuance intention (Chang & Zhu, 2012). It is important to take note that there is a different between the aspects of perceived usefulness users' satisfaction and continuance intention (Yin & Yang, 2010) although prior studies have proven that perceived usefulness is an important criterion for users' intention to use (Kwon & Wen, 2010; Lin & Lu, 2011). Currently, there is merely one research that focus on the continuance intention of using SNS which is reported by Chang and Zhu (2011). Hence, it is important to include this criterion since it has positive influence on SNS users' satisfaction and continuance intention (Chang & Zhu, 2011).

### 3.2.2 Level 2–Disappropriation Criteria

There are six disappropriation criteria of SNS appropriation process in individual perspective. The description of each criteria in separately level is enlightened as below according to the highest number of sources until the lowest.

1. **Privacy and Security:** The privacy and security problems are the most important issues in SNS studies since users are sharing and updating information about their daily life (Ji et al., 2010). A study on Facebook privacy concerns reported that usually users were practicing poor privacy

control of their information on this platform which makes third parties consistently obtain the users' information without their acknowledgement (Waters & Ackerman, 2011). Although prior studies have shown that individuals were expressing high privacy concerns about information sharing on SNS, but they still tend to defy those concerns and continue to share their personal information (Chakraborty, Vishik, & Rao, 2013). One of the unintended consequences of social platform such as Facebook have caused embarrassment among users due to over-sharing resulting to countless regrets (Wang, Norcie, Komanduri, Acquisti, & Cranor, 2011). However, since the default action on SNS is about sharing information, the users need to make a decision between actively sharing or actively opt out from sharing habits to preserve user's privacy and buffer oneself from potentially harmful situations. For example, the Timeline concept can be considered as an imminent threat to the user's personal privacy. Wisniewski et al. (2014) reported that intrusiveness or concern over invasions into one's life was the top privacy threat on Facebook Timeline. The reason is because Facebook Timeline promotes stalking over user's personal information such as names, current location, school and workplace, and family pictures. In order to protect users' information, they have decided to discontinue using this communication platform to prevent their information being stolen by the third parties, especially those users who have become a victim of Cybercrimes.

2. **Loss of Control or Addiction:** SNSs have become popular because of the benefits that it has provides such as entertainment, education, shopping and other services. Moreover, SNSs can be connected or linked with portable and wired electronic devices. For instance, the usage of smartphones create ubiquitous access for SNS users without temporal and spatial limitations. Due to its multiple benefits and ubiquitous environment, once SNS users start using it, they will become obsessed and increasingly dependent on them (Kang, Shin, & Park, 2011). SNS such as Facebook has become an obsession and eventually disrupt users' lives (Balakrishnan & Azra, 2013; Holmes, 2013). The feeling of loneliness, depression and lack of social skills could in fact develop compulsive SNS usage since the users could relieved it through this platform (Holmes, 2013). Loss of control in using SNS could bring harm to individuals when they use it in subconscious mind and to the point that they did not realise their behaviors or amount of time spent on this social platform. Users who were addicted to Facebook have tendency to constantly check for updates and constantly updating their own status. For example, students admitted that they always thinking of Facebook when they were not online and they will feel lost if not using it for a minute

(Balakrishnan & Azra, 2013). Individual who are heavily dependent on SNS may also experience withdrawal such as unpleasant feelings and/or physical effects which could cause psychological problems such as low self-esteem (Kang et al., 2011). Conflict could also arise from SNS addiction attributable to misinterpretation of posted information, interpersonal family, school, workplace and financial problems. Attempt to reduce using SNS could not solve the addiction problem. They actually need to stop from using this social platform after they identify that the usage of SNS is a problem (Balakrishnan & Azra, 2013).

3. **Lack of Familiarity:** Loss of familiarity in SNS interface could bring stress among users to continue in using this social platform (Zhao et al., 2013). For example, Timeline was one of the most controversial Facebook issues when developer decided to change its interface and functions. Reason for users to against Timeline was because of its major interface changes within one release (Wisniewski et al., 2014). They expressed sense of loss as the new interface simply was not the one that they were used to (Brandtzæg & Heim, 2008; Wisniewski et al., 2014). Further they also felt that the new interface was more complex and cumbersome compared to the previous version (Wisniewski et al., 2014). Due to the unhappiness feeling towards Facebook, users have threatened to switch other SNSs such as Google+ in order to solve their problems (Wisniewski et al., 2014).
4. **Time Consuming:** Too much time spending on SNS is one of the reason for users to stop using the social platform (Brandtzæg & Heim, 2008). Users identified that SNS usage was too time consuming for them to participate in other activities. Previous studies reported that users have realized that it is better for them to spent their time on studying (Baker & White, 2011), increased productivity in the workplace (Brandtzæg & Heim, 2008; Lampe, Vitak, & Ellison, 2013), favour to spend time with families after working hours (Lampe et al., 2013), and decline to follow up interaction among the network friends (Brandtzæg & Heim, 2008) rather than committed to SNS.
5. **Lack of Friends and Families:** Brandtzæg and Heim (2008) mentioned that another prime reason for users to terminate their account is because of too few interesting people within the SNS network. This could be due to several factors. First, too few or no online friends that they knew physically or lived nearby (Brandtzæg & Heim, 2008). Second, dissimilar age groups and different interests (Brandtzæg & Heim, 2008). Third, most of current SNS friends have shifted to new communication platform (Robards, 2012).
6. **Intrusiveness:** The sound of notification alerts on SNS including Facebook makes users feel disturb especially when they are concentrating on their

work or during rest time (Cui & Wang, 2012). The users also complained that their email were buried by a large number of notifications which makes them feel annoyed as they always need to delete the emails every day (Cui & Wang, 2012). This could cause users to stop from using this social platform due to the intrusive feeling.

### 3.2.3 Level 3–Reinforcers Criteria

Three reinforcers criteria of SNS appropriation process criteria in individual perspective is identified. The description for each criterion in every level is described as below. The criteria sequence is from the utmost number of sources until the lowest.

1. **Identity:** Tajfel (1972, p. 292) defines social identity as "*the individual's knowledge that he belongs to certain social groups together with some emotional and value significance to him of this group membership*". Prior research mentioned that social identity has positive implications for an individual's well-being such as the sense of belonging feeling which cultivates user loyalty towards online communication technology (Lin, 2008). The elements of SNS such as Facebook allows users to construct an identity to communicate with online friends which reinforce them to use this platform for self-promotion. Further, users who are willing to share and often update their personally-identifying information on Facebook to promote themselves is known as narcissism (Al Omoush et al., 2012; Amichai-Hamburger & Vinitzky, 2010). Cited from Błachnio, Przepiórka, and Rudnicka (2013, p. 13), narcissism is "*a pattern of traits and behaviors which signify infatuation and obsession with one's self to the exclusion of all others and the egotistic and ruthless pursuit of one's gratification, dominance and ambition*" (Bushman & Baumeister, 1998). Since Facebook allows users to express themselves, they inclined to use this platform to seek attention from their friends (e.g., checking one's own page, updating one's status, and posting self-promotional notes and photographs) as well as to become popular due to amount of attention received (Balakrishnan & Azra, 2013; McAndrew & Jeong, 2012) which makes them continuously to use this platform as their daily usage.
2. **Belongingness:** According to Agosto, Abbas, and Naughton (2012, p. 1110), belongingness is "*a core social motivating factor, along with understanding, controlling, enhancing self, and trusting*", as defined by (Fiske, 2004). Individuals prefer to go online to share information, for entertainment, and to experience social connection (Agosto et al., 2012). Usually individuals reinforce social platform such as SNS into their daily life once they feel part of a social network group to receive social support by the

network members (Biemans, Dadlani, & van Halteren, 2009). The Internet has ability to improve social connectedness by enabling them to communicate individuals who lived disperse from each other such as family and friends (Agosto et al., 2012). This could help to increase level of social belongingness and connectedness among them.

3. **Ownership:** SNS provides users a power of ownership which helped them to share and control any information that they desire. SNS is a powerful platform for users to establish and reinforce individuals to save or archive or delete any information that has been published. Marshall and Shipman (2011) highlighted that there are four terms for information ownership which are: 1) save – to store information on SNS storage (e.g., save photos on SNS photo album); 2) share – to make the information available to a limited set of friends or family members by using SNS (e.g., share photos or information with SNS friends); 3) publish – to make the information available to the public by uploading it to SNS such as Facebook, Twitter and Flickr; and 4) remove- to delete information from SNS.

### 3.3 Level 3–Technical Perspective

The SNS appropriation criteria in technical perspective is briefly shown in Table 6. For each level, the criteria sequence are listed from the highest number of sources until the lowest.

**Table 6** SNS appropriation process criteria in technical perspective

MTA Level	Criteria	No. of Source	No. of Coding Reference	Example List of Source
Level 2 – Appropriation	Functionality	5	11	Agosto et al. (2012), Wen et al. (2011), Burke et al. (2011)
	Accessibility	2	4	Agosto et al. (2012), Pettigrew (2009)
	Credibility	1	1	Al Omoush et al. (2012)
Level 2 – Disappropriation	Insecurity Function	3	18	Agosto et al. (2012), Mahmood (2012), Barrett & Saul (2011)
	Failure of Technology	3	3	Heidemann et al. (2012), Rivera et al. (2010), Hossain & Silva (2009)
	Inconsistency	1	2	Rivera et al. (2010)
	Low Quality Content	1	2	Brandtzaeg & Heim (2008)
Level 3 - Reinforcers	Content Management	2	3	Zhao et al. (2013), Brandtzaeg (2010)

### 3.3.1 Level 2–Appropriation Criteria

There are three appropriation criteria of SNS appropriation process in technical perspective. Following are briefly discussed each of the identified attractor criteria. Each criterion for every level is described in sequent starting from the highest number of sources until the lowest.

1. **Functionality:** The way SNS functioned is a main motivations for users to continue using this platform over another (Agosto et al., 2012). Functions provided by SNS could help family members become more aware of each other activities makes users consistently use this platform (Wen et al., 2011). Further, allowing users to continuously keep in touch with their family and friends using SNS would lead to increases in social capital. For instance, Facebook provides undirected messages which is known as News Feed. The News Feed contains general broadcasts such as status updates, photos, links and public interaction between user's friends which include family members. This would make communication become less intimate content and would be exchanged with a large number of weaker ties (Burke et al., 2011). Thus, it will make the relationships become stronger in bridging social capital (for weaker ties) rather than bonding social capital (for strong ties) (Burke et al., 2011). Also, Facebook functions always engaging users in synchronous communication through public and private messages (e.g., Chat, commentary threads on photographs and status updates) which allow them to receive feedbacks immediately (Robards, 2012). Hence, SNS functions could improve family communication among those who are staying nearby, and enhance family connectedness between family members who are staying far with each other (Wen et al., 2011).
2. **Accessibility:** The continuation of receiving accessibility equipment for SNS usage would make users to carry on using this platform for their communication purposes. Convenience of accessing SNS through the availability of mobile devices such as smart phone could benefits users in terms of immediately sharing and receive the information (e.g., photos, location updates, messages) with their friends and family at anywhere and anytime (Agosto et al., 2012). Evidence shows that mobile daily active users were 654 million on average for June 2014, while mobile monthly active users were 1.07 billion as of June 30, 2014 (Facebook, 2014). This is due to the fact that mobile access allow users to share thoughts and images that takes place directly, as well as keep up on the minutiae of their family's and friends' lives easily.



3. **Credibility:** The credibility of SNS makes users continuously use this platform to communicate with other users whom they might not meet before in person and freely expressing the real-world self (Al Omoush et al., 2012; Buffardi & Campbell, 2008). Individuals could post anything about himself or herself based on their preferences. Although the accuracy of their personal representation might be questioned, they can present themselves that they wished to attain, and giving deceitful information in order to protect their privacy (Dwyer et al., 2007). This could give opportunities to anyone to satisfy their psychological needs for others' attention, appreciation and respect (Al Omoush et al., 2012).

### 3.3.2 Level 2–Disappropriation Criteria

There are four disappropriation criteria of SNS appropriation process in technical perspective. The description of each criteria in separately level is enlightened as below according to the highest number of sources until the lowest.

1. **Insecurity Function:** Privacy concerns were one of the reason for users to discontinue using this platform and change for other SNSs (Agosto et al., 2012). The use of cloud computing in SNSs including Facebook, LinkedIn, Google+ and Twitter has increased explosively for users to store their personal and professional lives such as photos and resumes (Mahmood, 2012). Besides of its positive impact, this enormous level of connectivity could also resulted in incidents of privacy breaches leading losses to imprisonment and embarrassment (Barrett & Saul, 2011), suspension from school (Bonneau, Anderson, & Danezis, 2009), and employment (Monkovic, 2009). During registration process, users need to register using their email which is also their username to logging into Facebook. Attackers could use this mapping to attempt to hack into user's account by either attempting to answer the user's secret question (which once set on Facebook and cannot be changed) or by guessing the password (Mahmood, 2012). Another concern is about Timeline which comes with some default and unchangeable privacy settings including could no longer hiding Facebook user's mutual friends, and could not make Facebook "cover photo" become private (Mahmood, 2012). In addition, Facebook has launched social plugins to integrate with other Websites into this social platform. By using this social plugins, Websites allow user to comment on their content using Facebook which could cause a privacy problem as the comment could be viewed publicly (Mahmood, 2012). Lastly, another privacy attack is when the users privacy account were being took over by the attacker permanently. Although Facebook allows users to recover their account using several verification mechanism, but the recovery could be

failed if the attacker changed the victims account's name and attached the new account to the victim's email address (Mahmood, 2012).

2. **Failure of Technology:** According to Hossain and de Silva (2009), the discontinuance of using a technology might occur because of technology replacement (users need to use alternative technology instead of the initially one), and technology disenchantment (users are not satisfied with the service). For instance, the failure of previous SNSs such as Friendster was due to technical problems including could not handle the rapid growth of users, and social problems whereby the users could not select their groups of friends (Heidemann, Klier, & Probst, 2012). This makes users to change to another SNS which could fulfill their needs.

3. **Inconsistency:** The inconsistency of a Website design layout would cause frustration and stress among users which could lead to discontinuity of using it (Rivera, Davis, Mouloua, & Alberti, 2010). It is important to always keep the users informed regarding any technology updates (Rivera et al., 2010). For example, Facebook never informed users about any layout changes including Timeline, and giving users reasonable amount of time to adapt the changes. This would make users feel frustrated and decrease their motivation to continuing using the Website (Rivera et al., 2010). If the layout is consistently used, the users would feel in control and produce fewer errors during navigation as they already recognition the location of tabs and layouts.

4. **Low Quality Content:** Brandtzaeg and Heim (2008) exploratory study shows that one of the reason for users to stop in using SNS is due to low quality content. Low quality content includes too few content updates, little content variation (e.g., creating and sharing opportunities), and uninteresting content (e.g., too few applications or add-on services).

### 3.3.3 Level 3–Reinforcers Criteria

One reinforcers criteria of SNS appropriation process criteria in technical perspective is identified. The criterion description is described as below.

1. **Content Management:** Content sharing on SNS includes status updates, photos and videos, writing comments, and blogs often related to personal or social experiences, as well as general disclosure of information (Brandtzaeg, 2010). Thus, due to content sharing, it is important to manage users' content on SNS which reinforce them to continuously use this platform to keep their data updated (Zhao et al., 2013). Most users know that updated content would most likely receive attention from others since earlier content would

expired in time (Zhao et al., 2013). The function of deleting, blocking and changing the privacy settings on Facebook provided in friend list management helps users to control their content from being seen by their network friends and family.

## 4.0 DISCUSSION

Through a systematic literature review, the results of our review shows that not many empirical studies have been conducted on the level 2 and 3 of SNS appropriation process in family context. Most of the prior studies have been focusing much on the individual level on the adoption of SNS. Thus, research on the SNS after adoption phase using technology appropriation concept seems to be slowly gaining a broader focus. However, it is significant to capture the criteria after the adoption phase since it is not easy to retain users to use SNS service due to the competition from new rival services and deterioration of its attractiveness (Chang & Zhu, 2012). Further, the occurrence of social issues in using SNS including sex crimes and identity frauds have worried the family members (Davidson & Martellozzo, 2012). The development of FAPSNS framework could benefit in capturing the complexity of human-technology interaction criteria. The identification of SNS adoption and use criteria in family, individual and technical perspective could explore the cycle of appropriation, disappropriation and reinforce criteria which are currently absent in IS research. Hence, the identification of SNS adoption and use criteria is valued in IS area since it could understand the reasons of continuation and discontinuation of adapting and using SNS among family members' in their daily life.

### 4.1 Implication for Research and Practice

The systematic review has implications both for researchers who are planning for a new study of SNS appropriation process criteria in family context, and for practitioners who would like to design SNS to meet family requirements.

#### 4.1.1 Implication for Research

The limitations identified in the review offer some insights for future research to improve the understanding of criteria that influenced or being influenced by family members during the SNS appropriation process. First, most prior researches were focusing on the individual level even within the family context. The failure of considering multiple family relationships in family research has created the inconsistent findings as individual viewpoints could not be represented for a whole family (Coyne et al., 2012). However, there are few papers that include various family relationships during data collection in order to gain reliable results. Second, earlier researchers prefer

to emphasis on adoption phase without considering the later phases. This would result to the continuance intention towards SNS is not strong. Thus, the identification of criteria helps to understand the importance of human and technology relationships between family, individual and technical perspectives in continuing or discontinuing of adapting and using SNS among family members. Third, to date there is no systematic literature review paper that focusing on SNS adoption and use criteria in family daily life context. Therefore, this research paper could be used as a guideline for researchers who are interested with the family and communication technologies research area.

#### 4.1.2 Implication for Practice

As the number of SNS continues to grow, more empirical work is required to explore how family members utilize SNS differently. Understanding the SNS adoption and its continuance phases in family context could serve as a crucial guide for Web designers in designing SNS to meet the requirements of family members. The result shows that prior studies merely focused on either individual or family perspective, but did not focusing on both. Since it is a norm that SNS is applied for individual user, and not for family intervention, it is significant to understand both requirements in order to make the system become success in family context.

The next step is to conduct a data collection. Due to the complexity of family system, qualitative research method is chosen in order to understand the appropriation process of having Facebook in family context. The approaches that would be used are semi-structured interviews and observations among selected case studies. The selection of case studies consist of individuals who have registered for Facebook account and listed or unlisted their family members as online friends. This allows different perspectives of appropriation levels from different respondents. Multiple family relationships which include immediate and extended families will be selected for each case study. Such knowledge is important in order to truly understand how multiple family relationships appropriate Facebook together. Meanwhile the observation method will look on family members' behaviours when answering and discussion on certain issues.

### 4.2 Limitations

The main threats to validity in this systematic review presents three limitations that should be noted. First, as is the case with most literature reviews, there is a possibility that some relevant articles might be overlooked, particularly if studies looked at family perspective without explicitly mentioning this in their abstract, title or keywords. However, in order to minimize these limitations the current study searched was used an extensive list of keywords and the articles were searched using full text. Secondly, merely one

author read through and discarded all the papers when doing the practical screening. The reason for not connected with the other authors were due geographical distance and difference version of NVivo software. Nonetheless, two external reviewers who were expert in family researches and systematic literature review studies were appointed to review the identified the SNS appropriation process criteria according to its levels and perspectives. Third, limitation of using NVivo including cannot upload all types of documents onto the software (e.g., documents with a lot of graphics and columns). But, the files could be converted to plain text format or other formats which is compatible with NVivo software.

## 5.0 CONCLUSION

This paper attempts to explore the level 2 and level 3 of SNS appropriation process criteria which focus on family, individual and technology perspectives. It consist a detail review of previous literatures from multi-disciplinary areas. The results show that prior studies were focusing much on the SNS adoption phase in individual perspective, and ignoring the later phases in family and technical perspectives. Thus, this paper could be used as a starting point for researchers and practitioners to understand the continuance intention for users to use SNS with their family members. The understanding of these criteria is critical for the progression in the field in both researchers and practitioner. Hence, this paper tend to form a strong underpinning for further research in SNS or other communication technologies area within family context.

## Acknowledgement

The authors wish to acknowledge journal reviewers who will review this article. The authors also feel grateful to mention that this work was supported in parts by a grant from Fundamental Research Grant Scheme (R.K130000.7838.4F345) and MyBrain15 scholarship sponsored by Malaysia government.

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