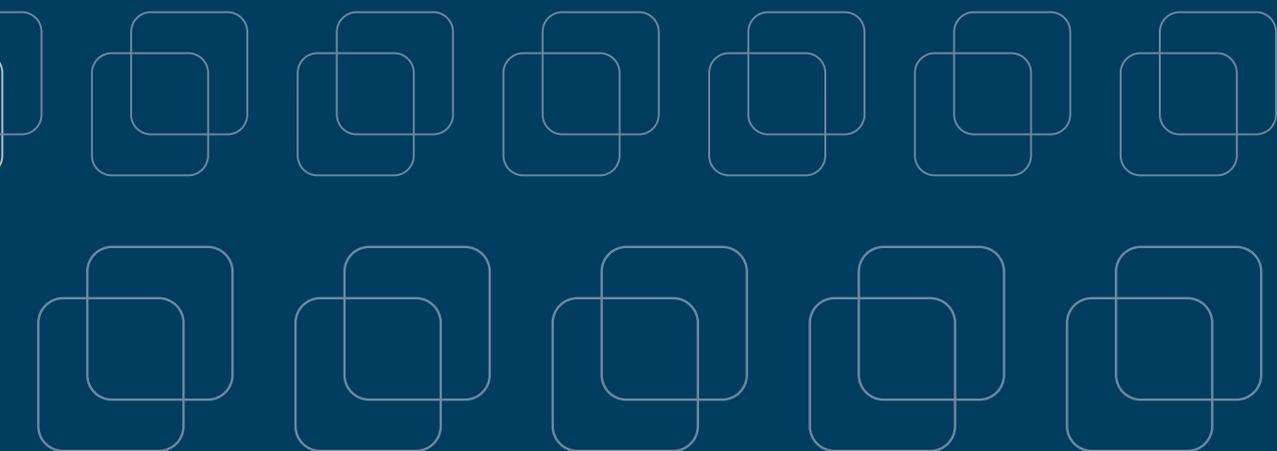


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LEAD ARTICLE

An empirical study on the cognitive attitude of rural children using mobile phones (based on the example of children from rural areas in Northern Suzhou)

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Abstract

The small-screen era has created a new life scene for China's 'Internet generation'. With the increase in mobile phone penetration among rural children, entertainment has become the biggest goal of rural children using mobile phones. The mobile phone usage of rural children is mostly concentrated on short videos, WeChat and other information apps. The method of direct prohibition adopted by parents and school is not effective in correcting the child's attitude towards using the phone. The simple living environment of rural children and the left-behind phenomenon leads to the lack of parental supervision. Systematic analysis of rural children's attitude towards the use of mobile phones and finding factors affecting their use of mobile phones can effectively guide them to obtain knowledge and achieve anti-sinking purpose. Based on the ABC attitude model combined with face-to-face interviews, this paper firstly determines the influencing variables and designs the questionnaire for collecting the data in the rural schools. With fitting of structural equation model, the attitude model affecting rural children's use of mobile phones is established. The factors influencing rural children's mobile phone use are analyzed to improve the essential understanding of the problem.

Keywords

Rural children, left-behind children, mobile phone use, attitude model.

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Introduction

Background

There are three types of children in rural China: migrant children (following migrant workers in cities), non-left-behind children, and left-behind children. Left-behind children account for a large proportion of rural children in the current transition period of the Chinese economy. Left-behind children refer to children with one or both parents out for work and are attended to by their grandparents or other relatives. Compared with the situation of being left-behind right after birth, in recent years, the proportion of left-behind children who return to their hometowns from their parents' working place has increased due to the education regulation (Chinese education policy states that after 9 years of compulsory education, students need to return to registered residence to continue higher education). According to the accurate statistics (*XinhuaNet*, 2018), the number of left-behind children in the country in 2018 was 6.97 million. The '2018 White Paper on the mental status of left-behind children in China' pointed out that among the 3,451 left-behind children in the survey sample, 40% met with their parents no more than 2 times, and 20% of the children met with their parents no more than four times. The interaction between rural children and the media has formed an important part of their contact with the world. The positive and negative effects brought about by the massive information in mobile phones have become the topic of in-depth research in the communication field. Parental companionship, school guidance and other factors influence rural children's perception and consumption behavior of mobile media. The most commonly used function of mobile phone for rural children is entertainment. Parents and teachers often use isolation method to reduce the contact between children and mobile phones. In the process of mobile phone media exposure, rural children are not able to correctly recognize the 'anesthetic effect'. Rural children's use of mobile phones, cognitive attitudes and how parents and schools should interpret the role of mobile media in the growth of rural children are the main subjects of this article.

Review of current research

In the current research, left-behind children in rural children are socially topical due to intergenerational supervision and the gradual increase in crime rates. Most of the literature focuses on the study of left-behind children, while taking non-left-behind children in the same living environment as comparative objects. Research mainly focus on mental state, crime rate, and factors affecting growth.

Taking CNKI as an example, the literature with key words of ‘village’, ‘left-behind children’, ‘media’ and ‘mobile phone’ focuses on the influence of media on the socialization of left-behind children, the use of media by rural children, emotional supply of media to left-behind children and media violence on left-behind children. Individuals form the coherent personality through the process of socialization (Robert, 1986). Xiangchen Wang believes that in terms of socialization, the process that occurs during the childhood has a vital impact on children’s formation of value system, role perception, and externalized role behaviors, which are the key factors in the children’s growth and development. Left-behind children must face the long-distance nature of parent-child interactions for long periods. The wrong orientation of value system during this period will be difficult for timely and effective correction. Therefore, in the socialization of left-behind children, neither the ‘basic effect’ nor the ‘corrective effect’ of family can be effectively exerted (Xiangchen, 2017). Haining Dong’s research conclusions show that within the range of empirical indicators involved in the social study of left-behind children, the socializations of left-behind children and non-left-behind children show great disparity, and there are far more differences than consistencies. The differences are mainly reflected in the relatively worse socialization of left-behind children. This means that the negative impact of lack of parental supervision on the socialization of children is real (Chuanxin, 2013).

According to the survey, rural schools mostly adopt the collective residence system. Almost every parent provides a mobile phone to the children for convenient contact. Contrary to that, both schools and parents oppose children’s use of mobile phones for other purposes. Nonetheless, the new media rural children are exposed to can actually help them to understand the world and promote their transformation to ‘social people’. Moreover, the use of mobile phones, tablets, and computers can diversify the way to acquire information and the channels of friend-making (Wei, 2017). The problem of using mobile phones imparting more harm than good to is due to the low media literacy of rural children. Most of their purposes are focused on entertainment, without proper guidance to enable them to identify received information and realize the ‘anesthetic effect’. The parents mostly focus on farming and working outside the home, and rarely give correct supervision of children’s contact with the media, resulting in rural children’s overuse of leisure function and overexposure to the entertainment media information. According to the 42nd Statistical Report on China’s Internet Development Status released by China Internet Network Information Center (CNNIC), as of June 2018, the overall Internet penetration

rate of minors in China was as high as 98.1%, and 57.1% of minors were online. Their purposes are mainly entertainments such as short video, chat dating, gossip news, online games, etc. (Rui, 2019). Rui Zhang believes although the social media like short videos allows them to entertain and relax, some vulgar contents have subtly changed their cognition and behavior patterns. In return, the children who are acculturated by the vulgar contents have continued to 'reverse acculturate' short video media, forming a vicious circle of 'bad money driving out good' in the recommended contents.

Current research mostly focuses on the role of the social media in the process of socialization of rural children and the influence of the social media on them. There are few studies based on the inner aspects of rural children and exploring their cognition and other psychological factors affecting their use of mobile phones. Rural children in the period of rebelliousness have delicate emotions and lack of communication and understanding from outside world. The emergence of mobile phones has opened another door to the world for them. Finding the attitude of rural teenagers using mobile phones and therefore remedying the case can reduce the phenomenon of 'entertainment to death' in rural teenagers addicted to mobile phones. Then the advantage of diversified information in mobile phones can be truly integrated into the life of rural teenagers. The purpose of this paper is to measure the attitude of rural children in controlling using mobile phones, the intention of left-behind children to use mobile phones and media, and to find out the emotional impact of using mobile phones on left-behind children. It proposes suggestions on how parents and schools should correctly guide rural children to use mobile phones in a healthy way.

Methods

The development of society has created a special environment for rural children. The influence of the social media is based on communication and dialogue with rural children. Dialectics believes that the internal cause is the basis of change. The external cause is the condition of change and acts through the internal cause. In order to exert the positive influence of the social media on rural children, it is necessary to start from the self-attitude of rural children and understand their awareness of cognition, emotion and self-control in using mobile phones.

Attitude is an internal state of human beings, acquired through the surrounding environment, accumulated knowledge and built-up emotions of life. The attitude of rural teenagers using mobile phones largely determines their behavior of controlling mobile phone use. Fishbein & Ajzen (1975) put forward the theory of rational action. The theory holds that attitude is the latent cause of

behavior. By studying attitude, we can investigate people's behavior indirectly. The best way to predict whether people take certain behaviors is to understand their behavioral intentions. There are two factors that affect the intention of behavior: one is the attitude towards the behavior, the like or dislike, the approval or the opposition; the other is the subjective standard, the perceived social pressure of conducting certain behavior (Rongjian, 2004).

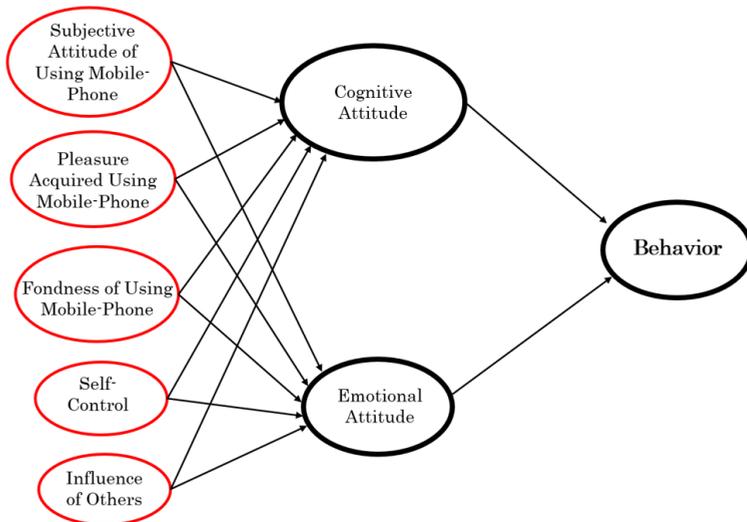
Hawkins et al. pointed out that attitude is the long-term cognitive evaluation, emotional feeling and behavioral tendency of the individual regarding certain things or ideas. That is, attitude is a combination of cognitive components, emotional components and behavioral components. (Sears, 1991). This definition reveals the importance of the three components of cognition, emotion and behavior to the attitude, and reflects the three states that complement each other. It is therefore called the ABC attitude model (Yangchen, 2018).

Based on the above theories, the authors begin with revealing the attitude of rural children controlling mobile phones. Mobile phones and rural children form a subject-object relationship. In the practice of traditional TV programs, the standard requires the content of radio and television to meet the broad aesthetic needs of the audience, which fundamentally determines the content and form of radio and television (Yangchen, 2018). On the other hand, rural children's dependence on mobile phones is based on the communication and interaction with media information in mobile phones. Rural children's attitude towards the use of mobile phones includes two dimensions: one is positioning of whether the self should control using mobile phones, and the other is the acquired experience of mobile media. The ABC attitude model considers that cognition is the subject's possessed understanding of the object. Emotion is the subject's accumulated perception of the object. Behavior is the action the subject ultimately adopts on the object. To explore the attitude of rural children to the use of mobile phones, it is necessary to have an in-depth understanding of rural children's self-control of mobile phones and the awareness and emotions of mobile media. Both of them affect the control of rural children's use of mobile phones.

In order to ensure the accuracy and diversity of the influencing variables, the author conducted in-depth interviews with 30 rural children from the three rural middle schools, namely Yangzhuang Middle School (Yuqiao District), Suzhou Cit, Shaoyu Town Middle School (Daishan County), and Siyuan Middle School (Xiao County). The interviewees were randomly picked and diversified in academic performance. According to their feedback, they are interested in using mobile phones and at the same time have obvious awareness of controlling using phones. Based on the theory of rational action, the author conducted interviews based on

students' attitudes towards their behavior of using mobile phones, the joy in the using and the obtained satisfaction. In the interviews, the children repeatedly mentioned that the factors influencing their mobile phone use behaviors were the following: the subjective control, the pleasure of mobile phones, the degree of use, the behavior of self-control, and the influence of others. Based on the ABC model and the interview, the authors use the keywords as the influencing variables, the cognitive attitude and emotional attitude as the intermediate variables that ultimately influence the behavior. The model is shown in *Figure 1*.

Figure 1



Based on ABC attitude model, hypotheses H1 and H2 are proposed:

H1: The cognitive attitude negatively influences the behavior.

H2: The emotional attitude positively influences the behavior.

Based on the interview, the authors propose the following hypothesis describing how the influencing variables affects the intermediate variables:

H3: The subjective attitude of using phones positively influences the cognitive attitude.

H4: The subjective attitude of using phones negatively influences the emotional attitude.

H5: The pleasure acquired using phones negatively influences the cognitive attitude.

H6: The pleasure acquired using phones positively influences the emotional attitude.

H7: The fondness of using phones negatively influences the cognitive attitude.

H8: The fondness of using phones positively influences the emotional attitude.

H9: The self-control positively influences the cognitive attitude.

H10: The self-control negatively influences the emotional attitude.

H11: The influence of others positively influences the cognitive attitude.

H12: The influence of others negatively influences the emotional attitude.

Based on Rongjian Mao's 'Initial scale for exercise attitude' (Rongjian, 2004), a questionnaire with five-point Likert scale is designed combining the designed variable factors in the interview and the related attitude theory. The questionnaire is divided into three parts: the demographic questionnaire, the sample screening questionnaire and the questionnaire to measure the related variables.

The subjects of this paper are middle school students from districts, counties and towns in Suzhou City, Anhui Province. There are numerous migrant workers in Anhui, and its rural population accounts for 45.31% of the total population. According to the latest big data, the number of left-behind children in Anhui Province is 736,000, accounting for 10.6% of the total number of left-behind children in the country, ranking second in the country. Located in the north of Anhui, Suzhou is dominated by plain landforms and densely populated. Land cultivation is insufficient to meet the economic requirements of the rural population, forcing young and middle-aged people to go out to work to improve their living conditions. The number of rural children in Suzhou is huge and representative. In order to diversify the results of the questionnaire, the author selects three middle schools in different regions, and the students in the first, second and third grades are randomly selected through questionnaires. Using on-the-spot distribution, on-site answering, a total of 700 questionnaires were distributed and 547 were collected as effective questionnaires. The effective recovery rate of samples was 78.1%.

Results

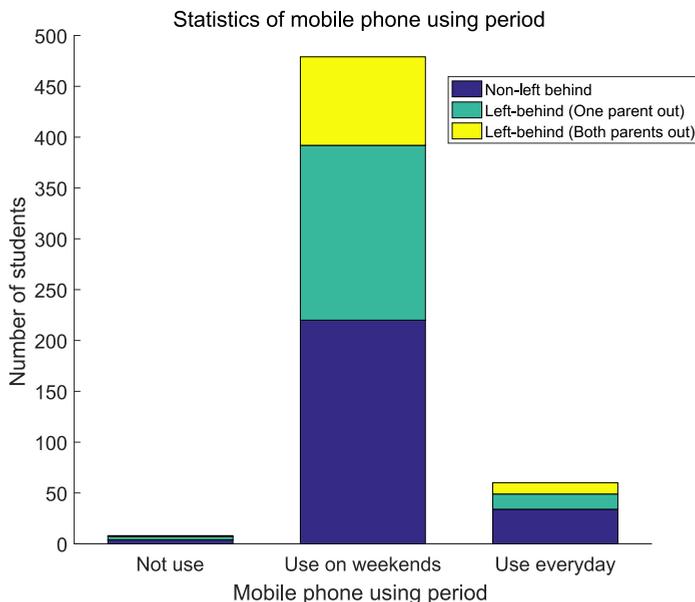
The total number of valid questionnaires was 547 (male 222, female 325), of which 258 were non-left-behind children (male 100, female 158) and 289 left-behind children (male 122, female 167). The proportion of female students is higher than that of male students. Among the 289 left-behind children, 99 children are taken care of by grandparents or other relatives with both parents out for work and 190 children have one parent by side (*Table 1*).

Table 1

Category	Male	Female	Total
Non-left-behind	100	158	258
Left-behind (one parent out)	45	54	99
Left-behind (both parents out)	77	113	190
Total	222	325	547

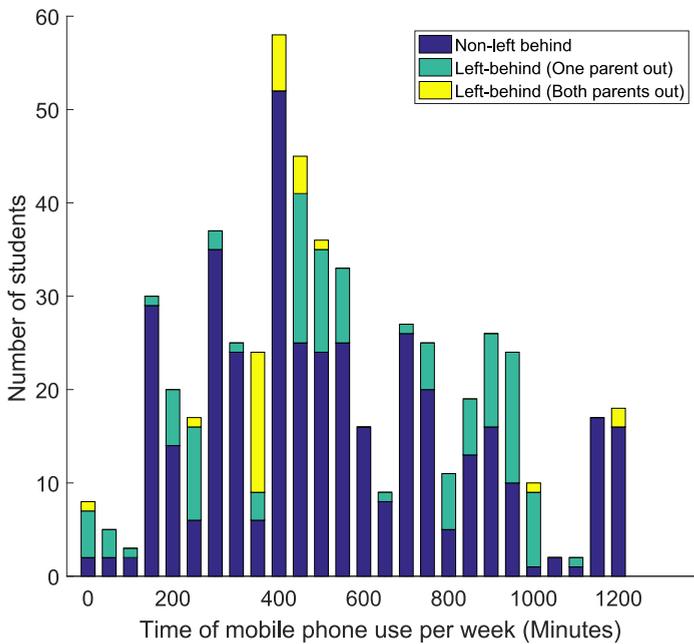
The investigated students mostly live in the school due to the inconvenient transportation in the area. During school hours, the school confiscates the phones and students cannot use their phones on weekdays. In the weekend, the school returns the phones, resulting in the concentration of phone-using time on Saturday and Sunday. Out of 547 people, 479 of them use phones during the weekend and 60 of them use phones every day. 8 people said they do not use phones other than making calls. In order to ensure the reliability of the data, the authors learned that they were taken care of by their grandparents and are not provided with phones by their parents. The ‘elder phones’ used by grandparents only have functions to make calls and send messages. They are mainly in contact with traditional media in daily life, but they are exposed to online media through public places such as Internet cafes.

Figure 2



The maximum time for mobile phone use in the tested rural children during the weekend is 1,245 minutes, with a minimum of 0 and an average of 305 minutes per person per weekend. Among them, the highest value of mobile phones used by 289 left-behind children is 1245, the lowest value is 0, and the average value is 328 minutes. The maximum value of mobile phones for non-left-behind children on weekends is 1020 minutes and the lowest is 0. Left-behind children use the mobile phone market for two days on weekends, which is slightly higher than that of non-left-behind children. The detailed time is plotted in *Figure 3*.

Figure 3



According to the commonly used mobile phone app, the author initially lists ten app options: 1. QQ 2. WeChat 3. Tencent video 4. Iqiyi 5. Tik Tok 6. Kuaishou video 7. Huoshan video 8. Weibo 9. Bilibili 10: Others (with blanks to fill). The result shows that the frequency of playing games and reading novels is high in option 10.

Table 2

Frequency order	App name
1	QQ
2	Wechat
3	Kuaishou
4	Tik Tok
5	Tencent video
6	Iqiyi
7	Others (novels, games)
8	Weibo
9	Bilibili
10	Huoshao video

QQ is the most popular app for rural children. Through QQ they can chat, express their mood, and find group companions. QQ has become the first way for rural children to entertain and express their mood.

The commonly used reliability test is based on the Cronbach's alpha value. The alpha value greater than or equal to 0.7 indicates that the reliability of the scale is acceptable. The author uses SPSS 23.0 as the tool to separately measure the five influencing: subjective attitude of using mobile phones (SAUMP), pleasure acquired using mobile phones (PAUMP), fondness of using mobile phones (FUMP), self-control and influence of others. The alpha values are 0.717, 0.740, 0.725, 0.712, and 0.707, respectively. The intermediate variables, attitude of controlling using phones (cognitive attitude) and emotional attitude, are affected by the five influencing variables, with alpha values of 0.778 and 0.740. The total reliability of the scale was 0.742. The result variable (behavior) has alpha value of 0.712. All the alpha values are greater than the recommended value of 0.7, indicating good reliability of the scale.

Table 3

Variables and questions		Corrected item-total correlation	Cronbach's alpha if item deleted	Cronbach's alpha
Subjective attitude of using mobile phones	SAUMP1	0.573	0.657	0.740
	SAUMP2	0.525	0.686	
	SAUMP3	0.45	0.726	
	SAUMP4	0.585	0.65	
Pleasure acquired using mobile phones	PAUMP1	0.544	0.631	0.717
	PAUMP2	0.516	0.648	
	PAUMP3	0.466	0.678	
	PAUMP4	0.492	0.662	
Fondness of using mobile phones	FUMP1	0.563	0.634	0.725
	FUMP2	0.632	0.591	
	FUMP3	0.364	0.751	
	FUMP4	0.516	0.665	
Self-control	SC1	0.511	0.642	0.712
	SC2	0.518	0.638	
	SC3	0.487	0.656	
	SC4	0.478	0.661	
Influence of others	IO1	0.55	0.671	0.707
	IO2	0.632	0.572	
	IO3	0.515	0.713	
Cognitive attitude	CA1	0.531	0.763	0.778
	CA2	0.674	0.675	
	CA3	0.581	0.731	
	CA4	0.577	0.728	
Emotional attitude	EA1	0.550	0.671	0.740
	EA2	0.632	0.572	
	EA3	0.515	0.713	
Behavior	B1	0.562	0.649	0.736
	B2	0.541	0.674	
	B3	0.582	0.625	

The variables of the theoretical model are related and interact with each other, which makes them suitable for structural analysis (SEM) analysis. The corresponding structural equation model (SEM) in Figure 1 is built and fitted in AMOS 22. The fitting indices indicate the degree of good fitting. Here we choose χ^2/df , RMR, RMSEA, GFI, CFI, IFI as the fitting indices. The obtained values and the recommended ones are listed in Table 4.

Table 4

Fitting index	χ^2	df	χ^2/df	RMR	RMSEA	GFI	CFI	IFI
Value	766.2	356	2.15	0.080	0.046	0.909	0.919	0.920
Recommended			<5	<0.09	<0.05	>0.9	>0.9	>0.9

All the fitting indices meet the requirement, which indicates an overall good fitting of the model. Next step is to test the convergent validity. For each variable the composite reliability (CR) should be greater than 0.7 and average variance extracted (AVE) greater than 0.5. The result is listed in Table 5.

Table 5

Variables and questions		Factor loading	Composite reliability (CR)	Average variance extracted (AVE)
Subjective attitude of using mobile phones	SAUMP1	0.72	0.815	0.526
	SAUMP2	0.68		
	SAUMP3	0.67		
	SAUMP4	0.82		
Pleasure acquired using mobile phones	PAUMP1	0.76	0.830	0.553
	PAUMP2	0.78		
	PAUMP3	0.62		
	PAUMP4	0.80		
Fondness of using mobile phones	FUMP1	0.72	0.815	0.527
	FUMP2	0.63		
	FUMP3	0.71		
	FUMP4	0.83		
Self-control	SC1	0.68	0.823	0.538
	SC2	0.73		
	SC3	0.71		
	SC4	0.81		
Influence of others	IOO1	0.75	0.810	0.517
	IOO2	0.75		
	IOO3	0.64		
	CA1	0.73		
Cognitive attitude	CA2	0.65	0.786	0.552
	CA3	0.80		
	CA4	0.77		
Emotional attitude	EA1	0.74	0.767	0.527
	EA2	0.82		
	EA3	0.60		
Behavior	B1	0.69	0.751	0.504
	B2	0.63		
	B3	0.80		

All the variables meet the requirement of CR and AVE, indicating good convergent validity, which means that the questions used to measure the variables can well cover the content while having little crosstalk with each other.

With the confirmation of good validity, the hypotheses can be tested. The path coefficients and P values of each hypothesis are listed in Table 6.

Table 6

Hypotheses		Standardized path coefficient	P value	Result
H1	Behavior ← Cognitive attitude	-0.115	**	Supported
H2	Behavior ← Emotional attitude	0.884	***	Supported
H3	Cognitive attitude ← SAUMP	0.024	0.748	Not supported
H4	Emotional attitude ← SAUMP	0.227	***	Supported
H5	Cognitive attitude ← PAUMP	-0.266	**	Supported
H6	Emotional attitude ← PAUMP	0.334	***	Supported
H7	Cognitive attitude ← FUMP	-0.223	**	Supported
H8	Emotional attitude ← FUMP	0.502	***	Supported
H9	Cognitive attitude ← Self-control	0.244	***	Supported
H10	Emotional attitude ← Self-control	-0.059	0.298	Not supported
H11	Cognitive attitude ← Influence of others	0.168	**	Supported
H12	Emotional attitude ← Influence of others	0.093	0.104	Not supported

*** $P < 0.01$, ** $P < 0.05$

Most of the hypotheses are supported by the result, the cognitive attitude has negative influence on the behavior, but with a minor weight of -0.115. The emotional attitude has a strong positive influence on the behavior with a weight of 0.884. Both H1 and H2 are supported.

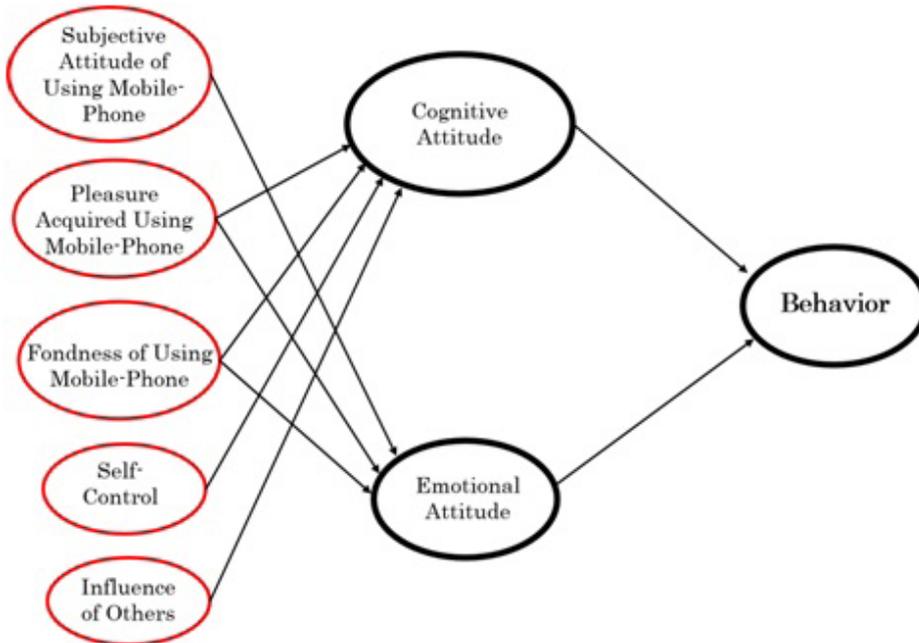
Regarding the effect of the influencing variables on the cognitive attitude, PAUMP and FUMP have negative influence on the cognitive attitude, while self-control and influence of others have positive. However, the result shows SAUMP ($P = 0.748$) does not have influence on cognitive attitude. Hypotheses H5, H7, H9 and H11 are supported and H3 is not.

For the emotional attitude, SAUMP, PAUMP and FUMP are found to have positive influence on it while the effects of self-control and influence of others are not obvious. Hypotheses H4, H6 and H8 are supported while H10 and H12 are not.

In our model, the cognitive attitude is the attitude to control using the mobile phone, and the emotional attitude is the emotional experience of the mobile phone accumulated in the process of using the mobile phone. The higher the cognitive attitude of controlling the mobile phone, the more it suppresses the subject's use of phone. Therefore, it should have a negative impact on the use of phone. The higher the emotional attitude, the more dependent the subject is on the phone, and thus it should have a positive impact on usage behavior.

Both assumptions are supported in the analyzing result. However, the subjective attitude of using mobile phone does not have an impact on the cognitive attitude as hypothesized, neither do self-control and influence of others on emotional attitude. After the analysis, the authors randomly picked 30 subjects and phone-interviewed them to have some insights. The interviewees generally have the consciousness of controlling using phones and recognize the influence of excessive usage on personal life and study. The cognitive attitude of controlling using phone always exist and is not affected by the subjective attitude towards phones. The self-control, according to the interviewees, mainly originate from the interference of their parents and the pressure from study. The emotional attitude is built in the interaction with phones. So, the overall feeling of using phones is not affected by the deliberate control. The influence of others is mainly from their peers, parents and teachers. In terms of the choice of apps, recommendation for contents, they are mainly influenced by their peers. But the built-up of the emotion can only happen between the subject and the phone. The influence of others on the emotional attitude is also not obvious. The modified model is plotted in Figure 4.

Figure 4



According to the model, the most effective influencing variables are focused on the experience of using phones. The pleasure acquired using phones and fondness of using phones even have strong impact on both the cognitive attitude and emotional attitude. The authors believe that key point of children's attitude towards using phones is about where the euphoria and fondness originates. Different acquiring channels determine the role mobile phones play and the quality of the received information. According to the interview, for most rural children the channel of how the influencing variables are generated comes from 'entertainment', which is deemed the main reason for the passive behavior. Correcting the attitude of rural children using mobile phones and expanding its functions in life can correctly shape the use behavior.

Analysis

According to the model built, here we propose some suggestions for guiding rural children to correctly use mobile phones.

(1) Transform the joy of entertainment to sense of fulfillment

In our model, there are two variables that affect cognitive attitude and emotional attitude: pleasure acquired using mobile phones and fondness of using mobile phones. In terms of the relationship between the two variables, the more pleasure gained in the process of using mobile phones, the more fondness accumulated. From the current interviews and other literature reflecting the situation of rural children, the pleasure of using mobile phones mostly comes from entertainment channels such as games and videos. In other words, for rural children, the function of the mobile phone is only 'playing', not a tool for self-improvement. In the current economic background of China, the influence of hardware on the knowledge gap between rural and urban children has weakened. The basic literacy of rural children is the key to closing the gap with urban children. As the principle education site, schools should change their fearful attitude to mobile phones and put mobile phones in a neutral position to inform students of the advantages and disadvantages and correctly guide them to explore knowledge and assimilate mobile phones into tools for learning and understanding the world. When the source of pleasure in using mobile phones changes from entertainment to sense of fulfillment in improving themselves, rural students will re-construct their attitude towards using mobile phones and form a benign use cycle with mobile phone media.

(2) Systemize anti-sinking function

The subjective attitude of using mobile phones in the model affects emotional attitude. When rural children begin to emotionally rely on mobile phones, the

probability of mobile phone addiction formation will increase. The subjective attitude can be divided into two parts. The first is the constructed subjective feeling towards contents during the use of mobile phones. The second comes from the influence of the environment created by the mobile phone media transmission system on children's perception of using mobile phones. Regarding the former, improving the media literacy by correct guidance can effectively reverse their feeling of over-entertainment. With respect to the latter, it is beneficial to create an anti-addiction online environment for juveniles through the self-management of mobile media system.

Taking China's mobile game market as an example, elementary school and junior high school students account for a relatively large proportion in the market. The game environment full of younger users creates a sense of belonging for underage children, which induce younger audiences to become addicted to the game. Rural children lack effective supervision due to family factors and therefore are more likely to overuse mobile phones than urban peers. From the perspective of mobile media communication, the type of audience should be distinguished to enable restrictions on children's use. This restriction is currently implemented in some game apps. For example, the 'Children's Lock' system of the mobile game 'Glory of the King' by Tencent regulates that users under 12 years of age can only play the game with parental consent and online certification under restriction of less than one-hour daily game time. Juveniles over 12 years of age must not play more than two hours per day. This regulation has reduced the number of young users by 40%.

For the mobile media that attracts young users, classification in the management mechanism establishment of anti-indulgence systems such as time limit can promote the awareness of rural children and reduce their excessive use of mobile phones for entertainment. Therefore, a healthy attitude of mobile media contact can be built and the sense of anti-indulgence from the objective environment can be created.

(3) Strengthen the concept of influence from others

The influence of others in the author's model includes two aspects: group influence and parental influence. Group influence originates from the sharing of content in mobile phones among peers. Parental influence is the key to controlling use of mobile phones. Attachment theory points out that from the time of infant, the interaction between parents and children will affect the formation of children's personality, whose influence is lifetime long (Chunyang, 2019). Rural teenagers are initially out of childishness but still lack maturity.

It is still necessary for parents to correctly guide them to establish the cognition of world. Unfortunately, it is in general difficult for parents of rural children to set a good example due to reasons like insufficient education. Some parents themselves are the loyal users of entertainment apps such as Tik Tok. Even in the limited accompany with children, they are still unable to escape the dependence on phones, failing to satisfy their children's need for family affection, let alone providing correct guidance. The premise of correcting the attitude of rural children using phones is that parents have a fair sense of equally treating the phone-using behavior of both themselves and their children, understanding their needs for emotion and life and shaping the benign relationship between children and phones with self-example.

In short, in China's current network environment, mobile phones are not only a communication tool, but developed into a mobile Internet medium. The up and down sides of mobile phones are determined by the attitude of the user. The positive side of the mobile phone is the improvement on the alienated relationship between rural children and parents to certain extent. Controlling mobile phone behavior is not just a matter for rural children, but also for adults. Parents' correct attitude on use of phones can directly influence the attitude of their children, promoting them to control the excessive use and make mobile phones an information resource rather than an entertainment tool.

Conclusion

The use of mobile phones is an inevitable trend in the development of society. Rural children are in a weak position in terms of educational resources and social concerns. On the one hand, mobile phones have brought them closer to modern life and provided information about the outside world. On the other hand, the information gap between rural children and urban children has increased due to problems of operation and information sources. The reason why it is difficult to shape the correct use of phones is lack of guidance and deviation of use (too much use of entertainment function). The objective living environment of rural children and the rationality of the educational platform rely on the macro social system to provide improvements to shape the benign living space for rural children. Rural children's correct attitude towards the use of phones requires the diverse guidance from schools, parents and others to fundamentally establish a benign attitude to use phones as good information source with a balance between learning and entertainment.

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CONTEMPORARY DEBATE

The relationship between social network, social media use, loneliness and academic performance: A study among university students in Bangladesh

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Abstract

Multiple information and communication technologies are ubiquitous in human lives today. Our pattern of social interactions, formation and maintaining of relationships and status of mental health are mostly shaped by the communication technologies and social media platforms. Yet several studies show that we feel increasingly alone and the sense and feeling of loneliness are becoming an epidemic in modern society. On the other hand, several studies indicate that the use of communication technologies and social media platforms affect academic achievements of students both positively and negatively. The dimensions of an individual's loneliness and interactions on social media platforms are well documented from the perspective of western countries, yet little is known about it from the context of developing countries like Bangladesh. The purpose of this study was to examine the structure of real-life and virtual social network and their relationship with loneliness and academic achievements of university students in the country. In this regard, the study used primary data collected from 234 university students. The study employed Lubben Social Network Scale (LSNS-6) and UCLA loneliness scale to measure the level of real-life social network and loneliness. The study finds that students are averagely engaged in real-life social network and moderately lonely. The study also finds a significant and positive relationship between Facebook use and loneliness, and a significant and positive relationship between social media (Facebook) use and loneliness.

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In addition, the study finds that academic performance or GPA of a student may be decreased by 0.843 and 0.781 if the student uses social media one hour more and suffer from loneliness, respectively.

Keywords

Facebook use, social network, loneliness, academic performance.

Introduction

New communication technologies and social media platforms have made possible to get more connected to each other today than ever in the history of human being. Internet, mobile phone and social media platforms are the driving force of the connections. According to estimation by the International Telecommunication Union (ITU), about 51.2 per cent of the global populations (3.9 billion) were using the Internet by the end of 2018 (ITU, 2019). Other statistic data show that more than 4.33 billion people were using Internet actively by July 2019, which means that about 56 percent of the global population were active users of Internet (Statista, 2019). According to The Global State of Digital in 2019 Report, worldwide the number of social media users was 3.484 billion and mobile phone users was 5.112 billion in 2019. On an average, people had 7.6 social media accounts around the world and daily time spent on social was 142 minutes a day (Smith, 2019). Bangladesh is a South Asian country with population about 16.8 million. The access to and use of communication technologies are increasing very fast in the country. The total number of Internet users in the country reached 96.199 million and total number of mobile phone subscribers reached 161.772 million at the end of June 2019 in Bangladesh (BTRC, 2019). The table below shows picture of total population, Internet and Facebook users in Bangladesh in comparison to South Asia and Global perspective.

Table 1

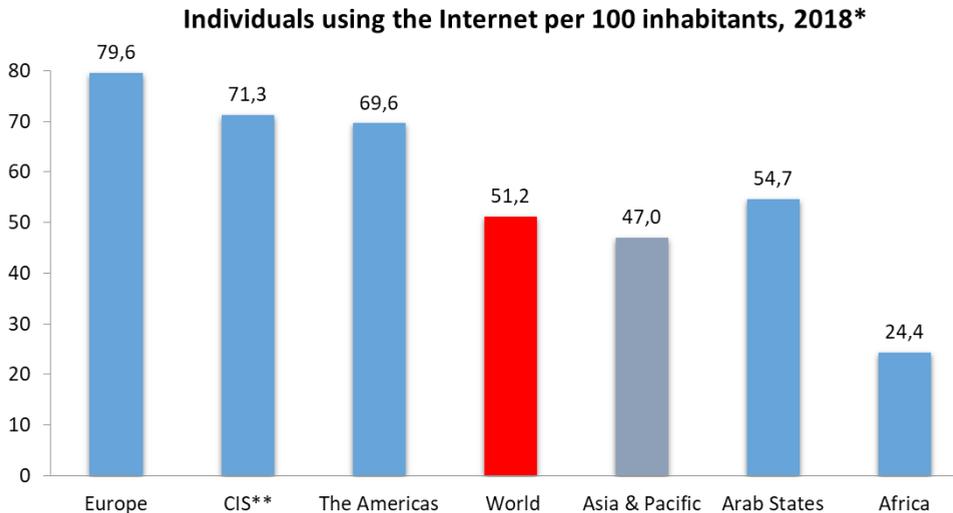
Internet users and 2019 population statistics for Asia

Asia Region	Population (2019 Est.)	Population (% world)	Internet users 30-June-2019	Penetration (% population)	Internet (% users)	Facebook 31-Dec-2018
Asia only	4,241,972,790	55.0 %	2,200,658,148	51.9 %	49.8 %	867,984,000
Rest of world	3,474,250,419	45.0 %	2,221,836,474	64.0 %	50.2 %	1,331,444,570
All the world	7,716,223,209	100.0 %	4,422,494,622	57.3 %	100.0 %	2,199,428,57
Bangladesh	168,065,920		94,445,000	56.2 %		28,000,000

Source: <https://www.internetworldstats.com/stats3.htm>

Figure 1

Individuals using the Internet per 100 inhabitants around the world



Regions are based on the ITU BDT Regions, see: <http://www.itu.int/en/ITU-D/Statistics/Pages/definitions/regions.aspx.html>

Note: * Estimate ** Commonwealth of Independent States

Source: ITU World Telecommunication /ICT Indicators database

People are spending too much time communicating and interacting with others today. Yet several studies show that we feel increasingly alone and the sense and feeling of loneliness is becoming an epidemic in modern society (Alberti, 2018; Brown & Wood, 1953; Germine, 2018; Kar-Purkayastha, 2010; Killeen, 1998; Wood, 2013). However, a critical look into how technology-mediated communication affects users offer mixed and conflicting results. Some studies show that use of social media such as Facebook is linked to depressive symptoms (Alshammari et al., 2017; Steers et al., 2014), feelings of isolation (Song et al., 2014), self-esteem and sense of belonging (Tobin et al., 2014), sleep disturbance (Levenson et al., 2016; Wolniczak et al., 2013). Another study found that there is relationship between loneliness, depression and Internet addiction; and loneliness and Internet addiction are risk factors for depression (Demir, 2016). Several studies reveal that too much use of social media make an individual feel lonely and depressed. For example, in their experimental study Hunt et al. (2018), found that there is a causal connection between time spent on Facebook, Snapchat and Instagram and increased depression and loneliness. In a study, Lin et al. (2016) found that there is association between amount of time spent on

social media and level of depression. Their results indicate that individuals who spend more time on using social media are more likely to be depressed. Scott et al. (2018) found that there is positive relationship between posting photo and narcissism. However, their results reveal that in the case of loneliness and shyness the relationship is negative. While some other studies indicate that Facebook did not make people lonely, rather lonely people were more likely to use the social media site (Song et al., 2014). Meanwhile, in another study, Marshall et al. (2015) found that narcissists are more frequently update about their achievements, diet, and exercise, and individuals with outgoing characteristics post more frequently update about their social activities. Another study found that Facebook 'Likes' less likely affect self-esteem of people with purpose (Burrow & Rainone, 2017). However, Facebook profiles raise users' self-esteem and affect behavior (Toma, 2013). In an online social networking experiment, Deters & Mehl (2012) found that status updating activities on Facebook decrease loneliness.

Growing body of research indicates that loneliness has multiple causes and effects on human body and mind (Cohen, 2004; Umberson & Montez, 2010). Results of several studies suggest that suffering from loneliness for a long time can lead to changes in the cardiovascular (Valtorta et al., 2016; Xia & Li, 2018), nervous systems (Cacioppo & Decety, 2009; Zelikowsky et al., 2018), health behavior (Winkel et al., 2017), immune and mortality risk (Cole et al., 2015; Holt-Lunstad et al., 2015; Steptoe et al., 2013). In the cases, the determining factors are the structural characteristics and types of social networks (Medvene et al., 2015), quality and quantity of the relationship (Schmidt & Sermat, 1983; Valtorta et al., 2016; Wiseman et al., 2006). For example, Cohen (2004) explored three aspects of social relationship and their association health outcomes. The researcher found that social relationships-social support, social integration, and negative interaction-strongly affect both physical and mental health. Another study revealed the mechanism in which age, socioeconomic status, and other factors contribute to social isolation and poorer mental health (Alberti, 2018). However, Weeks et al. (1980) argued the relationship between loneliness and depression is not causal, meaning that neither causes directly the other, though origins of the both are same. However, there are contrasting views about the impact of social media on face-to-face connections. Some researchers note that more interactions on social media are replacing face-to-face connections. Meanwhile, other researchers argue that social media does not decrease face-to-face interactions (Hall et al., 2018). However, studies suggest that more reliance on social technology instead of face to face interaction create a feeling of social isolation. In a meta-analysis, Huang (2010) investigated forty studies

to find out the relationship between depression, loneliness, self-esteem, and life satisfaction. Its results show that there is a small detrimental effect of Internet use on psychological well-being. Another study finds that social interaction on Facebook may decline subjective well-being in young adults, while it is increased as a result of frequent interactions with supportive 'offline' social networks (Kross et al., 2013). Meanwhile, Primack et al., (2019) found that there is no association between perceived social isolation and having positive experiences on social media. However, an individual's negative experiences on social media may increase their possibility of being isolated from social life.

Meanwhile, university campus is a new social environment for newly admitted students. The campus opens new horizons, they encounter multiple new experiences. The experiences include new culture of social interactions, new friendship, relationships with peers and teachers, new mindset and life philosophy. Many students struggle to cope with the new environment socially and emotionally. Little is known about the transition-related changes in health behavior among university students. Some studies argue that many students experience symptoms of loneliness and depression (Diehl et al., 2018) at their university life. The feeling of loneliness at university is more common than perceived which may impact academic achievements of the students. For example, Zarei et al. (2013) investigated the relationship between loneliness and social acceptance and the academic performance of the students. They found that loneliness is the most powerful variable in the prediction of academic achievement. Findings of another study suggest that there is the association between loneliness and GPA. Those who feel lonelier, achieve lower GPA (Neto & Golz, 2017). Meanwhile, Bahmani et al. (2017) argued that depression and loneliness do not affect academic achievement among university students.

Thus, it is evident that a causal association between social networks, social media use and health is well established by wealth of empirical evidence in various recent cross sectional, longitudinal, experimental and quasi-experimental studies, and most of the studies are from western perspectives. But the mechanisms through which social relationships affect mental health and life achievement remain to be explored. Moreover, little is known about the association between loneliness and social media use and the impact of each of them on academic achievement. To the best knowledge of the researchers, no researcher has explored the relationship between mental health (loneliness) and real-life social network and virtual social network (Facebook), from the context of Bangladesh. To fill up the gap, this study investigates the structure of real-life and virtual social network and their relationship with loneliness and academic achievement from the context of the country. This article tries to answer three

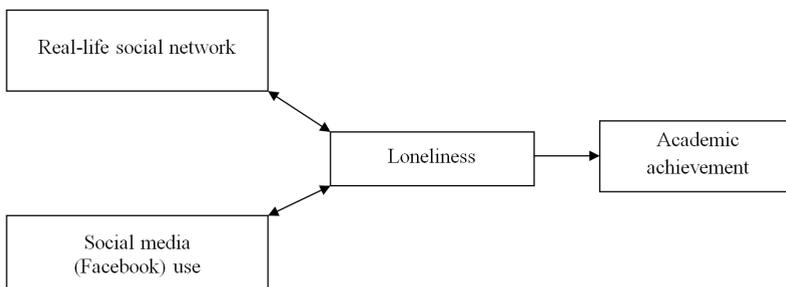
major questions. First, what is the structure of a real-life social network and level of loneliness? Second, what is the relationship between social media use and loneliness? Third, what is the impact of loneliness on academic performance?

To be more specific, the objectives of the study are three folds. First, it investigates the structure of real-life and virtual social network as well as the levels of loneliness of the participants. Second, it explores the relationship between social media use and the level of loneliness. Finally, it examines the impact of loneliness on academic performance of the university students in Bangladesh.

Theoretical framework

The emergence of computer-mediated communication has revived the significance of the theory of use and gratifications (Ruggiero, 2000). For a comprehensive understanding the role of social media in mental health, Jenna et al. (2018) proposed a theoretical approach which can be outlined as the interpersonal-connection-behaviors framework. For them, social media sites can benefit people when they use them for meaningful social connections. On the contrary, the use of the platforms can cause harm through multiple ways such as isolation and social comparison. In another theoretical model (Nowland et al., 2017), the researchers note that the relationship between loneliness and social media platforms use is bidirectional and dynamic. According to the model, social technologies can be a strong tool for reducing loneliness when it is used to enhance existing relationships and forge new social connections. On the contrary, the technologies can increase the ‘social pain’ of interaction and feelings of loneliness when people use it as a scope for escaping from reality of life and social world. So, it can be argued that the impact of Facebook use is two dimensional – it can deteriorate and improve mental health conditions, social relations and academic achievement. The flow chart below shows the relationship between real-life social network, social media use, loneliness and academic achievement.

Figure 2



Methodology

Study area and sample selection

This article was mainly based on primary data. Rajshahi district of Bangladesh was selected randomly as the study area. It focused on private university students only. There are two private universities in the district. Among these universities, one university was chosen randomly, and the selected university was Varendra University. The university has about 5000 students in 12 distinct departments. These departments were considered as strata. Using stratified sampling method, a semi-structured questionnaire was distributed among 10 percent students in each department randomly. Therefore, a total of 500 questionnaires were sent for the survey in January 2019. The researchers got back only 259 questionnaires in March 2019. After sorting, coding and editing, 234 questionnaires were used for the final data analysis. The rest questionnaires were omitted as those were not filled properly.

Tools

Lubben Social Network Scale

The study measured the social network structure and pattern of social interaction by using Lubben Social Network Scale (LSNS-6) developed by James Lubben (Lubben, 1988; Lubben et al., 2006). The LSNS-6 total score is an equally weighted sum of these six items. The scale consisted of 6 items, and scores for each question ranged from zero to five. The score zero indicated minimal social integration and five indicated substantial social integrations. The total score was an equally weighted sum of the 6 questions. Scores ranged from 0 to 30 with higher scores indicated a greater level of social support and low risk for isolation. A score less than 12 indicated a person with an extremely limited social network and high risk for isolation. We also tried to understand the level of social network of the respondents by dividing total score in three categories. A score of 0-10 indicated extremely limited social network, 11-20 indicated moderate social network and 21-30 indicated strong social network.

UCLA loneliness scale

Besides using LSNS, the study also used UCLA (University of California Los Angeles) loneliness scale to measure the level of loneliness among university students (Cecen, 2008; Jobe & White 2007). Twenty items UCLA loneliness scale consisting with 10 negatively stated (lonely) and 10 positively stated (non-lonely) items are used whose score ranges from 0 to 60 (Rusell et al., 1980).

According to the rules of UCLA loneliness scale, the score zero means student is not lonely while the score 60 means student is highly lonely. More specifically, the score ranges from 0 to 20.00 reveals the lower level of loneliness, the score ranges from 20.01 to 40.00 and 40.01 to 60.00 reveal the moderate level and severe level of loneliness, respectively.

Data analysis

One-way ANOVA analysis

Uses of social media have not only positive effects but also some negative effects like loneliness. In order to examine the impact of uses of social media on loneliness, the study applies a one-way ANOVA test which shows the variation of loneliness with the variation of uses of social media. In this study, loneliness is measured by the UCLA loneliness scale (Cecen, 2008; Jobe & White 2007). To make a variation, students are divided into three groups such as students who use social media (Facebook) 1 hour and below per day, 1.1 to 2 hours per day and 2.1 hours and above per day. The one-way ANOVA test is applied to find out the loneliness impact of uses of social media with respect to three different categories of loneliness such as lower, moderate and severe level of loneliness.

Linear regression analysis

Students' academic performance is not just the academic result, but it has multiple effects not only on the students themselves but also on the whole economy. Because, the academic performances of students affect the socio-economic development of a country. Therefore, it requires identifying the factors affecting academic performance of the university students as university students are the future of a nation. There are many factors that affect academic performance. By following earlier studies, this article considers a cause and effect relationship between academic performance and a set of explanatory variables. Since the dependent variable, academic performance measured by last year academic result or Grade Point Average (GPA), is continuous, the study applies a linear regression model estimated through OLS method. The following equation states the above relationship.

$$AP_i = f(M_i) \quad (1)$$

Econometrically the equation 1 can be formed as:

$$AP_i = M_i + u_i \quad (2)$$

where, AP_i dependent variable, is academic performance, M_i is a set of explanatory variables that affect the academic performance and u_i is stochastic disturbance term.

Therefore, the specified multiple regression model is:

$$AP_i = \delta_0 + \delta_1 CA + \delta_2 IE + \delta_3 SH + \delta_4 USM + \delta_5 FI + \delta_6 PCA + \delta_7 SN + \delta_8 PES + \delta_9 RR + \delta_{10} LN + \varepsilon_i \quad (3)$$

where, AP_i is academic performance, $\delta_0, \dots, \delta_{10}$ are parameters to be estimated and ε_i is the stochastic disturbance term. The explanatory variables used in above model are explained in Table 2.

Table 2

Description of explanatory variables used in multiple regression model

Name of variables	Type	Measurement	Expected sign
Class attendance (CA)	Continuous	Number of attendances in class out of total number of classes	+
Internal evaluation (IE)	Continuous	Marks obtained from teacher's internal evaluation	+
Study hour (SH)	Continuous	Total time of studying per day (hours)	+
Uses of social media (USM)	Continuous	Total time (hours) of using social media (Facebook) per day	-
Family income (FI)	Dummy	Family's total income per month (thousand Tk.)	+
Participation in co-curricular activities (PCA)	Dummy	1 if participates in co-curricular activities, 0 otherwise	+
Social network (SN)	Continuous	Estimated values of Lubben Social Network Scale	+
Psychological and economic supports (PES)	Dummy	1 if students get psychological and economic supports, 0 otherwise	+
Romantic relationship (RR)	Dummy	1 if a student has romantic relationship, 0 otherwise	+
Loneliness (LN)	Continuous	Estimated values of UCLA loneliness scale	-

All these variables and their expected sign have been considered in the regression model.

Results and discussion

We are more connected to each other today than ever in the history of human being, we tend to spend too much time communicating and interacting with others. In the real-life, live the web relationships of family, friends and neighbors. The relationships are sources of diverse support. The number of contacts, close of the relationships and frequency of communication function as support system (Gallant, 2013; Goldsmith, 2013). Such relationships are being changed by social media platforms like Facebook. In addition to a source of social support, people use Facebook to satisfy their various needs such as motivations of seeking friends, entertainment, information, and convenience, social capital and life satisfaction (Basilisco & Cha, 2015). Table 3 shows demographic and Facebook use related features of university students in Bangladesh. About 58.1% of the respondents use Facebook for keeping contact with others which means that Facebook is used as an additional option to real-life social interaction. It can be argued that social media platforms such as Facebook can be a tool to increase a possibility of getting social support in real-life. In the virtual environment, any new information or link of the text can be considered as a resource. A majority (67.9%) of the respondents report that they do share the links of any content with their friends thinking that it might be helpful.

Demographic features and Facebook use

Table 3

Demographic and Facebook use related features of students			
Variables	Categories	Frequency	Percentage
Age (years)	18.00-20.00	43	18.50
	20.01-22.00	101	43.00
	22.01-24.00	76	32.50
	24.01 and above	14	6.00
Gender	Male	145	62.00
	Female	89	38.00
Year of study	First	55	23.50
	Second	42	17.90
	Third	58	24.80
	Fourth	79	33.80
Years of Facebook use	1.00 and below	75	32.10
	1.01 - 2.00	78	33.30
	2.01-3.00	55	23.50
	3.01 and above	26	11.10
Facebook used for	Passing time	27	11.5
	A kind of addiction	22	9.4
	Keeping contact with others	136	58.1
	Entertainment	49	20.9
Activities mostly done on Facebook	Making new friendship	36	15.4
	Viewing friends' updates	186	79.5
	Uploading photo/selfie	12	5.1
Hours spent on Facebook per day	1.00 and below	36	15.40
	1.01 -2.00	58	24.80
	2.01-3.00	76	32.50
	3.01 and above	64	27.40
Sharing of link	Yes	159	67.9
	No	75	32.1

Table 4

Level of real-life social network of students

Levels of social network	Frequency	Percentage
Lower level (0.00 to 10.00)	49	21.23
Average level (10.01 to 20.00)	131	55.60
Higher level (20.01 to 30.00)	54	23.17
Total	234	100

Note: Average level of real-life social network of all students is average, i.e., 16.21.

Table 4 shows that about 21% of students in the study area are lower engaged in real-life social network. On the other hand, majority of the students (55%) in the study area are averagely engaged in real-life social network while 23% of students are highly engaged in real-life social network. From the analysis it is also found that the level of real-life social network among the university students is 16. According to the Lubben Social Network Scale (LSNS), high scores are correlated with greater level of social support and low risk for isolation. Meanwhile, low scores are correlated with depression and other mental health problems. The results of this study show that the students have average level of social network in their real life. There might be multiple reasons behind this. First, the students mainly focus on academic achievements rather than quality of social lives. Second, there might be limited scope for participation in social organizations and lack of social interaction action on the campus. Third, the students may prefer to have social interactions on social media platforms instead of real-life social interaction. The average score in the LSNS indicate that the students are at risk of falling victim to mental health problems. It is a matter of concern that the students are suffering from moderate level of loneliness.

Table 5

Level of loneliness of university students in Bangladesh

Levels of loneliness	Frequency	Percentage
Lower level (0 to 20.00)	83	35.55
Moderate level (20.01 to 40.00)	115	49.20
Severe level (40.01 to 60)	36	15.25
Total	234	100

Note: Average level of loneliness of all students is moderate, i.e., 27.53.

Table 5 shows only 35% of students are suffering from lower level loneliness. On the other hand, it is found that most of the students (49%) in the study area are suffering from moderate level of loneliness while 15% of students are severely suffering from loneliness. From the analysis one can also find that the level of loneliness among the university students in the study area is 27. This interprets that students are suffering from loneliness in moderate scale in the study area.

Social media (Facebook) use and loneliness

One-way ANOVA test is performed to investigate the impact of social media (Facebook) use on loneliness which implies the statistically significant variation in loneliness level in different categories of students' social media uses. The loneliness impact of social media uses respect to three types of students is analyzed through SPSS 23 and presented in *Table 6*.

Table 6

The result of one-way ANOVA test

Loneliness	Mean level of loneliness			
	Uses of social media (hours per day)			
	1.00 hour and below	1.01 to 2.00 hours	2.01 hours and above	P value
Lower level	11.23	15.57	18.87	0.03*
Moderate level	23.58	31.21	37.42	0.00**
Severe level	42.28	49.03	58.09	0.01**

Source: Field survey, 2019

Data in the table above shows the mean loneliness for different levels like lower, moderate and severe of both 1 hour and below, 1.01 to 2.00 and 2.01 hours and above uses of social media by the students. The table also shows the level of loneliness of both types of students. Table 6 reveals that the value of loneliness of each level is higher for 2.01 hours and above group of social media users than that of other two groups. It is found from the above table that the mean value of loneliness in lower level for 2.01 hours and above group of social media users is 18.87 while it is 11.23 and 15.57 for 1.00 hour and below, and 1.01 to 2.00 hours group of social media users. This difference is significant at 5 percent level of significance. Like the preceding one, statistical variation in moderate level of loneliness with respect to three different groups of students are

also significant at 1% level of significance. For severe level, statistical variation is found as significant at 1% level of significance.

From the one-way ANOVA analysis, it is found that the value of loneliness is diversified at different groups of students. This means that the students who use social media (Facebook) for a long time (2.01 hours and above) suffer from loneliness more than the students who use social media for a short period of time. Therefore, use of social media is an important factor which has the significant influence on the acceleration of loneliness among students.

Social network, social media use, and academic performance

The result of examining the factors affecting students' academic performance is analyzed through STATA 13 and presented in tabular form in the following table.

Table 7

Results of linear regression model

Variables	Coefficient	Robust Std. Err.	t value	P value
Constant***	0.971	0.221	4.42	0.01
Class attendance	0.063	0.047	1.33	0.48
Internal evaluation*	0.171	0.085	2.02	0.08
Study hour	0.021	0.013	1.56	0.67
Uses of social media***	-0.843	0.217	-3.89	0.00
Family income	0.034	0.029	1.17	0.25
Participation in co-curricular activities*	0.346	0.080	4.32	0.06
Social network**	0.056	0.016	3.47	0.03
Psychological and economic supports	0.048	0.028	1.72	0.12
Romantic relationship***	0.112	0.054	2.04	0.01
Loneliness***	-0.781	0.171	-4.56	0.00
F (10, 223) = 88.03; Prob > F = 0.000; R ² = 0.76; Root MSE = 8.11; DW = 1.97				

Note: ***, ** and * means 1%, 5% and 10% level of significance.

Source: Field survey, 2019

Table 7 shows that the value of R^2 is 0.76 indicates that explanatory variables of the model explain the dependent variable by 76 percent. Elsewhere, the F-statistic value is 88.03 with prob>F = 0.000 brings out that the model is

completely good at fitted. The study has no heteroscedasticity problem in the data that is clarified using robust standard error action. The study also exercises VIF to detect multicollinearity problem and explicitly reveals a negative result. The Durbin Watson test ($DW = 1.97$) expresses that no autocorrelation problem exists in the model. The study finds that internal evaluation, uses of social media, participation in co-curricular activities, social network, romantic relationship and loneliness are the significant variables although all variables fulfill the expected sign.

The estimated coefficient of internal evaluation is 0.171 exhibits that the students' GPA may be increased by 0.171 if the students' internal evaluation is increased by one mark. This is significant at 10% level of significance. The dynamic explanation may be that the more the students get marks in internal evaluation, the more the students improve GPA.

The study also finds that the students' GPA will be decreased by 0.843 if a student uses social media one hour more in a day which is significant at 1% significance level. Students who spend more time on social media (Facebook) feel frustration and suffer from depression and loneliness and hence cannot concentrate on their studies. Consequently, they cannot do well in the examination, and GPA declines.

The coefficient of participation in co-curricular activities reveals that students' GPA may be increased by 0.346 if students participate in co-curricular activities which are significant at 10% level of significance. The rational explanation may be that students who participate in co-curricular activities feel fresh and abstain from depression and loneliness. As a result, they can draw attention in study and do well in academic performance.

Students' GPA may be increased by 0.056 if the level of students' engagement in real-life social network is increased by one. This result is significant at 5% level of significance and can be interpreted by students who are more engaged in real-life social network, get enough space to exchange views with family, relatives, neighbours, etc. As a result, they feel relax and free from depression and loneliness and hence concentrate on studies and perform well. The coefficient of romantic relationship reveals that students' GPA may be increased by 0.112 if students have romantic relationship. The findings are significant at 1% level of significance and can be explained by the fact that students who have romantic relationship can share everything with their partner and feel mentally fresh which keeps them free from depression and loneliness. Thus, they can concentrate on study and do well in academic performance. Finally, the study also finds that students' academic performance, i.e., last year GPA

may be decreased by 0.781 if the level of loneliness is increased by one. This result is significant at 1% level of significance and it can be interpreted by the fact that if a student suffers from loneliness, they cannot concentrate on studies and improve GPA.

Conclusion

The key findings of the study are: First, the participants have average level of social network in their real life; meanwhile most of them are suffering from moderate level of loneliness. Second, the study also finds that there is a positive and significant relationship between social media use and loneliness. Third, the study finds that academic performance or GPA of a student may be decreased by 0.843 and 0.781 if the student uses social media more than one hour a day and suffer from loneliness, respectively. The relationship between social media use and presence of loneliness indicate that impact of social media use is two dimensional. The students having lower level of social networks in their real life feel lonelier and use more social media platforms. The opposite is also true – lonelier students use more social media platforms because they do not have larger social networks in their real life. We also found that the more use of social media platforms negatively affects the academic performance of students.

The main contribution of this article is that it has firstly used some new and effective variables in examining the impact of loneliness on academic performance such as real-life social network, social media use, and participation in co-curricular activities, psychological and financial support, and romantic relationship. Meanwhile, time constraints, lack of funding, limited sample size and covering of geographical area of the country were the main limitation of the study.

University students are future leaders of the country. Therefore, it is recommended that university authorities take necessary steps to increase real-life social networks of the students by ensuring various on-campus activities such as open spaces, clubs, social groups and other forms of social interaction. It is also suggested that more research should be conducted on a wider scale to get a deeper image of the phenomenon in the country.

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ARTICLE

Building community and constructing identity on WhatsApp: A netnographic approach

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Abstract

The social media serve as a means of expediently connecting people across the world, fostering new connections and friendships among people living abroad. Today, technology, mainly WhatsApp, seems to proffer a new stage for diasporas to engage in diasporic identity and community construction. The study investigates the motivation behind Nigerians living in the United States (diasporas) use of WhatsApp platform for building community and constructing identity online, and how they perceive the platform. The research adopts netnography, a qualitative research methodology suited for online research. This study adopts the aforementioned research method to explore forty five (45) persons on a WhatsApp platform. Besides, the social constructivist theory was employed to guide the study. The theory reiterates how meaning is developed through the interactions of social processes involving people in the environment. Analyzing automatically archived data from the WhatsApp platform, the study discovers that members of the group imagined the platform as a home community. Furthermore, there is a considerable dependence on the platform for homeland and related information seeking, creating national identities, and companionship. The study concludes that the WhatsApp diaspora platform provides its members with a sense of community and a strong bonding that engenders national identity and consciousness. The authors of the study believe that researchers should pay more attention to the study of WhatsApp for diasporic engagement.

Keywords

Diaspora, social media, WhatsApp, netnography.

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Introduction

The continuous metamorphosis in information and communication technology has engendered a networked society where either distance or time does not hinder the transmission of information. Hitherto, information or messages can be transmitted through emails, but the emergence of social media has enabled the rapid transfer of messages while maintaining both distanced and nearby networks. Social media have evolved in an era of user-generated content (UGC); the audience now has the power to create messages which they disseminate and equally consume. Boyd and Ellison (in Udenze, 2018) affirm that social networking sites are ‘web-based services that allow individuals to:

- construct a public or semi-public profile within a bounded system;
- articulate a list of other users with whom they share a connection;
- view and traverse their list of connections and those made by others within the system’.

From the above definition, we can argue that social media are synonymous with fenced horses in a stable that share certain similarities. In other words, they are different social networking sites that appeal to various users. For instance, YouTube is a video sharing site, Flickr is a picture sharing site, LinkedIn is more of professional networking. Facebook, Snapchat, WhatsApp, and Instagram are popular among young people. These sites allow interaction amongst people with similar interests or concerns. The word ‘social networks’ or ‘media’ is understood in its ordinary sense of ‘seeking or enjoying the companionship of others’. Hence, these are websites for making friends, relations, and connections in the online world with people who we know or who we would like to know (Goswami, 2009).

Social media have attracted massive attention from scholars, and young diasporas still need scholar attention. It is pertinent to examine particularly online diasporic communities. Just as the Internet transcends boundaries and time, it permits people from different countries or continents to be interconnected (Papacharissi, 2002; Volkmer, 2003). Today, the Internet plays a crucial role in the global public sphere by enhancing and strengthening the link among individuals who share similar ethnic origins or political opinions (Calhoun, 2004; Castells, 2001; Dahlberg, 2007). The Internet use correlates increased civic engagement (Norris, 2003). From the preceding assertions, it is evident that WhatsApp is a fallout of the Internet revolution, and its role in engendering young diasporic identity construction cannot be underestimated.

Digital diasporas are created in cyberspace and are constituted by networks of individuals who share similar values and interests. Tynes (2007) argues that

digital diaspora forms what is known as a virtual nation. He describes it as any community that communicates online, and whose collective discourse or actions are aimed towards the benefits of their home country. The study of digital diasporas is essential because they exert influence in their home countries and host societies (Oiarzabal & Reips, 2012). Brinkerhoff (2009) argues that digital diasporas exert several types of influence on the host nation and international affairs, and they foster democratic values, support integration in the host society, and also contribute to security and socio-economic development of their homeland. Besides, online diasporic communities may act as a kind of counter-information flow that resists conventional media channels (Karim, 2003), hence, sharing common ethnic or national roots with a genuine need to assert their identities.

Tynes (2007) avers that online diasporas must remain connected to each other online, and they should also produce contents that reflect their identity, beliefs, and shared values. The study of WhatsApp as a communication platform is gaining the attention of scholars. WhatsApp has revolutionized communication due to its ease of use and affordability (Church & de Oliveira, 2013; Jisha & Jebakumar, 2014; Ling, 2016; Rambe & Chipunza, 2013; Udenze, 2017; Udenze, 2019; Yeboah & Ewur, 2014; Yin, 2016). As a social networking platform, WhatsApp facilitates international communication from any country that allows WhatsApp. Similarly, plethora of studies have been carried out on the adoption of WhatsApp for different purposes (Church & de Oliveira, 2013; Gachago et al., 2015; Gasaymeh, 2017; Hamad, 2017; Jisha & Jebakumar, 2014; Khalaf, 2017; Ling, 2016, Rambe & Chipunza, 2013; Udenze, 2017; Udenze, 2019; Yeboah & Ewur, 2014; Yin, 2016), especially as regards education and learning; infusing WhatsApp into conventional learning. However, it seems no study has attempted to explore WhatsApp potentiality in terms of online diasporic communication – building community and identity construction.

Furthermore, there has been research on diaspora studies, generally, social media and diasporic studies (Al-Rawi & Falmy, 2017; Goswami, 2010; Laguere, 2010; Mainsah, 2017) but no attention has been given to WhatsApp specifically. Methodologically, there is a dearth of studies that employ netnography in researching online diasporic engagement.

The main objective of the study investigates the motivation that drives WhatsApp use of Nigerians living in the United States (diasporas). Undoubtedly, one of the main purposes is building community and constructing identity online. The study further ascertains the populations' perception of the WhatsApp group on which they congregate.

Literature review: Cyber community and ‘imagined community’

A cyber community is an online aggregation of one or more groups of people. Cyber communities may be open to anyone or to a select group of persons who share certain similarities. In regards to this study, ‘imagined community’ entails the feelings of the virtual members of a cyber community, their thoughts as a single entity. Goswami (2010) argues that it is essential to discuss three key aspects while studying the use of cyberspace by diasporic individuals for community construction. Firstly, it is crucial to understand the reasons for creating such an online community. Secondly, one should discover what happens in such online aggregations that enable members to perceive it as a community. And finally, Goswami asserts that it is essential to understand how members of an online community manage to solicit responses from many other diasporas on the platform who provide advice and companionship without knowing each other personally.

Baym (1998) argues that multiple factors like external context, temporal structure, system infrastructure, group purposes, and participant characteristics, influence online community interaction. Thus, it is worth referring here to the most determining external context that shapes members’ interaction on WhatsApp, precisely their diasporic status. This mainly involves discussion on their efforts at orienting themselves with the logistics of living in a new country like acquiring appropriate accommodation, procuring residence permit/visa and tax-related matters, nurturing connections with their home country, and finding avenues of direct or indirect involvement such as political participation. Besides, participant characteristics also emerge as external contexts as enumerated by Baym (1998), being dominantly youth, speak the English Language, middle class, studying in a university or working, and having access to new media communication technologies. After that, the temporal structure of WhatsApp is critical, as all communication on the platform takes the form of asynchronous posts. This allows members to read as well as respond to posts and contribute to threads at any time, providing them with time for composing and rewriting messages before sending them. The temporal structure of participating in WhatsApp is also influenced by the fact that most members access WhatsApp from school as the use of social media is normally discouraged at workplaces. After that, the system infrastructure of WhatsApp allows keeping access to the communities restricted to members or open to the public. Regarding the WhatsApp group, there are restrictions on joining the community and on becoming a member; one has to be introduced to the admin(s) of the platform before he/she is added to the group.

Finally, group purposes include (as analysis of qualitative data will later demonstrate) making friends, asking for and giving advice, information sharing, discussing issues ranging from movie, religion, and politics or engaging in social chats. Members of the WhatsApp group appropriate these pre-existing structures in a manner that enables their construction of social meanings through which they are ultimately able to imagine and perceive it as a community.

Diaspora

Scholars have attempted to explain the word 'diaspora' from different perspectives. Initially, the word 'diaspora' is derived from the Greek word 'diaspeirein' which means scattering or dispersal. Ordinarily, today, people understand diaspora as the dispersion of any people across countries away from their original homelands (Dlamini et al., 2009). There are various theoretical thoughts on diaspora. This paper examines these thoughts and thereby directs its purpose to the theoretical assertion that is in tandem with this study.

Before now, Cohen (1997) associates diaspora with those whose scattering was a result of a historical ordeal, such as the Holocaust or slavery. He further describes diaspora as any migration that places a group of people away from their home country. Cohen (1997) claims that amid diverse meanings of diaspora, one aspect that is common for all diasporic communities is the acknowledgement that their homeland always has some claim on their loyalty and emotions. On the contrary, Vertovec (2000) views diaspora as a social form, a type of consciousness, and a mode of cultural production. Vertovec believes that since it has been established from the onset that diaspora is a dispersed set of people, it would not be scholarly right to leave it at that, rather, diaspora should be seen as a social form, a process. Hence, this meaning of diaspora is essential in considering Nigeria's diaspora engagement on WhatsApp.

It refers to the social relationships that emerge as a result of similar origins and migration routes. It includes maintenance of collective identity based on historical experience, institutionalizing networks that transcend territorial states, maintenance of ties with the homeland, solidarity with co-ethnic members in other countries of settlement, and fostering feelings of alienation and difference when not entirely accepted by 'host society'. Also, it refers to the attention of political orientation between loyalty to the homeland and that of the host country. Thirdly, it refers to particular economic strategies that diasporic groups employ to mobilize collective resources such as transfer of credit, investment of capital, and provision of services among family, extended kin, and co-ethnic members.

Digital diaspora

The importance of new technologies for migrants is well established. The ICTs are described as ‘Diasporic media’ (Tsagarousianou, 2004), and contemporary migration as encompassing both geographical and digital mobility (Borkert et al., 2010). The research area is understudied and under-theorized, characterized by rapid changes and fluctuations, controlled and shaped by changing structural conditions of migrants and the proliferation of forms of new media. Digital diasporas constitute online networks of individuals sharing similar values or interests. Indeed, the study of digital diasporas is of high importance because these communities have influence in their original home countries and their immediate societies (Oiarzabal & Reips, 2012). Tynes (2007) believes that digital diasporas form what he calls a virtual nation, which is any community that gets in contact virtually, whose collective discourse and actions are aimed towards building, binding, maintenance, rebuilding, or rebinding of a nation. Keles (2016) affirms that communication technologies are used by diasporic groups to bring together the geographically dispersed diasporas around the notion of politicized ethnicity in the diasporic spaces. This is why Johnston et al. (2013) aver that online media become a bridging tool in creating virtual relationships among migrants. Diasporic online communities also create a degree of trust and mutual reciprocity, for instance, by requesting or accepting the friendship, membership, online support, etc. and also solidarity, primarily based on shared ethnicity, memories, and experiences (Keles, 2016).

Besides, Mitra (2001) argues that migrant experiences of discrimination, isolation, homesickness, and exclusion from the labor market and political participation in foreign countries contribute to strengthening their involvement in online diasporic activities. For the Nigerian participants of the WhatsApp group, the factors of being homesick, feeling isolated, and the urge for political participation in their home country affairs may have engendered the reason for being on the platform.

Identity: An overview

In terms of modern communication, the word we utter, our non-verbal communication are all expression of our identity (Wahl & Scholl, 2014). To have a grasp of identity, we have to understand the ‘self’. Self is a complex set of beliefs about one’s attributes as well as memories that confirms such beliefs. These attributes and memories form a scheme of oneself or mental structures that contain information defining a person and ways of communication with people around them. In the 21st century, identity has taken different meanings.

Scholars have given diverse conceptions of identity. These conceptions are enlightenment subject, sociological subject, and post-modern subject.

The enlightenment subject is premised on the conception of the human being as an entirely centered, unified individual, whose 'centre' consisted of an inner core which emerged when the subject was born and remained 'identical' or unchanged throughout the individual's existence (Goswami, 2010). The sociological conception of identity involves viewing 'identity' as a product of interactions between the self and society. According to this view, identity bridges the gap between the 'inside' and the 'outside'. Earlier, scholars (Goffman, 1959; Mead, 1934) have elaborated on this 'interactive' conception of identity and self. In other words, the sociological conception of identity argues that the subject of identity still has an inner core or essence, but it is formed or modified in a continuous dialogue with the cultural or outside world. This is synonymous with the sociological symbolic interaction theory. In a nutshell, identity is formed in the interaction between self and society. Identity, in this sociological belief, bridges the gap between the 'inside' and the 'outside' – between the personal and the public worlds.

The post-modern conception conceptualized identity as having no fixed, essential, or static identity. Identity becomes a 'moveable feast' that is formed and transformed continuously in relation to the ways we are portrayed or addressed in the cultural systems which surround us (Hall, 1996). It is historical and not biologically defined. The subject assumes different identities at various times, identities that are not unified around a unified 'self'. Within us there are different identities hovering in multiple directions, so our identifications are continuously being shifted. If we feel that we have a coherent identity from birth to death, it is only because we construct a comfortable story or 'narrative of the self' about ourselves (Hall, 1990). The fully unified, total, secure, and coherent identity is a mirage; instead, as the systems of meaning and cultural representation metamorphosed, we are confronted by a bewildering, fleeting multiplicity of possible identities. Goswami (2010) opines that we should note that the above conceptions of the subject are, to some extent, simplifications. As the argument evolves, they will become more complex and qualified.

Cultural identity

Cultural identity refers to the apperception or sense of belonging to a specific group situated on various cultural categories, including nationality, ethnicity, race, gender, and religion. Cultural identity is created and maintained through the process of sharing collective knowledge like traditions, heritage, language,

aesthetics, and norms. As individuals typically interact with more than one cultural group, cultural identity is complex and multifaceted. While other scholars assumed identification with cultural groups to be evident and stable, today most scholars view it as circumstantial and dependent upon temporal and contiguous changes. In the global world, with increasing intercultural encounters, cultural identity is continuously enacted, negotiated, maintained, and challenged through communicative practices. Hall (1992) defines cultural identity as that aspect of our identities which arises from our belonging to distinctive ethnic, racial, language, religious, and above all national cultures.

Globalization is the mainstreaming of modern capitalism through economic, political, and cultural means. Globalization creates a global and homogenous culture. Giddens (1990) argues that globalization is a movement away from the classical sociological idea of a 'society' as a well-bounded system, and its replacement by a perspective that concentrates on how social life is ordered across time and space. Such a cultural intrusion is a threat that causes severe problems for some conservative states because the openness to foreign contents can destroy the traditional values and domestic cultural identity.

This overcoming of cultural experience diminishes the socio-religious identity of a country as Castle (1996) submits that globalization is the proliferation of modernity, and modernity is the precursor of identity. In the context of globalization and cultural identity, Howes (1996) asserts that cultural identity is not likely to be the easy casualty of globalization because identity is not in fact merely some fragile communal psychic attachment, but a considerable dimension of institutionalized social life in modernity.

Globalization has brought about not just an increasing rapprochement of previously exclusive societies and peoples, but equally and more significantly, almost alarming anxiety in these societies and individuals with regards to the attribute of their place and identity in the so-called global world (Goswami, 2010). In the global context, the nature of the identity of a nation or people invariably defines its space. Globalization equally means the intermingling of different people and identities as well as the penetration of the social space by distance.

Giddens (1990) refers to the transformation of time and space as the disembodiment of the social system, i.e. the 'lifting out' of social relations from local contexts of interaction and their restructuring across indefinite periods and space. These new temporal and spatial features, which result in the compression of distance and time scales are among the most symbolic aspects of globalization affecting cultural identities. All means of fine writing, drawing,

painting, photography and even social media platforms turn their subjects into spatial and temporal dimensions. It is worth mentioning that greater global interconnectedness has resulted in the breakdown of all strong cultural identities and produced a fragmentation of cultural codes and cultural pluralism on a global scale.

Since identities have been theorized as constituted within, and not outside representation, new forms of media such as social networking sites allow constituting diaspora as new kinds of subjects and enable them to discover places from which to speak. WhatsApp can be identified as such a place where diasporic individuals find a way to create (and recreate) their identity, as it allows them to recognize their different parts and histories, to construct points of identification and positionalities, which they call their 'cultural identities' (Hall as cited in Mirzoeff, 2000).

Theoretical framework

The paper adopts a social constructivist approach, which reiterates understanding the multiple meanings individuals make of the phenomenon under study. Social constructivism is a humanities theory that explores how knowledge and understanding of the world are developed by people. The theory assumes that understanding, significance, and meaning are developed in coordination with other human beings (Amineh & Asl, 2015). In the cyberspace, the apparent absence of a pre-discursive reality encourages the adoption of constructivist frameworks. Social constructivists affirm the effect of the social environment, culture, identity, and religion on how people construct their realities about their world. Meaning is developed through the interactions of social processes involving people, language, and religion (Berger & Luckman as cited in Al-Saggaf & Williamson, 2004). They see people as developing meanings for their activities together; that is, people 'socially' construct reality (Williamson, 2000). Also, social constructivists state that meaningful learning occurs when individuals are engaged in social activities such as interaction and collaboration (Amineh & Asl, 2015). In this research, WhatsApp provides the immediate (technological) context of interaction apart from the social context of members' diasporic status as Nigerians. A constructivist approach explores the meanings that members socially construct through their interaction on WhatsApp platform and brings to bear their diverse perceptions. According to Shunk (2000), one emphasizes peer collaboration, cognitive apprenticeships, problem-based instruction, web quests, anchored instruction, and other methods that involve collaboration with others. Hence, it was critical to adopt the social construct theory as the

theoretical framework through which the methods in this study were applied and the data interpreted.

Thus, the study is guided by the following research questions:

- What are the motivations for identifying with the WhatsApp group?
- How do diasporas perceive the WhatsApp group?

The cyberspace is a bottomless pit capable of retaining a huge amount of information, and in most cases this information are automatically archived, so online researchers have a quantum of data at their disposal. The paper employs netnography; an online qualitative research method originated by Kozinets (2010, 2015). Netnography is an online research method that is coined out of ethnography. Precisely, it is used to explore virtual communication, and it is rooted in participant/non-participant observation. Since computer-mediated-communication (CMC) is growing at an alarming rate, there is a need to have a research method that is cyber-centric, and netnography is ideal. The study adopts netnography due to its affordance and the flexibility of investigating the WhatsApp platform because the needed data for the study have been automatically archived online. The methodology could be described as a multiplicity of qualitative methods (Udenze, 2019). Furthermore, Schau & Gully (as cited in Udenze, 2019) write that netnography breaks down the self-presentation strategies that are used to construct a 'digital self'. WhatsApp is computer-mediated, and the information on the platform is multimedia. WhatsApp allows a maximum of 256 members in a group, and it permits these individuals to chat simultaneously. Also, the information that is shared on WhatsApp is automatically archived. The WhatsApp platform was investigated adopting non-participant observation, and conversations on the platform which form primary data for this study were downloaded and analyzed. This approach is taken to understand the rich and complex interactions that occurs on the WhatsApp platform and the perceptions of its members as a community, and as conduit pipe for constructing identity.

The study adopts a qualitative research design approach. We used Kozinets' steps in conducting a qualitative netnographic study:

- Planning an entrance: This is the first stage of conducting a netnographic research. This entails identifying a suitable online space for the study. The papers shows that we identified a diasporic WhatsApp group and decide to explore it.
- Data collection: After identifying the study space, data collection started immediately. The study collected three types of data automatically archived written communication that occurs on the platform, the

authors' self-authored field notes, and one-on-one interviews. The data collection period lasted for four months from February to May 2019.

- Data analysis: A mixture of narrative and thematic analysis were employed in analyzing data from the platform. However, scholars recommend various methods of data analysis.
- Reporting the finding: The final step is reporting the findings from the data analysis.

This paper explores WhatsApp, its uses and understanding in everyday settings for identity and community construction by Nigerians in the diaspora. A netnographic study of the platform appears to be an ideal methodological starting point and the netnographic site for this study. Since the aim of this research has been to examine the online diasporic space of Nigerians on WhatsApp through the eyes of its members, a netnographic study encompassing qualitative methods of online interviews and observations, along with the study of archived comments, helped generate data that were analysed through the methods of coding, narrative analysis and interpretation.

Since the primary objective of this study assesses the online diasporic space of Nigerians through WhatsApp, a netnographic study that encompasses qualitative methods of online interviews, observations, and the analysis archived comments helped generate data that were analyzed through the methods of coding, narrative analysis, and interpretation. The comments were analyzed using cross-case and within the qualitative textual analysis, also known as thematic analysis.

It is pertinent to reiterate that for ethical concern, the study used pseudonyms in order to protect the identity of the members of the WhatsApp group. Besides, we demanded permission from members of the group before quoting their comments. This is essential in order to assure the research participants that the extracted comments are solely for research purpose and nothing more.

The population of the study is young Nigerians in the United States, specifically, students. The number of persons on the WhatsApp platform is forty five (45), the study purposively adopted this number as the sample size. The justification for adopting the number as the sample size is due to the fact that it forms a census of a small population.

Despite the efforts put into conducting the study, there is some limitation to the study. Firstly, the population of the study is one limitation that further studies should improve upon. Secondly, the timeframe (4 months) is equally a limitation. We would like to see further studies that would take longer periods investigating a similar phenomenon. Eventually, the study adopts a qualitative

approach. It is pertinent to explore other methodological approaches, say, quantitative, dual methodology, amongst others.

Findings/Discussion

This section starts with the analysis of interviews, the strategy of coding was employed, whereby themes that were dominant in the interviews were adopted and further analyzed. For instance, in order to address the core research question, we asked the interviewees about their motivation for identifying with the WhatsApp platform and their perception of the platform as a 'community'.

The theme discussed below emerged when the participants were asked their reasons for identifying with the platform.

Sense of belongingness, 'Nigerianness'. All six interviewees attest that they needed a sense of belongingness that is why they joined the group. Since almost every person on the WhatsApp platform is Nigerian, there is this feeling of 'Nigerianness' that exudes in the group. A respondent puts it thus: '... of course most of us, if not all of us are Nigerians. That sense of oneness in our discussions...' Another research participant says: 'When I was introduced to this platform I felt at home, and in fact, the discussion about "naija" is so interesting, and of course being among your fellow students there is that togetherness it creates'. Since the majority of the members on the group are Nigerian students, there is this feeling of oneness as reiterated by the interviewees. Interviewee number 6 confirmed the opportunity the platform provides in terms of companionship. These comments indicate the construction of the Nigerian identity. It is obvious that 'Nigerianness' resonates in their statements; '... the group is a great companion at all time, and with your mobile, it is always there for you. The fun, the chit-chat and jokes all bring us together. And something when you miss out of a joke you have a feeling that you are not the part of the platform'. This discovery corroborates Mistry's (2001) assertion that isolation and being homesick may engender robust diasporic online engagement.

To be informed/Seeking information. This theme reoccurred in six interviews. The interviewees aver that the group is a huge source of information. Keles's (2016) thought about the tendency for online diasporic communities to create a degree of trust and mutual reciprocity by requesting or accepting friendship, membership, online assistance amongst others based on common ethnicity, memories and experiences buttresses this finding. According to Interviewees 2, 3 and 4, information is needed in everyday navigating of the city and even school. Interviewee 2 says: '... most times I have to ask questions on the platform about my movement in the city and school <...> like when I was

searching for accommodation this group helped me a lot. I was new here, and I didn't know much about this place', says Interviewee number 4. Interviewee number 3 posits that they were able to do their documentation in school because of the information they garnered from their fellow school mates on the platform. From the response of Interviewee 1: '... there numerous information on our group, from job postings, news and gossips. Just sieve through and you may find contents that concern you...'

Networking. Majority of the interviewees submit that the platform encourages networking, the building of strong ties. Some of the members do not know one another face-to-face but the platform has engendered some sort of close and strong ties. According to Interviewee number 5, '...we talk about our aspirations and careers, and share ideas that may be beneficial to us in the future <...> I have met so many inspiring persons on this platform, and I have made them part of my strong networks. I don't know where I might need their assistance tomorrow (*laughs*)'. Interviewee number 1 avers that '...arguments may ensue sometimes but I don't treat anybody on the group with disdain. I respect everyone's opinion because you may not know anyone's worth at the moment...' These salient responses confirm the platform's ability to engender networking, though it is for the members of the group to make a conscious effort in making sure they put it to good use just as Interviewee 1 observed. According to Interviewee number 3, '... this is a community of diverse opinions with different personalities, and one has to be careful so as not to strain relationships...' These thoughts serve to reiterate what Tynes (2007) avers, that online diasporas must remain connected to each other online, and they should also produce contents that reflect their identity, beliefs, and shared values.

Pastime and socializing. All the interviewees submit that the platform enables them to enjoy fun time and equally socialize; '...whenever I am bored I always pray that some jokes and chatting are going on the group...'; '... of course making friends and cracking jokes is part of what I love about the platform'; '... especially in the evening, after school hours, the rate which laughable chats drop is alarming, and sincerely it is part of my evening, though I don't participate that much but I read almost every comment and have a good time all by myself...' Interviewee number 6 opines, '... we fraternize a lot and the hobnobbing, especially at weekends, is so interesting, and whenever someone drops a controversial statement...'. As stated earlier, Johnston et al. (2013) confirm that online media are bridging tool in creating virtual relationships among migrants. This affirms the findings of the study on how the participants socialize on the WhatsApp platform.

Sense of community. The interviewees agree that the online WhatsApp platform creates a sense of community among them. Respondents 2, 4, 6 aver that in as much as they share similar features, the platform facilitates a sense of community in them. In the thought of Respondent number 4, ‘... I feel at home on this group, in fact, I feel that I am in Nigeria whenever we discuss especially when it has to do with Nigerian topics’. And Respondent number 6 says: ‘... being from Nigeria and almost everybody in this group is Nigerian, I am compelled to have this nostalgic feeling of home, and it is like “naija” on WhatsApp...’ The above responses exemplify Vertovec’s (2000) explanation of diaspora as a social form, underlining that social relationships in the diaspora emerge as a result of similar origins and circumstances and involves solidarity with co-ethnic members in their collective longing for their country. Similarly, Interviewee 2 posits that ‘this virtual community to me is like a real community because I get supports from members of this group <...> and the collectiveness of doing things is very encouraging’. Furthermore, these assertions reveal that members are guided by the common circumstances and that they are able to create an imagined community which carries some characteristics of their homeland culture.

Clique formation. Though members confirm that the group serves as a community but there is the challenge of selected responses. Respondents 1 and 5 reiterate that there are cliques on the platform, and these cliques sometimes do not respond to posts from non-clique members. ‘I remember when I was new to the group, it was as if I wasn’t making sense whenever I make a post on the platform <...> I also noticed that some members of the group respond to a certain post regardless of the content as far as it is from some person’, Respondent 5 asserted. According to Respondent 1, ‘though it is a sort of community for people like me, I feel like I don’t have the utmost acceptance in the group <...> it took some hours or even days for my comments to be responded to’.

Face-to-face contact. Despite their living in an imagined community, some respondents still believe that having face-to-face contact is essential. In the words of Respondent 2: ‘I wish we could all meet someday and have a natural discussion’. Respondent 4 says: ‘Did we all know each other very well, we could probably arrange a “get-together” but most of us live far away’. These thoughts portray that members of the group wish they could meet face-to-face, but as exemplified in literature, time and space it is a challenge in this regard. Giddens refers to this challenge as the transformation of time and space and its disembodiment of the social system, that is, the dismembering of social relations from local contexts of interaction and their restructuring across indefinite spans of time and space. These responses corroborate Giddens assertion.

Analyzing conversation thread

After observing the WhatsApp platform as non-participant observers, the paper shows comments that capture the research questions. For convenience of analysis, we copied the automatically archived comments from the platform. This analysis starts with considering the theme ‘To be informed/Seeking information’ as discovered in the interview. The comments below buttress or corroborate the theme.

Informed/Seeking information

[6:14 AM, 6/3/2019] JJ Nile: Pls can some1 help me with the location of where I can buy I good battery for my phone. I nid assistance ASAP...

[7:14 PM, 10/3/2019] D Boss: Does anybody hv the current gmat brochure, soft copy will do. Am planning to wryt an exam. Please guys help me out I must not fail oo.

[11:20 AM, 11/3/2019] D Boss: Tnx @ Rocket Guy, I got the material God please you

[9:12 AM, 15/4/2019] Amaka: Good morning. Does anyone know a good neighbourhood in Houston for a gud n affordable accommodation? My cuzin is seriozly searching for one. He doesn't mind sharing with 1 or 2 pips...

[10:12 PM, 15/4/2019] Dulls: @ Amaka, I know som guyz in HS I will PM u later. I hope it helps

The statements above are excerpts from the WhatsApp platform. These comments go further to corroborate statements from the interviews as discussed earlier. From the above statements, we can ascertain that the members are seeking for information, and they got some responses.

Identity: ‘Nigerianess’

[11:32 AM, 7/3/2019] Wuraz: My egusi has finished oooo, wahala dey! Any G close by dat wud dat will help a broda with som...

[12:12 AM, 7/3/2019]: Mustify\$: My guy you rily have 2 get dis egusi ooo. I have som sha but hw do I send it to u. I am in Utah ooo

[12:25 AM, 7/3/2019] Wuraz: Dats some distance 4rm my end here @ Mustify. America wahala. I hv to endure. D pro is dis stuf is expensive here...

[1:12 PM, 7/3/2019] Emekus: Dat's why naija is bae. U won't be looking for dis stuff lyk dis in naija oo. D nearest mart U ve got wat u want. But here! Na problem...

Studying the comments above, we can come to the same argument on identity, particularly cultural identity, as Hall (1992). Hall asserts that cultural identity is the aspect of our identities which arises from our being a member of

a distinctive ethnic, racial, linguistic, religious and above all national culture. Apparently, Egusi soup is synonymous with Nigeria's ethnic groups, hence its cultural identity.

The comments below were discussed during the just concluded 2019 Elections, and it is certain that the commentators exhibited their identity and 'Nigerianness'.

[10:02 AM, 16/3/2019] Bilal: Naija wil be boiling now, electns at the corner. Who r usupporting??

[10:08 AM, 16/3/2019] Dulue: Suppoting? Wen I cannot vote 4frm here. But it seems Atiku is pulling some stunts...

[10:11 AM, 16/3/2019] Bilal: Even if we r not voting I know som of us alrdy hv a candidate at hrt. Obviosly Dulue is rooting for Atiku. Atikulating thins

[10:14 AM, 16/3/2019] Debbie: U can imagine, becos we r nt in naija @ d moment we r alrdy disenfranchised. But we r Nigerians. Pple in diaspora shud be able to vote

[10:16 AM, 16/3/2019] Kisha: Diaspora voting? Wen will it happn? Dis guys r not rdy to include doz in diaspora in politics. We r just neglected.

[10:18 AM, 16/3/2019] Dubem: By d way if u calculate d remittances pple in diaspora are doing u will be maveled. Since am nt voting aint worried.

[10:21 AM, 16/3/2019] Kisha: @ Dubem, exactly!

These comments reiterate the interest diasporas have in politics. They are not ignorant of their contributions to their homeland. There have been calls for diaspora voting in Nigeria but these agitations have not been implemented. These assertions confirm Brinkerhoff (2009) argument that digital diasporas foster democratic values, and also contribute to security and socio-economic development of their homeland.

Socializing/Pastime. Having studied the platform for a number of months, it was discovered that members enjoy the pleasure of social camaraderie. Observing the comments latently, the study shows the excitement that members exhibit in the group. Excerpts below prove our statement:

[8:44 PM, 6/5/2019] Kings: Listening to a naija song now n cant undastnd wat d nigga is trying to say. Some artists shud calm dwn n lrn from d legends abeg...

[8:45 PM, 6/5/2019] Bilal: whch artist is a legnd in Nigeria?

[8:47 PM, 6/5/2019] Rob ^ ^ : Ask him oooo

[8:49 PM, 6/5/2019] Kings: 2baba is there naa, Whizkid, Davido....

[8:50 PM, 6/5/2019] Bilal: 4get Daviso. I don't regard as a legnd. I can manage Whizzy. 2baba is a true legnd

[9:03 PM, 6/5/2019]: Wuraz: Despite wat, naija musicians r trying. Dats a big industry mypple...

Overall, most discussions in the group exude socialization and fun. Other excerpts from the platform as discussed above are equally fun and interesting. There is a huge amount of automatically archived data on the group, but we tried to choose the most indicative and diverse comments.

Conclusion

The main objective of the study investigates the motivation behind Nigerians living in the US (diasporas) use of WhatsApp for building community and constructing identity online and how they perceive the platform. To tackle this research objective, two themes were identified from the questions in the interviews: the motivation to identify with the platform and its perception as a community. It is pertinent to state that the identified themes coincidentally formed the research questions of the study. Consequently, seven themes were generated from the interviewees' responses to the interview questions, which serve to present their experiences and understanding of the platform. The themes – 'Sense of belongingness; Nigerianness', 'To be informed/Seeking information', 'Networking', and 'Pastime and socializing' – described their motivations for identifying with the group. While the themes of 'Sense of community', 'Clique formation', and 'Face-to-face contact' emerged as their perception of the WhatsApp group as a community and the resulting camaraderie on the group.

Additionally, the study enquired how members engage in the construction of diasporic identity through their online interaction. In answering this research question, the study relied on online interviews, observation, and analyzed thread/comments from the group. The complete analysis showed that members use the platform for discussing issues that directly and indirectly relate to development of Nigeria, and also the articulation of their Nigeria identity. The youngsters construct their diasporic identity in a new country, via interactions that strengthen their sense of national identity and regular discussions on Nigeria cuisines, 'naija' music, and Nigerian politics demonstrate their allegiance to their homeland. It can be argued that although diasporic groups on social media like WhatsApp do emerge as a substitute space for the diaspora to engage in identity and community construction, there has not been much research in this area. It is recommended that there should be more scholar attention to the study domain.

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