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Factors Determining the Addiction of Sri Lankan Software Engineers towards Social Networks with Special Reference to Facebook

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A new form of social web communities where people meet each other and share interests and activities is being constituted with the exponential growth of social networking sites. Hence, in recent decades a rapid development of innovative internet based communication has emerged. It is a knowing fact that the software engineers face work-family life issues due to many reasons such as heavy work load, rigid deadlines, and work over time, etc. Thus, this research tends to investigate whether the software engineers are addicted to social networking sites to gain their lacking social behaviors such as social interaction, communication and entertainment etc. due to the nature of their profession. This study is hypothesized that the social network addiction is influenced by the attributes of social media networks namely; Social Interaction, Entertainment, and Communication. Structured questionnaire consists of three sections and 26 Likert scale questions was administered among 140 randomly selected software professionals and 84 responses were collected. Regression model was developed to identify and interpret the relationships. Through the analysis it is identified that the majority of software engineers highly use social networking sites for communication and social interaction activities and all the three factors are positively correlated towards social network.

Keywords: Software Engineers, Social Network Addiction, Social Networking Sites, Social Network Usage, Sri Lankan Software Industry

INTRODUCTION

Over the past decades, the internet technology has developed as an essential media channel for personal communications, information exchange, entertainment and academic research (Richard, Gordon, & Avi, 2002). With this rapid development of Information and Communication technology, the usage of internet based services by the Sri Lankan users also rise drastically over the past 10 years especially after the war. Before 1995 it was almost less than 1% of Sri Lankan population used the internet while it was around 3% in 2006-2007 time. But in 2012 it passed 20% in Sri Lanka while globally it was more than 35% (World Bank, 2015).

This attraction towards internet is becoming a vast research area over the past few years due to its

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evolution recently. The main reason for this drastic increase is peoples' social interactions via the Social network sites available in the internet. In social media, people have found a new way of communication (Internet Growth Statistics, 2015). Social Network Sites (SNSs) are more of virtual communities where people can interact with real-life friends by creating individual public profiles, and meet other people based on shared interests and activities (Kuss & Griffiths, 2011). There are hundreds of SNSs which are regularly used and updated by millions of people all around the world (Barbera, Paglia, & Valsavoia, 2009).

Due to the heavy growth of Sri Lankan software industry software engineer's lives got more complicated in the Sri Lankan context too. Therefore it is obvious that most of the Sri Lankan software engineers are also having lack of family and community life, enjoyment, entertainment, communication and social interaction compared to other employees (Premarathna, 2011) (Thushari, 2011) and they may tend to use different available options such as use of online communities and enjoyment by using social media to overcome above mentioned issues.

As a summary, the existing literature including above suggest that the factors such as social interaction, entertainment and communication are mostly affected to social network addiction in different contexts though there is minimum literature on Sri Lankan software engineering context. Therefore, same as above findings it is important to find out whether Sri Lankan Software Engineers are also addicted to social networks to gain lacking social behaviors such as social interaction, relationship maintaining and communication etc.

Therefore, the focus of conducting this study is to identity the factors and to what extent Sri Lankan software engineer's addicted social media to overcome above mentioned problems, hence the objective of this is to explore the nature of the factors determining the addiction of Sri Lankan Software Engineers towards Social Networks.

LITERATURE REVIEW

Social Interaction

According to Sofiah S.Z., Omar, Bolong, & Osman (2011) Social interaction is one of the major motive to use social media networks such as Facebook. Social interaction is one of the four main uses and gratifications derived by social media users which pertaining to media sharing activities using social networks such as Facebook. People more often keen to see if what they posted in social media group has been liked by other users. They like to know the other people's profiles who join or post in the same social media group they are interacting with. Also the users are willing to see and provide 'likes' for what other people post in the group (Mayur, Ian, Jayant, Tasos, & Valentina, 2013). Social interaction is heavily focuses on maintaining relationships. According to Baghestan & Asfaranjan (2013) the social media users maintain their existing relationships with their families and friends by staying contact with them using social networking sites. Dhaha (2013) found in his study on predictors of Facebook addiction that the social interaction motivational factor is strongly related to addiction towards social networking sites such as Facebook.

Entertainment

One of the main aspect of using social media is Entertainment. People use social networking sites for entertainment and passing time such as watching movies, television shows and videos published in YouTube (Baghestan & Asfaranjan, 2013). Entertainment is a major factor of social media usage among male students of universities in different countries. Main indicators of this entertainment factor of male students are information-seeking and thrill seeking (Karimi, Khodabandelou, Ehsani, & Ahmad, 2014), while Sofiah et.al (2011) found that entertainment can be considered as a motivation factor for social media addiction among female university students. Dhaha (2013) found in his study on predictors of Facebook addiction that the entertainment motivational factor is strongly related

to addiction towards social networking sites such as Facebook.

Communication

Among reasons to use social media networks, communication is considered as an important factor for social media addiction. Communication factor includes motives such as posting comments on friend's wall, sending messages to friends, sharing information, chatting with friends, building network with others and getting gossip about others (Sofiah S.Z., Omar, Bolong, & Osman, 2011). According to Hunt, Atkin, & Krishnan (2012) information seeking is highly related with the interactive features of social media which leads to heavy usage. According to Hart (2011) information seeking which is a major attribute of communication is one of the motivational factor towards usage of social networking sites such as Facebook. According to Hart's analysis information seeking factor covers only 5% of variance. Papacharissi & Mendelson (2011) explains that expressive information sharing which is one of the major attribute of communication is one of the motivational factors to use social networking sites such as Facebook. According to Smock et.al (2011) expressive information sharing which takes the major portion of the communication factor is a one of the motivational factors towards usage of social networking sites such as Facebook.

Social Network Addiction

Social networks are used extensively by the people in satisfying their basic needs and interaction. It was becoming a widespread medium for socializing online and tools to facilitate friendship. Social networking sites have become the first thing for the most of the people when they logged in to the internet and they are becoming addicted to it. Sofiah et.al (2011) show that students' lives without social networking sites are almost impossible because they live far from their family members and old friends which require a form of communication to stay in touch. People can share and talk more about their personal experiences or express their feelings through social networking sites. Dhaha (2013) conducted a research predictors of addiction of social networking sites such as Facebook among youth. According to the indicators of addiction that Dhaha explains in this research people are more likely to spend time in social networking sites rather than going out with friends. They most of the times think about social media sites when they are not using them.

Conceptual Framework of the study

The conceptual framework which is derived from the above literature review is shown in the Figure 01.

FIGURE 1 HERE

Hypothesis

Based on the conceptual framework and key objectives defined, research hypotheses of this study are developed as below.

- H1: There is an influence of Social Interaction on software engineer's addiction towards social networks.
- H2: There is an influence of Entertainment on software engineer's addiction towards social networks.
- H3: There is an influence of Communication on software engineer's addiction towards social networks.

METHODOLOGY

The Quantitative method and as well as the Quantitative method was used in order to carry out this research. All the independent variables i.e. Social Interaction, Passing Time, Entertainment, Companionship and Communication and also the dependent variables which is Social Network Addiction is measured using a 5 point Likert scale questionnaire.

The Summated value of the Likert scale is taken, thus the multiple regression analysis is carried out as the main analytical tool.

Interviews were held with 10 software engineers to further clarify the results of quantitate study.

Variable Operationalization

Table 1 depicts the indicators of the identified independent and dependent variables. Indicators

were slightly changed by the researcher to match with the context of the research.

TABLE 1 HERE

Although SLASSCOM (2014) predicted the number of software engineers as 82854 in 2014, it is difficult to find out the exact population of the Sri Lankan software engineers. Thus, the GPower software (Franz, Erdfelder, Lang, & Buchner, 2007), is used to calculate the required sample size for this study. According to this analytical tool the selected sample size was 82 software engineers. Random sampling method was used to select software engineers.

Data Collection Instrument

Questionnaire method was used for data collection. The form was hosted in online and distributed the URL via emails to the respondent with a covering note. Necessary instructions were also mentioned. A structured questionnaire mainly consisting of 5 point - Likert scales (Strongly Agree – Strongly Disagree) as well as other demographic information regarding the respondents such as gender, age range, experience and job category were used to measure the dimensions. A pilot study was carried out with 30 respondents to confirm validity and the reliability of the constructs, prior to conducting the questionnaire survey. Questionnaire was hosted as an online survey and distributed among 140 randomly selected software engineers of multiple companies in Sri Lankan Software Industry via emails and received 84 responses. A few interviews were carried out after analyzing the data to improve the understanding and the interpretation of quantitative findings of the study.

Pilot Test

The pilot questionnaire was administrated to a sample of 30 software engineers. The goal of this exercise was to obtain a general assessment of the instruments' appearance, to further eliminate items that did not contribute significantly to the value of the instrument, and to understand the underlying dimensions of the constructs under study.

Collected data was analyzed for validity and reliability and tested against Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO), Bartlett's Test of Sphericity and Cronbach's alpha. According to the results there were no changes required for the questionnaire other than rewording some of questions according to the feedback of the respondents.

Table 2 cutoff values were used to test the data.

TABLE 2 HERE

Table 3 explains the reliability analysis results for the pilot test data.

TABLE 3 HERE

Validity

Validity refers to the appropriateness, meaningfulness and, usefulness of evidence that is used to support the constructs in the view of Cooper & Schindler (2008). Golafshani (2003) points, other word how and what extend results are credible and defensible. The decisions made and actions taken on the basis of the assessment scores also add to validity. Establishing validity for a survey findings focus on the use to which the instrument is put, not on the survey itself. Validating the survey entails collecting evidence for the conclusions reached about research objectives.

An exploratory factor analysis procedure was performed on the items to extract specified factors. This scale purification process was to examine the dimensionality of the reduced item scale for each construct. This procedure determines whether there are any groups of highly correlated variables which might constitute underlying factors. The objective of this analysis was to determine whether the variables in concern can be reduced to a smaller, more manageable number of factors. Once this was done it was determined whether the resulting factor groupings were the same as the ones existence in literature.

Individual items having factor loadings greater than the cut-off point 0.5 were qualified to be included in the respective dimensions. Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and Bartlett's Test of Sphericity were carried out to check the case to variable ratio for the analysis being conducted. The accepted value for KMO is 0.5 and the significance of

the Bartlett's test should be less than 0.05. Factors considering in the research were qualified against above tests. Table 4 shows the KMO test results for each factor.

TABLE 4 HERE

RESULTS AND DISCUSSION

Composition of the sample

In this research the software engineers were divide in to three groups which are Software Development, Quality Analysis and Business Analysis according to their job roles and responsibilities. According the Table 1, 70% of the respondents were belonged to Software Development category while 20% were in the Quality Assurance category. Only 10% represented the Business Analysis job category. The majority of the respondents were male and most of the respondents are below 32 years old. Only 5% of respondents were aged more than 32 years of age. Nearly 80% of the respondents were engineers having 1 to 4years of experience.

TABLE 5 HERE

Table 5 shows the summary and the composition of the sample.

Results of the study

In order to analyze the data, researcher has used the regression analysis. As it proves all the assumptions of regression analysis (Multicollinearity, Autocorrelation, Homoscedasticiy, Normality) researcher has continued with the analysis. According to Table 6 all the factors i.e. Social Interaction, Entertainment, and Communication are significantly correlated to the dependent variable, Social Network Addiction. Among them, Social interaction has the highest correlation with Social Network Addiction which the value is 0.409. Communication has

the next highest correlation which is 0.342 and entertainment has a positive correlation of 0.338. This indicates that all the three factors have a moderate positive association with Social Network Addiction and association of all the three factors are significant under the 5% significant level.

Table 6 shows the correlation analysis.

TABLE 6 HERE

Multiple Regression Analysis

Multiple regression allows to determine the overall fit which means the variance explained of the model and the relative contribution of each of the factors to the total variance explained (Multiple Regression Analysis using SPSS Statistics, n.d.).

Tables 7 explains how well the regression model fits the data.

TABLE 7 HERE

R value is considered as one measurement of the quality of the prediction of dependent variable. So R value of 0.48 describes a moderate level of prediction.

According to the Table 8 the F-test is highly significant so it is assumed that there is a linear relationship between variable in this model.

TABLE 08 HERE

Table 9 describes the unstandardized coefficient values and the significance of the independent variable to the dependent variable.

TABLE 9 HERE

According to the above analysis, only one out of three independent variables were found as significant to the dependent variable. This describes that the Social interaction has significant impact on Social Network Addiction while Entertainment and Communication have minimum impact on addiction due to the less significant of the variables.

Test of Hypothesis

Table 10 shows the Hypothesis testing. H1 is accepted and H2 and H3 Rejected.

TABLE 10 HERE

CONCLUSION & RECOMMENDATIONS

Social Interaction has the highest power of association with addiction having a 0.409 of correlation value and 0.000 of significance. Communication factor has the next highest power of relationship with 0.342 of correlation having 0.000 of significance.

Entertainment factor has a moderate level (0.338) of association with social media addiction with significance of 0.000. As a summary, all the factors are having less positive significance towards social network addiction with significance less than 0.05 according to the correlation analysis. This denotes that the increase of each of above factors will also increase the addiction of software engineers towards social networks. According to the first objective findings the communication was the key activity that highest number of software engineers use social networks for. But according to correlation, communication factor has a moderate (0.342) relationship with addiction which denotes that the software engineers use social networks more often to communicate with others but they are not addicted to it. Even without social media networks they can communicate with people without facing any issue.

It is identified that 22.5% of the factors affecting to social media addiction is covered by the selected three factors in this research which are Social Interaction, Entertainment and Communication. Anyhow only one factors were identified as statically significant to the social network addiction of software engineers which is Social Interaction. Entertainment factor denotes positive significance towards social networking addiction having 19% of power of association while passing time factor having 19.3% of beta value and showing a positive significant relationship towards social network addiction. Also it can be identified that the factor which has the most impact towards social networking addiction of software engineers is Social interaction which provides the solution for third objective of the research.

This reveals that software engineers have a likeliness towards each factor but when all the options are available they are more attracted to Social interaction.

The social media service providers will be benefited by this study where they can add or update features of their sites on social interaction tools to increase the social interaction. They can focus more on the in-significant factors such as social interaction, entertainment and communication by advancing or introducing features so more software engineers will be attracted to these sites. Further, as individuals software engineers can evaluate their lacking social behaviors and increase usage of social networking sites to regain them or can change the life style so that reduce the work life imbalance

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APPENDIX

Table 1: ***Variable Operationalization***

Variable	Indicators	Measurement	Source
Social Interaction	✓ Stay in touch with friends ✓ Maintain existing Friendships ✓ Share recent activities with friends ✓ Share recent pictures and videos ✓ Check on activities of other friends ✓ Invite friends to parties/events ✓ Check on wedding/Birthday/Event invitations	5point Likert scale	Sheldon (2008) Sofiah S.Z., Omar, Bolong, & Osman (2011) Dhaha (2013)
Entertainment	✓ Share music video ✓ Share movie preview ✓ Play games ✓ Share song lyrics ✓ Listen to music	5point Likert scale	
Communication	✓ Post a comments on other friend's wall/profile ✓ Send messages to friends ✓ Share information ✓ Chat with friends ✓ Build network with others ✓ Get gossips about others	5point Likert scale	

Social Network Addiction	✓ Social networks become part of daily routine ✓ Stay on social networking sites longer than intended ✓ Feel out of touch when not using social networking sites for a while ✓ Life without social networks would be boring ✓ Tend to spend more time than going out with friends ✓ Often play games with friends ✓ Think about social networking sites when not using them ✓ Often less sleep due to late-night use of social networking sites	5point Likert scale	Sofiah S.Z., Omar, Bolong, & Osman (2011)

Table 1: ***Validity and Reliability cutoff values***

KMO Test	Greater than 0.50
Bartlett's Test significance	Less than 0.05
Cronbach's alpha	Greater than 0.7

Table 3: ***Reliability analysis results***

Factor	**Cronbach's alpha**
Social Interaction	0.773
Entertainment	0.806
Communication	0.848
Social Network Addiction	0.923

Table Error! No text of specified style in document.**: KMO test results**

Dimension	KMO measure
Social Interaction	0.677
Entertainment	0.748
Communication	0.805
Social Network Addiction	0.830

Table 5: ***composition of the sample***

Job Category	Software Development **70%**	Quality Assurance **20%**	Business Analysis **10%**
Experience of Respondents	1-4 years **79%**	5-8 years **15%**	More than 8 years **6%**
Age of Respondent	22- 27 years **47%**	28- 32 years **49%**	More than 32 years **5%**
Gender of Respondents	Male **70%**	Female **30%**	

Table 6: ***Correlation analysis***

		Social Interaction	Entertainment	Communication	Addiction
Social Interaction	Pearson Correlation	1	.380**	.470**	.409**
	Sig. (2-tailed)		.000	.000	.000
	N	84	84	84	84
Entertainment	Pearson Correlation	.380**	1	.322**	.338**
	Sig. (2-tailed)	.000		.003	.002
	N	84	84	84	84
Communication	Pearson Correlation	.470**	.322**	1	.342**
	Sig. (2-tailed)	.000	.003		.001
	N	84	84	84	84
Addiction	Pearson Correlation	.409**	.338**	.342**	1
	Sig. (2-tailed)	.000	.002	.001	
	N	84	84	84	84

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

Table 7: ***Model Summary***

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.475	0.225	0.196	0.60687

Table 8: ***ANOVA Table***

	Sum of Squares	df	Mean Square	F	Sig.
Regression	8.572	3	2.857	7.758	.000
Residual	29.464	80	.368		
Total	38.036	83			

Table 9: ***Coefficient Table***

	standardized Coefficients B	Sig.
Social Interaction	0.263	0.026*
Entertainment	0.187	0.087
Communication	0.158	0.166

Level of Significance 5 %

Table 10: ***Hypothesis testing***

Hypotheses	**Accept/reject**
H1: There is an influence of Social Interaction on software engineer's addiction towards social networks	Accept
H2: There is an influence of Entertainment on software engineer's addiction towards social networks	Reject

H3: There is an influence of Communication on software engineer's addiction towards social networks.	Reject

Figure 1*: Proposed Conceptual Framework*