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Validating Measures for Community Factors, Facebook Intensity, Individual Differences, Social Capital and Academic Performance among University Students

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Abstract
This study was carried out to validate the measures for community factors, face book intensity, individual differences, social capital and academic performance of university students. A factor analysis was carried out with reliability test to determine whether the measurements had construct validity and reliability. In this regard, the instrument were administered to 100 undergraduate students in Sirte University. An exploratory factor analysis was conducted for all items measuring the constructs which include Community factor (interacting with peers, interacting with lecturer and engaging with students), face book intensity (emotional connection, face book friends, time use on facebook); Individual differences; academic performance and social capital. The principal component analysis (PCA) was used to perform exploratory Factor Analysis (EFA) to find uncorrelated linear combinations of observed variables. The result of the analysis confirmed that Community factor has three dimension: interacting with peers, interacting with lecturer and engaging with students; face book intensity also has three dimension; emotional connection, face book friends, time use on face book. The loadings of all the retained items are above the threshold value and the Cronbach alpha of all the constructs are also above .8 which shows that the instrument is valid and reliable and thus, can be adopted by future researcher.
Keywords: Community factors, Facebook intensity, Social capital, Academic performance

1. Introduction

It is no more deniable that social networking sites on the internet are exacting influence in the different areas of human lives. In the area of education and entertainment, social networks have assumed major tools for building social capital towards interacting and finding areas of common interest which are natural features of human life (Al-Rahmi & Othman, 2013). Scholars of education and the new media have maintained two perspectives about the role of the internet-based media of social networking. One perspective holds the view that social networks are tools of supporting activities that are considered relevant to academic achievement of youths. On the other hand, some scholars insist that social network cultivates in the users, particularly students; bad behaviours and poor time management (Burke, Kraut, & Marlow; 2011).

An important growing activity that has formed a significant aspect of university students' life is their socialization through the Internet (Gemmill & Peterson, 2006). These youth are the largest proportion of population that use computer and Internet intensively mainly for various purposes, in which case, about 46% use them to complete their school assignments, 36% employ them either for e-mail or instant messaging or both, while 38% of these youth use computer and Internet to play computer games (DeBell & Chapman, 2006). In contemporary society, social-networking sites are the latest online instrument of communication that provides the user opportunity to create profile and to connect with and relate to friends and family in their networks (Boyd & Ellison, 2008).

Online Social networking sites (OSNs) such as Facebook, Plurk, LinkedIn, Orkut, MySpace, Twitter, YouTube, Skype and Blog have realized notable popularity in the exchange of different information and in communicating with various cultures worldwide. Notably, OSNs are internet communities based on memberships that allow users to present themselves, navigate through a wide variety of social networks, and build or preserve connections to others (Sheng, Hsu &Wu, 2011). While there is relative abundance of scholarly work on focusing on relationship between social networking sites (SNS) and political uprising like the Arab springs (Beer, 2008); there is dearth of study on how the youths use the Facebook for academic purposes.

However, empirical support for this perspectives, have mainly proliferates in countries where internet culture is well grounded with little study in society with less use of the internet. To put it differently, SNSs are creating a buzz and becoming the centre of discussion in the communications arena but their use in emerging areas where the penetration of social networking sites is just becoming noticaeble has atracted little scholar attention. Some scholars like Kaplan-Leiserson (2000) contend that the younger generation is attracted to a

virtual environment because it provides freedom and independence as well as how well it fits with their technical skills. Following that, there exists a need for more studies to be conducted in order to get a better understanding of the way social networks are being used by people, particularly the young in this transitional Arabic country. Hence, this study was carried out to validate measures for community factors, facebook intensity, individual differences, socila capital and academic performance of university students.

2. Literature Reviewed

2.1 Community Factors

In any society, relationships are the cornerstones of human nature. People naturally seek out connection with each other for support, validation, motivation, acceptance, and many different reasons. In a higher education settings, different types of relationships can influence a person and this includes interaction with peers and teachers, as well as engagement. According to McNeal (1995), peers are individuals who are of roughly equal status or approximately the same age that can be a variety of different networks that look for support in different social situations. However, the impact of peer groups may depend on the amount of time they spend together, the purpose of the groups, the way they provide and identity for the members, and the strength of the network. The concept of strength of network as explain by Zuniga and Valenzuela (2011) calls "network of "strong and "weak ties". Network of strong ties are the friends and family members with whom our interactions are characterized by "intimacy, trust, respect, access and mutual regard while weak network ties refers to those we are less familiar with or whose relationship is not as intimate as the members of family and regular friend. This concept is relevant to use of the internet for educational purposes.

While peer interaction focuses on the relationship between students with their peers, it is also important to consider how relationships between teachers and students can also affect their university life. By forging relationships with teachers who are agents of the university; students can get access to various institutional resources that the teachers can provide such as information about study groups or academic workshops. Englehart (2009) observed that the impact a teacher has on the students does not necessarily mean that they are knowledgeable in the subject matter that they are teaching. Rather, teachers enter the classroom with comparable training in content and pedagogy. It is how the teacher interacts with the students that make a difference in the kind of influence a teacher has with the students. Hall and Wash (2002) stated that effective student-teacher in a classroom is crucial because it creates mutual understanding of the roles and relationships, as well as the norms and expectations of their involvement as members in the classroom. Through interaction, students get a better understanding of the official curriculum and their roles as learners of the subject matter. This interaction does help in terms of not only what the students learn in the classroom but also their participation in future educational events.

Beside peer interaction and teacher interaction, engagement also plays a role. Engagement can be defined as a student's involvement in academic work or in the academic experience of college that requires students to prepare for classes and exams, and includes the time and energy the students expend towards educationally sound activities inside and outside of the classroom (Pascarella &Terenzini, 1991; Kuh, 2003). Therefore, community factors in this study are examined in terms of interaction with peers, lecturers and wngagement with students.

2.2 Facebook Intensity

As noted by Tiffany, Pempek, Yevdokiya, Yermolayeva, Sandra, and Calvert (2009), Facebook.com was set up in 2004 in order to provide a platform exclusively for college students to interact with each other. Today, the site's membership has expanded to more than 49 million users and can be joined by anyone with a valid email address. In similar way with Hopkins (2012), research undertaken by Ellison, Steinfield and Lampe (2007) indicates that Facebook is "primarily used as a tool to maintain existing offline relationships rather than forging new ones" (p. 133). In terms of demographic breakdown in the Arab region, the youth are the dominant group of Facebook users. Youth in particular (with age ranging from 15 to 29) constitutes about 75% of Facebook users. Facebook users in terms of gender shows an average ratio of male to female of 2:1 in the Arab region as compared to about 1.1 ratio around the globe (http://www.digitaltrends.com/computing/infographic-facebook-vs-twitter-2010-user -stats/?news=123).

Facebook provides an opportunity for users particularly college students to create their profiles, make personal information known to other users, upload and display pictures, be able to look at the profiles of other users, gather and make more friends online, and connect to those friends via messages, gifts, and photo tagging (Kalpidou, Dan Costin, & Jessica, 2011). Making new friends on Facebook implies allowing other friends to access and view one's profile or site, post pictures, comment on one's activities in a friendly and socialized manner (Clark, Lee, & Boyer, 2007). As such, facebook intensity in this study are examined via emotional connection, Facebook Friends, and time spent on facebook.

2.3 Social Capital

The concept of social capital is used to refer to the pull of human resources that are derived or are derivable from interaction with fellow human being and the relationships that are spurned from such interaction at different levels of social context. Social capital is a phenomenon that cut across individual, group, organization, community and national levels of the society. The social nature of social capital is not in doubt, but scholars are yet to agree on it private or public character. The central issues is whether social capital is something that individual invest in order to form relationship that will benefit them or whether it is a public good that is available in such a way that social group with social capital would enjoy its benefits (Coleman, 1998). However, the focus of this study is about the use of the social networking sites for the formation of social capital, hence the focus is at the level of individual social capital.

A relevant definition of social capital in this regards is that of Lin (1999) who says social capital as an "investment in social relations by individuals through which they gain access to embedded resources to enhance expected returns of instrumental or expressive actions" (p. 39). The emphasis on benefits in social capital is possible through two concepts in social capital theory: bridging and bonding social capital. Putanm (2000) who was the first to describe this element of social capital explains that bridging social capital refers to it as situation of social relations of social network among heterogeneous group. This relationship helps different group to share and exchange information, ideas and innovation. Furthermore, through the bridging in relations, consensus is built among diverse groups from different diverse interests.

2.4 Individual differences

Individual differences is seen as the variances among people that distinguish them from one another and these differences make an individual to be a unique human being (Jonassen, & Grabowski; 2012). Though few studies on social network sites take into account, individual differences' influences on how and whether people use the Internet as well as the effects of its usage on them (Kross, Verduyn, Demiralp, Park, Lee, Lin, & Ybarra; 2013). According to Bargh, McKenna and Fitzsimons (2002), individuals who are less socially skilled may descend toward computer-mediated communication as it reduces social boundaries, and as such, they might have more to gain from technology than their more socially connected peers.

Burke, Kraut, Williams (2010) examined individual differences using two dimensions: self-esteem and social communication skill. According to them, self-esteem has been used by previous scholars to moderate the relationship between overall SNS use and bridging social capital while, social communication skill gauges comfort with social "chitchat" as well as the ability to identify nonverbal gestures (such as when a partner is getting bored). This two components of individual differences was included in this study to validate previous findings with a more diverse sample and investigate interaction effects with specific site activities. For instance, Ellison et al. (2007) found that intensity of Facebook use (e.g., number of friends, time spent on the site, as well as agreement with attitudinal questions about the integration of Facebook in their daily lives) predicted higher levels of bridging social capital, even when controlling for self-esteem. Also, the result of their study found that the effect was strongest for students with lower self-esteem.

According to Oxford and Ehrman (1992), lecturers are expected to learn how to identify and understand their students' significant individual differences in order to provide the most possible effective teaching. According to them, most lecturers have learnt to do some of this intuitively, but explicit understanding of dimensions of individual difference will enhance their work. As such, self-esteem and social communication skills were included in this study to validate those findings with an international, more diverse sample.

2.5 Academic Performance

The concept of academic performance, though common educational environment, is not easily put down to a single factor. Essentially academic performance is usually about person achievement in terms of grade point average but there are other indicators which according William (2014) are what can be considered as means of academic performance. Grade is a common measurement of academic which may consist of evaluation through rank or weight system. This is has been criticized for its inability to adequately reflect true intelligence, hence the consideration of test score. Test Score is used to compliment the grade system because evaluation in a classroom setting such as earning high marks on IQ tests, standardized testing or college entrance exams, may not reflect intelligence. According to Kayode, Yusoff and Veloo (2014), examining student ability should go beyond their academic performance.

Therefore, leadership is another evaluation that some institution have incorporated into their academic performance. Recognition is given to students who demonstrate competence in various position such as playing leadership role in student body or by regularly organizing student events including raising funds for charity or community services. However, all these are part of the practice of academic performance in educational institution, the most widely accepted is either the grading or test score system which is adopted in this study.

3. Methodology

3.1 Research Design

This study is carried out to validate measures for community factors, facebook intensity, social capital and academic performance among university students in Libya using survey method. Undergraduate students in Libya were the sample for this study. The samples were selected using stratification sampling techniques. 100 students were selected for the first phase for face validity while 475 students were used for the main study.

Five set of instruments were used for the study. The items used to measure the community Factors in this current study were adapted from Kesaraporn (2011); Al-Rahmi and Othman (2013). All items of Facebook intensity comprising three dimensions viz-a-viz emotional factors to use Facebook, reaching out to friend on facebook and, time on Facebook were adapted from Quan-Haase, Quan & Young (2010); Ahlam, & Lawrence, (2008) and Sponcil and Gitimu,(2012) for this study. Individual differences where measures in this study in terms of social communication skills and Self-Esteem. The items for social communication skills were adapted from van Deusrsen, Helsper and Eynon (2014) while the seven items from Rosenberg (1989) were used to measure self-esteem. In this study, social capital was measured using five items from the subscale of the Internet social capital scales developed and validated by Williams (2006). The student academic performance measures were adapted from Pasek, More, and Hargittai, (2009). All responses for all the items in the questionnaire were also tailored on a five-point Likert scale ranging from strongly disagree to strongly agree.

3.2 Content Validity Test

An instrument being developed to measure variables in communication like in all social science studies need to satisfy the requirement of scale development. The instrument was tested for its content validity through the process of expert validation as was outlined by Politt and Beck, (2006). They noted that an instrument development passes two stages—apriori and posterior. In other words, a priori refers to the stage when the researcher makes efforts to conceptualise and generate items for measuring the variables in the study. This was achieved for this study as was shown in the previous sections. This section is concerned about the second aspect which is the posterior efforts meant to evaluate the scale content relevance. This requires expert validation. Essentially, the goal of this content validity through the experts' evaluation is two folds: (1) assessment of content validity of various scales that have been generated and developed for the study (2) removing ambiguity by identifying any item that may be unclear (Polit & Beck, 2006 Delgado-Rico & Carretero-Dios, 2012). A response of 1-4 was distributed to twelve (12) experts in the field of communication and new media study. They were requested to evaluate the questionnaire based on two criteria- representativeness of the domain of study and clarity of the items. Thereafter, the content validity score advanced by Davis (1992) adopted for calculating the index of the instrument based on represented and clarity. When the responses of the experts are summed, a new instrument is expected to be between 0.70--1.00. After the calculation, all items that failed to make this score of 0.80 were dropped from the instrument.

The experts observed that the items measuring **facebook intensity** and **emotional use of facebook** are similar. After examining them, the one emotional use of facebook were retained and face book intensity deleted from the instrument. This is to avoid multicollinearity of constructs. Similar, observation was made about the use of facebook for social networking and the section was also deleted. Other observation made by the experts include: SE question 1-4 is too long, use the term lecturer or teacher consistently, FI 3 is similar to FI2, CFIL is repeated, delete the academic CGPA table etc. thus, some items were dropped or modified according to experts' feedback.

Thus, the questionnaire now contained only the main constructs of the study which are the Facebook intensity and Emotional Use of Facebook; the Academic performance and Socio Capital; and the Self-esteem and social communication skills. Table 1 revealed the number of original items and the new number of items for pilot study according to expert feed back

Table 1: Analysis of experts' feedback.

Constructs/Dimensions	Original items	New number of items for pilot studies
Facebook intensity	22	24
Community Factors	16	19
Academic performance	5	6
Social capital	7	8
Individual Differences	24	27

3.3 Face Validity

After the instrument has been validated by the experts; as suggested by scholars that a pilot test that engages respondents from the similar group of respondents of the study from which the actual data were composed should be carried out (Bradburn, Sudman & Wansink, 2004); the data for this pilot study were collected from 100 under postgraduate students from Sirte University. The university has 3 colleges and three respondents were

randomly selected from each college. The researcher personally distributed and collected the questionnaires in a self-administered manner in order to ensure a 100 percent response rate. Furthermore, the respondents were asked to comment on the questions asked concerning whether they were simple, reasonable or not in order to decrease the incidence of misinterpretation. As a result, their comments and proposals, together with data analysis, were used to enhance the quality of the questionnaire. Based on the gathered data, checks for the consistency and legality of the instrument were executed. Test of internal reliability (Cronbach's alpha) of each questionnaire was conducted using Statistical Package of Social Sciences (SPSS), version 21.0. After the first pilot, the modified set of questionnaire was later administered to 475 respondents.

4. Results

4.1 Profile of Respondents

Analysis of sample by gender revealed that a higher percentage of them were male. In terms of percentage, 63 % (n = 297) of the sample were male while 37% (n = 178) were female. Out of 475 students that respondent to the questionnaire, 44% of them are in final year, 24 % are in their third year of study, 19% are in second year while 12% are in their first year. The respondents age fall within the range 18 – 22 years where 297 (63%) are between 18-20 years old while 178 (37%) of them are within the age bracket 20 -22.

The analysis of the faculty of study the respondents belong indicates that the respondents are fairly evenly across discipline. %59 respondents representing 12% are pursuing courses in Science/Engineering/Agric, 57 representing 12% also doing courses in business/economics. Furthermore, 90 of the respondents representing 19% are reading courses in Arts/law/humanity. However, majority of the respondents 33% (n=158) are those in medicine/medical technology.

It is evident from the respondents that all of them have facebook/twitter account and large portion of them (92%) have access to their account at home. However, 92% of them have less than 50 facebook friends and 42% of such friends are their Acquaintances while 20% of them are in the same college and the rest are either old friends or siblings.

4.2 Factor Analysis

4.2.1 Factor Analysis on Community factor

Analysis of the results of the factor analysis for Community factor (interacting with peers, interacting with lecturers, and engagement with students) indicates that the items measuring interacting with peers and interacting with lecturers were retained. Both two items were deleted from those measuring engagement with students because their loadings were below .50. For the three variables measuring Community factor, seventeen out of the original nineteen were retained. The loadings for the remaining eleven items range from .619 to .828 Also, as contained in Table 4.8 the value of .913 obtained for Kaiser- Meyer- Olkin (KMO) measure of Sampling Adequacy fall within the category classified as marvelous by Hair et al, (2010), while the value of obtained for the Bartlett's sphericity is large enough with associated significance level of 0.000. These are indications that confirm that the remaining items obviously met the conditions for factor analysis based on the results of KMO measure of sampling adequacy and Bartlett's test of sphericity. In addition the result shows that the extraction method of principal component analysis produced an eigenvalue of more than 1.0. This means that the data was significant and could be used for extracting factors (Hair *et al*., 2010) and 17 out of the 19 items were retained after the factor analysis (see Table 3).

Table 3: Factor analysis on Community Factors

Items	Factor 1	Factor 2	Factor 3
CFPEERS1	.733		
CFPEERS2	.643		
CFPEERS3	.638		
CFPEERS4	.619		
CFPEERS5	.683		
CFPEERS6	.757		
CFPEERS7	.728		
CFLECT1		.817	
CFLECT2		.828	
CFLECT3		.782	
CFLECT4		.758	
CFSCENG1			.819
CFSCENG2			.790
CFSCENG3			.786
CFSCENG4			.823
CFSCENG5			.829
CFSCENG6			.810
% of Variance Explained			60.916
Eigenvalue			1.545
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			.913
Bartlett's Test of Sphericity	Approx. Chi-Square		5410.306
	Df		171
	Sig.		0.000

4.2.2 Factor Analysis on Facebook Intensity

The results of the factor analysis carried out for Facebook intensity which has three dimensions as shown in Table 2 indicates that one item was deleted from the Facebook emotion variable due to inability of the item to load up to .50. Thus out of the thirteen items, eleven were retained. The remains eleven items have a loading that ranges from .520 to .799. No item was deleted for Time spent on Face book which has three items but one item was deleted for the variable measuring number of friends on Facebook, thus only seven were retained. Further analysis of the data contained in Table 4.6 shows that the Kaiser- Meyer- Olkin (KMO) measure of Sampling Adequacy is .850 which, using the recommendation of Hair et al, (2010) would be categorized as meritorious. Similarly, the value obtained for the Bartlett's sphericity is large enough and it has associated significance level of 0.000. Taking together, both results KMO measure of sampling adequacy and Bartlett's test of sphericity demonstrated that the remaining items obviously met the conditions for factor analysis (Pallant, 2013; Tabachnick & Fidell, 2013). Also the factor analysis used the principal component analysis as extraction method which required that the PCA result have an eigenvalue of more than 1.0. It shows that the data was significant and could be used for extracting factors (Hair *et al*., 2010). After the extraction, 21 items out of the 24 items were retained and the breakdown into the three components are shown in Table 2.

Table 2: Factor analysis on Facebook Intensity

Items	Factor 1	Factor 2	Factor 3
FBEMT1	.573		
FBEMT3	.608		
FBEMT4	.602		
FBEMT5	.593		
FBEMT6	.534		
FBEMT8	.691		
FBEMT9	.655		
FBEMT10	.584		
FBEMT11	.622		
FBEMT12	.662		
FBEMT13	.610		
FBTIME1		.558	
FBTIME2		.799	
FBTIME3		.792	
FBFRDS1			.520
FBFRDS2			.701
FBFRDS3			.542
FBFRDS4			.767
FBFRDS5			.773
FBFRDS6			.723
FBFRDS7			.749
% of Variance Explained			53.023
Eigenvalue			1.705
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			.850
Bartlett's Test of Sphericity	Approx. Chi-Square		3318.659
	df		153
	Sig.		0.000

4.2.3 Factor Analysis on individual differences

After running the analysis for factor extraction, one item was deleted from those measuring self-esteem while the remaining six were retained. Also, two items from the original six were deleted while four retained. The reason for the deletion was because the item did not load at all. Furthermore, the result in Table 4.10 indicated that the Kaiser- Meyer- Olkin (KMO) measure of Sampling Adequacy (MAS) for individual Differences (self-esteem, Social communication Skills) showed the value of .817 which is regarded as meritorious and appropriate for factor analysis (Hair *et al*., 2010; Pallant, 2011; Tabachnick & Fidell, 2013). From the observed value of Bartlett's sphericity, the result shows that the value was large (4103.932) with associated significance level of 0.000 which was very low. Thus, both results (KMO measure of sampling adequacy and Bartlett's test of sphericity) demonstrated that the items remaining obviously met the conditions for factor analysis.

The extraction method used is through principal component analysis using Kaiser normalization, the requirement was that any PCA result with an eigen value of more than 1.0 meant the data was significant and could be used for extracting factors (Hair *et al*., 2010).

Table 4: Factor analysis on Individual Differences

Items	**Factor 1**	**Factor 2**
Self Esteem 1	.817	
Self Esteem 2	.796	
Self Esteem 3	.804	
Self Esteem 4	.831	
Self Esteem 5	.847	
Self Esteem 6	.820	
Comm. Skill 1		.698
Comm. Skill 2		.778
Comm. Skill 4		.890
Comm. Skill 5		.891
% Variance Explained		76.903
Eigenvalue		.906
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.817
Bartlett's Test of Sphericity	Approx. Chi-Square	4103.932
	df	45
	Sig.	**0.000**

4.2.4 Factor Analysis on Academic Performance

The results of the factor analysis carried out for the items measuring academic performance as displayed in Table 5 shows that all the six items were retained with ranging from .583 to .842. The Kaiser- Meyer- Olkin (KMO) measure of Sampling Adequacy result is .790 which, using the recommendation of Hair et al, (2010) would be categorized as middling of middle category. Similarly, the value of 1021.634 obtained for the Bartlett's sphericity is fairly large and it has associated significance level of 0.000. Taking together, both results KMO measure of sampling adequacy and Bartlett's test of sphericity demonstrated that the remaining items met the conditions for factor analysis (Pallant, 2013; Tabachnick & Fidell, 2013). Also the factor analysis used the principal component analysis as extraction method which required that the PCA result have an eigenvalue of more than 1.0. It shows that the data was significant and could be used for extracting factors (Hair *et al*., 2010). Through principal component analysis using Kaiser normalisation, the PCA result with an eigen value of more than 1.0 indicates the data was significant and could be used for extracting factors (Hair *et al*., 2010).

Table 4.12 Factor solution on Academic Performance

Items		**Factor**
ACADPEF1		.659
ACADPEF2		.774
ACADPEF3		.812
ACADPEF4		.842
ACADPEF5		.643
ACADPEF6		.583
% Variance Explained		52.58
Eigenvalue		3.155
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.795
Bartlett's Test of Sphericity	Approx. Chi-Square	1021.634
	df	15
	Sig.	.000

4.2.5 Factor Analysis on Social Capital

The results of the factor analysis carried out for the items measuring Social Capital
as shown in Table 4.12 shows that all the five items were retained with values ranging from .647 to .790. The Kaiser- Meyer- Olkin (KMO) measure of Sampling Adequacy result is .813. As recommended by Hair et al, (2010) this value would be categorized as meritorious. Similarly, the value of 648.730 obtained for the Bartlett's sphericity is fairly large and it has associated significance level of 0.000. Taking together, both results KMO measure of sampling adequacy and Bartlett's test of sphericity demonstrated that the remaining items met the conditions for factor analysis (Pallant, 2013; Tabachnick & Fidell, 2013). Also the factor analysis used the principal component analysis as extraction method which required that the PCA result have an eigenvalue of more than 1.0. It shows that the data was significant and could be used for extracting factors (Hair *et al*., 2010).

Table 6: Factor analysis for Social Capital

Items		**Factor**
SOCCAP1		.746
SOCCAP2		.740
SOCCAP3		.774
SOCCAP4		.790
SOCCAP5		.647
Eigenvalue		1.855
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.813**
Bartlett's Test of Sphericity	Approx. Chi-Square	648.730
	df	10
	Sig.	.000

4.3 Nomological validity of the scales

The nomological validity of the scales for this study were evaluated by examining the relationship with the highly correlated variables as suggested by previous studies. As it has been established by previous scholars that the five variables in this study are interrelated, the researcher therefore, examined the relationship between the five variables in this study. As seen in Table 7, all the variables are significantly related and the correlation coefficient were all less than 0.9. Therefore, the items for this study are adjudge to be valid and reliable.

Table 7: Inter correlations among the variables

Variables	facebook intensity	Community factor	academic Perfomance	Social capital	Individual Differences
facebook intensity	1				
Community factor	.444**	1			
academic Perfomance	.170**	.394**	1		
Social capital	.488**	.461**	.318**	1	
Individual Differences	.384**	.797**	.359**	.382**	1

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

4.4 Reliability test for the instrument

Reliability analysis was conducted with the aim of testing the internal consistency of the measures before launching the questionnaire to the respondents using Cronbach's Alpha. This had been the most frequently used reliability measure by researchers to test the internal consistency of instruments and it was also used in this study. The most common way of measuring internal consistency using the Cronbach's alpha coefficients always indicated the average correlation among all items of the scale (Pallant, 2013). Moreover, reliability test was undertaken to evaluate the goodness of the measurement by determining the internal consistency of the measurement items as the items were grouped under one factor. Some scholars (Hair *et al*., 2010; Pallant, 2013) suggested that a research should have a Cronbach's alpha coefficients above .70 of a scale. Sekaran (2013) also opined that a Cronbach's alpha slightly lower than .60 was considered to be poor and those in the .70 was acceptable and those over .80 were good. In this study, the recommendations suggested by the scholars were applied. The analyse-scale-reliability procedures were followed to conduct the reliability of the scale and the output was summarized in the Table 8.

Table 8: Reliability test of the variables

Main Constructs	**Variables**	**Nos of Items**	**Cronbach's Alpha**
Facebook intensity	Facebook emotion	11	.836
	Facebook Time	03	.544
	Facebook Friends	06	.803
Community factors	Interacting with peers	07	.813
	Interacting with lecturers	04	.807
	Engagement with students	06	.903
Individual differences	Self Esteem	06	.903
	Social Communication skills	04	.837
Academic performance	Academic performance	06	.816
Social Capital	Social Capital	05	.786

Discussion and conclusion

This study was carried out to validate instrument for community factors, facebook intensity, individual differences, social capital and academic performance among universities students. Factor analysis which is the most adopted method in the research methodology for exploratory and confirmatory analysis was conducted as well as reliability testing. According to Hair et al. (2009), factor analysis is described as combining the related variables together and analyzing them for the purpose of reducing a large number of variables. Factors are considered significant if the loading is greater than 0.30 (absolute value), and considered more important if the loading is 0.40, and they are considered very significant if the loading is 0.50 or greater.

According to DeCoster (1998), in exploratory factor analysis, the aim is to determine how a set of constructs can influence a set of responses while confirmatory factor analysis is aimed at testing whether a predetermined set of constructs can influence responses in a way that has been predicted. As obtained in this study, the loadings for community factors, facebook intensity, individual differences, social capital and student academic performance were between the range .619-.829; .520 - .799; .698-.891; .647- .790 .and .583- . 842 respectively. Therefore, the final items considering their Eigen value, KMO and % of variance explained are adjudge to be valid and reliable. Secondly, the nomological validity through the correlation matrix support the validity of the construct under study.

The information of several statistics is observed in order to verify whether factor analysis is appropriate or not. One of them is the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. According to Hair, Anderson, Tatharm and Black (1998), the minimum acceptable value of KMO is 0.50 or above. Besides that, the Bartlett's test of sphericity should produce a significant chi-square value. More specifically, values between 0.50 and 0.70 are good, values between 0.80 and 0.90 are great and value above 0.90 are super (Hutcheson and Sofroniou, 1999).

The dimensions of facebook intensity which are : emotion to use facebook; time spent on facebook as well as facebook friends as obtained in this study is also in line with Quan-Haase, Quan & Young (2010); Ahlam, & Lawrence, (2008); Sponcil and Gitimu (2012) and Clark et al (2007). The interaction with peers (Hall & Wash, 2002), interaction with the lecturers (Englehart, 2009) and engagement with the students (Kuh, 2003) have been confirmed in this study as the three dimensions of community factors which is in line with Kesaraporn (2011); Al-Rahmi and Othman (2013). It is also evident in the factor analysis that individual differences has two components: self-esteem (Rosenberg, 1989) and social communication skills (van Deusrsen et al, 2014) even though the items were from two separate studies (Burke et al, 2010). Both social capital and student academic performance are unidimensional constructs as revealed in this present study which is consistent with Williams (2006) and Pasek et al (2009) respectively. Furthermore, in the reliability testing, the Cronbach alpha are between and for all the constructs signifying that items measuring all the construct are reliable. The Cronbach alpha are all above the threshold value except facebook time which is .544. This implies that the items are valid and reliable in measuring the variables of this study.

Conclusively, as revealed in the factor analysis, facebook intensity has three dimensions (emotion to use facebook, time spent on facebook and facebook friends); community factors also has three dimensions (interacting with peers, interacting with lecturers and engagement with students) while individual differences has two dimensions (self-esteem and social communication skills. However, social capital and academic performance are unidimensional construct. Therefore, this instrument is a good instrument to be used both in universities in Libya and the world at large.

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