



*Social networking sites:
A Uses and Gratifications
perspective*

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[Note: Draft, not for citation, thanks!]

Table of Contents

1. Introduction	3
1.1 Conceptualizing - Literature review	3
1.1.1 What is a Social Networking Site (SNS)?	3
1.1.2 Conceptual explication - SNS concepts	4
1.1.3 Theoretical framework – Uses and Gratifications (U&G)	4
1.1.4 Target audience – Youths	5
1.2 Research Questions	5
2. Operationalisation of survey	6
2.1 Defining dimensions	7
2.2 Types of questions	8
2.3 Examples of questions – Researcher generated	9
3. Sampling and data collection	10
3.1 Popular SNS in Singapore	10
3.2 Sampling	11
3.3 Administering the survey	12
4. Findings/Analysis	12
4.1 Dimensions for U&G	12
4.2 Dimensions for SNS	13
4.3 Dimensions for features of online medium	14
4.4 Internal reliability	14
4.5 Demographics	15
4.6 Word association	15
4.7 Usage patterns	16
4.8 Overall analysis for the dimensions	16
4.9 Statistical analysis	17
4.10 Analysis – Research question 1	20
4.11 Analysis – Research question 2	20
5. Conclusions and directions for future research	21
References	22
Appendices	24
1.1 Charts and tables	25

1. Introduction

The recent trend of “poking”, “throwing sheep” and having virtual food fights has no doubt piqued the curiosity and interest of many Singaporean students as well as young working professionals. These are just some of the many activities one can engage in Facebook™, currently one of the most popular social networking sites (SNS) used to socialize with both family and friends, expand and organize existing offline social connections and build new ones.

For second chapter, concepts related to SNS shall be examined, its conception and context, evolution as well as its current state. The theoretical framework of Uses and Gratifications (U&G) for this study will also be introduced. This process of conceptualizing will help set the context for the rest of the paper where subsequent chapters shall address operationalization of the research method, surveys, which yielded interesting findings for the research questions pertaining to motivations for SNS use and SNS usage trends.

1.1 Conceptualizing - Literature review

1.1.1 What is a Social Networking Site (SNS)?

Computer Mediated Communication is communication that occurs via computer technology (Monberg, 2005). CMC is an excellent way to participate in social networking in today’s networked society. Social networking exists both on and offline and is an important part of everyday life that involves people planning and cultivating business, social contacts, and personal relationships (Anderson & Emmers-Sommer, 2006; Carroll & Rosson, 2003; Carter, 2005; Nardi, 2005; Villar, Juan, & Capell, 2000).

Like many emergent technologies, SNS are difficult to define as they usually have an amalgamation of features from other successful web applications. These sites, which include Facebook™ and MySpace™, are fairly new. Such websites usually have applications which are software applications used within SNS but are not standalone social networking applications (Vie, 2007). SNS are computer

mediated environments which rely on social software applications to allow individuals to build their virtual profiles, make connections with other members and establish nodal relationships among selected user profiles (boyd, 2004).

Members of SNS create profiles or virtual personas to network and connect to other members. These sites exist to facilitate the formation of social ties, may they be strong (familial bonds and very good friends) or weak (acquaintances and co-workers one does not know very well) (Granovetter, 1973).

1.1.2 Conceptual explication - SNS concepts

So far, areas of research associated with SNS include social capital (Wellman, et al; 2001; Ellison, Steinfield & Lampe, 2006), management of virtual identities, identity presentation and privacy concerns (Gross & Acquisit, 2005; Stutzman, 2006, boyd, 2004, 2006, Vie, 2007) and the analysis of network structure (Schiller & Mandviwalla, 2007). Overall, I have observed that studies conducted thus far seem more anecdotal than empirical, such as the social impact of SNS and incorporating SNS in education.

Virtual communities and the network effect

Rheingold (2000) explained virtual communities as social aggregations which emerge from the Internet when enough people carry on public discussions long enough, with sufficient human feelings, to form webs of personal relationships in cyberspace. This Network Effect was also observed by boyd and Heer (2006).

1.1.3 Theoretical framework – Uses and Gratifications (U&G)

The U&G approach referred to by communication scholars today is usually seen as a subset of media effects research (McQuail, 1994). Even early on in the history of communication research, an approach was developed to study the gratifications that can attract and hold audiences to particular media as well as types of content which satisfy their social and psychological needs (Cantril, 1942). This approach to communication research which was medium-based, when conducted in a social-psychological mode, which focused on the audience, became what is recognized today as the U&G approach (McQuail, 1994).

Telecommunications technology and the revival of U&G

Some scholars feel that advent of telecommunications technology may have revived U&G research (Ruggiero, 2000). As new technologies present media users with more and more media choices, motivation and satisfaction become even more crucial components of audience analysis. The active audience concept has never been more apt today, as the latest communication technology provide users with a wider range of source selection and channels of information.

Also, increasing interest in online audiences may be particularly intense due to the characteristics of these latest media; new media such as the internet possess at least three attributes which are not usually present in traditional media: *interactivity*, *demassification* and *asynchronicity* (Ruggiero, 2000).

1.1.4 Target audience – Youths

As seen from Fig. 1 (re Appendices), youths between the age range of 15-29 consistently ranked higher generally on individual usages of selected internet services such as instant messaging, social networking and reading of blogs, which are prominent features of Web 2.0.

For the purpose of this study, the age range has been narrowed to that of Singaporean university students who usually fall within the age group of 18-25. This is because as seen from the case of Facebook™, some SNS are internet applications developed specially for students in universities.

Popular online social networking websites in Singapore

From Fig 2. (re Appendices), the most popular SNS in the Singapore are Friendster™ and Facebook™, which are utilized by mainly Secondary School, Junior College, Polytechnic and University students. (Wong T., January 2007).

1.2 Research Questions

Based on the literature review on SNS and the U&G framework, this paper shall examine the phenomena of the rise of SNS. Also, the dearth of literature examining why students use SNS presents a gap in current SNS research. Using

the U&G approach, characteristics of the internet and students' internet usage patterns, this paper seeks to address the following research questions:

RQ1: What are the salient factors underlying Singaporean university students' use of social networking sites?

RQ2: Are different gratifications (expectations) linked to different usage patterns of social networking sites?

2. Operationalisation of survey

After the initial conceptualizing in the course of the literature review, whereby interdisciplinary concepts from social networking, the U&G framework as well as characteristics of the internet have been introduced; a set of "specific, agreed upon meanings for the various concepts for research purposes" (Wimmer & Dominick, 2000) has been derived. This serves as a guide in coming up with the various indicators used to measure the concepts as well as sub concepts, which constitute the dimensions for the survey.

Why conduct surveys?

Conducting surveys was selected over other research methods after weighing the strengths and weaknesses of surveys vis a vis other research methods, also taking into consideration the online context of this study.

Advantages of conducting surveys include how surveys can be used to investigate certain phenomena in a realistic setting. This is essential in this study as we are investigating students using SNS and surveys allow respondents to respond in an online environment, e.g. laptops or PCs which are familiar to them. Also, surveys are cost efficient, considering the amount of information one can glean from them. Thirdly, the vast amount of data collected via surveys allowed for more variables such as demographics and usage patterns. Finally, online surveys eliminate geographical location as a problem as one did not need to be physically at the location to conduct the surveys.

Some limitations of surveys include how inappropriate working or placement of questions within the survey may lead to a bias in the results. Also, there was a possibility of the wrong respondents included and I might obtain a sample which did not include Singaporean university students only. However, these limitations were mitigated and will be elaborated upon in the later part of this paper.

2.1 Defining dimensions

For this study, as I am examining a field of SNS which has not been covered in U&G literature, different concepts from the fields of social networking, U&G, as well as characteristics of the internet have been selected as dimensions. The descriptions of the dimensions are presented in the table below:

Table 1: Descriptions of concepts

Concepts & authors	Dimension	Description of dimensions	
U&G framework: Katz, Blumler & Gurenitch, 1974	Diversion	Escapism, seeking of alternatives.	
	Personal Relationships	Social utility, to form friendships and relationships.	
	Personal Identity	Reality exploration, identity formation.	
Features of online medium	Interactivity (Heeter, 1989)	A multi-dimensional concept: amount of choice provided to users, amount of effort a user must exert to access information, how actively responsive is the medium to users, potential to monitor system use, degree to which users can add information to a system that a mass undifferentiated audience can access, and the degree to which a media system facilitates and interpersonal communication between specific users.	
		Demassification (Ruggiero, 2000)	Medium provides selectivity characteristics which allow individuals to customize their messages to their needs.
		Asynchronicity (Ruggiero, 2000; Williams et al., 1988)	The concept of how messages might be staggered in time.
Features of online medium (cont'd)			
Concepts of SNS	Network Effect (boyd & Heer, 2006)	Examines personal connections present, but also postulated that the personal connections were homogenous in nature, when	

Concepts of SNS (cont'd)	Network Effect (boyd & Heer, 2006) cont'd	people socialize and are attracted to others who are similar to themselves.
	Social Capital (Ellison, Steinfield & Lampe, 2006)	The extent to which members use these online social networking websites to maintain existing ties or to form new ones.
	Surveillance (Gross & Acquisti, 2005; Vie, 2007)	<ul style="list-style-type: none"> • Lack of privacy controls by users of SNS • Users portray themselves online in ways that inaccurately represent their offline selves. This false sense of security and increase in disinhibition.

An important point to note here would be the conceptualization of the dimension of Surveillance. Both the U&G theoretical framework as well as the literature review on SNS mentioned the concept of surveillance, which is defined differently for both. The U&G concept of surveillance as defined by Katz, Blumler and Gurenitch (1974) referred to how one understands the world by using a particular media. However, the concept of surveillance in current SNS research usually refers to how users portray themselves in their profiles online as well as the notion of privacy in SNS (Gross & Acquisti, 2005; Vie, 2007). Given that the definition of surveillance in the U&G approach is more traditional media driven and the issue of privacy controls in SNS is a dimension which SNS users can relate to, the SNS concept of surveillance was taken up for this study.

Also, it is imperative to note that there is a distinction between concepts of SNS and features of online medium. Features of online medium refer to the characteristics present in an online environment which may support certain behaviors, whereas concepts of SNS refer to theories and observations related to online social networks

2.2 Types of questions

The types of questions which were formulated were mainly questions testing the various dimensions of Diversion, Personal relationships, Personal identity, Interactivity, Demassification, Asynchronicity, Social capital, Network effect and Surveillance. Also, there were other questions pertaining to demographics and

internet usage patterns included in the survey. This is to measure any variation among the respondents in terms of demographics as well as to see if there is any relationship between the students' SNS usage and their internet usage.

For questions pertaining to the nine dimensions, the format of the questions were in a 5-point Likert scale with some Yes/No format questions interspersed in between. Two forms of the 5-point Likert scale were used: 1) measured *agreement* and ranged from *strongly agree to strongly disagree* for statements such as "I maintain close relationships with most of my friends in my social networking website(s)" and 2) measured *frequency* which ranged from *never to always* for statements such as "I surf online profiles during my free time.". Also, the questions were re-ordered so as not to cluster the items pertaining to one dimension. Finally, the use of reverse questions was employed in ascertaining the internal reliability of the dimensions as well as to alert us if the results were biased, e.g. selecting all yes options regardless of the question.

For the demographics and internet usage pattern questions, interval scales were used to determine the amount of time students spent online and how frequently they log on to their SNS as well as the number of friends they have in their SNS.

Finally, the use of word association was used in the survey. Students were asked to select from a checklist the first three words which come to mind when they think of SNS. A checklist was crafted to allow for ease of tabulation and analysis. A list containing positive, negative and neutral adjectives was used for this question to make the list as encompassing as possible.

2.3 Examples of questions – Researcher generated

The table below shows examples of the questions. The questions were deliberately kept simple and straightforward to prevent misinterpretation as well as double-barreled questioning which would introduce bias in the results.

As the concepts used were an amalgamation of concepts from different areas, and most of the papers referenced for the conceptualization did not provide

questions which were used in the original studies. I tried to come up with my own items for the nine dimensions which adhered as much as possible to the descriptions of the dimensions. Also, there had to be consistency in the phrasing of the questions.

Table 2: Examples of questions for the different dimensions

Concepts & authors	Dimension	Example of Questions
U&G framework: Katz, Blumler & Gurenitch, 1974	Diversion	"I go to my SNS to relax during stressful periods."
	Personal Relationships	"I use SNS to keep in touch with friends I've lost touch with."
	Personal Identity	"I feel that social networking websites help me understand myself better."
Features of online medium	Interactivity (Heeter, 1989)	"I like the interactivity which online social networking website(s) offers"
	Demassification (Ruggiero, 2000)	"I customize the look of my social networking website(s)."
	Asynchronicity (Ruggiero, 2000; Williams et al., 1988)	"I use the messaging system in social networking website(s)."
Concepts of SNS	Network Effect (boyd & Heer, 2006)	"I use social networking website(s) as most of my friends are using them."
	Social Capital (Ellison, Steinfield & Lampe, 2006)	"I maintain close relationships with most of my friends in my social networking website(s)."
	Surveillance (Gross & Acquisti, 2005; Vie, 2007)	"My user profiles are private in online social networking website(s)."

3. Sampling and data collection

Although the theoretical sample for this study was Singaporean university students, given resource and time constraint, I decided to engage in non-probability purposive sampling for this study. One of the main reasons was the nature of this study – being a pre-test, it meant that I might not be able to re-use the respondents I approached this time for the actual survey.

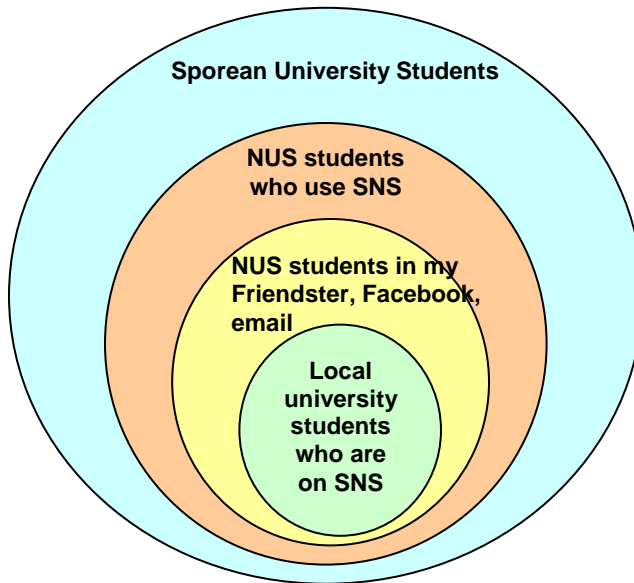
3.1 Popular SNS in Singapore

Referring to the Fig 2 in the Appendices, it is evident that in Singapore, there are two SNS which are currently leading the SNS scene. Friendster™ and

Facebook™ together account for about 70% of the Singaporean SNS users. Therefore it would be more representative of the local context to select SNS users who are using at least either one of these SNS.

3.2 Sampling

Fig 1: Final break down of sampling



As seen from the Venn diagram above, I started out with a theoretical sample of Singaporean university students and this was further segmented into the study population consisting of NUS students who were on SNS. My sampling frame was derived from the NUS students on my Facebook™ and Friendster™ friends list as well as my email address book. However, although I sampled NUS students, I requested for them to forward the survey link to their friends from the other local universities, mainly NUS, NTU, SMU and UniSIM.

Also, due to the sampling method which I used, although it started out as a non-probable sample, because it was convenience snowball sampling, it resulted in my final sample comprising of students from all four universities. I also tried to make my sampling as purposive as possible by selecting students who were already on SNS to make my research findings more targeted and succinct. Thus

my final sampling obtained was a non-probable convenience snowball sampling which was purposive and to a certain extent, representative.

3.3 Administering the survey

The survey was conducted over the course of a week, from 29 March 2008 to 3 March 2008 using *QuestionPro Academic*. Before administering the survey, it was pre-tested on a respondent, Respondent 0. Respondent 0 provided immediate feedback upon completion of the survey.

The revised survey was double checked with Respondent 0 and subjected to further revisions by the researcher before it was sent to the NUS students in the sampling frame. It should be noted that care was taken so that the NUS students from SNS such as Facebook™ and Friendster™ and the email address book were not sent the same link twice to prevent repetitive and thus potentially biased results. This is also to ensure purposive sampling in targeting only Singaporean university students who are on SNS which will be reflected in the data collected.

It should be noted that after sending out the survey link, most of the responses came in after an email reminder was sent via emails and private group messages to the NUS students in Facebook™ and Friendster™ on 1 April 2008 before the survey closed on 3 April 2008.

4. Findings/Analysis

4.1 Dimensions for U&G

Diversion/Escapism

The U&G dimension of diversion proved to be the most inconclusive among the three U&G concepts for this study. The answers from respondents were mixed: most (>64%) admitted to using SNS to relax during stressful periods but claim to not surf SNS during lectures ($\approx 45\%$), which indicate that there might be other confounding factors which make the results collected different from general observations. Also, respondents ($\approx 40\%$) also claim to prefer to engage in

activities offline rather than spend time on SNS. Overall we can see that most Singaporean university students do not usually use SNS as a form of diversion.

Personal relationships/Social utility

A majority of respondents (>75%) replied affirmative to questions pertaining to using SNS to keep in touch with existing friends. Also, SNS are used to maintain friendships and generally respondents (\approx 50%) do not use SNS to make new friends. This runs contrary to existing studies on SNS in the West (Vie, 2007; Stern, L. & Taylor, K., 2007) which claim that a high number of students use SNS to make new friends as well as maintain existing friendships.

Personal information/Self identity/Identity formation

It is interesting to note that most respondents (>80%) use their real names, pictures for their SNS profiles and almost all (>93%) do not have multiple user names or multiple accounts in SNS.

In terms of identity formation using SNS, most (>58%) disagree that SNS help us understand ourselves better though some (\approx 30%) feel that SNS help them understand how others view them.

There was also the predominant theme of diversity as most (\approx 70%) do not think they share similar interests with most of their friends in their SNS friends list.

4.2 Dimensions for SNS

Surveillance

For the dimension of surveillance, in terms of keeping track of activities using SNS, most (>65%) keep track of their friends' activities via SNS and vice versa.

In terms of privacy controls for SNS, it is interesting to note that most (>76%) believe that the user information of other users in SNS is reliable. This might explain why most (\approx 70%) keep their SNS profiles public. However, although most respondents have public instead of private profiles, most of them (\approx 70%) also feel that it is important to maintain privacy in SNS. There seems to be some

incongruence between what respondents' perceptions of privacy and them actually practicing it, e.g. having private profiles.

Network Effects

The survey results indicated that friends play an important part in one's decision in joining SNS (>90%). Also, the theme of diversity was demonstrated in how respondents claimed that was diversity within their friends in their SNS, as well as how they have different interests from their friends SNS (\approx 80%).

Social Capital

In terms of social capital, some respondents (\approx 70%) felt they are not close to their friends in their SNS, also while they shared useful information on SNS (>30%), most seldom or never use SNS for work/projects (\approx 60%). Some (\approx 30%) have also received some emotional support from their friends on SNS.

Overall, it seems that the type of social capital in SNS remains to be weak ties even as emotional support is provided to some of the SNS members. Also, while students are active SNS users, they do not utilize this online tool in their work or studies but rather as a social utility.

4.3 Dimensions for features of online medium

Overall for online features, most (>60%) appreciate features of SNS which included interactivity and asynchronicity such as the private messaging system. However, the idea of demassification or customization is not utilized by most (>60%) respondents. Finally, most (>80%) are also not utilizing hyperlinking features for their SNS and other personal webpages such as blogs.

4.4 Internal reliability

Reliability levels of the different dimensions were measured using Cronbach Alpha. The reliability scores were acceptable at 0.768, 0.913, 0.822, 0.938 and 0.857 for personal identity, features of online medium, surveillance, social capital and network effect respectively.

Table 3: Internal reliability for the different dimensions

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.768	.787	7

Personal identity

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.913	.928	6

Features of online medium

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.850	.850	6

Surveillance

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.938	.948	6

Social Capital

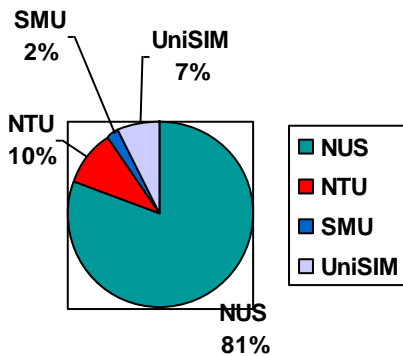
Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.857	.928	6

Network Effects

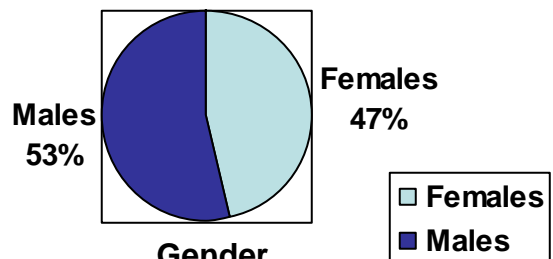
4.5 Demographics

In terms of demographics, from the pie charts, even though only NUS students were sent the link to the survey, some representation from the other Singapore Universities was also present in the course of the snowball sampling method employed. Also, there was a representative mix of the students in the different years of study and in terms of gender.

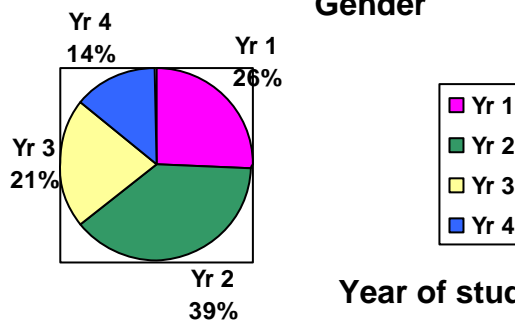
Figs. 2, 3 and 4: Demographics of respondents



Educational Institute



Gender



Year of study

4.6 Word association

For word association, the top three words which respondents chose were:

1. Connectivity – 24.62%
2. Friends – 18.46%
3. Interactive – 14.62%

In general, most selected positive words, with one exception – “distracting”.

4.7 Usage patterns

In the course of examining respondents’ online activities for internet usage, the top five activities were as follows:

1. Instant Messaging (IM-ing)
2. Emailing
3. SNS
4. Information seeking for leisure
5. Information seeking for work

From this list, we can see that IM has overtaken emailing, with SNS tailing closely behind. This demonstrates the growing importance and influence of SNS.

4.8 Overall analysis for the dimensions

To sum up the findings from the various dimensions, an obvious trend emerged from the dimensions of Personal identity and Network effect, that diversity is present in SNS. This is contrary from previous studies (Vie, 2007) which co-related homophily and SNS.

While we did not set out to test for the presence of an active audience for this survey, the results for features of online medium indicated that SNS features were used selectively; e.g. use of private messaging but not hyperlinking. This supported the active audience notion, which is the premise for the U&G approach.

The findings on Social capital indicated mostly weak ties on SNS, which supports previous studies on Social capital and the internet (Kiesler, Kraut, etc., 1998).

Finally, the difference in perception and action by the respondents for the dimension of surveillance might be due to respondents’ perceptions of the

concepts of privacy and anonymity, and how they might value privacy and less so anonymity. This is interesting and might warrant further investigation.

4.9 Statistical analysis

Table 4: Overall descriptive statistics for dimensions and internet/SNS usage

Descriptive Statistics			
	Mean	Std. Deviation	N
TIME SPENT ONLINE	8.00	14.578	43
SNS LOGIN FREQUENCY	7.33	14.379	43
FRIENDS IN SNS	10.91	13.996	43
INTERNET USAGE PER WEEK	6.84	.785	43
DIVERSION	2.72	.605	43
PERSONAL RELATIONSHIPS	3.20	.376	43
PERSONAL IDENTITY	2.80	.622	43
SURVEILLANCE	3.46	.816	43
FEATURES OF ONLINE MEDIUM	3.10	.902	43
NETWORK EFFECT	3.61	.959	43
SOCIAL CAPITAL	2.82	.939	43

From the statistics tabulated after combining the items of the same dimensions, it can be observed that some dimensions displayed more salience than the rest. This helps in determining construct validity. For the U&G dimensions, the most salient dimension was that of personal relationship/social utility (mean=3.20). However, SNS concepts demonstrated greater salience overall, especially for network effect (mean=3.61) and surveillance (mean=3.46).

In terms of internet and SNS usage, we see that overall, respondents spend a lot of time online, also, most of them log in frequently and have a lot of friends in the SNS, which supports the salience for network effect and personal relationship.

Table 5: Bi-Variate Correlations table for dimensions and internet/SNS usage

		TIME SPENT ONLINE	SNS LOGIN FREQUENCY	FRIENDS IN SNS	INTERNET USAGE	DIVERSIO N	PERSONAL RELATIONSHI PS	PERSONAL IDENTITY	SURVEILLAN CE	FEATURES OF ONLINE MEDIUM	NETWORK EFFECT	SOCIAL CAPITAL
TIME SPENT ONLINE	Pearson Correlation	1	.986**	.995**	.102	-.172	.389**	.374*	.244	.632**	.546**	.631**
SNS LOGIN FREQUENCY	Pearson Correlation	-	1	.994**	.091	-.187	.354*	.252	.123	.528**	.443**	.514**
FRIENDS IN SNS	Pearson Correlation	-	-	1	.118	-.184	.374*	.330*	.214	.605**	.502**	.593**
INTERNET USAGE	Pearson Correlation	-	-	-	1	-.190	.132	.491**	.453**	.441**	.283	.395**
DIVERSION	Pearson Correlation	-	-	-	-	1	-.207	-.097	-.059	-.126	-.178	-.090
PERSONAL RELATIONSHIP	Pearson Correlation	-	-	-	-	-	1	.385*	.339*	.426**	.405**	.440**
PERSONAL IDENTITY	Pearson Correlation	-	-	-	-	-	-	1	.937**	.895**	.858**	.918**
SURVEILLANCE	Pearson Correlation	-	-	-	-	-	-	-	1	.852**	.755**	.863**
FEATURES OF ONLINE MEDIUM	Pearson Correlation	-	-	-	-	-	-	-	-	1	.908**	.961**
NETWORK EFFECT	Pearson Correlation	-	-	-	-	-	-	-	-	-	1	.859**
SOCIAL CAPITAL	Pearson Correlation	-	-	-	-	-	-	-	-	-	-	1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

To test for relationships between the dimensions as well as to determine any possible co-relations between the dimensions and internet/SNS usage, a bi-variate correlations test was conducted. This test will also help determine if correlation and criterion validity are present.

There is positive and significant co-relation between *time spent online* and *personal relationships* (Pearson's $r = 0.389$, at Significance level, $p=0.000$), *network effect* (Pearson's $r = 0.546$, at $p=0.000$) and *social capital* (Pearson's $r = 0.631$, at $p=0.000$). This indicates some SNS concepts and U&G dimensions are co-related with internet usage.

SNS login and *features of online medium* (Pearson's $r = 0.528$, $p=0.000$), *network effect* (Pearson's $r = 0.443$, $p=0.003$) and *social capital* (Pearson's $r = 0.514$, $p=0.000$) also tested positive for correlation. Again, there is more significant correlation between SNS concepts and features of online medium with SNS usage as compared to U&G dimensions and SNS usage.

The *number of friends present in the SNS* also indicated a significant relationship with *features of online medium* (Pearson's $r = 0.605$, $p=0.000$), *network effect* (Pearson's $r = 0.502$, $p=0.001$) and *social capital* (Pearson's $r = 0.593$, $p=0.000$).

However, it is observed that U&G dimensions such as *personal identity* (Pearson's $r = 0.491$, $p=0.001$) are related to *internet usage*, although SNS concepts such as *surveillance* (Pearson's $r = 0.453$, $p=0.002$) and *social capital* (Pearson's $r = 0.395$, $p=0.009$) and *features of online medium* (Pearson's $r = 0.441$, $p=0.003$) correlated significantly as well. From this we can see that some dimensions such as *social capital and network effect* are more significantly co-related with internet and SNS.

Also, the table indicated relationships across the dimensions of U&G, features of the online medium and SNS concepts. For example, *personal relations* displayed high correlation with *surveillance* (Pearson's $r=0.937$, $p=0.000$), *features of online medium* (Pearson's $r=0.895$, $p=0.000$), *network effect* (Pearson's $r=0.858$, $p=0.000$) and *social capital* (Pearson's $r=0.918$, $p=0.000$). *Surveillance* also correlated positively the other SNS concepts: *network effect* (Pearson's $r=0.755$, $p=0.000$) and *social capital* (Pearson's $r=0.863$, $p=0.000$). *Network effect* also had a significant correlation with *social capital* (Pearson's $r=0.859$, $p=0.000$).

This test demonstrates conclusion validity between internet/SNS usage and social capital and network effect. Also, it lends credence to criterion validity of the SNS concepts such as surveillance, network effect and social capital displayed correlations with each other.

4.10 Analysis – Research question 1

RQ1: What are the salient factors underlying Singaporean tertiary students' use of social networking sites?

From the means tabulated from the different scales of the nine dimensions (refer to Table 4), the salient factors which drive Singaporean University students' use of SNS are *personal relationships*, *network effect*, *surveillance* and the creation of *social capital*.

4.11 Analysis – Research question 2

RQ2: Whether different gratifications (expectations) will lead to different usage patterns of social networking sites.

Survey findings indicate that that *interactivity* and *connectivity* are the main reasons why students use SNS. This is reflected in their most frequent online activities: IM-ing, emailing, SNS. This finding is also corroborated by the correlation done with the dimensions and internet/SNS usage which showed the significant correlation between the dimensions of internet/SNS usage.

For the three U&G dimensions in the study and correlations between internet and SNS usage as well as SNS concepts, we see that there is no significant relationship between the U&G dimension of *diversion* and SNS usage and concepts. However, there were some correlations between the U&G dimensions of *personal relationships* and *personal identity* as well as SNS usage and concepts. There was significant correlation between *personal relationships* and *time spent online*; *SNS login frequency* as well as the *number of friends in SNS* (refer to Table 5). This might be because having more friends who are online motivates university students to log on to SNS more frequently so as to keep themselves abreast of what is going on in their friends' lives as well as to update their friends on the latest on goings of their own lives.

Also, there was significant correlation between *personal identity* and *time spent online* as well as *internet usage* (refer to Table 5). The longer time spent online could be due to the university SNS users trying different ways of self-representation online. Results from the survey indicated that students use their real identity for SNS and share pictures with their friends via SNS. Therefore, they may be inclined to spend more time online creating and updating their profiles as they are presenting their real identity online and need time to upload their pictures.

Overall, the main gratification sought seems to be that of *personal relationships* which results in the usage of particular functions such as private messaging and sharing of photographs

5. Conclusions and directions for future research

For the actual survey, there are improvements to be implemented at the different operationalisation stages of to refine the research process. For this one shot study, in the process of conceptualization, one of the difficulties encountered was the overlap in statements for the different dimensions, e.g. personal identity, social capital and network effects, when crafting the survey questions. Thus I ended up with some statements which could be applied to more than one dimension. Also at the stage of conceptualization, there was an overlap between SNS concepts and U&G concept of surveillance which was the same term but entailed different meanings in the SNS and U&G contexts. Thus there was a need to decide and justify why I selected the definition from a particular concept.

During operationalisation, the sampling method used was convenience sampling. This may result in a lack of external validity. Therefore I will endeavor to engage in more purposive sampling for the actual survey to increase external validity and also to get a more representative mix of students from the various local universities.

Also, I intend to utilize the feedback I had received from my respondents for this pre-test for my final survey. For example, I realized from the feedback that some of my options might not have been exhaustive enough for the case of number of friends on SNS as most of them have more than 200 friends. I intend to refine the intervals for the final survey. Moreover, I realize that the way students interpret SNS jargon might be different from a researcher's point of view. Therefore I had to field questions asking if blogs, etc. were also SNS.

Finally, on top of refinements to the research process, some of the interesting findings which ran contrary to existing studies in the West had also surfaced in the course of my research. This has opened up another possible area – culture, to explore for future research.

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Appendices

1.1 Charts and tables

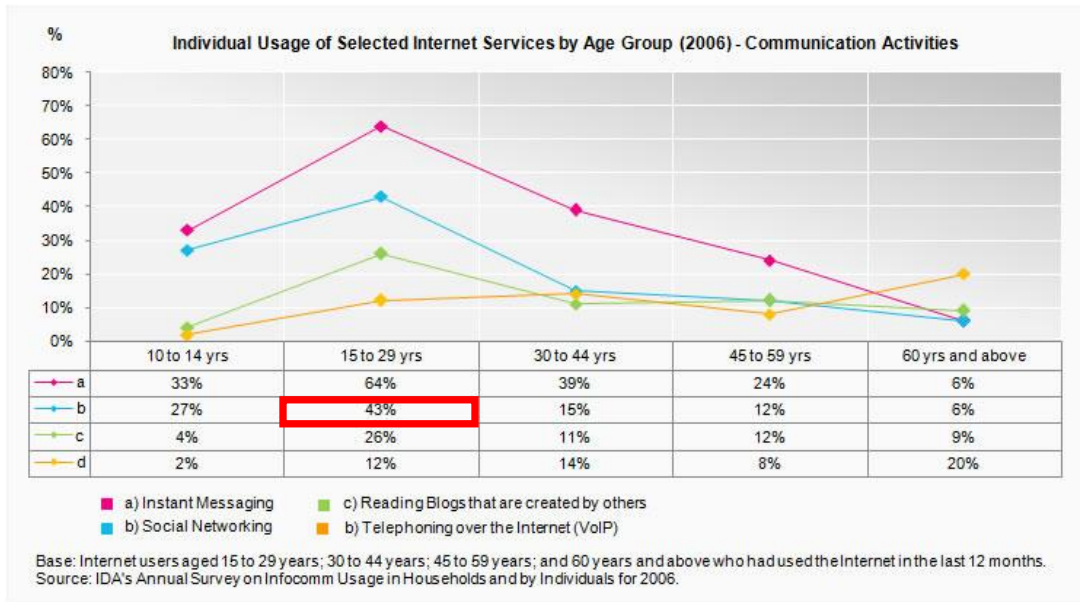


Fig. 1 Source: IDA Annual Survey on Infocomm Usage in Households and by individuals for 2006
 Retrived online on 29 February 2008 <http://www.ida.gov.sg/Publications/20070823161317.aspx>

Figure 1: Top 5 Social Networks in Hitwise Asia Pacific Markets, January 2008

Top 5 Social Networks* in Hitwise Asia Pacific Markets, Ranked by Market Share of Visits					
Australia			New Zealand		
1	MySpace	44.16%	1	Bebo	41.77%
2	Facebook	35.13%	2	Facebook	35.11%
3	Bebo	8.74%	3	MySpace	8.54%
4	Orkut	2.00%	4	Windows Live Spaces	3.05%
5	Windows Live Spaces	1.87%	5	Orkut	2.44%
Singapore			Hong Kong		
1	Friendster	41.99%	1	Facebook	37.72%
2	Facebook	30.41%	2	Xanqa	33.52%
3	Multiply	5.91%	3	UWants	21.40%
4	Windows Live Spaces	4.58%	4	Windows Live Spaces	1.49%
5	Xanqa	3.60%	5	Friendster	1.44%

Source: Hitwise; Period: January 2008
 * Hitwise custom category of leading 40 social networking websites

Fig. 2 Source: Hitwise Asia Pacific Social Networking report February 2008