

# A Review of Mobile Social Software Awareness and Utilization

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**Abstract:** Social software comprises a wide range of different types of activities, The most familiar are likely to be internet discussion forums, social networking and dating sites Mobile computing technologies and social software have given new challenges to technology enhanced awareness. Simple awareness system include knowing how the given system works. The objectives of the paper include To establish the level of awareness of mobile social systems, To identify commonly used tools in mobile social systems and To establish the level of utilization of using mobile social systems. This paper reviews the awareness of mobile social software that includes Facebook, Whattapp, Twitter and linkedIn, Instagram. Primary data was used drawn from mobile social users in Nakuru County Kenya. The sample size was 361 respondents but 345 respondents returned the feed back , both descriptive and inferential statistics was used . It is evident from the study that out of More than 53.3% of respondents use WhatsApp while 31.9% use facebook ,7.8% use twitter while LinkedIn has lower ratings of 7.0%. The study also reveals that most of the respondents are aware of the services they utilize the service for chatting purpose with 80% followed by Messaging with 18.6 % while research work is the last one with 11%.

**Keywords:** Social Software, Utilization, Mobile Computing , Technolog, awareness

## 1. Introduction

The web 2.0 and its tools like Facebook, Twitter, MySpace, whatsApp have evolved as God sent tools in providing services to the users. These SNS's cannot only be used for communication but also for many other purposes. The Social Networking Sites (SNS) have become important tools for the youngsters especially teenagers to interact and socialize with their peers [1]. Social Networking Sites allow the users to manage, build and represent their social networks online [2].

Among all the available Social Networking Sites, Facebook appears as one of the most popular sites for the common people [3].Face book can be defined as 'a social utility that helps people share information and communicate more efficiently with their friends, family and co-workers, Face book enables its users to present themselves in an online profile, acquaint friends to stay in touch with their friends and who can post comments on each other's pages and view other's profiles [4]

According to [5] the tools associated with social software transform our capacity for civic activism. Firstly, these tools allow people to participate by creating, publishing and distributing content, such as video, pictures, music and texts through the Internet. Secondly, social software allows people with similar interests to find one another and connect through social networking sites, such as MySpace and Facebook , People can also use search tools and systems for collaborative tagging of information and ideas. Thirdly, people can coordinate their activities and collaborate through raising petitions and funds, and planning and conducting mobile campaigns and communities programs. Fourthly, through large-scale collaborations, people can create reliable, robust, and complex products such as open source software applications such as Linux. As to[6] The rubric of social software is contribute, connect, collaborate

and create, Three characteristics commonly attributed to social software include support for conversational interaction between individuals or groups ranging from real-time instant messaging to asynchronous collaborative teamwork spaces [7]. This category also includes collaborative commenting on and within blog spaces, support for social feedback that allows a group to rate the contributions of others [8]. Perhaps implicitly leading to the creation of digital reputation support for social networks to explicitly create and manage a digital expression of people's personal relationships and to help them build new relationships[9].

### 1.1 Objectives

- i) To establish the level of awareness and utilization of mobile social systems.
- ii) To identify commonly used tools in mobile social systems.
- iii) To establish the challenges using mobile social systems.

## 2. Literature Review

Web 2.0 has inspired intense and growing interest, particularly as wikis, weblogs (blogs), really simple syndication (RSS) feeds, social networking sites and peer-to-peer media-sharing applications[10].Social software tools offers opportunities to move away from the last century's highly centralized industrial model of learning and toward individual learner empowerment through designs that focus on collaborative and networked interaction[11].

### 2.1 Characteristics of Mobile Social Software

The following are major characteristics that mobile social software includes:

### 2.1.1 Ease-of-Use

The underlying technology of social software is Web technology, which consists of a user-friendly interface and applications, and an open-source and decentralized information structure[12]. The ease-of-use characteristic is especially emphasized in Web2.0 in terms of three directions, technological the programming language and presentation technologies applied to support user interaction, structural that include user-centered design of layout and sociological that includes notions of friends and groups [13].

### 2.1.2 Architecture of Participation

Architecture of participation refers to the default set of Web applications designed to track users' digital footprint the original intention is to aggregate user data and build value as a side effect of ordinary use of applications[14]. Whether this traceability is a good or bad thing is debatable however this kind of technological function helps to record users' digital footprints and to connect people, and has the potential to develop trust among online users over time[15]. A user's digital footprint can be automatically generated by the Web or input into the Web by the user the architecture of participation aims to resolve the conflict between the desires of users' feedback on Web services, and a low percentage of users will go to the trouble of adding value to an application via explicit means [16]

### 2.1.3 User-Generated Content

On the Internet, the value of using the Internet service to one user is positively affected when another user joins and enlarges the network the source of network effects is high quality user-generated content by a number of people[17]. Content creation on social media sites is about both sharing creative output and participating in conversations stimulated by that content[18]. Linked user-generated content plays an important role in information dissemination and knowledge creation[19].

## 2.2 Awareness metrics

The following metrics are used to test social software awareness, it includes:

- 1) **Understandability:** the social software system can be considered to be under stable if it can read necessary information via the software system to evolve it[20]
- 2) **Functionality:** a system is defined by the set of actions or services that it provides to its users. However, the value of functionality is visible only when it becomes possible to be efficiently utilized by the user [21].
- 3) **Clarity:** On screen information must be short and relevant and at the same time still make sense should be a minimum keystroke effort. Requests for input should be relevant. Output should be easy to understand [22].
- 4) **Adaptability:** systems are abundant. Most social software allows users to modify system parameters and to indicate individual preferences. Web portals permit users to specify the information they want to see and the form in which it should be displayed by their web browsers[23].

## 2.3 Mobile social software utilization

Utilization basically means the areas where social software has benefited it includes : (i) Delivers collaborative collecting and indexing of information, No longer is knowledge limited by historically constructed visions of curricula. There are new ways of organizing and finding knowledge objects that are of interest to you and the groups with whom you share interests[24].(ii) Allows syndication and assists personalization of priorities, There are mechanisms to be passively active, You can choose what information streams you want to be kept informed about and that information will come to you rather than you having to go and seek it [25]. It will help you both keep abreast with your co-workers' online activity and those other information streams you actually prioritize [26] (iii) provides new tools for knowledge aggregation and creation of new knowledge. The massive uptake of MP3 music players is indicative of a move to collecting material from many sources and aggregating it for our personal use[27]. There are also tools that allow that content to be modified and incorporated in new formulations: the concept of a mash-up [28].(iv) Delivers to many platforms as is appropriate to the creator, recipient and context. Creators and users of social software tools and content know their lives are not constrained to desktops, they use many media: mobile phones; PDAs; MP3 players and games consoles [29]. They increasingly expect that the digital part of their life will integrate with them in the context that they are in [30].

## 2.4 Challenges for mobile social software

**i) New Communication Services:** Semantic information can be used to implement new types of communication services. For instance implementing a new Web service that forms dynamic groups of people based on location and user interest [31]. This includes developing new Web frameworks and middleware as well as new user interfaces, one could for example imagine a dynamic group being visualized as third dimensional graph where the user can easily browse and navigate the currently discovered dynamic groups [32].

**ii) Unified Communication:** When developing a new communication service it is important to get as many users as possible. When more and more communication services are deployed as Web services, it becomes possible to create mashups or aggregated Web services [33]. As users being part of a dynamic group could be using different communication services like Twitter and Facebook) the system should automatically dispatch messages between different social networks [34]. A challenge is therefore to make an integrated effort of consolidating social networks, or even create a virtual social network service [35]

**iii) Data Mining:** Data mining algorithms must be utilized in order to generate semantic information. By extracting information from social networks it is possible to automatically discover information about users [36]. For instance, automatically find phone numbers, user names and relationship between users. The information can be obtained from a wide variety of sources, including news feeds, images, videos, and text obtained from classical Web

pages[31]. However, as users may have different account or profile names, it can be difficult to map information to a one particular user, Similarly, using non unique data fields to map data can easily result in inaccurate data sets , For example, using a personal name to map data obtained from a Web page to Twitter account can easily result in inaccuracy as personal names are typically not unique[37].

**iv) Privacy:** A common solution is to let the users be in control and provides some easy way for the users to share information. Typically, users will only share information if the gain is greater than possibly privacy implications [31], [38]. For instance, people upload videos and images to YouTube and Flickr because they want other people to be able to easily access the data, or to improve their own social status these aspects must be considered when developing new services [39].

### 3. Methodology

Primary data was used in the study was drawn from a survey carried at Nakuru county, targeting mobile social software users. The study was conducted on 345 respondents. The questionnaires were issued to the students, parents and teachers respectively. The study achieved 95.3% response of the target. This response rate was considered appropriate for analysis and reporting as supported by [40] indicating that a response rate of 70% and above is excellent.

### 4. Analysis and Interpretation

Analysis contains data about mobile social awareness and mobile social.

#### Mobile social software awareness

**Table 1: Gender of the respondents \* social network used Cross tabulation**

		social network used				Total	
		Facebook	Twitter	whatsApp	Linkedin		
Gender of the respondents	Male	Count	64	18	109	12	203
		Expected Count	64.7	15.9	108.3	14.1	203.0
		% of Total	18.6%	5.2%	31.6%	3.5%	58.8%
	Female	Count	46	9	75	12	142
		Expected Count	45.3	11.1	75.7	9.9	142.0
		% of Total	13.3%	2.6%	21.7%	3.5%	41.2%
Total		Count	110	27	184	24	345
		Expected Count	110.0	27.0	184.0	24.0	345.0
		% of Total	31.9%	7.8%	53.3%	7.0%	100.0%

Source: [41]

Respondents are able to get online from various platforms. Some of the various places include a home, at the cyber cafe, at the malls, and some at school among others. While at home they can access through their smart phones and laptops, and at school they can use the computer labs that have networked computers. From the above table , it is evident that WhatsApp is widely used with a 53.3% response rate followed by Facebook with a 31.9% followed Twitter with 7.8% and lastly LinkedIn with 7% response rate. The popularity of WhatsApp is attributed to it being an instant messaging application that runs on mobile phones and can be used while one is on the go and thus allowed multitasking which students are known for.

The researcher found out that respondents felt WhatsApp to be more interactive than the other sites. Facebook has a substantive percentage because it's an application that has been there for a while and enables students to tag each other especially pictures. It is also evident that mobile social software are widely used by male respondents with 58.8% while female have a lower percentage of 42.2%

#### 4.1 Social Software Utilization

The following table shows the results of social software utilization

**Table 2:**

Purpose	Percentage* (N=345)
Chatting	80
Messaging	60
Entertainment	55
Knowledge	47
Video conferencing	43
Personal contact	40
Education	39
Meet new friends	32
Communication	31
Advertisement	30
Passing time	23
Online learning	15
Purchasing	13
Research work	11

Source: [41]

\*Multiple response

It was established that most respondents utilize social media for chatting with 80% response. Followed by messaging with 60%, followed by Entertainment information with 55%, The research found respondents seek knowledge information is sought as fourth option with only 47% of the respondents. Online learning ,purchasing and research are last in the list with 15%,13% and 11% respectively while video conferring and persona; contact are averagely sought



**4.3 Time spend on using social media**

Table 3 shows the reported that average hours daily, weekly and monthly that students are spent on social media by the students.

**Table 2:** Time spent on using social media

Time ( hours)	Percentage (N=345)
Daily 1-3	40
3-5	60
Weekly 1-10	72
More than 10	28
Monthly 1-20	86
More than 20	14

Source: [41]

60% of the respondents were spent 3-5 hours daily, 72 % of the respondents were spending 1-10 hours per week. 86 % of the respondents were spent 1-20 hours per month

**Extent of utilization of mobile software**

Chi-square test: was used compares proportions/percentages between two or more groups. The test was used because we want to compare if there is significant difference in %age of respondents with respect to the FIVE categories that includes SD,D NAD A and SA

**Table 3:** Extent of utilization of mobile software

Statements	SD freq(%)	D freq(%)	NAD freq(%)	A freq(%)	SA freq(%)	$\chi^2$	P-value
Used to express creativity	16 (4.6%)	28(8.1%)	57(16.5%)	156(45.2%)	88(25.5%)	182.1	0.000
To participate in discussions	10(2.9%)	19(5.5%)	36(10.4%)	177(51.3%)	103(29.9%)	288.3	0.000
To keep in touch with the news and commentaries	13(3.8%)	12(3.5%)	49(14.2%)	121(35.1%)	150(43.5%)	232.6	0.000
To network to new friends as well as distance	8(2.3%)	31(9.0%)	40(11.6%)	146(42.3%)	120(34.8%)	210.7	0.000
Learning to operate the mobile social software is easy	16(4.6%)	45(13.0%)	73(21.2%)	135 (39.1%)	76(22.0%)	113.1	0.000
Remembering and reaching function's name is easy	23(6.7%)	62(18.0%)	96(27.8%)	120(34.8%)	44(12.8%)	88.7	0.000
Understanding the hierarchical of the program is difficult	28(8.1%)	84(24.3%)	106(30.7%)	99(28.7%)	28(8.1%)	84.8	0.000
Provides the user enough suggestions and prompt towards the right usage	16(4.6%)	52(15.1%)	82(23.8%)	145(42.0%)	50(14.5%)	136.3	0.000
Changing account, profile and security settings is easy	13(3.8%)	42(12.2%)	69(20.0%)	138(40.0%)	83(24.1%)	127.9	0.000
To customize some features is easy	17(4.9%)	49(14.2%)	90(26.1)	129(37.4%)	60(17.4%)	104.7	0.000
Input methods are easy while entering data	31(9.0%)	46(13.3%)	52(15.1%)	138(40.0%)	78(22.6%)	103.0	0.000
Software is age-appropriate in content & language	37(10.7%)	60(17.4%)	81(23.5%)	116(33.6%)	51(14.8%)	54.8	0.000
User can easily navigate between program screens	16(4.6%)	43(12.5%)	74(21.4%)	141(40.9%)	71(20.6%)	126.1	0.000
Software performs management tasks satisfactorily	20(5.8%)	40(11.6%)	93(27.0%)	134(38.8%)	58(16.8%)	118.3	0.000
Invalid commands are handled constructively. the program tolerates variations in command formats	31(9.0%)	44(12.8%)	102(29.6%)	119(34.5%)	49(14.2%)	87.8	0.000

Key: SD = Strongly Disagree; D=Disagree; N = Neutral; A = Agree; SA = Strongly Agree; Freq=Frequencies and %=Percentages source: Source : [41]

The findings above revealed that a majority of the respondents agreed that they use the mobile software to participate in discussions (51.3%) .This findings is supported by the chi-square results ( $\chi^2 =288.3;p<0.01$ ).The findings also indicated that respondents agreed that they use mobile software to express creativity(45.2%).Similarly 146(42.3%) of the respondents agreed that mobile software assists them to network to new friends as well as those in distance parts. It was revealing that 42.0% of them agreed that the mobile software assists by providing the user with enough suggestions and prompt towards the right usage. In addition respondents agreed that during mobile software

usage user can easily navigate between program screens (40.9%).This means that a majority were not sure with the statement. The findings further revealed that respondents agreed that changing account, profile and security settings is easy and that input methods are easy while entering data with (40.0%) and (40.0%)respectively. It was noted that (43.5%) of the respondents strongly agreed that the mobile software assists them to keep in touch with the news and commentaries.

It was also found that learning to operate the mobile social software was agreed by the respondents to be easy (39.1%)

suggesting that they were able to utilize the mobile software. It was also comprehended that respondents agreed with the facts that software performs management tasks satisfactorily, to customize some features is easy and that to customize some features is easy with 38.8% , 129(37.4%) and 129(37.4%) respectively. Despite these affirmation a nearly 62.6% of the respondents failed to agree with the statement.

Moreover, respondents agreed that invalid commands are handled constructively and the program tolerates variations in command formats with (34.5%).The findings also revealed that the respondents agreed that software is age-appropriate in content & language(33.6%).However, 30.7%of the respondents were not sure whether understanding the hierarchical of the program was difficult

## 5. Conclusions

Mobile social software pose a new challenge for the research community and software development industry, that if addressed could provide people with numerous novel ways of social interactions by designing easy to understand and operate software's at the same time providing functionalities needed by the end user of the software. In this paper ,it is evident from the study that out of 345 respondents studied, More than 53.3% of respondents use WhatsApp while 31.9% use facebook while other software's have lower ratings. The study also reveals that most of the respodents are aware of the services. while they use social media for communication and searching academic information among other major utilizations Application architecture that are easy to use and learn are necessary to aid in the awareness of different social software's. Learnable software systems will increase the utilization of different software hence developers should aim at developing softwares that are easily learnable.

## References

- [1] Hamat, A., Embi, M.A. & Hassan, H.A. (2001). The use of social networking sites among Malaysian university students. *International Education Studies*, 5 (3), 56-66.
- [2] Manjunatha, S. (2013). The usage of Social Networking Sites among the college students in India. *International Research Journal of Social Sciences*, 2 (5), 15-21.
- [3] Chatterjee, A., & Maity, A. (2014). Communication of universities of Asia through Facebook: A study. *DESIDOC Journal of Library and Information Technology*, 34 (5), 376-383.
- [4] Young, K (2004). Internet addiction: A new clinical phenomenon and its consequences. *American Behavioral Scientist*, 402, 402-413.
- [5] Leadbeater, C. (2007). *Social software for social change*. A discussion paper for the Office of Third Sector.
- [6] Yin, Z., Ma, X., Zheng, J., Zhou, Y., Bairavasundaram, L. N., & Pasupathy, S. (2011, October). An empirical study on configuration errors in commercial and open source systems. In *Proceedings of the Twenty-Third ACM Symposium on Operating Systems Principles* (pp. 159-172). ACM.
- [7] Munkvold, B. E., Khazanchi, D., & Zigurs, I. (2011). *Augmenting online learning with real-time conferencing: Experiences from an international course*. NOKOBIT, 2011.
- [8] Berkovsky, S., Freyne, J., & Smith, G. (2012). *Personalized network updates: increasing social interactions and contributions in social networks*. In *User Modeling, Adaptation, and Personalization* (pp. 1-13). Springer Berlin Heidelberg.
- [9] Kietzmann, J. H., Hermkens, K., McCarthy, I. P., & Silvestre, B. S. (2011). *Social media? Get serious! Understanding the functional building blocks of social media*. *Business horizons*, 54(3), 241-251.
- [10] Ibrahim, M. M., Omar, M. H., Habbal, A. M. M., & Zaini, K. M. (2013). Analysis of internet traffic in educational network based on users preferences. *Journal of Computer Science*, 10(1), 99.
- [11] Casey, G., & Davidson-Shivers, G. (2014, January). SMEDIA: Designing to create a social and dynamic learning framework. In *Educational Media and Technology. World Conference (2014: Tampere, Finland)*. Association for the Advancement of Computing in Education (AACE).
- [12] Halpin, H., & Monnin, A. (2014). Interview with Tim Berners-Lee. *Philosophical Engineering: Toward a Philosophy of the web*, 181-186.
- [13] Dickenson, P., Hall, M. T., & Courduff, J. (2015). *Moving beyond the Basics: The Evolution of Web 2.0 Tools*. *Handbook of Research on the Societal Impact of Digital Media*, 24.
- [14] O'Reilly, T. (2011). *Government as a Platform*. *innovations*, 6(1), 13-40.
- [15] Xiao, Y., & Pan, Y. (Eds.).(2007). *Security in distributed and networking systems* (Vol. 1). World Scientific.
- [16] Graham Cormode, Balachander Krishnamurthy *Key differences between Web 1.0 and Web 2.0*
- [17] Lerman, K. (2007). *Social information processing in news aggregation*. *Internet Computing, IEEE*, 11(6), 16-28.
- [18] Susarla, A., Oh, J. H., & Tan, Y. (2012). *Social networks and the diffusion of user-generated content: Evidence from YouTube*. *Information Systems Research*, 23(1), 23-41.
- [19] Gruz, A., Staves, K., & Wilk, A. (2012). *Connected scholars: Examining the role of social media in research practices of faculty using the UTAUT model*. *Computers in Human Behavior*, 28(6), 2340-2350.
- [20] Lin, Jin-Cherng, and Kuo-Chiang Wu. "A model for measuring software understandability." *Computer and Information Technology*, 2006. CIT'06. The Sixth IEEE International Conference on. IEEE, 2006.
- [21] B. Shneiderman and C. Plaisant, *Designing the User Interface: Strategies for Effective Human-Computer Interaction* (4th edition), Pearson/Addison-Wesley, Boston (2004).
- [22] Erhardt, Rob, and Michael Shuman. "Assistive Technologies for Second-Year Statistics Students who are Blind." *Journal of Statistics Education [Online]* 23.2 (2015).
- [23] Stoyanovich, Julia. *Search and ranking in semantically rich applications*. Columbia University, 2010.
- [24] Greenfield, Derek F. *White Face, Black Space* (2015).: *My Journey as a Chief Diversity Officer at an HBCU*. Diss. University of Washington.

- [25] Sohm, M., Emery, J., & Clewley, M. (2013). U.S. Patent No. 8,620,988. Washington, DC: U.S. Patent and Trademark Office.
- [26] Paterno, F. (2012). Model-based design and evaluation of interactive applications. Springer Science & Business Media.
- [27] Holtshouse, D. K. (2013). Information technology for knowledge management. U. M. Borghoff, & R. Pareschi (Eds.). Springer Science & Business Media.
- [28] JiPing, Z. (2013). Social Software and Communities of Practice. Hybrid Learning: Theory, Application and Practice, 12, 1.
- [29] Mandiberg, M. (2012). The social media reader. NYU Press.
- [30] Bryman, A. (2015). Social research methods. Oxford university press.
- [31] Rana, J., Hallberg, J., Kristiansson, J., & Synnes, K. (2012). Harnessing the cloud for mobile social networking applications. *International Journal of Grid and High Performance Computing*, 2(2), 1-11.
- [32] Mikkonen, T., Systä, K., & Pautasso, C. (2015, June). Towards liquid web applications. In *International Conference on Web Engineering* (pp. 134-143). Springer International Publishing.
- [33] Alcarria, R., Robles, T., Morales, A., & Cedeño, E. (2014). Resolving coordination challenges in distributed mobile service executions. *International Journal of Web and Grid Services*, 10(2-3), 168-191.
- [34] Chaudhry, Irfan. "Hashtagging hate: Using Twitter to track racism online." *First Monday* 20, no. 2 (2015).
- [35] Liébana-Cabanillas, F., Sánchez-Fernández, J., & Muñoz-Leiva, F. (2014). The moderating effect of experience in the adoption of mobile payment tools in Virtual Social Networks: The m-Payment Acceptance Model in Virtual Social Networks (MPAM-VSN). *International Journal of Information Management*, 34(2), 151-166.
- [36] Daly, E. M., Lecue, F., & Bicer, V. (2013, March). Westland row why so slow?: fusing social media and linked data sources for understanding real-time traffic conditions. In *Proceedings of the 2013 international conference on Intelligent user interfaces* (pp. 203-212). ACM.
- [37] Pattuelli, M. C. (2012). Personal name vocabularies as linked open data: A case study of jazz artist names. *Journal of Information Science*, 0165551512455989.
- [38] Jaatun, M. G., Tøndel, I. A., Bernsmed, K., & Nyre, Å. A. (2011). Privacy enhancing technologies for information control. *Privacy Protection Measures and Technologies in Business Organizations*, 1-31.
- [39] Burgess, J., & Green, J. (2013). *YouTube: Online video and participatory culture*. John Wiley & Sons.
- [40] Mugenda, O. M. (1999). Research methods: Quantitative and qualitative approaches. African Centre for Technology Studies.
- [41] Masese Nelson, Samwuel Mbugua, Geoffrey Muchiri (2016). Research data for Phd thesis.

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