The Impact of Smartphone Addiction on Academic Performance of Higher Education Students

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What is the Impact of Smartphone Addiction on Academic Performance of Higher Education Students?

A thesis submitted

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ABSTRACT

The study aims to investigate the impact of smart phones addiction on academic performance of college students. For the purpose, we have used "Theory of Planned Behavior (TPB)" in investigating the academic performance. Moreover, the study also emphasized that whether smart phone self-efficacy, interaction competency and behavioral intention influences the academic performance of college students in positive way and negative way using that TPB model, data are collected from the students of Iqra University north campus using quantitative research. In this research we have used correlation design because we have studied relationship between Smartphone self-efficacy (SSE), interaction competency (IC), behavioral intention (BI) and Academic performance (AA). This design tells us how much independent variables (SSE, IC and BI) impact on dependent variable (AA).

From the finding we came to know that there is a positive relationship between behavioral intention and academic performance. This proves that until and unless students are not intrinsically motivated, they cannot use smart phone in a positive way……

The limitation of the study is; the study is carried out by the students of university due to limited time period. Moreover, time constrains also act as a barrier in collecting many responses. Hence, the sample size might not be appropriate to increase the generalizability of this paper. Therefore, the study can't apply on other regions. Furthermore, more variables should be taken into consideration to examine the overall Smartphone impact in a holistic way.

KEYWORDS

CHAPTER # 1

Introduction

1　INTRODUCTION

1.1　Background:

A smart phone is an advanced mobile phone device which is designed to solve daily accessibility problems. Smartphones provide so many features and allows more than make phone calls and send text messages. Smartphones have become a device highly in demand due to its power to perform basic and advanced computer functions. Any problem can be solved through one touch nowadays. That is why in modern life style, people can't live without it, and they have become the necessity in life. The use of smartphones provides high quality performance and quick access to information and entertainment, such as mobile audio and video calls, mobile teleconferencing, sending and receiving emails, and easy access to the internet for different kinds of people, including students. One more usage of it is entertainment & social media. It is a source of all kinds of social connectivity and fun. Because of which, people especially students get addicted to it, which in turn influence their studies, moral values and mental & physical health (Raza et al., 2020).

However, smartphone has also made students' lives easier, as they can access their school information on the gadget through electronic learning (e-learning), and mobile learning (m-learning) as well as they can learn or get any kind of knowledge on them (Ali et al., 2018). Despite so many advantages & benefits of smartphones on students, there are so many disadvantages and negative impacts as well, which cannot be neglected. There are still some questions that call for attention when it comes to students using smartphones in their academic journey. The questions involve, do students benefit from using smartphones academically? Is it helping to improve students' Academic performance? The more students use smartphone, the more they are exposed to many positive and negative impacts.

Because of technology advancement, Student life revolves around smartphones, which make, create or alter their behaviors. Students tend to focus more or rely on their smartphones in relation to their school work or social networking (Raza et al.,2020). A survey done by Course Smart in 2011 shows, students cannot go long without checking their smartphones. Based on the info graphic research, HackCollege.com found that 57% of learners use smartphones, 60% say they are smartphone addicted, 75% sleep next to their smartphones, 88% send messages before

they turn to sleep, 97% of owners of smartphones use them for social networking and 40% use smartphones to read school work (Alexander, 2011). That is why, smartphones can be a dangerous weapon for students to deteriorate in their communication skills and social life.

The findings from the current study provide educational policymakers and educators with information on how smartphone utilization in learning activities influences students' Academic performance.

1.2 Problem Statement:

The use of smartphone is gradually becoming a compelling learning tool used to enhance teaching and learning in distance education. Its usage ensures flexible course delivery, makes it possible for learners to access online learning platforms, access course resources and interact digitally (Raza et al., 2020). But, in youth and especially in students, Smartphone addiction is getting higher due to over dependency on technology in every aspect, therefore it is required to have consistent and complete research of whether Smartphone addiction is beneficial for the students or does it influences negatively on their Academic performance.

Many researches have been done on this area on different population where they got positive and negative relationship between Smartphone addiction and Academic performance. Lepp, Barkley and Karpinski (2014) investigate the relationship and found negative impact of Smartphone addiction on Academic performance on college students. Smartphone addiction does have positive influence on satisfaction in life but negative impact on Academic performance (Samaha & Hawi, 2016; Raza et al., 2020).

Our study will examine the use and impacts of the smartphone as a learning tool on the academic performance of college students. As confusion still arises that either Smartphone addiction is beneficial in students' life or does it have negative or positive influence on students' Academic performance, this study would provide more in-depth sight on the impacts that a smartphone could have on a student's academic performance.

1.3 Research Objective:

The purpose of this study is therefore to test this framework and identify the relationship and linkages between Smartphone addiction, Smartphone self-efficacy, behavioral intention and

interaction competency by providing the relevant evidences. This research study would be a consistent guidance for future researches in this area.

1.4 Research Questions:

Specifically, this paper addresses 4 major questions:

RQ1: What is the impact of behavioral intention to use Smartphone on Academic performance?

RQ2: How does interaction competency effect Academic performance?

RQ3: How Smartphone Self-efficacy affects Academic performance?

RQ4: Does Smartphone addiction has negative influence on Academic performance?

1.5 Significance of the Study:

This research provides guidance to the students of college and university that whether Smartphone addiction can be beneficial to them to achieve academic goals. Moreover through this study they can further analyze the psychological impacts on college students and can limit them.

1.6 Limitations and Delimitations:

As this study is carried out by the students of IQRA University, so this study is supposed to be submitted in limited time period, therefore we are unable to do in-depth study of this topic. Time constraint also disabled us to collect many responses therefore, the sample size might not be appropriate to increase the generalizability of this paper. Moreover, respondents were not cooperative while submitting responses, therefore results of the study might get influenced.

This study collected the responses of only n=500 students of IQRA University North Campus, so its generalizability is low, therefore it can't be applied to other regions or sectors. Secondly, we have included limited dependent and independent variables in it and ignored other. We also included only 25 empirical studies.

1.7 Paper Structure:

The structure of this paper is organized as follow: Section 1 talks about the background of the topic. Section 2 presents the 25 empirical studies about the impact of smart phone addiction on

Academic performance. In Section 3 we have explained the methodology of carrying out this research paper.

CHAPTER # 2

Literature Review

2   LITERATURE REVIEW

2.1   Theoretical Framework:

In our research we have used "THEORY OF PLANNED BEHAVIOR". The theory is all about peoples' intentions towards concept, beliefs, values, norms and control over ones' self and they together form the attitude an individual possesses and the way they react or perceive their eco-system.

Self-efficacy:

The performance of a person's particular action is affected by his individual judgment. Self-efficacy is affiliated with the perception of having a confidence in using the technology, an individual possesses if, taking the context of smartphones. As an example, an individual having smartphone thinks that he can do tasks efficiently by using smartphones. Technical support/ training and amicability influences self-efficacy, which increases an individual's skills in order to sufficiently use the technology.

Interaction Competencies:

Students establish relationship with others with the help of communication through different technologies. Students tend to interact through chatting with friends on messenger that gives them quick response. For an effective communication they must have technology related competencies such as smartphone and this required competency is known as interaction competencies.

Behavioral Intention:

Behavioral intention is a person's intention to act in a particular manner with someone. It's a subjective probability that an individual will perform in a specified behavior (Raza et al., 2019).

2.2   Empirical Studies:

Chen, Kumar, Huang, & Kong (2015) focused on the level of university students' addiction to their smartphones and to understand the difference between self-regulated learning, learning flow, based on smartphone addiction level. After 210 students of university students in Seoul were participated in this research, it has been found that the higher the addiction level is, the

lower level of self-regulated learning the students have, as well as low level of flow when studying. Further interview for smartphone addiction group was conducted, it has been found that the smartphone addict – learners are constantly interrupted by the other applications on the phones when they are studying, and does not have enough control over their smartphone learning plan and its process. The study is limited only to the women who are 22 years old and who are in university.

Lee, Cho, Kim, & Noh (2014) examined the factors that influence the adoption behavior of smartphone early adopters by looking at smartphone adoption behavior of college students, because a large portion of the early adopters of smartphones are college students. Our focus is on the effect of normative peer influence on a college student's smartphone adoption. We also examine the influence of other factors such as self-innovativeness, self-efficacy, the decision maker's attitudes towards a product, financial burden of using the product, familial influence, and other demographic factors (e.g., age and gender). College students' adoption behavior is studied using logic and probate choice models developed based on random utility theory. The discrete choice models are empirically estimated using survey data. We find important influence of friends, financial burden, and other family members on the smartphone adoption of college students who adopted smartphones earlier than other students. 151 College students in two introductory communications classes at a large Midwestern university participated in the survey.

Lepp, Barkley and Karpinski (2014) investigated the relationship between cell phone usage, Academic performance, anxiety and satisfaction with life among the collage of students of Midwestern US public university.536 responses were collected through a questionnaire having 4 constructs (demographics, cell phone use, anxiety and satisfaction with life) and Academic performance was measured through the official university records. Results show that Academic performance is negatively related to cell phone usage and anxiety is positively related to cell phone usage whereas, Academic performance has positive relationship with satisfaction in life while anxiety has insignificant relationship with satisfaction in life. Researchers guided future researcher to include other population (higher school students, graduated students) of other regions in other to increase the generalizability of this paper.

Samaha and Hawi (2016) determined the relationship between Academic performance, Smartphone usage, stress and satisfaction in life. 249 responses were collected by the university

students through questionnaire 4 sections, one is demographics and other three are the main instruments. Results show that Smartphone addiction has positive relation with satisfaction in life but negative relation with Academic performance. This study recommended other researchers to again research across the culture to increase the generalizability of this study.

Hawi and Samaha (2016) investigated the relationship between Academic performance and Smartphone usage among the students of Notre Dame University, Lebanon. 293 responses were came out through the questionnaire consist of two sections (demographics and Smartphone usage scale) having 33 items and GPA was measured through official university records. The results showed negative relationship between Smartphone usage and Academic performance (GPA) of male and female students. It is recommended to future researchers to research again on other population of other region as well.

Aljomaa et al. (2016) investigated that how the differences in gender, monthly income, social status, education level and hours of daily use impact the frequency of smart phone addiction. This research excluded the impact on college students and undergraduate students and directed future researchers for further research on other population. 416 male and female students of King Saud University enrolled in Bachelors, Graduates, M.A and Ph.D. programs were the respondents of this study. Questionnaire consists of 88 items fewer than 5 dimensions were used to collect the data. Results show that there is significant social status, hours of daily use, monthly income, education level and gender differences were indicated in the frequency of smart phone addiction.

Chiu (2014) proposed a model for analyzing the mediating effect that learning self-efficacy and social self-efficacy have on the relationship between university students perceived life stress and smartphone addiction. The survey conducted from the students of Taiwan university came out to be 208 having 4 13 items including (interpersonal relationship stress, academic stress, family stress and emotional stress). The results show that academic stress and interpersonal relationship stress is a negative predictor for social self-efficacy and learning self-efficacy, family and emotional stress is a positive predictor for smart phone addiction. The study is limited only to the university students whereas employed individuals must also be surveyed.

Fonseca et al. (2014) investigated the importance of AR on smart phones for educational purpose and to determine the relationship between the importance of tool, involvement of student and the impact of AR on the performance of the students. The study conducted by CAD/BIM group of architecture department of La Salle, Ramon Llill University. The study conducted in the year 2011-2012 on students of the 3rd year studying Architecture and Building Engineering Degree. For the purpose experimental survey was conducted. The study was performed during the 2011–2012 academic year with students in their third year of an Architecture and Building Engineering degree. The experimental framework was conducted in the course. Total students' participants were 57. Results were obtained by students' pre-tests and post-tests. We came to know that mobile phone usage in class rooms has strong relation with motivation and there is a positive relation students' Academic performance with. The limitations of the study are its hard and not easy to use in producing contents. The study was performed during the 2011–2012 academic year with students in their third year of an Architecture and Building Engineering degree. Hence the study should also have been conducted with students having different educational backgrounds.

Nayak (2018) determined the addiction of mobile phones on the student's Academic performance and the impact of gender and student's relationship on the usage of mobile phones. For the purpose the data was collected from the students of university and higher education of many technological institutions located in India. Quantitative research was conducted. A questionnaire was prepared and distributed to around 429 students of higher education. our respondents were college going teenagers having majority of the females (64.8%) of the age group between 16-23 and the rest were males (35.2%). there were only 7 males in the age group of 23. The items were behavioral changes, lack of control over self and avoiding panic events, impact on work, and too much spending time on smart phones etc. Likert scale was developed having 16 questions. The result shows that women are more involved in using smart phones than males but on the other hand the adverse effect of using mobile phones are more on males. The research came to know that male students are more involved in neglecting their work and lose control over themselves resulting in poor Academic performance. The study needs to be conducted for graduate students and students more than age 23 should also be considered fully and male respondents should be considered equally.

Janković et al. (2016) examined the effect of mobile phones, Facebook on the free time activities and adjustment of students in college of Serbia. An exploratory study of students in Serbia 9(N=485) was conducted. There were total N=485 students from seven faculties who participated in the survey having 205(42.27%) men and 280(57.73%) women. The questionnaire contains total 14 items having 5 constructs and 4 dimensions and result shows that Facebook and use of smart phones has not too much influence on the allocated time for spare time activities and adjustment of students in college and still there is some positive relation of Facebook and smart phones on free time activities but the relation could be negative if there is an excessive use of smart phone and face book and lastly students are less likely to sacrifice face book and smart phones or leisure activities rather than Academic performance. The study is limited more towards female as more female candidates were enrolled and graduated from the university of Serbia hence male candidates needs to be considered from other parts of the Serbia. Due to lack of resources the study has been conducted at only seven faculties at Belgrade and Novi Sad universities

Yi, You and Bae (2016) The research investigates the variables that attracts the students of college to use smart phones for their educational purpose in order to determine the task-technology fit of smart phones to explain how TTF of smart phones emphasize the students of college purpose of this paper is to investigate the factors that influence college student to use smart phones for their Academic performance. The survey was conducted in the top university of South Korea offering excellent ambience for wireless online services (distance learning programs) for smart phones for more than 5 years. The questionnaire composed of two parts (demographic profile of the students and TPC questions). TPC questions having 4 categories: smartphones, task technology fit, predecessor user and perceived effect on performance of the students. The findings show that TTF of smart phones has a strong influence on the opinions of students regarding performance and not a direct influence on the usage of smart phones through a predecessor of utilization, such as state of mind towards the usage of smart phones, values, and integrating conditions. The limitations of the study are despite having a large sample there are the chances of biasness because of single cross -sectional survey. The significance of the study is that it has used TTF model to the utilization of smart phones among college students and motivates them that the proper and right utilization of smart phones could help them in improving their Academic performance

Hang (2015) examined the effects of self-efficacy, intrinsic motivation, extrinsic motivation, and test anxiety on midterm grade. The data was collected from 176 college students ongoing to a Singaporean university. Questionnaires are used to support this research and to analyze the relationships between self-efficacy, intrinsic motivation, extrinsic motivation, and test anxiety on midterm grade. The results show that self-efficacy and extrinsic motivation influence self-regulation behavior instead of simply banning the laptops in classrooms parents and educators need to encourage student's sense of self efficacy and learning motivation. It has been suggested that this research should also include the data of a non-Singaporean university as well.

Rabiu et al. (2016) determined the effect of the influence of mobile phone usage of Academic performance of senior secondary school students. The data was collected from 300 students using stratified sampling technique using questionnaires. The result shows that there is no significant effect of frequency of cell phones on Academic performance among the students of senior secondary school. It has been recommended that this research should also include the students of higher secondary schools.

Paul, Baker and Cochran (2012) examined Academic performance has been used as the dependent variable and student characteristics, time management and use of social media are the independent 15variables The data was collected from 340 respondents belonging to the business students of a large scale university. A quantitative technique that is Questionnaires has been used as a survey instrument in this research. The results show negative relationship of student characteristics, time management and use of social media on Academic performance of the students. It has been suggested that further research on overall students instead of business students only must be conducted.

Hong et al. (2012) determined the relationship between smart phone addiction, smart phone usage behavior and psychological characteristics among 269 female students of 3 different universities of Taiwan. It shows that self-esteem has insignificant relationship while smart phone usage behavior, anxiety and social extraversion has significant relationship with smart phone addiction. This paper limits the generalizability because of excluding male students in population.

Gökçearslan et al. (2016) identified the impact of usage of smart phones, self-operation, general self-efficacy and cyber loafing in the addiction of smart phones. For the purpose we conducted online survey. Our participants were 598 who were the students of Ankara, Turkey. Research results are discussed within the context of the effect of Smartphone addiction on learning environments and individuals. Using convenience sampling method, we conducted 614 responses of undergraduate students studying at different departments at government university of Ankara. Male participants were 71% while female participants were 29%. More than 54% of the population was in the age of between 19 and 20. The instrument we use was questionnaire having the questions of demographic characteristics and second part consist of the questions of self-regulation scale, General self-efficacy scale, Smartphone addiction and Cyber loafing scale and two questions were related to the usage of smart phones. Our findings show that both cyber loafing and smart phone usage have positive impact on smart phone addiction while the effects of self-regulation on the addiction of smart phones were negative and significant. In a nut shell cyber loafing is not influenced by either self-regulation or self-efficacy. The limitations of the study are that more than half population was in the age of 19 and 20 and the responses were mostly conducted from male students.

Rashid and Asghar (2016) examined the path model with the use of technology, student involvement, and self-learning and Academic performance among undergraduate students. We got 761 students through online survey consisting of 3 scales: Media and Technology Usage and Attitude scale (MTUAS) and rating scale of Self-Directed Learning (SRSSDL) and Utrecht's work engagement scale. We used both quantitative as well as qualitative research. Our participants were provided with questionnaire through the personal email system of university comprising of 3 instruments; MTUAS, SRSSDL, and UWES. Whereas, Academic performance was measured through self-reported Grace Points Average (GPA).The result shows that student engagement and self-directed learning has a positive relationship with the use of technology while there is insignificant relationship between use of technology and Academic performance of the students. The findings only highlighted the complicated integration of relationships of the technology use of students with student's involvement, self-learning and student's performance. Hence the limitation of the study is that it does not focus on the student's achievement and total learning. Other studies in future may consider other variables and evaluation criteria of learning and understanding in addition to GPA.

Junco, Heiberger and Loken (2010) examined that if using twitter, the micro blogging and social networking platform most amenable tonguing, public dialogue for educationally relevant purpose can effect on college students and their grades as well, student grades use as a dependent variable and engagement on twitter in independent. This data is collected from 125 students taking first year seminar course for pre- health professional majors participated in this study in which 70 students from experimental group and 55 in the control group in all institutes of US. Questionnaire technique use to collect data from students to analyze the relationship between social media impact on pre health professional major students. The result shows students participated in twitter throughout the semester and twitter communication showed that students and faculty were both highly engaged in the learning process. It is recommended that data should also collect from the institutes that are not only in US.

Han and Jeong (2018) investigate the effect of smart phone use by college students on their Academic performance. The dependent variable is Academic performance and independent variable is Smartphone usage. The study's data is collected from 2482 students (1559 females and 923 male students) from top ranked universities in South Korea. Questionnaire technique has been used to collect data. The result with respect to college students shows that, smartphone self-efficacy and behavioral intention have positive relationship with the student's Academic performance. It is recommended that data should also be collected through one to one interviews and it is also recommended that it should be collected from parents as well.

Beranuy et al. (2009) investigated the reason of excessive use of smart phone and internet and its relationship with metal disorder and psychological distress among 365 undergraduate students of universities of Spain through 20-items, 4 point-Likert scale questionnaire. The results show significant relationship between psychological distress and excessive use of mobile phone and internet.

Honicke and Broadbent (2016) analyzed the mediating and moderating factors on the relationship of self-efficacy and Academic performance. Effort regulation, deep processing strategies and goal orientations were the mediating variables of the research. The data was collected from 1203 valid respondents belonging to different universities. Questionnaires have been used to analyze the relationship. The results show a moderate positive relationship between Academic Self Efficacy and Academic performance. It is however, limited to university students.

More variables must also be taken to examine the relationship for instance, motivational and cognitive variables, and self-performance.

Breso, Schaufeli and Salavona (2010) examined the relationship between self-efficacy, engagement and performance of students. Engagement and performance of the students were the dependent variables and self-efficacy was the independent variable of the study. Two control groups including health and stress were involved. The data was collected from 71 respondents including both male and female belonging to various years and degree programs of the university. The results showed that self-efficacy was increased in both the control group with respect to engagement and performance variables. The study is confined only to the two control groups considered that are stress and healthy control group.

May and Eider (2018) determined that media multitasking is determined to academic capacities of college learners. The dependent variables of this study are GPA, test performance, recall, reading comprehension, note- tasking, self- regulation and efficiency and independent variable is Academic performance. The data was collected from 361 college students. Questionnaire technique is used to analyze to relationship between media multitasking in more diverse instructional context and for varied academic tasks. The result shows that media multitasking interferes with attention and working memory, negative affecting GPA, test performance, recall, reading comprehension, note- taking, self-regulation and efficiency. It is recommended that data should also collect from non-students as well.

Wentworth and Middleton (2014) analyzed the effect of technology usage on Academic performance. Technology usage has been used as dependent variable and Academic performance as an n independent variable of the study. The data was collected from 483 students belonging to a private university located in New Jersey and USA. Questionnaire technique has been used to analyze this relationship. The results show a negative relationship between technology usage and Academic performance. IN this research most of the respondents are women, so it is recommended that the researcher should have also catered men as well. Further, this researcher should also have collected data from other regions of different countries in order to get a generalize result that can be applicable to students widely.

Yang, Asbury and Griffiths (2018) investigated the relation of the problematic smart phones smart phones among Chinese students For the purpose we conducted paper based survey Questionnaire at university in South China the average of the participants were 19.77 years majority ranging from 16 to 27 years .there were 266 males and 209 females .The result shows the model is a good fit in which PSU students procrastination and academic nervousness .While PSU academic nervousness, life contentment. A good model fit was found in which PSU predicted academic procrastination and academic anxiety while PSU academic nervousness, academic procrastination and life contentment was also predicted by self-regulation. The relation was predicted by PSU between self-regulation, both academic nervousness and academic procrastination. The present study improves our understanding of the annoying smart phones that is enhances our understanding of the role of problematic smartphone that is used for mental health, academic behavior and for the welfare of undergraduate students.
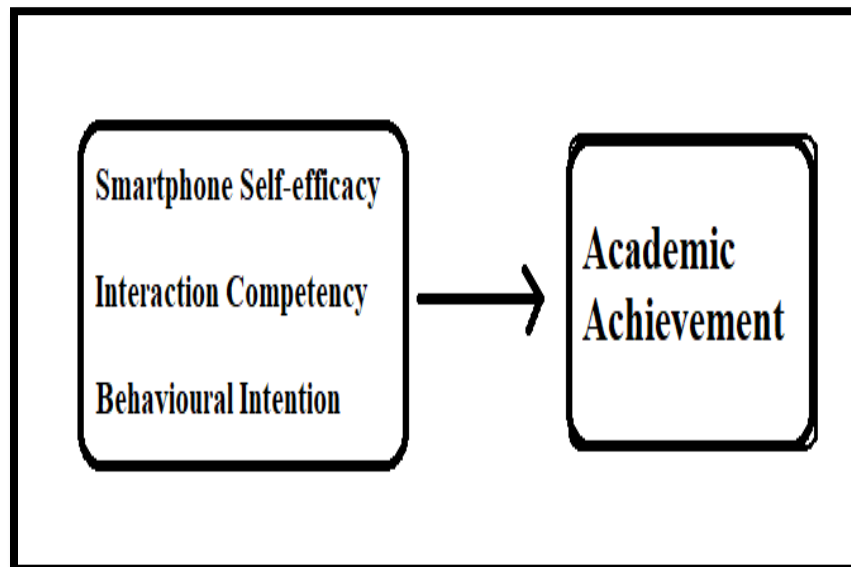
2.3   Hypothesis:

H1: Smartphone self-efficacy has positive influence on Academic performance.

H2: Interaction Competency has positive influence on Academic performance.

H3: Behavioral Intention has positive influence on Academic performance.

2.4   Conceptual Model:

CHAPTER # 3

Methodology

3   METHODOLOGY:

3.1   Research Purpose:

This research is explanatory because this research on impact of smartphone addiction on Academic performance of college students has already studied by many other researchers. This research paper shows that how smartphone self-efficacy, interaction competency and behavioral intention influence the Academic performance of college students, does it influences in positive way or in negative way?

3.2   Research Approach:

There are two types of research: 1) Qualitative 2) Quantitative.

This research is quantitative in nature because data has collected and converted into numeric form and then findings are analyzed and evaluated by statistical technique (Qazi et al., 2020).

3.3   Research Design:

In this research we have used correlation design because we have studied relationship between smartphone self-efficacy (SSE), interaction competency (IC), behavioral intention (BI) and Academic performance (AA). This design tells us how much independent variables (SSE, IC and BI) impact on dependent variable (Qazi et al., 2020).

3.4   Sampling Technique:

This study used the convenience technique. Convenience technique uses when we want to collect data from respondents who are easy to approach. Convenient technique is non-probability technique where respondents are selected because of convenient accessibility ad proximity to the researcher (Ali et al., 2019).

3.5   Target Audience/Population:

The population targeted for this study consists of students of IQRA University North Campus.

3.6   Sample Size:

The sample size of the study is 500 respondents (n=500).

3.7 Statistical Technique:

In this study, we used PLS (SEM) to analyze data by using Reliability test to check the stability and consistency of results. Factor analysis to find which is the most important factor and Regression Analysis is applied to measure the strength of relationship between independent (SSE, IC and BI) and dependent variable (AA).

3.8 Questionnaire/ Measurement Instrument:

In this study we have used questionnaire as a measuring instrument. Questionnaire is based on two sections. Section A comprised the respondents' general demographic characteristics included current status, age and education and gender. Section B has 4 sub sections.

1) Interaction Competency
2) Smartphone Self-efficacy
3) Behavioral intention to use Smartphone
4) Academic performance.

Questionnaire consists of total 20 questions related to the topic and variables. The multi-item measurement items were designed in a five-point liker scale from 1) Strongly Disagree to 5) strongly Agree. All questions are close ended and made with Google form that tells about the relationship between Interaction Competency, Smartphone self-efficacy, Behavioral intention to use Smartphone and Academic performance.

3.9 Ethical Consideration:

Ethics are the norms and standards of our research paper. The responses will be kept confidential so that no info related to the respondent can be leaked. The discloser of the respondent identity will be based on the permission where if they are not willing to disclose identity. Hence, the ethical aspect of research is followed in this research paper.

CHAPTER # 4

Data Analysis

4   Data Analysis

The method that we used is PLS-SEM i.e. partial least square structural equation model to examine the research model. The data was examined by PLS 3.1.6 (Ringle et al., 2015; Raza et al., 2020).

4.1.1   Demographic Profile

Table 1: Respondent's Profile (N=603)

Demographic Items	Frequency	Percentile
Age:		
Under 18	32	5.30%
19-25	191	31.67%
26-30	347	57.54%
Above	33	5.47%
Education:		
Intermediate	35	5.80%
Undergraduate	154	25.53%
Graduate	152	25.20%
Postgraduate	262	43.45%
Current Status:		
Student	205	34%
Employed	178	29.51%
Both	220	36.48%

The demographic profiles contain three categories i.e. Age, in which the respondents under 18 were 5.30%, 31.67% were between the age of 19-25, 57.54% were between 26-30, 5.47% were above 30. On the other hand, 5.80% of the respondents were the students of intermediate, 25.53% were under-graduates, 25.20% were graduates and 43.45% were postgraduates. Furthermore, 34% of the respondents were students, 29.51% employed and 36.48% belonged to both the categories.

4.1.2   Reliability Analysis

In reliability analysis the measurement of scale should match the new finding. A direction in which the finder can utilize his reliable observations if, when two perceptions that are identical to each other in terms of the findings that is being measured must also have similar outcome.

Table 2: Reliability Statistics		
Construct	**Cronbach's α**	**Items**
AP	0.920	5
BI	0.780	4
IC	0.589	6
SSE	0.850	8

Interpretation

The reliability analysis of all variables is shown in the table above. According to Uma Sekaran (2003), the better is the reliability if, the reliability coefficient Cronbach's alpha gets closer to 1.0. According to Tabachnick and Fiddell, (2007) the value of Cronbach's alpha should be greater than 0.55. The overall reliability of 4 loaded items shows that the data is reliable.

4.1.3   Factor analysis

Factor analysis is the method to explain the changes occurring among correlated variable in terms of lesser number of unidentified variables called factor.

AP3	**0.942**		
AP4	**0.915**		
AP5	**0.822**		
BI1		**0.866**	
BI2		**0.710**	
BI3		**0.824**	
BI4		**0.860**	
IC1			**0.734**
IC2			**0.916**
IC3			**0.806**
IC4			**0.750**
IC5			**0.709**
IC6			**0.765**
SSE1			
SSE2			
SSE3			
SSE4			
SSE5			
SSE6			
SSE7			
SSE8			

Note: the following SSE values appear in a fifth column:

SSE1	**0.783**
SSE2	**0.713**
SSE3	**0.775**
SSE4	**0.758**
SSE5	**0.712**
SSE6	**0.843**
SSE7	**0.954**
SSE8	**0.974**

Interpretation

High correlation between the variables is represented if the value of the variables is higher than 0.7. Whereas, moderate correlation between variables is when the values ranges from 0.31-0.7 and the values ranging between 0.01-0.3 shows that the relationship between the variables is weak. With respect to table 3, all of the four variables have a high correlation as they are above 0.7 or equal to 0.7.

4.1.4 Regression Analysis

A statistical tool that is used to analyze the probable change in a variable with respect to the amount of change in the other one, which means that the value of the unidentified variable can be determined from the identified value of other variable, is called regression analysis.

Table-4 Regression Analysis

Hypothesis	Regression Path	Effect type	B-Coefficients	P Values	Remarks
H1	BI -> AP	Direct effect	0.416	0.000	Supported
H2	IC -> BI	Direct effect	0.245	0.001	Supported
H3	IC -> SSE	Direct effect	0.199	0.077	Supported
H4	SSE -> AP	Direct effect	0.862	0.000	Supported
H5	SSE -> BI	Direct effect	0.083	0.001	Supported

4.2 Discussion

Table 4 report's the result of regression analysis.H1(BI-> AP) is accepted as it shows positive and significant relationship between behavioral intention and academic performance for studies as (BI-> AP). In other words, the hypothesis shows that there is a positive relationship between behavioral intention and academic performance. The results of our studies are supported by the past studies (Sunyoung Han and Yong Jeong (2018), and Breso, Schaufeli and Salavona (2010). As we have discussed previously in the study of Sunyoung Han, it investigates the effect of smart phone use by college students on their academic performance and this study results in a positive relationship between smart phone self-efficacy and behavioral intention with the student academic performance.

CHAPTER 5

Conclusion

5.1Conclusion

The purpose of this research is to identify the impact of smartphones on the student's Academic performance of Iqra University North Campus Karachi and for that we have observed the relationships and linkages between Smartphone addictions, Smartphone self-efficacy, behavioral intention and interaction competency by providing the relevant evidences.

As in youth, Smartphone addiction is getting higher due to over dependency on technology in every aspect, therefore it is required to have consistent and complete research of whether Smartphone addiction is beneficial for the students or it influences negatively on their Academic performance. Many future researchers have done research on this area on different population where they got positive and negative relationship between Smartphone addiction and Academic performance. Lepp, Barkley and Karpinski (2014) investigate the relationship and found negative impact of Smartphone addiction on Academic performance of college students. Smartphone addiction does have positive influence on satisfaction in life but negative impact on Academic performance (Samaha & Hawi, 2016). After many researches confusion still arises whether Smartphone addiction is beneficial in students' life and does it have negative or positive influence on students' Academic performance.

This research is quantitative in nature because data has collected and converted into numeric form and then findings are analyzed and evaluated by statistical technique. This study used the convenience technique. The sample size of the study is 500 respondents (n=500).

In this research we have used correlation design because we have studied relationship between smartphone Self efficacy (SSE), Interaction competency (IC), Behavioral intention (BI) and Academic performance (AP). This design tells us how much independent variables (SSE, IC and BI) impact on dependent variable (AA)

From the above analysis of data and after thoroughly examining the statistics, the study shows that behavioral intention of smart phones has a positive effect, which is in fact, impacting Smartphone addiction on academic performance of college students.

It also shows there is a strong significant positive impact of behavioral intention of smartphones on the Academic performance of students. Regression analysis predicts that strength of relationship between independent (SSE, IC and BI) and dependent variable (AA). The paper also

validates previous studies and suggests measures on factors that improve self-efficacy on students' Academic performance.

The study had three hypothesis discussed below:

H1: Smartphone self-efficacy has positive influence on Academic performance.

H2: Interaction Competency has positive influence on Academic performance.

H3: Behavioral Intention has positive influence on Academic performance.

The performance of a person's particular action is affected by his individual judgment. Self-efficacy is affiliated with the perception of having a confidence in using the technology, an individual possesses if, taking the context of smartphones. Until and unless the students are not intended to study, having smartphones cannot change their intentions as intrinsic motivation is primary for Academic performance. According to our data collected we came to know that in spite of utilizing multiple communication channels in a constructive way, students use it for their entertainment purpose that leads to procrastination and it can affect the academic performance. All in all, according to the respective data collected, behavioral intention has a positive relationship with student's Academic performance as discussed previously.

This research study would be a consistent guidance for future researches in this area.

5.2 Managerial Implications

We would recommend that more studies should be put forward and more work should be implemented on self-efficacy and behavioral intension and its impact on student's academic performance on the usage of Smartphone. As the result shows BI (Behavioral Intension) of smart phone has positive impact on AP (Academic Performance). Therefore, steps should be taken in order to motivate the students toward using Smartphone in a positive way. Such as awareness sessions, healthy activities should be promoted by top management of the college. Also provide training and guidance in order to spread awareness regarding positive usage of smart phones.

5.3FUTURE RECOMMENDATION

In future, researchers can find out the negative impact of excessive Smartphone usage and the impact of different social networking site available on Smartphone with this frame work. In addition, they can add more variables favorable to the topic in order to examine the overall Smartphone impact. Also more in dept study of this topic can be made such as detailed survey

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APPENDIX

How does the smartphone usage of college students affect Academic performance?

Survey Questionnaire

Dear Respondent,

This survey is conducted for writing a thesis as part of BBA - Honors. The purpose of this survey is to investigate the effects of college students' smartphone use on their perceived Academic performance. We will appreciate if you could complete the following table. Any information obtained with this study that can be identified with you will remain confidential.

SECTION A

DEMOGRAPHICS:

Current Status:

- Student
- Employed
- Both

Age:

- Under 18
- 19-25
- 26-30
- Above

Education:

- Intermediate
- Undergraduate
- Graduate
- Postgraduate

Gender:

- Male

- Female

- Other

Section B

Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)

S.NO	Questions **Academic performance**	1	2	3	4	5
1	Using a smartphone helps me to study more efficiently					
2	Using a smartphone improves my performance in studying.					
3	Using a smartphone increases my course work productivity.					
4	Using a smartphone enhances my study effectiveness.					
5	Overall, I find a smartphone useful in my studies.					

REF: McGill, T. J., & Klobas, J. E. (2009). A task–technology fit view of learning management system impact. *Computers & Education*, *52*(2), 496-508.

S.NO	Questions **Interaction Competency**	1	2	3	4	5

1	With a smartphone, I can maintain social relationships with others.					
2	With a smartphone, I can get feedback quickly.					
3	With a smartphone, I can interact with others using multiple tools.					
4	With a smartphone, I can interact with others no matter where they are.					
5	With a smartphone, I can easily have a longer conversation with others.					

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S.NO	Questions **Smartphone Self-Efficacy**	1	2	3	4	5
1	With a smartphone, I currently take tests.					
2	With a smartphone, I currently register for courses.					
3	With a smartphone, I currently navigate course websites and read course material.					
4	With a smartphone, I currently work on assignments, presentations					

5	With a smartphone, I currently search for information.					

REF: D'Ambra, J., Wilson, C. S., & Akter, S. (2013). Application of the task-technology fit model to structure and evaluate the adoption of E-books by Academics. *Journal of the American Society for Information Science and Technology*, *64*(1), 48-64.

S.NO	Question **Behavioral Intention to Use Smartphone**	1	2	3	4	5
1	With a smartphone, I want to email friends about classes.					
2	With a smartphone, I want to make phone calls to friends about classes.					
3	With a smartphone, I want to send text messages to friends about classes.					
4	With a smartphone, I want to send messages via Facebook to friends about classes.					
5	With a smartphone, I am able to contact an instructor.					

REF: D'Ambra, J., Wilson, C. S., & Akter, S. (2013). Application of the task-technology fit model to structure and evaluate the adoption of E-books by Academics. *Journal of the American Society for Information Science and Technology*, *64*(1), 48-64.