

AN ENQUIRY INTO ECONOMIC ANXIETY AND STUDENT DEVELOPMENT



By

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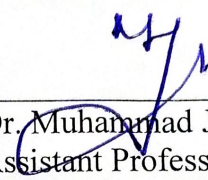


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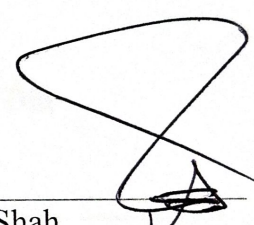
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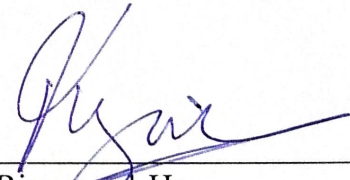
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Declaration

I, hereby declare that the dissertation is submitted to the Department of Development Studies by me is my original work which I have accomplished after being enrolled for the degree of MPhil at Pakistan Institute of Development Economics (PIDE), and it is not submitted to any other institution previously.

Further, I have acknowledged all those sources from which I have acquired assistance and cited with proper references.

Sami Ud Din

Date: _____

Dedication

I dedicate my thesis work to my family and many friends and I will always appreciate all they have done for me. A special feeling of gratitude to my loving parents for unconditional love, to my dear brothers, especially to Jahan Zeb, Alam Zeb, Shahab Ud Din, and to my sister Shahnaz Bibi for their, endless emotional, social, and instrumental support throughout my life. I am also grateful to my all friends, especially to Anwar Ul Haq, Tanveer Hussain, and Jamil Ahmed for their dependable and auspicious friendship.

ABSTRACT

It is evident from the review literature that there is a consistent relationship between student involvement and student development. According to student involvement theory, student development is directly proportional to the student's level of involvement. The global scholarship has evaluated student involvement in various ways but not given focus to the fact that economic anxiety and attention economy distraction can also influence student involvement but we found in the literature review that these two variables are linked with various fundamental elements of student involvement. In order to test these deduced theoretical hypotheses, two different multiple cross-sectional regressions models were applied to the sample set of 241 observations. The first regression model was run for PRE-COVID-19 on-campus student involvement, while, the second regression was regressed for DURING-COVID-19 online student involvement. In the case of PRE-COVID-19, our study results have shown that Social Support and Institutional Quality were positive significant predictors, and Time Spent on Commuting to Campus as well as Economic Anxiety were negative significant predictors of variation in on-campus student involvement across the sample of students. In the case of DURING-COVID-19, Economic Anxiety, Attention Economy Distractions, and Major in Social Sciences were negative significant predictors and Institutional Quality, Technological Status of Student, and Major in Natural Sciences were significantly positive predictors of variation in online student involvement across the sample of students. The study recommends local educational policymakers, researchers, and experts should focus on the overlooked issue of student involvement. This study has also recommended future researchers that develop longitudinal data on student involvement to develop causal chains and pathways through which causal relation of economic anxiety and attention economy distractions to student involvement can be tested.

Key terms: Student Involvement, Economic Anxiety, Social Support, Attention Economy Distractions, Time Spent on Commuting to Campus, Technological Status.

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All praise to Almighty Allah, The Superior, and The Sovereign, who granted me the power to accomplish this research work.

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CHAPTER 1

INTRODUCTION

1.1. Background of the Study

For numerous reasons, the phenomenon of economic anxiety is an unwelcome guest in every economy. Maintaining regular check on economic anxiety emerging from income inequality, unemployment, and poverty is an important task of the modern age (Bechtel, 2014), and to enhancing human's well-being, its mitigation needs to be set as a global ambition of behavioral economics in this new century (Bechtel, 2012). Worldwide studies have corroborated that the spell of economic downturn can increase the likelihood of public psychosomatic health problems, (such as anxiousness, depressions, and stresses), and may consequently reduce the well-being of the public (Viseu, Leal, de Jesus, Pechorro, & Greenglass, 2018). If we look at Pakistan's economy with reference to ongoing economic conditions, it can be anticipated that there might be a higher level of economic anxiety among its citizens, as the economy is currently suffering from one of its worse economic meltdowns. For instance, according to World Bank assessments, Pakistan's Gross Domestic Product (GDP) growth decelerated to 3.3% in FY19 (which is accounted 2.2% drop relative to the prior year) due to the stabilization measures carried out by the current government. Similarly, a sharp climb has been recorded in several economic variables (such as inflation rate, energy prices, policy rates), and on the other hand, the decline in various economic variables, (such as exchange rate, development budget, private consumption growth, investment, the industrial sector growth, and the services sector), were recorded (World Bank, 2019). The effects of these fluctuations were also reflected in the public survey of Pakistan, piloted by "The International Republican Institute's (IRI) Center for Insights in Survey Research". After surveying the sample consisted of 3,991 participants aged 18 and older, IRI revealed that 74% of their respondents indicated concerns over the economic issues, and 77% of young people proposed a lack of employment as the biggest economic challenge¹. More recently, according to the world bank's estimated real GDP growth statistics, Pakistan's economy has

¹ For further details visit: <https://www.iri.org/resource/new-pakistan-poll-strong-approval-new-government-economic-concerns>

deteriorated to -1.5% in FY20 from 1.9% in FY19. This massive contraction reflects the combined economic effects of the government's COVID-19 controlling arrangements and pre-COVID-19 contractionary policies².

In this scenario, like all other segments of the population, university students also seem to be economically anxious about their current and prospects. In the past, numerous research publications have highlighted that the growing prices for higher education, rising cost of living, downturned employment market and rising competition for employability, and household economic conditions are the factors that are continuously ticking in the minds of university students in Pakistan (Naeem & Dahar, 1997; Ahmed, Riaz, & Ramzan, 2009; Khan & Chaudary, 2014). Worldwide, scholarly studies on economically caused anxieties have demonstrated various effects of economically driven anxieties on students.

However, in this research, we are mainly focusing on the relationship between economic anxiety and student involvement. According to Student Involvement Theory, student involvement is the level of mental and physical energy that an individual allots to the campus activities. The theory claims that an actively involved student is that who allocates a substantial amount of its energy to academics, devotes more time to the college/university environment, actively takes part in organizational activities, and often interacts with fellow students and faculty-staffs. Alternatively, the less-involved student leaves behind his studies, devotes a lesser amount of time college/university environment, neglects extracurricular functions, and will have irregular meetups with fellow students and faculty-staffs (Astin, 1984). Thus, on-campus student involvement is rooted in factors such as participation in the on-campus curriculum, participation in the on-campus co-curriculum, and the amount of time given to on-campus curricular and co-curricular activities. Likewise, for e-learners, student involvement is rooted in factors such as participation in online curriculum, participation in online co-curriculum, and the amount of time given to online curricular and co-curricular activities. In the current research, we have termed the involvement of e-learners as online student involvement.

From the review of literature, it has been also found that there is an inverse association between student engagement and anxiety (Asghar, 2014). Existing literature also reveals that economic

² (World bank Pakistan) <https://www.worldbank.org/en/country/pakistan/overview>

factors such as employability prospects, student loans, cost of living, household economic conditions, and cost of education are one of the major factors behind student's anxiety. Therefore, we can say that there would a negative relationship between the economic anxiety of students and student involvement. Moreover, literature also implies that economic anxiety is negatively related to human mental and physical health. As we know that student involvement is the level of mental and physical energy that an individual allots to the campus activities, therefore, it can also be said that by affecting the student's mental and physical health economic anxiety can negatively affect student involvement.

Student involvement theory vividly claims that the level of student development is directly proportional to the level of student involvement (Astin, 1984); therefore, student involvement can be set as equivalent to student development. It is also evident from the literature that there is a consistent relationship between student involvement and student development. A wide range of studies and theories in the literature has shown that student involvement activities are connected to positive academic success, retention, personal and career developments. Thus, in light of the above reasons, it's very possible that through various influential links economic anxiety can affect student development via affecting various factors of student involvement.

Apart from economic anxiety, this study also relates student involvement with other variable such as attention-economy distraction, social support, commuting distance, institutional quality, and technological status of students. For instance, the scholarly studies (e.g. Armstrong, Boiarsky, & Mares, 1991; Pool, Koolstra, & vander Voort, 2003; Suhail & Bargees, 2006; HERI, 2007; Heiberger, 2007; Carr, 2011; Tariq, et al.,2012; Rideout 2012; Wang 2015; Dwamena, et al., 2016; Gok, 2016; Firat, 2017; Mathur, al. 2019) have highlighted that attention economy distractions can have a negative association with student involvement. Likewise, according to literature social support (provided by family, friends, and faculty) is positively and significantly related to student involvement³. The commuting time to campus is negatively associated with student involvement (Newbold, Mehta, & Forbus, 2011; Burlison, 2015). According to scholarly studies, technological status (internet speed, internet stability, owning a computer, and digital literacy) has a positive influence on online student participation (Deden, 2002; Warschauer & Matuchniak, 2010; Rao, Eady, & Edelen-Smith, 2011; Kolesinski, Nelson-Weaver, & Diamond,

³ See page 30 and 31 of this research

2013; Cowherd, 2014; Pellas, 2014; Lai, 2015; Parkes, Gregory, et al, 2015; Cannell, 2017). Thus, owing to the aforementioned linkages current study has taken attention-economy distraction, social support, commuting distance, and institutional quality in relation to on-campus student involvement. Likewise, for online student involvement, the independent predictors such as attention-economy distraction, social support, institutional quality, and technological status are taken into account.

1.2. Statement of the Problem

The review of the literature shows economically driven anxieties can put negative influence on students physical and psychological well-being, and therefore, may hinder the process of student development via affecting their involvement/engagement, achievement, and other educational outcomes (Mouza, 2015; Trombitas, 2012; Heckman, Lim, & Montalto, 2014; Andrews & Wilding, 2004; Hammad, 2016). Similarly, attention economy distractions can also bear negative influence on student involvement as studies set forth that the attention economy distractive factors can affect students' self-control, cognition, working memory, attention duration, writing, face-to-face communication, time management, effective study skill development, physical world connections, student involvement, logical memory, study habits and can create procrastination. Global scholarship has evaluated student involvement in various different ways but not given focus to the fact that economic anxiety and attention economy distraction can also influence student involvement as these two variables are linked with various components of student involvement.

Apropos to the above considerations, by taking these rationales into consideration, this research tried to predict variation in students' involvement in both on-campus and online education via economic anxiety and attention economy distraction along with other independent predictors through a cross-sectional regression model.

1.3. Research Questions

- Does economic anxiety predict on-campus and online student involvement in higher education?
- Does the attention economy distractions on-campus and online student involvement in higher education?

- Does Institutional Quality on-campus and online student involvement in higher education?
- Does a student's technological status predict online student involvement in higher education?

1.4. Research Hypotheses

Ho₁: Economic anxiety is a negative independent predictor of student involvement

Ho₂: Attention economy distraction is a negative independent predictor of student involvement

Ho₃: Institutional Quality is a positive independent predictor of student involvement

Ho₄: Student's technological status is a positive independent predictor of online student involvement

1.5. Research Significance

Student involvement in higher education can bear robust consequences on students and families, universities, and the nation's development potentials. Therefore, the developed countries like the USA and Canada conduct the National Survey of Student Engagement (NSSE) on annual basis. The positive and the negative effects of student involvement on students, universities, and the economy can be recognized "in terms of time, effort, money, resources, personal economies, human capital, and other areas" (Egdorf, 2013). Unfortunately, in Pakistan, almost no focus has been given to the important phenomenon of student involvement. The study can provide rudimentary level grounds for further research and try to persuade domestic educational researchers to focus on this locally neglected research area. The significant contributions of the study are:

- i. We have developed various composite indexes such as Student Involvement Index (SSI), Attention Economy Distraction Index (AEDI), Economic Anxiety Index (EAI), Social Support Index (SSI), Institutional Quality Index, and Students' Technological Status Index (STSI). These indexes after further testing and modifications can be used in the researches relevant to the education field.

- ii. The study offers two rudimentary Predictive models of student involvement to predict cross-sectional variations in on-campus and distance/virtual learners.

- iii. Moreover, cross-sectional studies are useful for forming preliminary evidence to plan advanced research in the future (Wang & Cheng, 2020), and this study has attempted to establish a foundation for advanced research in the future.

CHAPTER 2

LITERATURE REVIEW

2.1. Defining Student Development

Educated personalities have many distinctive qualities that are less manifested by individuals who are not lucky enough to be involved in higher education experiences. Compelled by this fact, student development theorists (especially onward 1960s) were remain involved in the investigation of these qualities to know how these qualities are developing in the higher educational environs (Hamrick, Evans, & Schuh, 2002). Fostering Student development is one of the essential objectives of higher education, and “the student affairs department” has a central position in promoting this ambition. Student development is a multidimensional and complex phenomenon that includes several dimensions such as cognitive, physical, moral, social, career, spiritual, personality, and education. (Janosik, et al., 2003)⁴. Generally, the three terms, “Growth, Change, and Development” are used in an identical connotative sense. Sanford, however, has differentiated these three words, by signifying that all these terms have their own different and specific connotations (Komives & Woodard Jr, 2003).

Sanford in his definition has segregated development from change (as change can refer to any positive or negative, progressive or regressive alteration in any existing condition), and from growth (as growth denotes any favorable or unfavorable expansions in overall functioning) (Patton, et al., 2016). According to Sanford student development is “*the organization of increasing complexity*”⁵ (Sanford, 1967). In his conceptualization, student development is a growth process in a positive direction, passing through the process student can be more capable of integrating and functioning on diverse experiences and influences (Patton, et al., 2016).

Rodgers then extended the definition of Sanford, to put more emphasis on students (Schuh, Jones, & Torres, 2016). According to Rodgers “*the ways that a student grows, progresses, or increases his or her developmental capabilities as a result of enrollment in an institution of*

⁴ See page: (212)

⁵ See Chapter 8 of “*Where colleges fail: A study of the student as a person*” by Nevitt Sanford

higher education” is referred as student development (Patton, et al., 2016; Schuh, Jones, & Torres, 2016).

Miller and Prince proposed that “*the application of human development concepts in postsecondary settings so that everyone involved can master increasingly complex developmental tasks, achieve self-direction, and become interdependent*” should be referred to as student development. (Evans, Forney, Guido, Patton, & Renn, 2009).

Jones and Abes referred that student development is when “*some kind of positive change that occurs in the student i.e. complexity in cognition, self-awareness, racial identity, or engagement*” (Patton, et al., 2016).

2.2. Defining Economic Anxiety

Nowadays, “economic anxiety” is a buzzword that is usually used in public discourse (Bechtel G. G., 2014)⁶ but multicity arises in defining this tricky phrase. In a shorter sense, “*economic anxiety is the anxiety produced by a lack of economic safety*” (Osberg & Sharpe, 2009)⁷. In a wider perspicacity, “*economic anxiety is an emotional response by the individuals to, reduced life standards, concerns in earning a livelihood, and pessimistic economic prospects due to macro-economic causes and/or microeconomic causes*”. In this instance, Macro-economic causes could be economic stagnation, vulnerability, crises, etc. and whereas, micro-economic causes could be personal (such as living-cost, worries about possible prospects), and/or occupational (such as earning rates, employment security) (Yetgin & Benligiray, 2019)⁸.

In other words, economic anxiety includes introspective subjective and objective assessments of how poorly an individual, and/or his community, performed in the creation of goods and services in the recent past, and in addition, how pessimistic the respondent is (or could be) regards the prospects under the given past trends and present indicators (Miller, 2018). Thus, in Miller’s context, “*economic anxiety is objective and subjective assessments about the economy and personal economic condition with reference to both present and future*”.

⁶ See page 21 of (Bechtel G. G., 2014)

⁷ See Page.5 of CSLS Research Report: “Measuring Economic Security In Insecure Times: New Perspectives, New Events, And The Index Of Economic Well-Being”

⁸ See Page 3-4 of (Yetgin & Benligiray, 2019)

According to Nancy Wiefek (2003), the nature of economic anxiety has been changed in the modern era, especially the post-1970s economic era. He put forth three main distinct viewpoints on postindustrial economic anxiety.

First: *“Postindustrial economic anxiety is about subjective interpretation rather than objective categories”* (Wiefek, 2003)⁹.

Nancy views that, in the postindustrial era, mass affluence has blurred the previous objective stratification of income groups in society. Therefore, now people tend to get confused about whom they consider as middle-class and who should be considered the working class. In this fast-growing competitive economic world, the crucial distinction between economic groups is those who feel economically safe and those who do not (Wiefek, 2003).

Second: *“Postindustrial economic anxiety includes the feeling that things are not going to get better in due time”* (Wiefek, 2003)¹⁰.

For postindustrial families, economic dynamics have turned to whole new directions. Now, families are more focused on long-term economic prospects instead of short-term economic calculations. Here the worth noting idea is that, in this modern age, it is very possible that people may feel anxiety at present-time even without experiencing any substantial loss in the short-run (Wiefek, 2003).

Third: *Postindustrial economic anxiety entails more than just present or future family-income worries, but threats to the way of living* (Wiefek, 2003)¹¹.

In modern society, life standard maintenance factors such as the permanent income of the household, annuitized net worth based on expected longevity, household consumption demand relative to others are better determinants of people’s psychological well-being (Mullis, 1992)¹² so, just focusing on income circumstances is not enough now. Therefore, now people are reporting worries on health insurance, educational finances, credit bills, and contented retirement (Wiefek, 2003).

⁹ See Page 44 of (Wiefek, 2003)

¹⁰ See page 45 of (Wiefek, 2003)

¹¹ See page 45 of (Wiefek, 2003)

¹² (Mullis, 1992) cited by (Wiefek, 2003) see page 45

By interfusing the cited views and definition of scholar we have deduced that “Economic anxiety is an emotional response by the individuals to their economic insecurities on the basis of objective and subjective assessments about the macro-economic and personal/micro-economic conditions with reference to both present and future”.

2.3. Economic Pressure, Stress, and Anxiety: A Status of Pakistani Students

In Pakistan, financial difficulties, relationship issues, and low educational levels are positively linked with anxiety and depressive disorders (Mirza & Jenkins, 2004).

Related results were found in a study on three higher education institutes of Pakistan. The main stressors, which are found in these three universities, were noted as the burden of coursework, insecurity about employability prospects after the degree completion, competition with peer-group, and family expectations. The study further asserted that due to downturned unemployment and competition in job markets of Pakistan, students are induced to compete for better academic grades/marks to increase the probability of their employability after graduation, which is consequently increasing their stress level and creating negative synergy. The authors suggested authorities review the offered coursework structure to reduce students’ academic stress, offer more career counseling to minimize the concerns of students regard employability prospects, and develop friendly and supportive teacher-student relations (Ahmed, Riaz, & Ramzan, 2009).

Another same sort of study to examine the effect of anxiety on higher education students’ academic achievement was conducted in the Bahawalpur region of Pakistan. And they also found similar sort of results that anxiety was negatively affecting the academic achievement of students from both genders. However, the noteworthy element in this study was that they found it more impact female students more anxious relative to male students (Nadeem, Ali, Maqbool, & Zaidi, 2012).

In their research, on the students of a public sector university of Lahore, the authors (Khan & Chaudary, 2014) highlighted that 79% of their sample population was reported high levels of stress and were given the impression of being vulnerable to physical and socio-academic failure. Moreover, 91% of the respondents found unsatisfied from ongoing socio-economic and political circumstances and shown the willingness of leaving the country for good socio-economic

prospects somewhere abroad via student visa or getting foreign nationality. The authors also acknowledged that the participants of their study were well aware of the ongoing economic conditions of Pakistan¹³ as the respondents of their study talk over the dropping value of the domestic currency, the burden of international debt on the state, staggering of domestic industries, rising unemployment, and inflation. They were found to be pessimistic about the economic prospects of the economy thus they preferred to refugee in a foreign country as a better option. The study concludes that in Pakistan, universities are generating thousands of graduates every year and the government is falling short in providing them desirable employment opportunities. The prevailing economic scenario has produced a space between national employment demand and supply from the universities which causing pessimism, stress, and brain drain via lifting the unemployment rate (Khan & Chaudary, 2014).

Apart from the above negative outcomes, the shrinking labor market in addition to employers' obsession for students with higher academic achievements has further induced university students toward the academic grades obsession to improve their chance of employability. The study signified that the future unemployment pressure, academic self-conception and recognition, concerns of parents, and mental pressure were the factors that were inducing student passions for academic grades as opposed to learning behavior. The author set forth that university management and educational leaders need to intervene with proper policies to push forward students from grade obsession with the intention to develop the better intellectual, socializing, and moral aptitudes among them to guarantee holistic learning outcomes (Khan M. A., 2014).

The cost of living is also one of the crucial concerns of Pakistan's students, especially of the student who belong to lower-middle and poor economic backgrounds. As the Naeem & Dahar, (1997) highlighted poverty and lack of financial resources, Inflation, and expensive private hostel accommodation are found to be a barrier for female education in Pakistan.

2.4. Economic Anxiety and Student Development

The psychological healthiness of university students is one of the much-focused concerns across the globe (Bayram & Bilgel, 2008). Students in higher education have to deal with various sorts

¹³ read page 52 in (Khan & Chaudary, 2014)

of stress or anxieties (John & Moyer, 2014). Global scholarships have highlighted various psychological and physiological implications of student anxieties. For instance, high anxiety could cause lower scholastic learning in students. By obstructing the control of attention and concentration of individual anxiety can negatively affect the working memory span and emotional intelligence, consequently lead to incapability and mal performance in the learning process (Hashempour & Mehrad, 2014). Investigation on the association between student engagement and anxiety has demonstrated that there is an inverse association between them (Asghar, 2014).

Like other life-stressing factors, economic stress factors (such as economic hardship, financial risks, and financial well-being) are positively associated with the stress, anxiety, and depression level of an individual (Viseu, Leal, de Jesus, Pechorro, & Greenglass, 2018). According to a national survey on college students and recent college graduates in the USA top five main stressors for graduate students were: (1) loan repayment (2) Education cost (3) obtaining money for college (4) employability prospect and (5) the academic work load (Trombitas, 2012). The studies on student mental health have often focused on the economic worries of students due to their effects on the physical and mental health of students (John & Moyer, 2014) (Jessop, Herberts, & Solomon, 2005). Moreover, research scholars have also identified various pathways through which economic anxiety can affect students' involvement/engagement, achievement, and other educational outcomes.

The literature intends that the spell of the downturn of macroeconomic conditions can increase the likelihood of public mental psychic problems, (such as depression, anxiety, and stress), and may consequently reduce the well-being of the public (Viseu, Leal, de Jesus, Pechorro, & Greenglass, 2018). Like other segments of the population, the macroeconomic conditions of an economy can also exert an influence on the stress level of students. For instance, a study was conducted on Greek undergraduate students in order to find that whether their perceived stress level has risen in 2013 as opposed to 2009, due to the economic meltdown and its special effects (such as financial crisis, increased rates of unemployment, and uncertain prospects). The results of this study revealed that females, senior students, lower-class students, and the students who were living away from their families were reported greater levels of perceived stress with

reference to campus and non-campus activities for both years, and the severer stress was noticed for year two-thousand fourteen. (Mouza, 2015).

The survey of 19 educational institutions across the state of Ohio has revealed that monetary stress was pervaded among students as 71% of the respondents were suffering from stress due to personal financial difficulties. “Not being able to engage in same activities like their peers due to lack of cash” and “anticipating higher load of student debt during graduation” were found to be the foremost two significant stressors behind student financial stress. The outcomes of the study also elaborated that the greater students’ financial self-efficacy and financial optimism regarding one’s prospect can bear stress-mitigating consequences on financial stress (Heckman, Lim, & Montalto, 2014).

Likewise, in the empirical study on British students’ mental health, it has been discovered that financial along with other problems can lead to poor mental health by raising levels of anxiety and depression of students, in addition, financial difficulties and poor mental health can affect academic performance (Andrews & Wilding, 2004).

Inceptia also confirmed the effect of financial stress on students in higher education. On the whole, 34% of their study respondents reported that the financial stressors are negatively affecting their educational progress or performance, whereas, another 20% signified that they are less involved in academic life as they induced to cut their course load because of the mention stressors (Trombitas, 2012).

Unemployment is one of the leading sources of economic anxiety. Economists spotted two primary adverse influences of unemployment. The first one is the opportunity cost of unemployment (the foregone output that could be produced if jobless workers would be productively employed). And the second is the mental loss from which the unemployed workers and their family members suffer. Psychologists have also provided their theories to describe the negative consequences of unemployment that may lead to poor psychological health in idle workers (Goldsmith, Veum, & Darity Jr, 1996). For students in higher education, unemployability can cause a deterioration of both physical and psychological health (Fergusson, Horwood, & Lynskey, 1997). Psychological disorders such as depression or chronic anxiety may arise from unemployment, and conversely, poor mental health may lead to job loss or diminish

the prospects of employability (Farré, Fasani, & Mueller, 2018). Other researchers (Fergusson, Horwood, & Lynskey, 1997) also affirmed that increasing exposure to unemployment is linked with increasing threats of mental disorder in youths. They found that young adults who were facing unemployment were suffering from significantly higher rates of anxiety disorder and drug addiction.

It seems that employability via the sense of economic dependence and independence can also put an impact on students' level of anxiety. As the research study on graduating doctors in Poland revealed that Interns who were used to involved in the doctor's daily duties, who were feeling economically independent, and who were used to have positive self-valuation about their practical skills reported a lower level of anxiety (Bolanowski, 2005).

In the context of unemployment anxiety, it is important to mention that the level of anxiety caused by unemployment may vary with respect to the level of education and the duration of unemployment. For instance, it has been studied that master's degree holders were reported to be more anxious than unemployed graduates. Similarly, it is also has been reported that both the graduates and master's degree holders, who were facing unemployment for a longer period, were found significantly more anxious as compared to those who were exposed to it for a shorter period (Singh & Kumar, 1976).

Within the above context, another point to be considered is that the level of anxiety in students may also tend to variate with respect to gender and educational specialization. For instance, the study of 380 Saudi student has revealed that the level of future anxiety in students of humanity specialization is higher relative to the students in scientific specialization due to their expectation about their employability and the prospect of their discipline in the job market. In addition, male students are found more anxious than females due to the nature of the Saudi community where males tend to have economic responsibility relative to females. Ultimately the study set forth that future anxiety can exert negative impacts on the students' motivation and attitudes toward education (Hammad, 2016).

Along the same lines, literature also regarded growing student loans as a prominent economic stressor for students in higher education. Though student loans can play a significant role in the human capital attainment process via making higher education accessible, it is relevant to note

here is that they may cause stress and worries to the indebted student in the reimbursement phase (Walsemann, Gee, & Gentile, 2015). In nowadays and age, rising student debts are worldwide prevailing concerns for students in higher education. Scholars have substantiated that the burden of debt can affect a student's mental and physical health (John & Moyer, 2014) (Roberts, et al., 2000).

Students often come across with debt and financial problems but implication on their mental health depends on how they perceive these adversities (Cooke, Barkham, Audin, Bradley, & Davy, 2004). From this stance, fear of Students stemming from the borrowed debt has a positive relationship on students' stress levels (Boyles & Ahmed, 2017). A greater sum of borrowing is related to a higher level of fear which can consequently cause greater perceived stress. On the other side, rumination and understanding about loans are related to lower loan owing. So, therefore, counseling about loans and self-financial management could be a handful in lowering the quantity of debt and associated stress (Chisholm-Burns, Spivey, Jaeger, & Williams, 2017).

2.5. Literature Gap

There is a consistent relationship between student involvement and student development. Years of wide-range of studies and theories in the literature have shown that student involvement activities are connected to positive academic success, retention, personal and career developments (Christenson, Reschly, & Wylie, 2012). There are fewer attempts were made to predict student involvement behaviors. With this model, we have attempted to contribute in the less focused domain. Moreover, we have not found a single predictive model yet in which economic anxiety and attention economy distraction have been used as predictors of the student even though the study literature shows some potential links through which these variables are connected to the student and we have discussed those links in the above literature review. Therefore, this has tried to cover this gap by successfully predicting student involvement through these two aforementioned variables along with other potential predictors.

CHAPTER 3

METHODOLOGICAL DESCRIPTION

3.1. Introduction

The research methodology section of any research is composed to make the readers know what the researcher has done or plan to do, so that, they can evaluate the reliability of the research. To achieve the same underlying principle, this chapter will attempt to elaborate on the methodological plan of accomplishing this particular study. The discussion of this chapter will be on the entire methodological structure going bit by bit through its various components such as theoretical and conceptual framework, research design, constructs and variables data collection, and selected mode of analysis which are going to be used in the conduction of this research project.

3.2. Theoretical background

This research will apply the Interactionist Perspective to study student development. The famous equation $B = f(P \times E)$, established by Kurt Lewin (1936), is the foundation on which the interactionist Perspective of student development has been established. The equation implies that behavior (B) is functionalized (f) by interaction (\times) of the person (P) with the environment (E). According to this perspective, to encourage and facilitate students' development, their environmental conditions must need to be explored. The presence and absence of several elements "such as involvement, marginality, and mattering, and validation" in the educational environment can put a major impact on students' development and growth (Evans, et.al., 2009).

With having Interactionist Perspective, we will use "Astin's (1988, 1993a, 1993b) Input-Environment-Output (I-E-O) model" as the conceptual framework that explains the relationship between students' development (output) and student involvement (input) and learning environments (educational institute).

According to Astin's (1984) theorization, student development depends on the level of student involvement in curricular and co-curricular activities of the campus. The theory has taken involvement in an active sense with reference to the rationale that what the individual does, how

he or she behaves is more important than what an individual passively thinks. Moreover, in his theory, Astin has demonstrated the dualistic nature of involvement that student involvement is the quantity of psychic and physical energy that the student allocates to the campus practices. In this instance, an actively involved student is that who allocates a substantial amount of its energy to academics, devotes more time to the college/university environment, actively takes part in organizational activities, and often interacts with fellow students and faculty-staffs. Alternatively, the less-involved student leaves behind his studies, devotes a lesser amount of time college/university environment, neglects extracurricular functions, and will have irregular meetups with fellow students and faculty-staffs. The theory is based on five main postulates:

- i. Involvement denotes the allocation of psychic and physical energy in various objects (here objects refer to student activities).
- ii. Involvement has dualistic features, quantitative (i.e. investment of time), and qualitative features (i.e. student's seriousness).
- iii. Irrespective of its objects, "involvement occurs along a continuum", which implies that different students may engage in the same object with different degrees of involvement and one student may allocate different energy across different objects.
- iv. The level of output (learning and development) a student can receive from being enrolled in an educational program is directly proportional to the quality and quantity of input (involvement) the student puts into that program. This implies, that the more input will give the more output.
- v. How effective an educational policy and/or practice will be is direct bonded with the magnetism embedded in that policy and/or practice for student involvement. (Astin, 1984).

Based on Astin's theory of student involvement, in this research, we have considered student involvement equivalent to student development.

3.3. Conceptual Framework

A *conceptual framework* can be regarded as a network or plan of interconnected concepts that collectively offer a comprehension for the phenomenon under inquiry. Each construct or variable of a conceptual framework provides an ontological or epistemological significance in the framework of the study. A conceptual framework in research is not just a cluster of random

concepts rather it is a rationale network in which every concept performs an essential role (Jabareen, 2009). They offer an explanatory or analytical to observe a social reality. In the following headed sections, we have briefly elaborated on various conceptualized variables that are related to our variable which student involvement. Additionally, we have deduced hypotheses for the study based on the conceptual link which was found in the review of the literature.

3.3.1 Linking Economic Anxiety to Student Involvement

Existing literature reveals that economic factors such as employability prospects, student loans, cost of living, household economic conditions, and cost of education are one of the major factors behind student's anxiety. Employability stress can affect a person's physical and mental health (Samuelson & Nordhaus, 1985; Farré, Fasani, & Mueller, 2018; Singh & Kumar, 1976; Fergusson, Horwood, & Lynskey, 1997; Goldsmith, Veum, & Darity Jr, 1996), career choices, motivation and attitudes toward education (Hammad, 2016), and also associated to drug addiction (Fergusson, Horwood, & Lynskey, 1997). Lack of financial resources (Trombitas, 2012; Heckman, Lim, & Montalto, 2014; Andrews & Wilding, 2004; Mouza, 2015), Inflation, and expensive private hostel accommodation (Naeem & Dahar, 1997) are found to be major influential factors which are contributing to students' stress about the cost of living. Scholars have substantiated that the burden of debt can affect a student's mental and physical health (John & Moyer, 2014; Roberts, et al., 2000). The score for this category will come from questions about concerns regarding the repayment of educational loans. Education cost is another crucial stressor for students that can give rise to students' economic anxiety because the rising cost can place high pressure on students and their families (Fosnacht & Dugan, 2018). Household economic hardship increases threats for behavior issues, mental and physical health problems in students and therefore it turns out to be a substantial public health concern (Mistry, Benner, Tan, & Kim, 2009; Sareen, et al., 2011; Hutton, et al., 2014; Reiss, et al., 2019).

From the review of literature, it has been also found that there is an inverse association between student engagement and anxiety (Asghar, 2014). Therefore, we have hypnotized that there is a negative relationship between the economic anxiety of students and student involvement. Moreover, literature also implies that economic anxiety is negatively related

to human mental and physical health. As we know that student involvement is the level of mental and physical energy that an individual allots to the campus activities, therefore, it can also be said that by affecting the student's mental and physical health economic anxiety can negatively affect student involvement.

Ho₁: Economic anxiety is a negative independent predictor of student involvement

3.3.2 Linking Attention Economy to Student Involvement

The terminology “attention economy” was coined by *Herbert A. Simon* was a *cognitive psychologist, economist, and Nobel Laureate* (Simon, 1971)¹⁴. The idea was that attention is scarce because each of us has only so much of it to give and it can come only from us -- not machines, computers, or anywhere else. According to him, in the old eras of human history, people were facing a lack of information and they had plenty of attention but today circumstances are totally changed we are now living in an information-rich world. Nowadays, the abundance of information is creating *a dearth of attention* because overflowing information is consuming the attention of its recipients. In other words, he argues that *“a wealth of information creates a poverty of attention,”* therefore, we should allocate our attention efficiently (Simon, 1971)¹⁵. After the work of Simon, the terms like “the attention economy” and “the economics of attention” began popularizing to analyzing the shifts and transformations in the economy during the recent information age and the scholars, such as Michael Goldhaber, Thomas Davenport, and John Beck, have played an important role in this regard (van Krieken, 2019).

In the era of the attention economy, using technologies, we pay our attention to acquiring so-called “free digital-products”. Now, the attention of people has to turn into a new form of capital and various corporations are accumulating this new form of capital to earn a high amount of profit. Today, one person, *Mark Zuckerberg*, owns Facebook with over 2 billion users, WhatsApp with 1.3 billion users, Facebook Messenger with 1.2 billion users, and Instagram with 800 million users(Williams, 2018) therefore owning a massive amount share from world’s attention capital. Based on the attention capital, Facebook

¹⁴ See page 53

¹⁵ See page 40 and 41

Company is earning millions of dollars from the advertiser agencies. According to statistics, Google and Facebook are now sharing 85 percent of yearly growth in internet advertisement and their shares are continuously increasing (Williams, 2018). Google and Facebook and all other attention-seeking corporations apply persuasive designs to grab and hold our attention, for instance, by *keeping us looking, clicking, tapping, and scrolling*. These persuasive designs generate a situation in which users are easily distracted therefore, the already existing self-regulation issues in the modern era are further escalating (Williams, 2018).

According to Wang (2015), the attention economy consumes students' study time and alters their study habits. His study results revealed that both the Chinese and the American college students allocate a substantial study time to media activities and his lab experiments set forth that media activities adversely affected students' logical memory and reading comprehension (Wang Z. , 2015).

Carr, (2011) in the best-selling book "The Shallows: what the Internet is doing to our brains" argued that the "Net is by design, an interruption system, a machine geared for dividing attention". In the book, Carr offers a comprehensive analysis of the distracting potential of the Internet and validates the negative impacts of those distractions on students' cognition and working memory (Carr, 2011, pp. 131-132). Similarly, a couple of experimental studies revealed that watching television while doing academic work adversely affects performance in both reading comprehension and memory tasks (Armstrong, Boiarsky, & Mares,1991; Pool, Koolstra, & vander Voort, 2003).

In the study by Richardson (2017), the majority of students reported that their campus engagement increases due to social media services but some students testified that their engagement negatively effects due to social media distractions. Another study showed that social media usage put a negligible effect on students' participation in various academic endeavors but the higher usage of social media platforms can affect time management and effective study skill development (HERI, 2007). Lots of students spend ample amount of time on social media, "such as Facebook, MySpace, World of Warcraft, Sim City, Twitter, WhatsApp, Instagram, LinkedIn, Google plus, Skype, Tango,

Telegram, and Viber”. These social media spaces promote negative behaviors in young students i.e. “procrastination, viewing pornography, and drug use” (Dwamena, et al., 2016)¹⁶. Yunus, et al., (2013) argued that student’s vocabulary and handwriting skills can improve due to social media usage. And Heiberger (2007), found that students who were using less Facebook were reportedly very connected to the campus than those who were spending more time on Facebook.

Gok maintains that social networking sites adversely affect students’ habits, grades, socialization, etc. He found that the majority of Facebook-using students do not have sufficient time for reading (books, newspaper, etc.), physical activities, and going to the gym. This study highlighted that most of the students “spend more time on social media instead of studying academic courses” (Gok, 2016). According to Mathur, al. (2019), social media usage is significantly related to student involvement in studies. Another study implies that there is a statistically significant and negative relationship between students’ average daily Facebook usage and their self-control (Firat, 2017).

In “A National Survey of Teachers About the Role of Entertainment Media in Students’ Academic and Social Development”, Rideout (2012), highlighted that most of the time students remain simultaneously involved in multiple tasks in several media platforms i.e. posting tweets while watching television, or pin ears to music while updating Facebook status. And the majority of a teacher in the study reported that this multiple media usage is affecting students’ attention duration, writing, face-to-face communication.

A descriptive study on Pakistani students highlighted that the persuasive design of social media platforms are distracting students from studies, creating media addictive behaviors and time management issues, and reducing their involvement in physical world activities (Tariq, et al.,2012). Another descriptive research study on Army Medical College 235 students (in Rawalpindi, Pakistan) also revealed that during the class students use their mobile for texting, playing games on daily basis. Likewise, about 50% of students reported that they spent 25 to 50% lecture time on their cell phones. The study concludes that students are distracting due to mobile phone usage (Jalil & Sabir, 2019). In the same

¹⁶ See page 961: Introduction

way, another study on Pakistani students suggested that net usage bears both positive and negative effects on students. And excessive use of the internet can bear academic, physical, mental, and relational problems to students. According to this particular study, the majority of the students indicated that from the usage of the internet they get more positive effects than adverse effects (Suhail & Bargees, 2006).

In the review of literature, both optimistic and pessimistic views about the relationship between attention economy and students' campus activities were found. And can be said that the attention economy has the potential to impact student involvement both positively and negatively. However, a general agreement found in many studies that attention economy distraction factors can bear negative impacts on student involvement as studies set forth that the attention economy distractive factors can affect students' self-control, cognition, working memory, attention duration, writing, face-to-face communication, time management, effective study skill development, physical world connections, student involvement, logical memory, study habits and can create procrastination. Based on these influential links and domestic statistics we are assuming the following hypothesis has been derived.

Ho₂: Attention economy distraction is a negative independent predictor of student involvement

3.3.3 Linking institutional quality to student involvement

Feng (2018), trace out the association between student engagement and institutional quality factors. The links between student engagement and institutional structure have positive and significant (Porter, 2006). In the same way, Rocconi et al (2018), reveal that levels of student engagement also depend on institutional rank.

Institutional structure matter for student engagement, student satisfaction is linked to the preservation, create a learning environment, encourage advanced learning and advance degree. The link between Student engagement and institutional quality has been comprehensively debated in the literature and the relation between them is confirmed by many scholarships (e.g. Alvas and Raposo 2007; Elliot and shin 2002; Helgesen and

Nesset 2007). Thus, based on these literary evidences we have assumed the following hypothesis:

Ho₃: Institutional Quality is a positive independent predictor of student involvement

3.3.4 Linking Social support to Student Involvement

Social support can be defined as “support access to an individual through social ties to other individuals, groups, and the larger community” (Lin, Ensel, Simeone, & Kuo, 1979) While perceived social support can be described as one's perception of “whether his/her social network is supportive enough or not” (Sorias 1988b).¹⁷

Jayarathna, (2014) found that the social support from friends and family is positively and significantly related to students' involvement. The relationship between family and peer's social support and student engagement is also found by Estell & Perdue, (2013). Abdullah & Singh, (2019) that relation between social support and student engagement is positive and significant. Nicpon, et al., (2006) have revealed a significant positive statistical relationship between social support and student retention

Similarly, by using the structural equation model Xerri, Katrina, S, & acklock, (2018) investigate the link between student engagement and social support. The finding shows similarity with a lot of studies that, supportive relations among students, student-teacher affiliations are associated with to the level of engagement in academic activities. Thus, based above evidence we can deduce the following hypothesis:

Ho₄: Social Support is a positive independent predictor of student involvement

3.3.5 Linking the Commuting Time to Student Involvement

According to Blimling, (2014), boarding on campus expands opportunities for involvement in on-campus curricular and co-curricular activities. Similarly, according to Astin, students who used to live on-campus have more time and chances to get involved in all campus activities and the opportunity to develop a robust attachment to academic life (Astin A. W., 1984). Residing within a university environment is positively linked with many aspects of student involvement such as student-faculty interaction,

¹⁷ Gülaçtı, (2010) cited Sorias (1988b).

engagement in student government, and involvement in university's social fraternities or sororities (Astin, 1984). Residing in a campus environment is positively related to long-term student involvement via student retention, and this positive effect was found to be true across institutions and students irrespective of gender, race, capability, or family status (Astin A. W., 1984). Similar sort of results were also been shown in previous researches (Astin, 1973, 1977, 1982; Chickering, 1974).

On the other hand, for the commuting students, the interaction with campus and involvement in campus activities is challenging. In comparison to non-commuting students, commuting students have to deal with unique challenges such as feelings of seclusion, on-campus and off-campus role conflicts, and different support arrangements (Newbold, Mehta, & Forbus, 2011; Burlison, 2015). Therefore, commuter students are less likely to engage in on-campus curricular and co-curricular activities as well as less probable to interact with fellow learners and faculty (Newbold, Mehta, & Forbus, 2011). In the light of the aforementioned literary works, we have deduced the following hypothesis:

H₀₅: Commuting time is a negative independent predictor of on-campus student involvement

3.3.6 Linking the Technology status to Online Student Involvement

Many students involved in online education can be affected due to the deprivation of cutting-edge technology or internet speed (Cowherd, 2014). Likewise, Lai, (2015) indicated that lack of reliable internet and computer can affect students' participation in online learning. Lack of computer ownership is also found one important obstacle in the way of student engagement in online education (Warschauer & Matuchniak, 2010)

Internet availability, internet bandwidth, and computer availability were found to be influencing factors of rural student participation in online learning (Deden, 2002; Rao, Eady, & Edelen-Smith, 2011; Parkes, Gregory, et al, 2015).

Various studies indicated that digital literacy is an essential factor for participating in online education (Kolesinski, Nelson-Weaver, & Diamond, 2013; Cannell, 2017). The hierarchical regression analysis has shown that computer self-efficacy is significantly and

positively related to the cognitive and emotional engagement of the student in online education (Pellas, 2014). Having literary indications in mind we can conclude the following hypothesis:

Ho₆: Student's technological status is a positive independent predictor of online student involvement

3.4. Specification of the Models

This study has been conducted following the criteria of cross-sectional research design. Cross-sectional research models are some of the widely used models in the social sciences. In the present study, we observed variations in students' involvement across a diverse sample of the student; therefore, the cross-sectional model is useful to see variation across different sample units. However, the leading drawback of cross-section studies is that they usually disallow testing of causality, with the exception of an experimental cross-sectional study. The restriction on causality is due to the fact that temporality is not considered in cross-sectional research. In a cross-sectional study, time is supposed to have a random effect, therefore, generates variance but not bias. Nevertheless, cross-sectional data can be used to test an association between different variables efficiently (Lavrakas, 2008). Moreover, causal inferencing is not feasible through cross-sectional data but we can make non-causal predictions based on the predictive cross-sectional model. A non-causal predictive model uses a particular sample then estimates/'predicts' for data that is not been included in the current sample (Knaub, 2015). As our purpose of this study is to test the hypotheses that economic anxiety and attention economy are negative independent predictors of student involvement (not causal inferencing), therefore we can use a cross-sectional regression model to carry out this research. As in the current study we have tried to predict variation in both on-campus and online involvement (input) across the students studying at various universities of Pakistan therefore based on study hypotheses we have developed the following two cross-sectional regression models. The first model is to estimate on-campus student involvement while the second is to estimate online student involvement.

The equation for the first Regression model:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5$$

Where

Y = Student Involvement **X₁** = Social Support
X₂ = Economic Anxiety **X₃** = Quality of Institute
X₄ = Distance time to Campus **X₅** = Attention Economy Distractions

In the above first regression model, we have set economic anxiety, attention economy distractions, and percentage of daily time students spend on commuting to campus as negative independent predictors while social support, and Institutional quality a positive independent predictor of on-campus student involvement.

The equation for the second Regression model:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5$$

Where

Y = Student Involvement **X₁** = Social Support
X₂ = Economic Anxiety **X₃** = Quality of Institute
X₄ = Technological Status **X₅** = Attention Economy Distractions

Here in the second model, we have replaced commuting time to campus with technological status because students don't have to commute to the university during online education. Thus, we have set economic anxiety, attention economy distractions, and technological status of a student as negative independent predictors while social support, and Institutional quality as a positive independent predictor of online student involvement. In the next couple of pages, two diagrams have been constructed to demonstrate the conceptual frame of the student and to illustrate the associations between criterion variable and predictors. In this regard, the first diagram conceptualizes the PRE-COVID-19 on-campus student involvement model, while, the second diagram conceptualizes during COVID-19 online student involvement.

Figure 1: Model of Pre-Covid-19 On-Campus Student Involvement

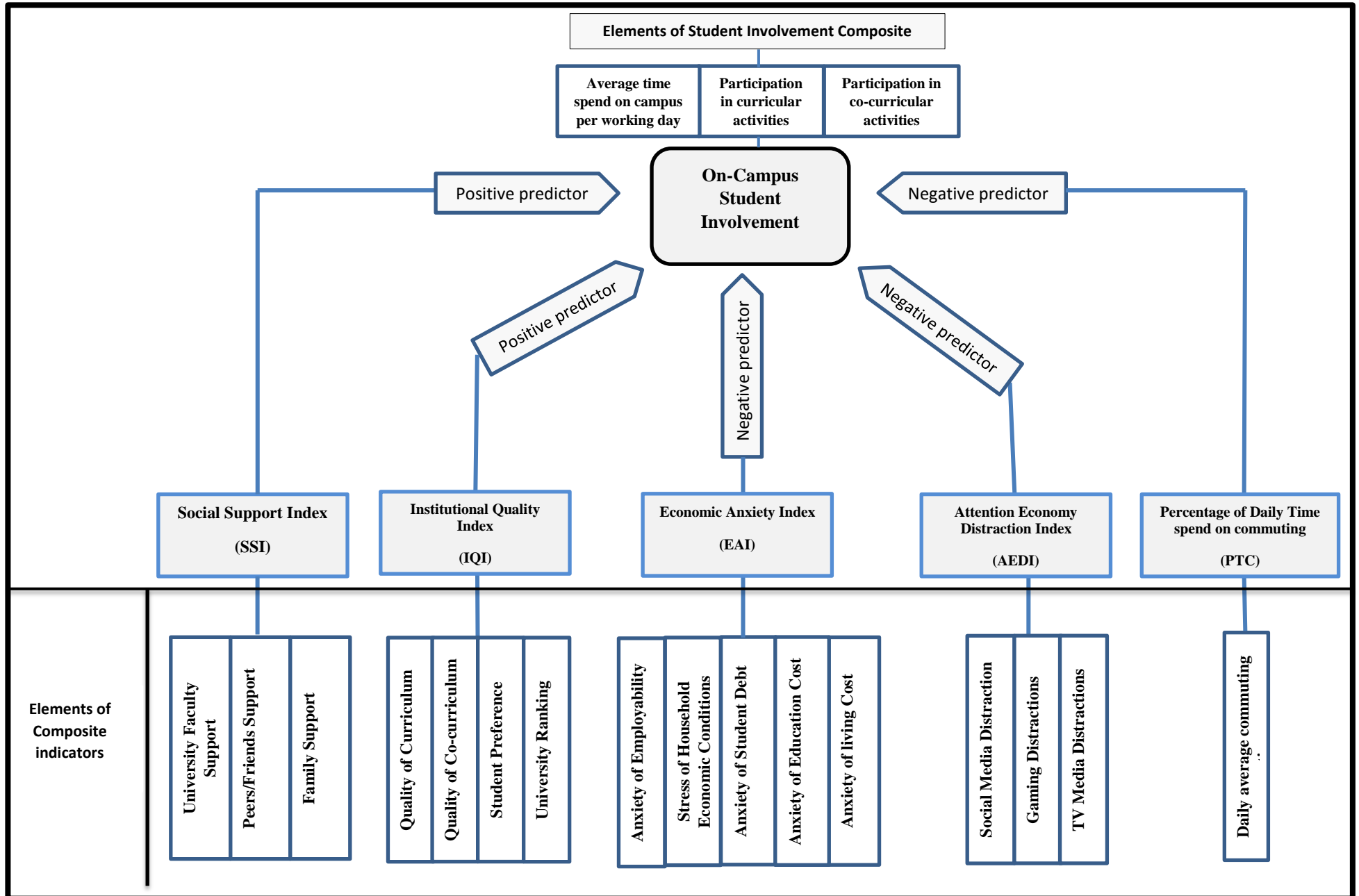
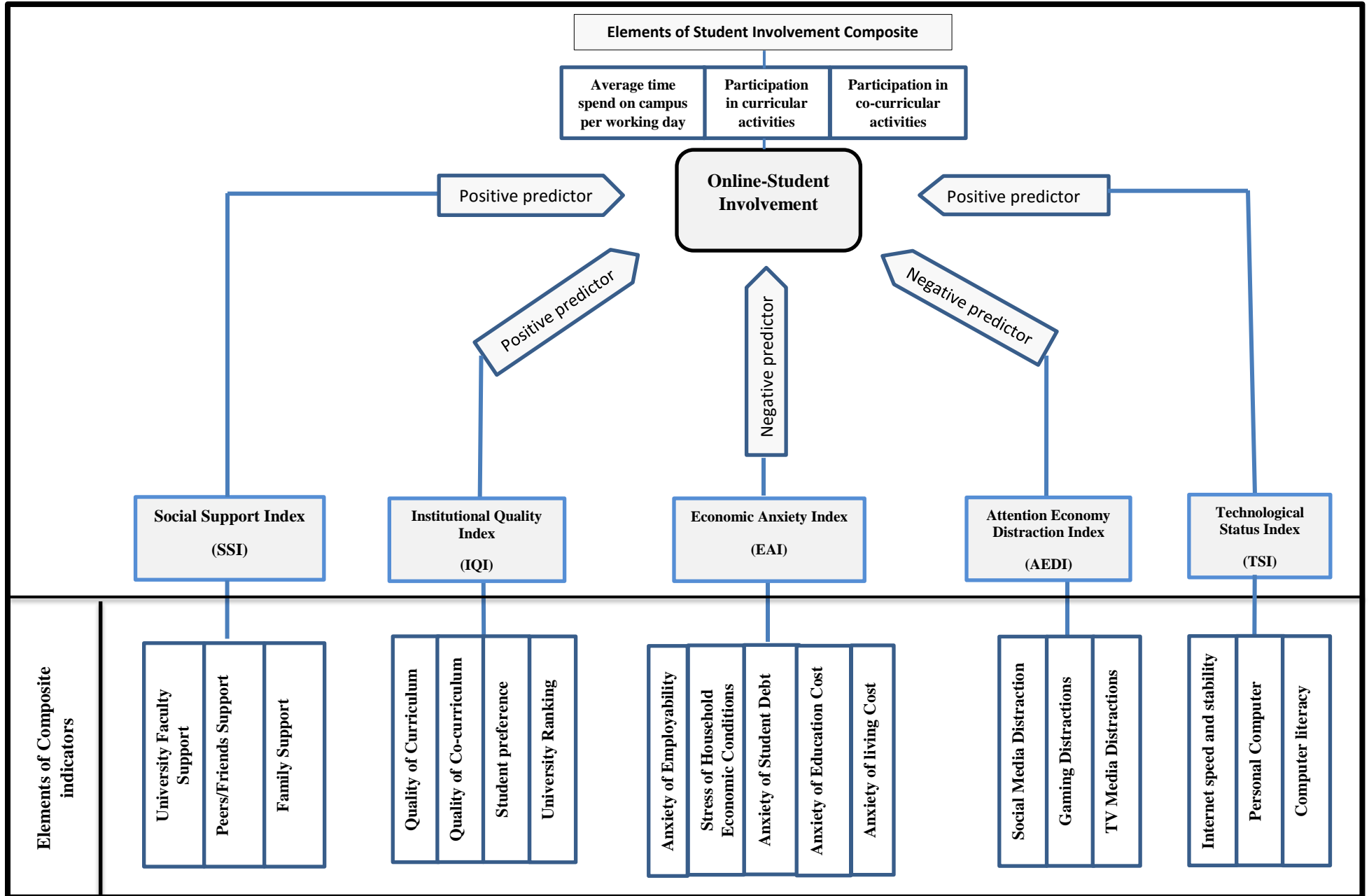


Figure 2: Model of Online Student Involvement during COVID-19



3.5. Research Strategy and Methods

Research strategies and methods are a set of procedures and tools that are used to conduct a study systematically in accordance with a particular research design. First of all, we will discuss the strategies and methods that are been used in this study for collecting data. As it is a matter of fact that to accomplish any study, the nature and means of data are supposed to be crucial. As we have already mentioned earlier that this is a cross-sectional study therefore we have used the cross-sectional survey method for data collection. In cross-sectional designs, data is usually gathered via surveys administered straight to the individual respondents (Lavrakas, 2008). We also conducted a survey through self-report structured questionnaires. The survey questionnaires are administrated online using an online survey website namely *questionpro.com*. The reason of conducting an online survey is to reach out to a maximum number of a student under COVID-19 restrictions. Once we have collected raw data we processed data on an excel sheet to prepare it for cross-sectional regression analysis. In an econometrical or statistical branch of knowledge, a cross-sectional regression is a kind of regression in which we measure the association between the dependent variable(s) and independent variable(s) at the same period or single point of time. After performing regression on cross-sectional data analysis has been done on obtained results and estimations are also presented visually for readers.

3.5. Data Collection

Data collection is one of the most important processes in research studies. Although in different studies the data is acquired through using different many practices and techniques but every research must be based on some sort of data.

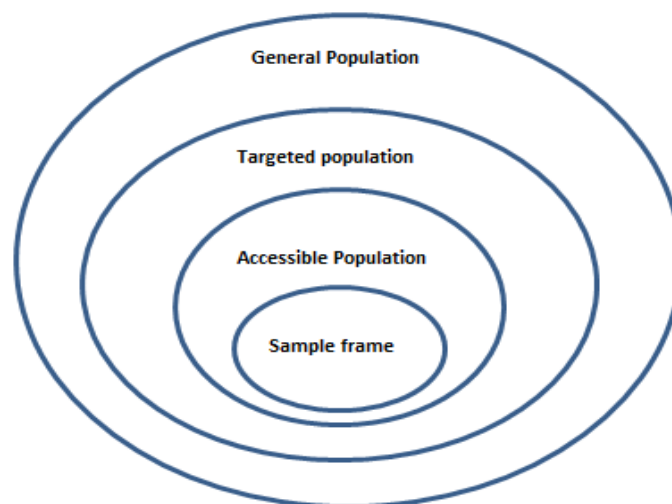
3.5.1. Sampling Strategy

In this research, inadequate funds and time are the core constraints of the data collection process. For instance, this academic dissertation is to be accomplished within the interval of six months under the restricted person funding. These constraints have induced us to refine the general population of this research to target population to limited accessible population. The general population (GP) is equal to members of the general population who are not eligible to respond in view of the research goals plus participants in the target

population (TP) who cannot participate for several reasons plus accessible population (AP) (Asiamah, Mensah, & Oteng-Abayie, 2017).

In this study, the target population will be the students from graduation to MPhil level enrolled in Universities across Pakistan. Considering the constraints of this study, the target population further refined to the accessible population that comprised all reachable universities in Pakistan. Then, the sample frame has been derived from the accessible population. To derive a sample out of 50 reachable universities list, 30 universities were chosen randomly as clusters¹⁸, and those clusters are considered as the sample frame. Then the data obtained through a simple random sampling technique by using online self-administrated questionnaires from each cluster. The reachable universities were where the research was having connections. In each university, we selected an individual and requested to draw data on behalf of the research through random selection of the respondents in their respective institutes. We sent the link of the online questionnaire to selected individuals than those selected individuals randomly circulated those questionnaires among their university students. The proposed population refinement procedure for this study has been illustrated in the below diagram:

Figure 3: The proposed population refinement procedure for sampling method



¹⁸ See list of randomly selected universities in appendix (1)

3.5.2. Sampling Size

Sample size denotes the number of respondents or observations to be included in a research study. Choosing an appropriate sample size is very crucial because it affects two statistical properties of the study such as the accuracy of the research estimates, and the power to derive conclusions from the study. Although there are many formulas to calculate sample size “the general rule of thumb is no less than 50 participants” to conduct a correlation or regression analysis and this number should increase along with more number of predictive variables (VanVoorhis & Morgan, 2007). Green, (1991) has offered a few comprehensive methods to decide sample sizes of regression analysis. His recommended formula is “ $N \geq 50 + 8m$ ” (where m refers to the number of Predictive variables) for testing the multiple regression or correlation. If testing both, use the larger sample size. According to Harris’s (1985) formula, the minimum acceptable sample size is when observations of a sample surpass the predictors by at least 50 units (such as number predictors + 50). For a regression model that includes 6 or a greater number of predictors, the minimum criteria would be 10 observations each predictor is applicable. However, if the condition for sampling is suitable, a researcher should consider almost 30 observations per predictor (VanVoorhis & Morgan, 2007). According to Sekaran (2003), Roscoe in 1975, suggested the following rules of thumb for deciding a sample size: a) generally a sample size greater than 30 and less than 500 is applicable for most studies, b) when samples are included subsamples categorizations such as male/females, juniors/seniors, etc. then at least there should be 30 observation per category, c) when study applies multivariate or multiple regression analyses then sample observations have been several times “preferably 10 times or more” greater than the number of predictors used in the research.

The sample size of our study is consistent with all aforementioned sample size criteria because in this study we have used 5 predictors in both regression models and we have used a sample of 241 for both models. In our sample, in terms of gender, there were 95 female students, 146 male students, in terms of spatial belonging 104 were urban and 137 Rural, in terms of enrollment status 74 students were of MPhil program and 164 were

BS/Master's program, in terms of education field 114 were representing social sciences, 78 natural sciences, and 49 Managements/Business sciences.¹⁹

3.5.3. The instrument of Data Collection

An online Self-reported questionnaire is used as an instrument for collecting data. The questionnaire will be separated into two segments. First section was containing a set of questions to acquire data for the PRE-COVID-19 circumstances. Similarly, the second section was containing a set of questions to obtain data for during COVID-19 situations. The survey questionnaire was developed using the online survey website “questionpro.com” and the link was sent to respondents via WhatsApp messenger and Gmail emailing service. Total 467 questionnaires were distributed among the student out of which 241 students completed the survey, 81 students left the questionnaire unfinished, and 145 students didn't respond at all.

3.6. Description of Variables

The notion of “Variable” is commonly used in research projects. It is a usual and crucial practice to identify and delineate the variables while planning a quantitative research study (Kaur, 2013). It is therefore critical for a researcher to clearly define the variables of their study and the statistical relationship among the variables. Therefore, under the following headed sections, we will discuss the under-considered variables of this study.

3.6.1. Student Involvement

As it is mentioned earlier, according to Involvement Theory, student development depends on the level of student involvement in academic experiences. As stated by the theory, student involvement is the quantity of mental and physical energy that an individual allots to the campus activities. In this regard, an actively involved student is that who allocates a substantial amount of its energy to academics, devotes more time to the college/university environment, actively takes part in organizational activities, and often interacts with fellow students and faculty-staffs. Alternatively, the less-involved student leaves behind his studies, devotes a lesser amount of time college/university

¹⁹ Note these categories are overlapping i.e. one participant at a time could represent several categories such as rural belonging, female, MPhil/MS student etc.

environment, neglects extracurricular functions, and will have irregular meetups with fellow students and faculty-staffs (Astin, 1984). Astin's theorization of Student involvement unequivocally recognizes the fact that students are subject to limited energy and time in both psychological and physical perspectives. Compelled by this reason, educational mentors have to compete with other magnetism that has the power to attract students' limited time and energy. Here the famous "zero-sum-game" condition arises, that the increase in time and energy spend by the student in other off-campus activities will result in an equal amount decrease in the time and energy allocated to educational development (Astin,1984).

3.6.1.1. Measuring Student Involvement Index (SII)

This study has assessed the Student Involvement Index through constructed Involvement scale based on the following three indicators

- i. Participation in on-campus curriculum
Participation in online curriculum
- ii. Participation in on-campus co-curriculum
Participation in online co-curriculum
- iii. The amount of time given to on-campus curricular and co-curricular activities
The amount of time given to online curricular and co-curricular activities

Both participation in curriculum and online curricular involvement is measured based on 7 sub-indicators, while on-campus co-curricular involvement is assessed on the basis of 4 sub-indicators and online co-curricular involvement based on 3 indicators by emancipating one indicator (athletic involvement) because it does not apply to online co-curriculum.

The student involvement index will be measured based on the above-mentioned indicators. In student involvement, 70% weightage has been given to curricular involvement because it is a primary objective of educational institutes whereas, co-curriculum has been given 30% weightage. The formula of student involvement is the sum of curricular participation (ΣC) with the sum of co-curricular involvement (ΣCC)

multiply by the ratio of time given to curricular and co-curricular activities ($nh/12$), which mathematically expressed as:

$$SII = \left(\frac{nh}{12}\right) \times (\Sigma CP + \Sigma CCP)$$

Where SII = Student Involvement Index ΣCP = Sum of curricular participation
 ΣCCP = Sum of co-curricular participation nh = number hours spend on campus
 12 = maximum working hour of universities in Pakistan per day

As curricular involvement has 7 sub-indicators, therefore when we divided 70 by 7 then each sub-indicator got weightage equal to 10, and each sub-indicator further divided by 4 based on 0-4 Likert scale values. This criterion is constant for both on-campus and online curricular involvement. Thus the sum of curricular participation (ΣCP) will be calculated as:

$$\Sigma CP = [X1\left(\frac{10}{4}\right) + X2\left(\frac{10}{4}\right) \dots + X7\left(\frac{10}{4}\right)]$$

Where X 's= sub-indicators $(10/4)$ = weightage

Likewise, on-campus co-curriculum involvement has 4 indicators, therefore, when we divided 30 by 4 each sub-indicator got weightage equal to 7.5 and each sub-indicator further divided 4 based on 0-4 Likert scale values. Therefore, the sum of co-curricular participation (ΣCCP) will be calculated as:

$$\Sigma CCP = [X1\left(\frac{7.5}{4}\right) + X2\left(\frac{7.5}{4}\right) \dots + X4\left(\frac{7.5}{4}\right)]$$

Where X 's= sub-indicators $(7.5/4)$ = weightage of each sub-indicator

The criterion has been changed slightly for online co-curriculum involvement as we have dropped one indicator (athletics involvement) and the reason for dropping has been explained earlier. Now, to assess the online-co-curricular involvement 30 has been divided to 3 thus each sub-indicator got equal weightage equal to 10 then 10 further divided by 4. Therefore, the sum of co-curricular participation (ΣCCP) in online learners will be calculated as:

$$\Sigma CCP = [X1\left(\frac{10}{4}\right) + X2\left(\frac{10}{4}\right) \dots + X3\left(\frac{10}{4}\right)]$$

Where X 's= sub-indicators $(10/4)$ = weightage of each sub-indicator

The amount of time allocated to curricular and co-curricular activities is measure by dividing the number of hours spend on campus (nhr) on the maximum working hour of universities in Pakistan per day (which is approximately equal to 12). Thus, ideally, if a student spends 12 hours on curricular and co-curricular activities then he or she can get 1 score by the ratio of $nhr/12$ and anyone lesser than 12 hours will get less than 1 score, as the more the nominator decreases from 12, the more the score tends to be below one. Thus, the score of this ratio ($nhr/12$) will variate between 0 to 1.

Now, overall student score can be obtained, when we add the sum of curricular involvement (ΣC) with the sum of co-curricular involvement (ΣCC) and then multiply it to ratio score. The score at maximum would be 100 and at minimum 0 or in other words, variate between 0 and 100.

3.7.2. Economic Anxiety Index

Economic anxiety is an emotional response by the individuals to economic insecurities based on objective and subjective assessments about the macro-economic and personal micro-economic condition with reference to both present and future (Osberg & Sharpe, 2009; Miller, 2018; Wiefek, 2003; Yetgin & Benligiray, 2019). To measure the economic anxiety of students we have constructed the Economic anxiety index as a tool to assess how a student is feeling economically at a personal level. The economic anxiety index will have a scale from 0 to 100, which implies the more an individual scores the more he

or she will be economically anxious. The rationale to format this index has been taken from the Economic Anxiety index developed by Marketplace and Edison Research²⁰. Necessary alterations in indicators and questions have been considered to transform it for the student. The index is rooted in the following sub-indicators.

i. Employability

In the available literature, employability has been highlighted as one of the prominent concerns and stressing factors for university students. Employability stress can affect a person's physical and mental health (Samuelson & Nordhaus, 1985; Farré, Fasani, & Mueller, 2018; Singh & Kumar, 1976; Fergusson, Horwood, & Lynskey, 1997; Goldsmith, Veum, & Darity Jr, 1996), career choices, motivation and attitudes toward education (Hammad, 2016), and also associated to drug addiction (Fergusson, Horwood, & Lynskey, 1997). Therefore, this study will consider employability stress as the first indicator to assess students' anxiety regard. The score about this category will come from answers to questions about employment. For instance, we ask students questions like – how much you feel fear about being unemployed after completing your education.

ii. Cost of Living

The cost of living is another major concern and stressor of students, especially those who belong to lower-middle and poor economic backgrounds. Lack of financial resources (Trombitas, 2012; Heckman, Lim, & Montalto, 2014; Andrews & Wilding, 2004; Mouza, 2015), Inflation, and expensive private hostel accommodation (Naeem & Dahar, 1997) are found to be major influential factors which are contributing to students' stress about the cost of living. Student stress for the cost of living will be the second indicator to measure the economic anxiety of students. The score about this category will come from questions relates to anxiousness about meeting the monthly cost of accommodation, food, bills (gas, electricity, water, internet), laundry, travel, health, and socializing.

iii. Student Debt

Student loans can assist the human capital attainment process via making higher education accessible, but it may cause stress and worries to the indebted student in the

²⁰For further details Visit: <https://www.marketplace.org/2015/10/26/economic-anxiety-index-explained/>

repayment phase (Walsemann, Gee, & Gentile, 2015). In the present age, rising student debts are worldwide prevailing concerns for students in higher education. Scholars have substantiated that the burden of debt can affect a student's mental and physical health (John & Moyer, 2014; Roberts, et al., 2000). The score for this category will come from questions about concerns regarding the repayment of educational loans.

iv. Cost of Education

Higher education has grown into a riskier investment for students. The cost of giving education has augmented manifold due to better teaching methodologies and learning instruments accompanied by growing inflation worldwide (Butt & ur Rehman, 2010), and this rising cost has placed high pressure on students and their families (Fosnacht & Dugan, 2018). Education cost is another crucial stressor for students that can give rise to students' economic anxiety, and therefore, it will be used as a fourth indicator to assess students' economic anxiety. The score for this category will come from questions like According to your view, does your institution is charging reasonable fees? How you manage your tuition fee?

v. Household Economic Condition

The psychic and economic functionalities of the household are essential to know how family members become prosperous or how they miss the mark. And the personality of a person is to the large extent depend on how well these requirements and functionalities were operationalized in a family. Household economic hardship increases threats for behavior issues, mental and physical health problems in students and therefore it turns out to be a substantial public health concern (Mistry, Benner, Tan, & Kim, 2009; Sareen, et al., 2011; Hutton, et al., 2014; Reiss, et al., 2019). Student Stress regards their Household Economic Condition will be the last indicator of student economic anxiety.

3.7.2.1. Measuring Student Economic Anxiety Index (EAI)

This economic anxiety index has been set on the basis of the above constructs.

$$EAI = \left[\left(\frac{PLPPM}{HHPPM} \right) \times 10 \right] \times [X1(1.42/4) + X2(1.42/4) + \dots \dots X7(1.42/4)]$$

Where

EAI = Economic Anxiety Index

PLPPM= Poverty line in per-capita per month

HHPPM= Household's per capita income per month

X's= items in the index along with associate numbers

In above formula ratio of *PLPPM* and *HHPPM* is an indirect and objective indicator of economic anxiety. The poverty line is US\$1.90 per day that is equal to 304.68 PKRs, so the poverty line per capita per month will be approximately equal to 9000 PKRs. *PLPPM* to *HHPPM* ratio has been given weightage equal to 10, thus, attached to the ratio in multiplication form. We have assumed anyone below or equal to this poverty line threshold should be given the maximum value of ratio that is equal to 1 or the maximum weighted score should be 10. Therefore we have assumed that per month per capita income less than 9000 will also be considered as 9000. With having a fixed value nominator as 9000, the more the value of the denominator tends to increases above 9000, the more the value of ratio and a weighted score below will tend to decreases. Thus, the value of this ratio will tend to depreciate along with the increase in the household's per capita income.

Apart from the *PLPPM / HHPPM* ratio, there are seven other subjective indicators of economic anxiety in the index such as perceived anxiousness about household economic conditions, perceived anxiousness about employability prospects, perceived anxiousness about monthly accommodation payments, perceived anxiousness about monthly personal consumption needs, perceived anxiousness about academic cost, perceived anxiousness due to acquired loans, perceived anxiousness about the ongoing economic condition of the country. All these indicators are represented in the above formula as X1, X2.....X7, and each indicator has 0 to 4 Likert scale values (i.e. 0,1,2,3,4) and each scale value has been given weightage equal to $1.42/4$ thus any scale value selected by the respondent will be multiplied to its assigned weightage (e.g. $2 \times 1.42/4$). Then the sum value of all these 7 subjective indicators will be multiplied by the weighted score of *PLPPM / HHPPM* ratio to get the final EAI score in the range of 0 to 100.

3.7.3 Attention Economy Distractions

From the scholarly studies (e.g. Armstrong, Boiarsky, & Mares, 1991; Pool, Koolstra, & vander Voort, 2003; Suhail & Bargees, 2006; HERI, 2007; Heiberger, 2007; Carr, 2011; Tariq, et al.,2012; Rideout 2012; Wang 2015; Dwamena, et al., 2016; Gok, 2016; Firat, 2017; Mathur, al. 2019) we have deduced that attention economy distractions can have a negative association with student involvement. Attention economy distraction index is a composite of three indicators:

- i. Social media distraction
- ii. TV media distraction
- iii. Gaming distraction

3.7.3.1. Measuring Attention Economy Distraction Index

Based on the above indicators following formula has been developed to assess the attention economy distraction index. This implies that the attention economy distraction index is equal to the sum of social media distraction (SMD), TV media distraction (TMD), and Gaming distraction (GD) divided by 12. Where the maximum score can be 100 that would only be possible when the score in nominator (SMD+TMD+GD) gets equals 12. So when the value of the nominator tends to decline the overall score tends to decrease accordingly.

$$AEDI = \frac{(SMD + TMD + GD)}{12} \times 100$$

In the above equation, social media distraction (SMD) has been assessed via dividing daily time spent on social media (TSS) by the average maximum time a person remains awake (which is approximately equal to 18) then multiplying the product with perceived social media distraction. The maximum value of SMD can be 4 which can only be possible when PSD gets a Likert scale point equal to 4 and TSS/18=1 otherwise less score will be less than 4. SMD can be mathematically expressed as:

$$SMD = \left(\frac{TSS}{18}\right) \times PSD$$

Where

18 = Average Maximum an Individual remains awake per day

TSS = Daily approximate time spend on social media

PSD = Perceived Social media distraction

Whereas, TV media distraction (TMD) has been assessing via dividing daily time spend on TV media (TST) by the average maximum time a person remains awake (which is approximately equal to 18) then multiplying the product with perceived TV media distraction. The maximum value of GD can be 4 which can only be possible when PTD gets a Likert scale point equal to 4 and TST/18=1 otherwise less score will be less than 4. Thus, TMD can be calculated as:

$$TMD = \left(\frac{TST}{18}\right) \times PTD$$

Where

18 = Average Maximum an Individual remains awake per day

TST = Daily approximate time spend on TV media

PTD = Perceived Social media distraction

Likewise, gaming distraction (GD) has been assessed via dividing daily time spend on gaming media (TSG) by the average maximum time a person remains awake (which is approximately equal to 18) then multiplying the product with perceived gaming media distraction. The maximum value of GD can be 4 which can only be possible when PGD gets a Likert scale point equal to 4 and TSG/18=1 otherwise less score will be less than 4. Therefore, GD can be measure as:

$$GD = \left(\frac{TSG}{18}\right) \times PGD$$

Where

18 = Average Maximum an Individual remains awake per day

TST = Daily approximate time spend on TV media

PTD = Perceived Social media distraction

3.7.4. Social Support Index

As we mentioned earlier in the literature review chapter that Social support can be defined as “support access to an individual through social ties to other individuals, groups, and the larger community” (Lin, Ensel, Simeone, & Kuo, 1979). While perceived social support can be described as one's perception of “whether his/her social network is supportive enough or not” (Sorias 1988b). Though perceived social support is not exactly equal to actual social support up to a very extent it reflects the actual social support. Therefore, owing to study constraints we are using perceived social support in place of actual social support. Normally, the student can acquire social support mainly from three sources therefore this study considers those factors as the indicators of social support, which are:

- a) *Family support*
- b) *Peer group support*
- c) *Faculty Support*

According to literature social support (provided by family, friends, and faculty) is positively and significantly related to student involvement. Based on the above indicators we have developed social support index which is calculated under the following criteria.

3.7.4.1. Measuring Social Support Index (SSI)

The social support index is a composite of three indicators such as family social support, peer group social support, and Campus faculty social support. Where, each indicator has further three dimensions such as perceived emotional support, perceived informational support (guidance), and perceived instrumental support. The range score of the social support index is from 0 to 100. In the index, 50% weightage has been assigned to family social support, whereas, 25% to peer group's social support as well as to campus faculty social support. The questionnaire has been structured in such a way that each dimension

in each indicator can have a 0-4 liker scale value. In this way, if someone scored 4 scale values in each dimension of family social support and got multiplied to associated weightage then he or she will have a maximum sum score (ΣFSS) equal to 50 in family social support. Likewise, if he or she scored 4 scale value in each dimension of peer group's social support after multiplying to its associated weightage he or she will have a maximum sum score(ΣPSS) of 25 in peer group's social support and the same criteria applied for on-campus faculty social support as well.

$$SSI = (\Sigma FSS + \Sigma PSS + \Sigma CFSS)$$

As we have mentioned earlier that family social support has three sub-indicators, therefore, we divided 50 by 3 and each sub-indicator has four different outcomes on a 0-4 Likert scale thus the weightage of each sub-indicator (16.67) will be divided by 4. Thus, by multiplying the scale value of each sub-indicator with their associated weightage and by adding them together we can obtain the sum of family support (ΣFSS). The mathematical expression of it could be as:

$$\Sigma FSS = [X1(\frac{16.67}{4}) + X2(\frac{16.67}{4}) + X3(\frac{16.67}{4})]$$

Where

16.67/4= Weightage of associated sub-indicator
Family

X1= Perceived emotional support from

X2= Perceived guidance from family
family

X3= Perceived instrumental support from

The same criteria used to weigh the remaining two indicators such as 25 divided by 3 that is equal to the weight of each sub-indicator, and each sub-indicator has four possible outcomes Likert scale of 0-4 so the weightage of each dimension divided by 4.

$$\text{Where } \Sigma PSS = [X1(\frac{8.33}{4}) + X2(\frac{8.33}{4}) + X3(\frac{8.33}{4})]$$

8.33/4= Weightage of associated item

X1= Perceived emotional support from peer group

X2= Perceived guidance from peer group

X3= Perceived instrumental support from peer group

$$\text{Where } \Sigma CFSS = [X1(\frac{8.33}{4}) + X2(\frac{8.33}{4}) + X3(\frac{8.33}{4})]$$

8.33/4= Weightage of associated item X1= Perceived emotional support from campus faculty
 X2= Perceived guidance from campus faculty X3= Perceived instrumental support from campus faculty

3.7.5. Institutional Quality Index

According to our literature review, the links between student engagement and institutional quality were found to be positive and significant. We have used four indicators to construct the institutional quality index, such as:

- i. University Ranking
- ii. Quality of University Curriculum
- iii. Quality of University Co-curriculum
- iv. The Recommendability of University

3.7.5.1. Measuring Institutional Quality Index

Based above indicators, the following formula has been developed to assess the institutional quality index. All four indicators have been assigned equal weightage equal to 25 and except for university ranking, the weights other three indicators are divided by 4 based on their 0-4 Likert Scale scores. University ranking ratio in formula implies that if a university's ranking is 1 then the product of the ratio will be also equal to 1 but the product of the ratio will decline with the decline in the university's ranking. Thus overall, values of the index will variate under 100.

$$IQI = [(\frac{1}{r}) \times 25] + [X1(\frac{25}{4}) + X2(\frac{25}{4}) + X3(\frac{25}{4})]$$

r = Ranking of university

X1 = Perceived rating of quality of university's curriculum

X2 = Perceived rating of quality of university's university's co – curriculum

X3 = Students willingness to recommend his university to his acquaintances

3.7.6. Percentage of Daily Time Spent on Commuting (PTSC)

According to Astin, students who used to live on-campus have more time and chances to get involved in all campus activities and the opportunity to develop a robust attachment to academic life (Astin A. W., 1984). Similar sort of results were also been shown in other researches (Astin, 1973, 1977, 1982; Chickering, 1974; Blimling 2003). The commuting time to campus is negatively associated with student involvement (Newbold, Mehta, & Forbus, 2011; Burlison, 2015). (Newbold, Mehta, & Forbus, 2011). Thus, we have a percentage of daily time spend on Commuting as a predictor of on-campus student involvement.

3.7.6.1. Measuring Percentage of Daily Time Spend on Commuting

$$PTSC = \left(\frac{\text{No. hours spend on commuting per day}}{24} \right) \times 100$$

The minutes are also converted into hours such as if someone commutes 30 minutes that will be converted into 0.5 hours then divided by 24 and multiply with 100 to converted into percentage form.

3.7.7. Technological Status Index

According to scholarly studies, internet speed, internet stability, owning a computer, and digital literacy has a positive influence on online student participation (Deden, 2002; Warschauer & Matuchniak, 2010; Rao, Eady, & Edelen-Smith, 2011; Kolesinski, Nelson-Weaver, & Diamond, 2013; Cowherd, 2014; Pellas, 2014; Lai, 2015; Parkes, Gregory, et al, 2015; Cannell, 2017). Thus, we have considered the following technological factors as the indicators of the technological status index

- i. Internet speed
- ii. Internet stability
- iii. Digital literacy
- iv. Owning a computer

3.7.7.1. Measuring Technological Status Index

$$TSI = ((DL \times 8.75) + ISD \times 7.5) + (IS \times 7.5) + (PC \times 5)$$

Where

DL = Digital literacy and the weightage of digital literacy is 8.75 or (35/4)

ISD = Internet speed and the weightage of Internet speed is 7.5 or 25/4

IS = Internet stability and the weightage of Internet stability is 7.5 or 25/4

PC = Personal Computer and the weightage of Personal Computer is 5

In the Likert scale, DL's values will variate between 0-4 and the value will get multiple with its associated weightage (8.75) to give a final score for DL in the index. For instance, if the value of the Likert scale is 4 then the DL value in the index will be $4 \times 8.75 = 35$, if the value of the Likert scale is 0 then the DL value in the index will be also 0. The criterion is the same for ISD and IS just the weightage is different. For PC scale dichotomous that means if a person owns a PC scale point will be 1 otherwise 0. Therefore, if a person owns a PC then his score in the index for PC will be 5, otherwise zero.

3.7.8. Numerical Description of Variables

In this section, we are going to describe the variables of the study based on descriptive statistics which have been estimated on the basis of self-reported data from the students. We have done a numerical description of the variables based on statistics such as Mean, Median, Maximum, Minimum, and Standard Deviation. The results are presented via below statistical tables.

Table 1: Descriptive Statistics of Pre-COVID-19 Data

	SII	SSI	PTC	IQI	EAI	AEDI
Mean	28.17	53.33	3.22	41.88	32.14	3.32
Median	26.56	50.00	2.79	39.42	28.92	2.77
Maximum	64.21	100.00	16.66	70.83	92.85	12.96
Minimum	11.45	18.75	0.00	13.05	0.00	0.00
Std.Dev	11.36	15.65	2.74	11.07	18.42	2.76
Observations	241	241	241	241	241	241

The mean value of the Student involvement index (SII) is 28.17 which indicates the average value of the SII's sample. Likewise, the descriptive statistics show that the values SSI are varying in between minimum 11.45 and maximum 64.21. The standard deviation of SII "11.45" implies that the variation in the sample data set is low in case SII as the coefficient of variance ($Cv = 11.36/28.17$) is less than 1. While the mean value of the Economic anxiety index which showing that as per our data sample the central tendency of economic anxiety among the students is 32.14. Whereas, the standard deviation is 18.42 by the thumb rule that indicates relatively less variation in the data set EAI as the coefficient of variance ($cv = 32.14/18.42$) is less than 1. In the same way, the values of the Social support index (SSI) were found to be in the range of 53.33 with a minimum of 18.75 and a maximum of 100. One can also observe less variation of observations around the mean of the data of SSI because its standard deviation is less than its mean value. Similarly, the average score of the institutional quality index (IQI), and attention economy distraction index (AEDI) are 41.88 and 3.32 respectively and all these variables have a low variance from their respective mean values based on their particular coefficient of variance. PTC stands for the Percentage of time spent on commuting and its average value in the above table is 3.22. It implies that students in the sample data set on average spend 3.22% of 24 hours on commuting with a maximum of 16.6% and a minimum of 0%.

Table 2: Descriptive Statistics of During COVID-19 Data

	SII	SSI	TSI	IQI	EAI	AEDI
Mean	23.95	49.45	56.22	32.86	32.85	6.23
Median	26.56	47.91	55.00	32.00	30.00	5.5
Maximum	64.21	89.58	87.50	75.00	71.42	25.92
Minimum	11.45	14.58	23.75	0.89	4.62	0.00
Std.Dev	11.36	12.81	13.65	13.63	15.07	4.46
Observations	241	241	241	241	241	241

The above results show that during COVID-19, as per our data set on the mean tendency of SSI is 23.95 with its value ranging from a minimum of 1.6 to a maximum of 66.30. In comparison to the pre-COVID-19 situation, the mean value of the Student involvement

index (SII) decreases to 23.95 during covid-19 from 28.17 in pre-covid 19. On the other hand, the average value of the Attention economy distraction index (AEDI) appeared to be higher during Covid-19 as compared to pre-covid-19. For instance, it was 3.32 in pre-covid 19 but it appears at 6.23 during covid-19. In the same way, one can also observe a slight decrease in the average values of (SSI) from pre-covid-19 to during covid-19 as its average value has dropped from 53.33 to 49.45. Likewise, according to acquired descriptive statistics, during COVID-19 the mean value of IQI also dropped to 32.86 from 41.88 in the pre-COVID-19 context. Finally, the mean value of the technological status index is 56.22 which indicates the average technological status index of the sample data set. Based on the standard deviation and mean of each variable the coefficient of variance is relatively low across all the data sets of the variables because in each case the standard Deviation (the denominator in coefficient of variance) is lower than the mean (the nominator in coefficient of variance).

Thus, based on the comparative consideration of the above two descriptive statistical tables we can say that on average the variables such as Students' involvement, social support to students, and institutions quality have dropped during COVID-19 as compare to pre-COVID-19 conditions. Likewise, Economic anxiety has remained the same with a negligible increase of 0.71 in the mean value of EAI during COVID-19. Whereas, mean attention economy distractions to students have doubled during COVID-19 as compare to the pre-COVID-19 context.

3.7.9. Demographic Variables

In the current study, we will consider gender (male/female), spatial belonging (urban/rural), and educational specializations (Science/Social science & Art/ Business & Management) are used as demographic predictors of student involvement.

CHAPTER 4

DISCUSSION AND INTERPRETATION OF RESULTS

4.1. Introduction

This chapter is to presents and interprets the results of the regression analysis. In this study, two different multiple cross-sectional regressions analyses were conducted on the data set of 241 observations to assess whether our predictive variable can predict variations in on-campus and/or online student involvement. The first regression model was run for pre-covid-19 on-campus student involvement, while, the second regression was regressed during COVID-19 online student involvement.

In the first regression model, we observed predictive variables (such as Economic Anxiety Index, Attention Economy Distraction, Percentage of Daily Time Spent on Commuting, Social Support, Institutional Quality, Belonging, Gender, Enrollment status, Major in Social Sciences, Major in Natural Sciences and Major in Management and Business Sciences) to predict criterion variable (On-campus student involvement).

Likewise, in the second regression model, we regressed predictive variables (such as Economic Anxiety Index, Attention Economy Distraction, Technological Status, Spend on Commuting, Social Support, Institutional Quality, Belonging, Gender, Enrollment status, Major in Social Sciences, Major in Natural Sciences and Major in Management and Business Sciences) to predict criterion variable (Online- student involvement). But our focused predictive variables are Economic Anxiety and Attention Economy distractions, more specifically the Economic Anxiety. In the below sections, we will first interpret the results for PRE-COVID-19 on-campus student involvement and then we will perform a comprehensive discussion on those results.

4.2. Interpretation of Pre-COVID-19 Student Involvement Results

In the below table, we have depicted a summary table of results for pre-COVID-19 on-campus student involvement.

Table 3: The Summary Table of Pre-COVID-19 On-Campus Student Involvement

VARIABLES	OLS RESULTS
Economic anxiety Index	• <i>Coef. value = -0.08</i>
	• <i>p-value < .05</i>
	• <i>Ho₁ Accepted</i>
Attention Economy Distraction Index	• <i>Coef. value = -0.40</i>
	• <i>P-value > .05</i>
	• <i>Ho₂ Rejected</i>
Institutional Quality Index	• <i>Coef. value = 18.54</i>
	• <i>P-value < .05</i>
	• <i>Ho₃ Accepted</i>
Social Support Index	• <i>Coef. value = 0.13</i>
	• <i>P-value < .05</i>
	• <i>Ho₄ Accepted</i>
Percentage of Daily Time Spent on Commuting	• <i>Coef. value = -0.66</i>
	• <i>P-value < .05</i>
	• <i>Ho₅ Accepted</i>
Major in Social Sciences	• <i>Coef. value = 1.2</i> • <i>P-value > .05</i>
Major in Natural Sciences	• <i>Coef. value = 1.5</i> • <i>P-value > .05</i>
Major in Business & Management	• <i>Coef. value = -1.306822</i> • <i>P-value > .05</i>
Enrollment Status	• <i>Coef. value = 1.4</i> • <i>P-value > .05</i>
Gender	• <i>Coef. value = -0.8</i> • <i>P-value > .05</i>
Spatial Belonging	• <i>Coef. value = -0.08</i> • <i>P-value > .05</i>
R-squared	0.40
Adjusted R-squared	0.38

Overall the model is moderately fitted as the probability value of the F-statistic is less than the 5% significance level. According to the general thumb rule of R², a cross-sectional model above 25% and below 50% percent R² can be qualified as a moderately fitted model. As per the adjusted R-squared, our predictive variables are predicting 38% variations criterion variable. At 5% statistical significance level following variables such as Social Support Index (SSI) with a coefficient equal to -0.08, Percentage of Time Used in Commuting (PTC) with coefficient equal to -0.66, Institutional Quality Index IQI with a coefficient equal to 18.54, and Economic Anxiety Index (EAI) with a coefficient equal to -0.08 are statistically significant. However, Attention Economy Distractions (AEDI) and the dummy variables such as Gender (G), Enrollment Status (ES), Major in Social Sciences (MSS), Enrollment Status (ES), Major in Business & Management (MBM), Major in Natural Science (MNS) and Belonging are found statistically insignificant as their associated probability values are greater than 5% level of significance.

4.3. Interpretation of During COVID-19 Student Involvement Results

Now we are going to interpret the estimated results for During-COVID-19 Student Involvement. Table 4 on the next page presents estimation results based on Robust Least Squares method during COVID-19. The difference between robust and non-robust estimation methods is that the former is built with an efficiency setting, and contains different methods of computing standard errors. In other words, by using the robust least square method we have minimized the effect of outliers in the model. In the above results, robust statistics R-squared and R_w squared indicate that 22 to 30% of the variation in criterion variable is explained by independent variables in the model. Statistical significance of individual variables can also be determined using the same probability criterion. First, the variables such as TSI, IQI, EAI, AEDI, MNS, and MSS are statistically significant at a 5% level of significance. However, the rests of the variables are statistically insignificant as their associated probability values are greater than a 5% level of significance. In particular, the coefficient for EAI is -0.17 and its associated probability value is less than a 5% level of significance. It implies that, by keeping other variables constant, EAI can predict a 17 percent variation in student involvement across the sample.

Table 4: The Summary Table of During-COVID-19 Online Student Involvement

VARIABLES	RLS RESULTS
Economic anxiety Index	• <i>Coef. value = -0.17</i>
	• <i>p-value < .05</i>
	• <i>Ho₁ Accepted</i>
Attention Economy Distraction Index	• <i>Coef. value = -0.40</i>
	• <i>P-value > .05</i>
	• <i>Ho₂ Accepted</i>
Institutional Quality Index	• <i>Coef. value = 0.12</i>
	• <i>P-value < .05</i>
	• <i>Ho₃ Accepted</i>
Social Support Index	• <i>Coef. value = 0.10</i>
	• <i>P-value > .05</i>
	• <i>Ho₄ Rejected</i>
Technological Status Index	• <i>Coef. value = 0.28</i>
	• <i>P-value < .05</i>
	• <i>Ho₅ Accepted</i>
Major in Social Sciences	• <i>Coef. value = -4.1</i> • <i>P-value < .05</i>
Major in Natural Sciences	• <i>Coef. value = 3.8</i> • <i>P-value < .05</i>
Major in Business & Management	• <i>Coef. value = -1.3</i> • <i>P-value > .05</i>
Enrollment Status	• <i>Coef. value = 1.5</i> • <i>P-value > .05</i>
Gender	• <i>Coef. value = 1.7</i> • <i>P-value > .05</i>
Spatial Belonging	• <i>0.32</i> • <i>P-value > .05</i>
R-squared	<i>0.22</i>
Rw-squared	<i>0.30</i>
Adjusted R-squared	<i>0.19</i>
Adjusted Rw-squared	<i>0.30</i>

4.4. Results Discussion

Based on the above estimated resulted we have offered a comprehensive discussion for each hypothesis in the below sections.

Ho₁: Economic anxiety is a negative independent predictor of student involvement

From the estimations of the multiple regressions, it can be concluded that Economic anxiety is significantly and negatively associated with both on-campus and online student involvement. This conclusion implies that, on average, students with high economic anxiety are less likely to involve in on-campus curricular and co-curricular activities than students with a lower degree of economic anxiety. For instance, the EAI coefficient is -0.08 and its associated probability value is less than a 5% level of significance. It implies that, put other variables constant, by one percent increase in EAI we can predict 8% negative variation in on-campus student involvement which is explicitly known from the negative sign of the coefficient. Likewise, 17% negative association is online student involvement predict by economic anxiety as the coefficient is -0.17.

Thus, based on cross-sectional regression estimates we can say that Ho₁ is accepted in both models it implies that economic anxiety is a negative independent predictor of campus and online student involvement. However, the statistical relationship is more robust in the case of online student involvement as the coefficient of EAI considerably larger for online student involvement than on-campus student involvement. Furthermore, if we compare our study finds with literature, we can say that our findings are providing supporting and enhancing the finds of few domestic studies. For instance, we discussed earlier that, our native scholars have highlighted that the economic factors such as growing prices for higher education, the rising cost of living, downturned employment market and rising competition for employability, and household economic conditions are continuously ticking in the minds of university students in Pakistan (Ahmed, Riaz, & Ramzan, 2009; Khan & Chaudary, 2014; Naeem & Dahar, 1997). Now, we have found that the economic anxiety that rises from these economic factors is further associated negatively with on-campus student involvement. The results also resembled the study of Adams, Meyers, & Beidas, (2016) where they set forth that financial strain (perceived economic stress and lack of economic support) is negatively linked with student involvement in terms of academic and social integration on-campus.

Ho₂: Attention economy distraction is a negative independent predictor of student involvement

Contrary to the former research hypothesis, Attention economy distraction was not found to be a predictor of the on-campus student as the p-value is slightly above 0.05 statistically significance level. This implies that there statistically significant association between Attention economy distraction and on-campus student involvement. Having said that, our result contrasted a descriptive study on Pakistani students that highlights that the persuasive design of social media platforms is distracting students from studies, creating media addictive behaviors and time management issues, and reducing their involvement in physical world activities (Tariq, et al., 2012). It looks like our study apparently contrasted with Wang's study too. According to Wang (2015), the attention economy consumes students' study time and alters their study habits.

Similarly, our result testified our theoretically deducted conclusion that the attention economy distractive factors can affect student involvement via affecting students' self-control, cognition, working memory, attention duration, writing, face-to-face communication, time management, effective study skill development, physical world connections, logical memory, study habits and triggering procrastination²¹.

However, in the case of COVID-19 online education, this hypothesis is accepted as it was found to be statistically significant. Moreover, the result has shown that among all other predictors AEDI is the leading predictor of online-student involvement and it is evident from the coefficient as it is the largest among all. Therefore, in the case of online-student involvement, we can say that this hypothesis is consistent with Tariq, et al., (2012) and Wang (2015).

Ho₃: Institutional Quality is a positive independent predictor of student involvement

Congruent with the hypothesis, the institutional quality was indeed found to be a positive predictor of student involvement in both on-campus and online contexts. On this account, if we look at the estimated statistics, at a 5% statistical significance level, the coefficient of IQI is

²¹ See "Linking Attention Economy to Student Involvement" section on Chapter 2 of this thesis

18.54 after log transformation in relation to the on-campus student, whereas in relation to online-student involvement the coefficient of IQI is 0.12. The association between institutional quality and student involvement resonated with several scholarly studies (e.g. Feng, 2018; Porter, 2006; Rocconi, et al. 2018).

Ho₄: Social Support is a positive independent predictor of student involvement

In contrast to the former hypothesis, social support was found to be a significant positive predictor of on-campus student involvement but not of online-student involvement. This implies that students who tend to have more social support have more tendencies to involve in on-campus activities than those who have less social support, but in the context of online-student involvement, the statistical relation arbitrary. For instance, it is evident from the right side of the table (I) that the coefficient of SSI is 0.13 and associated positively with on-campus student involvement at less than 5% significant level, whereas, on the other side of the table (II) the coefficient of SSI is positive but not statistically significant. Therefore, it can be said that in the case of on-campus education the results are in accordance to finds from Jayarathna (2016) that the social support from friends and family is positively and significantly associated with student involvement as well as to Abdullah & Singh, (2019) that relation between social support and student engagement is positive and significant. But the result contrasted to these studies in the case of online-student involvement.

Ho₅: Commuting time is a negative independent predictor of on-campus student involvement

As it a matter of fact that during online education student don't commute to campus to participate physically in curricular and co-curricular activities rather they engage virtually in campus activities. Therefore, we have used commuting time as a predictor for just on-campus student involvement, not for online-student involvement. Our null 5th hypothesis (Ho₅) that commuting time is a negative independent predictor of on-campus student involvement was found to be true as the coefficient of PTC is accepted at less than 5% significance level. Here, the point worthy of notice is that PTC was found to be the most influential predictor in the model as it possesses a -0.66 coefficient value. That implies, on average, the students who use to commute more are less involved in on-campus activities in comparison to those who commute less. This

relationship between commuting time and on-campus student is comprehensively justified by AW Astin, as he states:

“It is obvious that students who live in residence halls have more time and opportunity to get involved in all aspects of campus life. Indeed, simply by eating, sleeping, and spending their waking hours on the college campus, residential students have a better chance than do commuter students of developing a strong identification and attachment to undergraduate life” (Astin, 1984).

Moreover, our finding is also consistent with many studies such as (Astin, 1973; Chickering, 1974, Astin, 1977, 1982; Newbold, Mehta, & Forbus, 2011; Blimling, 2014).

Ho₆: Student’s technological status is a positive independent predictor of online student involvement

Unlike the above hypothesis, this one was dedicated only to online student involvement. The results of the study verified that the 6th research hypothesis that a student’s technological status is a positive independent predictor of online student involvement is true, as the TSI coefficient 0.28 accepted at a 5% significance level. This finding suggests that the students who are having higher technological status are more likely to be involved in online curricular and co-curricular activities than those who possess lesser technological status. As TSI is a composite of digital literacy, owning a personal computer, internet speed, and stability thus we can imply that our results bear a resemblance to Cowherd, (2014) as he maintains deprivation of cutting-edge technology or internet speed affects students involvement in online education, to Lai, (2015) as he also indicated that lack of reliable internet and computer can affect students’ participation in online learning, too (Deden, 2002; Rao, Eady, & Edelen-Smith, 2011; Parkes, Gregory, et al, 2015). Internet availability, internet bandwidth, and computer availability are influencing factors for student participation in online learning, and also to various other studies (e.g. Kolesinski, Nelson-Weaver, & Diamond, 2013; Pellas, 2014; Cannell, 2017).

Demographic Characteristics and Student Involvement

The dummy variables such as Belonging, Enrollment status, Major in Social Sciences (MSS), Major in Natural Sciences (MNS), and Major in Business and Management Sciences (MBM)

were also used as the predictors of on-campus and online student involvement. In the case of on-campus education, neither of them manifested a significant statistical relationship with on-campus involvement. However, in the case of online education, MNS is found to be positively and MSS negatively associated with online student involvement. Thus we can conclude that our results in the case of on-campus education completely contradictory and in the case of online education partially consistent and partially contradictory with the results of Porter, (2006) as his results show that students who are doing major in humanities, and major in sciences are more involved.

CHAPTER 5

CONCLUSIONS

5.1. Introduction

It is usually been said that “research is a journey into the unknown and no-one knows what will be discovered along the way”²² therefore, presenting what you found after this journey is indeed very important. With the same intention, we have delineated the major findings of the research and draw some important recommendations. The final chapter is also the section of the thesis where research has to disclose the weakness or limitation of the study in order to provide a critical perspective for its reader. Therefore, at the end of this chapter, the probable limitations and weaknesses of the study have been stated.

5.2. Conclusion

Educated personalities have many distinctive qualities that are less manifested by individuals who are not lucky enough to be involved in higher education experiences. Compelled by this fact, student development theorists (especially onward 1960s) were remain involved in the investigation of these qualities to know how these qualities are developing in the higher educational environs (Hamrick, Evans, & Schuh, 2002). Years of a wide range of studies and theories in the literature have evidently shown that student involvement activities are connected to positive academic success, retention, personal and career developments (Christenson, Reschly, & Wylie, 2012).

Astin’s theory of involvement asserts that student development is directly proportional to student’s quality and quantity of involvement and describes student involvement as “the amount of physical and psychological energy that the student devotes to the academic experience” (Astin, 1984). The theory of student involvement clearly recognizes that the mental and physical time and energy of students are limited. Therefore, educators are striving against other forces a share from students’ limited time and energy. Here the phenomenon of “zero-sum” game arises, such that the more a student invest his/her time and energy in another arena of his life such as

²² Retrieved from <https://thesishub.org/the-final-chapter/>

family, friends, job, and other off-campus activities the more his/her time and energy devote to educational development tend to shrink (Astin, 1984).

Knowing the importance of student involvement global scholarship has studied student involvement in diverse ways and dimensions and identified many factors that connected to the phenomenon of student involvement. In the same way, with the data set of 241 students, we have attempted to observe the association of various variables with student involvement in on-campus as well as in online educational contexts using cross-sectional regression analysis.

From preliminary descriptive statistical analysis of the variables, we can conclude that on average the variables such as Students' involvement, social support to students, and institutions quality have dropped during COVID-19 as compare to pre-COVID-19 conditions. Likewise, Economic anxiety has remained the same with a negligible increase of 0.71 in the mean value of EAI during COVID-19. Whereas, mean attention economy distractions to students have doubled during COVID-19 as compare to the pre-COVID-19 context.

Moreover, from the results of the multiple regressions analysis, it can be concluded that social support, institutional quality, and time spend commuting to campus are positive and economic anxiety is a negative significant predictor of variation in on-campus involvement across the sample of students. Though economic anxiety's statistical association with on-campus involvement was found to be significant it only predicts 8% variation in on-campus involvement. On the other hand, economic anxiety, attention economy distraction, and major social sciences were found to significantly negative, whereas, institutional quality, technological status, major in sciences, are found to be significantly positively associated with the variation in online-student involvement.

5.3. Recommendations

Owing to the implications of student involvement on academic success, retention, personal and career developments, in many countries nationwide surveys are conducted to assess students' involvement level in educational life. However, in our country, this trend is missing and no educational authorities are focusing on this issue. Therefore, we recommend other educational policymakers, researchers, and experts to focus on this issue.

This study also recommends future researchers develop longitudinal data on student involvement and related factors so that over time variation in student involvement can also be seen. Likewise, the study also suggests looking to develop causal chains and pathways through which variables like economic anxiety and attention economy distractions are influencing student involvement.

5.4. Major findings of the study

- The first major find of the research is that we found economic anxiety significantly predicts cross-sectional variations in both on-campus and online student involvement. This finding can be interpreted as, on average, the students who are dealing with greater economic anxiety are more likely to be less involved than those who are having lower economic anxiety.
- Secondly, the study found that attention economy distractions can significantly predict cross-sectional variation in online-student involvement but this statistical relation is not found significant in the case of on-campus student involvement. This implies that, on average, the student who is experiencing more attention economy distractions tends to have lesser involvement in online education than those who are facing lesser attention economy distractions.
- Thirdly we found commuting time to campus is the major predictor of variation in students' on-campus involvement. It can be interpreted as, on average, students who tend to spend more time on commuting tend to lesser in on-campus activities in comparison to those who commute less.
- Fourthly, we found that institutional quality significantly predicts cross-sectional variation in student involvement in both on-campus and online education. This meant that the students who are experiencing high institutional quality are more involved than students who are experiencing lower institutional quality.
- The fifth major finding is that social support significantly predicts variation in on-campus involvement across different students but the statistical relation doesn't found to be consistent for online-student involvement. Based on this finding, it can be said that

students with higher social support are more involved in on-campus activities than those who are having lesser social support.

- The sixth major finding of the research is technological status can significantly predict variation in online involvement across different students. Thus, it can be concluded that students with higher technological are likely to be involved in online curricular and co-curricular activities and students with lower technological status are tend involved lesser.
- The seventh major find of the study is that we have found that major in sciences or major in social sciences are significantly associated with online-student involvement but the association is not significant in the case of on-campus student involvement.
- The eighth major find of research is rooted in preliminary descriptive statistical analysis of the variable. Based on the preliminary descriptive statistical analysis, we have found that on average the variables such as Students' involvement, social support to students, and institutions quality have dropped during COVID-19 as compare to pre-COVID-19 conditions. Likewise, Economic anxiety has remained the same with a negligible increase of 0.71 in the mean value of EAI during COVID-19. Whereas, mean attention economy distractions to students have doubled during COVID-19 as compare to the pre-COVID-19 context.

5.5. Limitations of the study

There are limitations attached to every research, likewise there several limitations that are attached to this research. The first possible limitation of this research is that the data has been obtained through self-reported responses from students. Therefore, self-reported data are always doubtfully subjected “to the accurateness, honesty, trustworthiness, reliability, and validity”. The second weakness of the study is that it is cross-sectional research, which implies that it can usefully assess cross-sectional variation in criterion variable but not variation overtime, thus, the causal inferencing cannot be done based on estimated results. The third limitation is the weakness of generalizability because both models have shown low R^2 values. Additionally, the models are and the indexes presented in this study are never used before, thus they possess a

weakness in terms of external validation. Finally, the data for PRE-COVID-19 and DURING-COVID-19 circumstances was obtained in the same course of time.

References

- Abdullah, B., & Singh, K. (2019). Social Support as Predictor of Student Engagement among Secondary School Students. *International Journal of Innovative Technology and Exploring Engineering (IJITEE)*, 8(7), 3037-3042.
- Ahmed, U., Riaz, A., & Ramzan, M. (2009). Assessment of stress & stressors: A study on management students. *ASSESSMENT*, 4(9).
- Andrews, B., & Wilding, J. M. (2004). The relation of depression and anxiety to life-stress and achievement in students. *British journal of psychology*, 95(4), 509-521.
- Asghar, H. (2014). Patterns of engagement and anxiety in university students: First year to senior year. *Psychology Applications & Developments Advances in Psychology and Psychological Trends Series Edited by: Clara Pracana*, 248.
- Asiamah, N., Mensah, H. K., & Oteng-Abayie, E. F. (2017). General, target, and accessible population: Demystifying the concepts for effective sampling. *The Qualitative Report*, 22(6), 1607-1622.
- Astin, A. W. (1973). The impact of dormitory living on students. *Educational Record*, 204-210.
- Astin, A. W. (1977). *Four critical years*. San Francisco: Jossey-Bass.
- Astin, A. W. (1982). *Minorities in American higher education*. San Francisco: Jossey-Bass.
- Astin, A. W. (1984). Student Involvement: A Developmental Theory for Higher Education. *Journal of college student personnel*, 25(4), 297-308.
- Bayram, N., & Bilgel, N. (2008). The prevalence and socio-demographic correlations of depression, anxiety and stress among a group of university students. *Social psychiatry and psychiatric epidemiology*, 43(8), 667-672.
- Bechtel, G. G. (2012). The Societal Impact of Economic Anxiety. *Journal of Data Science*, 10, 693-710.
- Bechtel, G. G. (2014). Does Sentiment or Anxiety Drive Consumer Demand? *Journal of Data Science*, 12, 19-34.
- Blimling, G. S. (2014). *Student learning in college residence halls: What works, what doesn't, and why*. John Wiley & Sons.
- Bolanowski, W. (2005). Anxiety about professional future among young doctors. *International journal of occupational medicine and environmental health*, 18(4), 367-374.
- Boyles, J., & Ahmed, B. (2017). Does student debt affect dental students' and dentists' stress levels? *British dental journal*, 223(8), 601–606.

- Burlison, M. B. (2015). Nonacademic commitments affecting commuter student involvement and engagement. *New Directions for Student Services*, 27-34.
- Butt, B. Z., & ur Rehman, K. (2010). A study examining the students satisfaction in higher education. *Procedia-Social and Behavioral Sciences*, 2(2), 5446-5450.
- Cannell, P. (2017). Breaking down barriers to widening participation using open online courses in lifelong learning. *Open Educational Practices Scotland*.
doi:https://www.open.edu/openlearncreate/pluginfile.php/261946/mod_page/content/2/Barriers%20formatted.pdf
- Chickering, A. W. (1974). *Commuting versus resident students*. Jossey-Bass.
- Chisholm-Burns, M. A., Spivey, C. A., Jaeger, M. C., & Williams, J. (2017). Associations between pharmacy students' attitudes toward debt, stress, and student loans. *American journal of pharmaceutical education*, 81(7).
- Christenson, S. L., Reschly, A. L., & Wylie, C. (2012). *Handbook of research on student engagement*. Springer Science & Business Media.
- Çivitci, A. (2015). The moderating role of positive and negative affect on the relationship between perceived social support and stress in college students. *Educational Sciences: Theory & Practice*, 15(3), 565-573.
- Cooke, R., Barkham, M., Audin, K., Bradley, M., & Davy, J. (2004). Student debt and its relation to student mental health. *Journal of Further and Higher Education*, 28(1), 53-66.
- Cowherd, H. (2014). The Connection Between Distance Learning and Retaining Minority Students. *E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education*, 429-434.
- Deden, A. (2002). Issues in Rural Uptake of Online Learning: an Australian Perspective. *E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education*, 1400-1402.
- Dennis, J. M., Phinney, J. S., & Chuateco, L. I. (2005). The role of motivation, parental support, and peer support in the academic success of ethnic minority first-generation college students. *Journal of college student development*, 46(3), 223-236.
- Dwamena, Q. J., Kwabla, F. J., & Kanyir, K. C. (2016). STUDENTS'ENGAGEMENT IN SOCIAL MEDIA AND ITS MAINSTAY FOR TEACHING AND LEARNING. THE CASE OF THE WA NURSING TRAINING COLLEGE. *American Journal of Educational Research*,, 961-969 . Retrieved from <http://pubs.sciepub.com/education/4/13/8>
- Egdorf, R. L. (2013). Student engagement and student characteristics as predictors of student academic achievement at Illinois community colleges. *Iowa State University Digital Repository*. doi:<https://doi.org/10.31274/etd-180810-3169>

- Estell, D. B., & Perdue, N. H. (2013). Social support and behavioral and affective school engagement: The effects of peers, parents, and teachers. *Psychology in the Schools*, 325-339.
- Evans, N., Forney, D., Guido, F., Patton, L., & Renn, K. (2009). *Student Development in College: Theory, Research, and Practice* (2nd ed.). John Wiley & Sons. Retrieved from <https://books.google.com.pk/books?id=IxoLrybGeCIC>
- Farré, L., Fasani, F., & Mueller, H. (2018). Feeling useless: the effect of unemployment on mental health in the Great Recession. *IZA Journal of Labor Economics*, 7(1).
- Fergusson, D. M., Horwood, L. J., & Lynskey, M. T. (1997). The effects of unemployment on psychiatric illness during young adulthood. *Psychological medicine*, 27(2), 371-381. Retrieved from <https://doi.org/10.1017/S0033291796004412>
- Field, A. (2009). Autocorrelation statistical value of the Durbin-Watson.
- Firat, M. (2017). Relationship between Self-Control and Facebook Use: Case of CEIT Students. *Educational Sciences: Theory and Practice*, 17(4), 1179-1201.
- Fosnacht, K., & Dugan, B. J. (2018). Undergraduate Financial Knowledge and the Role of Financial Education Programming. *NASPA Annual Conference*. Retrieved from http://nsse.indiana.edu/pdf/presentations/2018/NASPA_2018_Fosnacht_Dugan.pdf
- Garey, L., Reitzel, L. R., Anthenien, A. M., Businelle, M. S., Neighbors, C., Zvolensky, M. J., . . . Kendzor, D. E. (2017). Support Buffers Financial Strain's Effect on Health-related Quality of Life. *American journal of health behavior*, 41(4), 497-510.
- Gok, T. (2016). The Effects of Social Networking Sites on Students' Studying and Habits. *International journal of Research in Education and Science*, 85-93.
- Goldsmith, A. H., Veum, J. R., & Darity Jr, W. (1996). The psychological impact of unemployment and joblessness. *The journal of socio-economics*, 333-358.
- Goodman, L. (2017). Mental health on university campuses and the needs of students they seek to serve. *Building Healthy Academic Communities Journal*, 1(2), 31-44.
- Gülaçtı, F. (2010). The effect of perceived social support on subjective well-being. *Procedia-Social and Behavioral Sciences*, 3844-3849.
- Hammad, M. A. (2016). Future Anxiety and Its Relationship to Students' Attitude toward Academic Specialization. *Journal of Education and Practice*, 7(15), 54-65.
- Hamrick, F. A., Evans, N. J., & Schuh, J. H. (2002). *Foundations of student affairs practice: How philosophy, theory, and research strengthen educational outcomes*. San Francisco: Jossey-Bass.
- Hashempour, S., & Mehrad, A. (2014). The effect of anxiety and emotional intelligence on students' learning process. *Journal of Education and social policy*, 1(2), 115-122.
- Heckman, S., Lim, H., & Montalto, C. (2014). Factors related to financial stress among college students. *Journal of Financial Therapy*, 3-19.

- HERI. (2007). College freshmen and online social networking sites. *HERI Research Brief*. Retrieved 11 29, 2020, from <https://heri.ucla.edu/PDFs/pubs/briefs/brief-091107-SocialNetworking.pdf>
- Hutton, K., Nyholm, M., Nygren, J. M., & Svedberg, P. (2014). Self-rated mental health and socio-economic background: a study of adolescents in Sweden. *BMC public health*, *14*(1), 394.
- Jabareen, Y. (2009). Building a conceptual framework: philosophy, definitions, and procedure. *International journal of qualitative methods*, 49-62.
- Jalil, J., & Sabir, S. (2019). Mobile phone usage and distraction in learning sessions. *Pakistan Armed Forces Medical Journal*, *69*(1), 54-59. Retrieved 2 2021
- Janosik, S. M., Creamer, D. G., Hirt, J. B., Winston, R. B., Saunders, S. A., & Cooper, D. L. (2003). *Supervising new professionals in student affairs: A guide for practioners*. New York: Routledge.
- Jayarathna, L. C. (2014, July-December). Perceived Social Support and Academic Engagement. *Kelaniya Journal of Management*, *3*(2), 85-92.
- Jessop, D. C., Herberts, C., & Solomon, L. (2005). The impact of financial circumstances on student health. *British journal of health psychology*, *10*(3), 421-439.
- John, A., & Moyer, A. (2014). Student debt and perceptions of preparedness for employment or higher education. *Journal of Young Investigators*, *26*(2).
- Jones, P. J., Park, S. Y., & Lefevor, G. T. (2018). Contemporary college student anxiety: The role of academic distress, financial stress, and support. *Journal of College Counseling*, *21*(3), 252-264.
- Jula, N.-M. (2014). Software solutions for identifying outliers. *Computational Methods in Social Sciences*, 5-14. Retrieved 2 2021, from <https://www.cceol.com/search/article-detail?id=417056>
- Kaur, S. P. (2013). Variables in research. *Indian Journal of Research and Reports in Medical Sciences*, *3*(4), 36-38.
- Khan, A. M., & Chaudary, A. M. (2014, June). Impact of Stress among Students of a Public Sector University. *Journal of Research & Reflections in Education (JRRE)*, *8*(1), 48 -54.
- Khan, M. A. (2014). Students' passion for grades in higher education institutions in Pakistan. *Procedia-Social and Behavioral Sciences*, *112*, 702-709.
- Knaub, J. R. (2015). When Prediction is Not Time Series Forecasting. doi:DOI: 10.13140/RG.2.1.3412.4328
- Kolesinski, M., Nelson-Weaver, E., & Diamond, D. (2013). *Digital solidarity in education: Promoting equity, diversity, and academic excellence through innovative instructional programs*. Routledge.
- Komives, S. R., & Woodard Jr, D. B. (2003). *Student services: A handbook for the profession* (4 ed.). John Wiley & Sons.
- Lai, A. (2015). Inequalities in online education. *Society for Information Technology & Teacher Education International Conference*, 674-681.

- Lavrakas, P. J. (2008). *Encyclopedia of survey research methods*. Sage publications.
- Lin, N., Ensel, W. M., Simeone, R. S., & Kuo, W. (1979). Social support, stressful life events, and illness: A model and an empirical test. *Journal of health and Social Behavior*, 108-119.
- Mallinckrodt, B., & Leong, F. T. (1992). International graduate students, stress, and social support. *Journal of College Student Development*, 33(1), 71-78.
- Mathur, G., Nathani, N., Sharma, A., Modi, D., & Arora, G. (2019). Impact of Facebook Usage On Students' Involvement in Studies. *Proceedings of 10th International Conference on Digital Strategies for Organizational Success*.
- Miller, S. V. (2018). Economic Anxiety or Racial Resentment? An Evaluation of Attitudes Toward Immigration in the US From 1992 to 2016 (working paper). Retrieved from <https://github.com/svmiller/earr/blob/master/earr.pdf>
- Mirza, I., & Jenkins, R. (2004). Risk factors, prevalence, and treatment of anxiety and depressive disorders in Pakistan: systematic review. *Bmj*, 328(7443).
- Mistry, R. S., Benner, A. D., Tan, C. S., & Kim, S. Y. (2009). Family Economic Stress and Academic Well-Being Among Chinese-American Youth: The Influence of Adolescents' Perceptions of Economic Strain. *Journal of family psychology*, 23(3), 279.
- Mouza, A.-M. (2015). Perceived stress of the undergraduate students in Greece due to the economic crisis. *Procedia-Social and Behavioral Sciences*, 177, 265-272.
- Mullis, R. J. (1992). Measures of economic well-being as predictors of psychological well-being. *Social Indicators Research*, 26(2), 119-35.
- Nadeem, M., Ali, A., Maqbool, S., & Zaidi, S. U. (2012). Impact of anxiety on the academic achievement of students having different mental abilities at university level in Bahawalpur (Southern Punjab) Pakistan. *International Online Journal of Educational Sciences*, 4(3), 519-528.
- Naeem, T., & Dahar, M. A. (1997). Investigation of problems faced by female students at higher education level. *Pakistan Association of Anthropology, Islamabad, Pakistan special Issue, 2000*.
- Newbold, J. J., Mehta, S. S., & Forbus, P. (2011). Commuter students: Involvement and identification with an institution of higher education. *Academy of Educational Leadership Journal*, 15(2), 141-154.
- Nicpon, M. F., Huser, L., Blanks, E. H., Sollenberger, S., Befort, C., & Kurpius, S. E. (2006). The relationship of loneliness and social support with college freshmen's academic performance and persistence. *Journal of College Student Retention: Research, Theory & Practice*, 345-358.
- Osberg, L., & Sharpe, A. (2009, December). *Measuring economic security in insecure times: New perspectives, new events and the index of economic well-being*. Ottawa: The Centre for the Study of Living Standards (CSLS).

- Parkes, M., Gregory, S., Fletcher, P., Adlington, R., & Gromik, N. (2015). Bringing people together while learning apart: Creating online learning environments to support the needs of rural and remote students. *Australian and International Journal of Rural Education*, 66-78.
- Patton, L., Renn, K., Guido, F., Quaye, S., Evans, N., & Forney, D. (2016). *Student Development in College: Theory, Research, and Practice* (3 ed.). John Wiley & Sons. Retrieved from <https://books.google.com.pk/books?id=E-IRCgAAQBAJ>
- Pellas, N. (2014). The influence of computer self-efficacy, metacognitive self-regulation and self-esteem on student engagement in online learning programs: Evidence from the virtual world of Second Life. *Computers in Human Behavior*, 157-170.
- Porter, S. R. (2006). INSTITUTIONAL STRUCTURES AND STUDENT ENGAGEMENT. *Research in Higher Education*. doi: DOI: 10.1007/s11162-005-9006-z
- Rao, K., Eady, M., & Edelen-Smith, P. (2011). Creating virtual classrooms for rural and remote communities. *Phi Delta Kappan*, 22-27.
- Ray, J. V. (2015). Cross-Sectional Research. In *The Encyclopedia of Crime & Punishment*. doi:10.1002/9781118519639.wbecpx130
- Reiss, F., Meyrose, A.-K., Otto, C., Lampert, T., Klasen, F., & Ravens-Sieberer, U. (2019). Socioeconomic status, stressful life situations and mental health problems in children and adolescents: Results of the German BELLA cohort-study. *PLoS one*, 14(3).
- Richardson, C. (2017). Student perceptions of the impact of social media on college student engagement.
- Rideout, V. (2012). Children, teens, and entertainment media: The view from the classroom. *Common Sense Media*.
- Roberts, R., Golding, J., Towell, T., Reid, S., Woodford, S., Vetere, A., & Weinreb, I. (2000). Mental and physical health in students: the role of economic circumstances. *British Journal of Health Psychology*, 5(3), 289-297.
- Samuelson, P., & Nordhaus, W. (1985). *Economics*. McGraw-Hill.
- Sanford, N. (1967). *Where colleges fail: A study of the student as a person*. Jossey-Bass.
- Sareen, J., Afifi, T. O., McMillan, K. A., & Asmundson, G. J. (2011). Relationship between household income and mental disorders: findings from a population-based longitudinal study. *Archives of general psychiatry*, 68(4), 419-427.
- Schuh, J. H., Jones, S. R., & Torres, V. (Eds.). (2016). *Student Services: A Handbook for the Profession* (6th ed.). San Francisco: Jossey-Bass.
- Simon, H. A. (1971). Designing Organizations for an Information-rich World. (pp. 37–52). Baltimore: Johns Hopkins University Press. Retrieved 11 22, 2020, from <https://digitalcollections.library.cmu.edu/awweb/awarchive?type=file&item=33748>

- Singh, S., & Kumar, D. (1976). Anxiety as a function of unemployment and education. *Indian Journal of Applied Psychology*, 38–41.
- Suhail, K., & Bargees, Z. (2006). Effects of excessive Internet use on undergraduate students in Pakistan. *CyberPsychology & Behavior*, 9(3), 297-307.
- Tariq, W., Mehboob, M., Khan, M. A., & Ullah, F. (2012). The impact of social media and social networks on education and students of Pakistan. *International Journal of Computer Science Issues (IJCSI)*, 407-411. Retrieved 11 27, 2020
- Tran, A. G., Lam, C. K., & Legg, E. (2018). Financial stress, social supports, gender, and anxiety during college: A stress-buffering perspective. *The Counseling Psychologist*, 46(7), 846-869.
- Trombitas, K. (2012). Financial stress: An everyday reality for college students. *Lincoln, NE: Inceptia*.
- van Krieken, R. (2019). Georg Franck's 'The Economy of Attention': Mental capitalism and the struggle for attention. *Journal of Sociology*, 3-7.
- VanVoorhis, C. W., & Morgan, B. L. (2007). Understanding power and rules of thumb for determining sample sizes. *Tutorials in quantitative methods for psychology*, 43-50.
- Viseu, J., Leal, R., de Jesus, S. N., Pechorro, P., & Greenglass, E. (2018). Relationship between economic stress factors and stress, anxiety, and depression: Moderating role of social support. *Psychiatry research*, 268, 102-107.
- Walsemann, K. M., Gee, G. C., & Gentile, D. (2015). Sick of our loans: Student borrowing and the mental health of young adults in the United States. *Social Science & Medicine*, 124, 85-93.
- Wang, X., & Cheng, Z. (2020). Cross-sectional studies: strengths, weaknesses, and recommendations. *Chest*, 158(1), S65-S71.
- Wang, Z. (2015). Media Distraction in College Students. *A dissertation submitted to the University of Michigan*. Retrieved 11 24, 2020, from http://deepblue.lib.umich.edu/bitstream/2027.42/113320/1/zwwang_1.pdf
- Ward, K., Trautvetter, L., & Braskamp, L. (2005). Putting Students First: Creating a Climate of Support and Challenge. *Journal of College and Character*, 6(8). Retrieved from <https://doi.org/10.2202/1940-1639.1492>
- Warschauer, M., & Matuchniak, T. (2010). New technology and digital worlds: Analyzing evidence of equity in access, use, and outcomes. *Review of research in education*, 179-225.
- Wiefek, N. (2003). *The impact of economic anxiety in postindustrial America*. Greenwood Publishing Group.
- Williams, J. (2018). *Stand out of our light: freedom and resistance in the attention economy*. Cambridge University Press.
- Word bank Pakistan. (n.d.). Overview. Retrieved February 3, 2021, from <https://www.worldbank.org/en/country/pakistan/overview>

- World Bank. (2019, October 21). Retrieved from world bank website:
<https://www.worldbank.org/en/country/pakistan/overview#1>
- Xerri, M. J., K. R., S, K., & acklock. (2018). Student engagement in academic activities: a social support perspective. *High Educ*, 589–605. doi:<https://doi.org/10.1007/s10734-017-0162-9>
- Yetgin, D., & Benligiray, S. (2019). The effect of economic anxiety and occupational burnout levels of tour guides on their occupational commitment. *Asia Pacific Journal of Tourism Research*. Retrieved from <https://doi.org/10.1080/10941665.2018.1564681>
- Yunus, M., Nordin, N., Salehi, H., Embi, M. A., & Salehi, Z. (2013). The Use of Information and Communication Technology in Teaching ESL Writing Skills. . *English Language Teaching*, 1-8.

Appendix (1)
EVALUATION OF ESTIMATION PROCESS

Evaluation of the Estimation Process for Pre-COVID-19 Data

In this section, we will evaluate the estimated results for PRE-COVID-19 on-campus student involvement. We have estimated results for on-campus student Involvement in two ways. First of all, we performed multiple regression analysis using the OLS method without applying log on data. When we evaluated our model we found the issue of heteroscedasticity in the model, therefore, we decided to use Log transformation option to reduce the problem of heteroscedasticity in the model. We have presented this whole process in below coming sections. Table 1 represents the results of OLS estimation for the PRE-COVID-19 context without log transformation.

Table 5: OLS estimations before Log-transformation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SSI	0.126014	0.038701	3.256075	0.0013
PTC	-0.706503	0.214772	-3.289549	0.0012
MSS	1.451354	1.543761	0.940142	0.3481
MNS	1.684499	1.648330	1.021943	0.3079
IQI	0.497190	0.054758	9.079815	0.0000
G	-0.694160	1.202296	-0.577362	0.5643
ES	1.390123	1.260212	1.103086	0.2711
EAI	-0.091628	0.031977	-2.865456	0.0045
B	0.000685	1.176185	0.000583	0.9995
AEDI	-0.391602	0.211268	-1.853575	0.0651
C	5.776557	3.455415	1.671741	0.0959
R-squared		0.432946	Mean dependent var	28.17842
Adjusted R-squared		0.408291	S.D. dependent var	11.36005
S.E. of regression		8.738448	Akaike info criterion	7.217911
Sum squared resid		17562.91	Schwarz criterion	7.376968
Log likelihood		-858.7583	Hannan-Quinn criter.	7.281992
F-statistic		17.56051	Durbin-Watson stat	1.948725
Prob(F-statistic)		0.000000		

Overall the model is moderately fitted as the probability value of the F-statistic is less than the 5% significance level. According to the general thumb rule of R², a cross-sectional model above 25% and below 50% percent R² can be qualified as a moderately fitted model. As per the adjusted R-squared, our predictive variables are predicting 40% variations criterion variable. At

5% statistical significance level following variables such as Social Support Index (SSI), Percentage of Time Used in Commuting (PTC), Institutional Quality Index IQI, Enrollment Status (ES), and Economic Anxiety Index (EAI) are statistically significant. However, Attention Economy Distractions (AEDI) and the dummy variables such as Gender (G), Enrollment Status (ES), Major in Social Sciences (MSS), and Major in Natural Science (MNS) are found statistically insignificant as their associated probability values are greater than 5% level of significance.

Now, we have conducted a few tests to evaluate our applied regression model. For autocorrelation, there is no need to conduct post-estimation tests as Durbin Watson's statistics is very close to 2 which shows no serial autocorrelation in the model. Durbin-Watson statistic examines for serial correlation among the errors. The possible values can range between 0 to 4, where the value “2” implies the residuals are uncorrelated, so the value should need to nearer to 2 (Field, 2009). However, it is important to conduct post-estimation tests such as checking heteroscedasticity and multicollinearity to ensure that BLUE properties of OLS are not violated.

Table 6: Multicollinearity test

Variance Inflation Factors			
Variable	Coefficient Variance	Uncentered VIF	Centered VIF
SSI	0.001498	14.60194	1.154207
PTC	0.046127	2.608915	1.091453
MS	2.383197	3.557920	1.874920
MN	2.716993	2.775329	1.877089
IQI	0.002998	17.75926	1.156775
G	1.445516	1.798365	1.089466
ES	1.588135	1.539042	1.066473
EAI	0.001023	4.424771	1.090690
B	1.383410	1.884151	1.071073
AEDI	0.044634	2.630020	1.068950
C	11.93989	37.68328	NA

Table 3 presents post estimation results for multicollinearity. To detect multicollinearity in multiple regression analysis, the coefficient of Variance inflation factor (VIF) is significant. For instance, the coefficient of VIF equals 1 shows absolutely no multicollinearity in the model while the coefficient of VIF between 1-5 shows a moderate level of multicollinearity. Test results show that only two dummy variables such as MS and MN, shown a bit higher degree of

multicollinearity. That is because they have derived from the academic discipline (a categorical variable with three categories) into dummy variables, such as MS=1 otherwise 0, MN=1 otherwise 0, MBM=1 otherwise 0, therefore, each time I have 1 fewer dummy variable than I had categories. “That is because the last category is already indicated by having a 0 on all other dummy variables. Including the last category just adds redundant information, resulting in multicollinearity”. Though we have drop MBM while running this regression to avoid dummy variable trap but still a bit of multicollinearity still there.

Table 7: Heteroscedasticity test

Heteroskedasticity Test: Breusch-Pagan-Godfrey				
F-statistic		1.927090	Prob. F(11,230)	0.0426
Obs*R-squared		18.63148	Prob. Chi-Square(11)	0.0452
Scaled explained SS		26.45042	Prob. Chi-Square(11)	0.0032
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-52.48075	50.02819	-1.049024	0.2953
SSI	-0.306698	0.560323	-0.547360	0.5847
PTC	0.841766	3.109514	0.270707	0.7869
MS	14.30566	22.35088	0.640049	0.5228
MN	-6.822181	23.86486	-0.285867	0.7752
IQI	2.956486	0.792794	3.729199	0.0002
G	-8.568566	17.40709	-0.492246	0.6230
ES	17.44461	18.24561	0.956099	0.3400
EAI	-0.067499	0.462967	-0.145796	0.8842
B	23.30981	17.02904	1.368827	0.1724
AEDI	0.220675	3.058784	0.072145	0.9425
R-squared		0.077309	Mean dependent var	72.87514
Adjusted R-squared		0.037192	S.D. dependent var	128.9375
S.E. of regression		126.5170	Akaike info criterion	12.56320
Sum squared resid		3681508.	Schwarz criterion	12.72226
Log likelihood		-1502.866	Hannan-Quinn criter.	12.62728
F-statistic		1.927090	Durbin-Watson stat	2.024962
Prob(F-statistic)		0.042552		

Table 2 presents post estimation results for checking heteroscedasticity. In particular, the Breusch-pagan-Godfrey heteroscedasticity test has been applied to check heteroscedasticity in the model. This particular test assumes the Null hypothesis such that there exists homoscedasticity and variance of residuals is not changing in repeated sampling. In this regard, results show that the overall model is not satisfactory as the probability value of F-statistic and chi-square are less than 5% level of significance and thus the null hypothesis is rejected which assumes no heteroscedasticity in the model. Thus, we conclude that there exists

heteroscedasticity in the model. From the heteroscedasticity test table it clear that error terms are mainly correlating with IQI as its probability value is less than a 5% level of significance. Therefore, we apply a Log transformation on IQI to element the effects of the heteroscedasticity problem from the model.

Table 8: OLS estimations post log transformation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SSI	0.136420	0.039356	3.466304	0.0006
PTC	-0.661241	0.220251	-3.002220	0.0030
MS	1.258392	1.574986	0.798986	0.4251
MN	1.557868	1.683782	0.925220	0.3558
LOG(IQI)	18.54167	2.218242	8.358722	0.0000
G	-0.889414	1.227146	-0.724783	0.4693
ES	1.435808	1.286625	1.115949	0.2656
EAI	-0.089747	0.032742	-2.741012	0.0066
B	-0.082784	1.201292	-0.068912	0.9451
AEDI	-0.409889	0.215627	-1.900919	0.0586
C	-42.43539	8.432183	-5.032551	0.0000
R-squared		0.409167	Mean dependent var	28.17842
Adjusted R-squared		0.383478	S.D. dependent var	11.36005
S.E. of regression		8.919788	Akaike info criterion	7.258990
Sum squared resid		18299.40	Schwarz criterion	7.418047
Log likelihood		-863.7083	Hannan-Quinn criter.	7.323071
F-statistic		15.92808	Durbin-Watson stat	1.993205
Prob(F-statistic)		0.000000		

Table 4 presents OLS LOG estimation results. The basic purpose of Log transformation is to remove the effects of heteroscedasticity and therefore IQI has been transformed into log value. Overall the model is well fitted as probability value of the F-statistic is less than 5% level of significance. After applying LOG transformation, R^2 decreased by 3% and Adjusted R^2 decreased by 2%. It implies that predictive variables are significant and capable of predicting 38% variation in SII across the sample. In other words, the adjusted R-squared value shows 38% total variation in the dependent predicted by independent predictive variables. Statistical significance of individual variables can also be determined using the same probability criterion. For instance, the following variables are statistically insignificant at a 5% level of significance, MS, MN, G, and B, while the rest of the variables are statistically significant as their associated probability values are less than a 5% level of significance. To sum it up, log-transformation of

IQI has removed the issue of heteroscedasticity in the model²³. However, log transformation of IQI has neither changed signs nor statistical importance of predictive potential variables. For instance, both EIA and AEDI have expected negative signs and are statistically significant at a 5% level of significance. Similarly, the value of the coefficient for LOG (IQI) is 18.54 and is statistically significant at less than a 5% level of significance.

Moreover, we had regressed the model again by including the dummy variable “Major in Business & Management (MBM)” which we have dropped earlier to avoid dummy trap but after including this dummy variable also found it insignificant that’s why we have not included those results in this section.

Table 9: Testing heteroscedasticity again after log transformation

Heteroskedasticity Test: Breusch-Pagan-Godfrey				
F-statistic		1.268511	Prob. F(11,230)	0.2493
Obs*R-squared		12.59703	Prob. Chi-Square(11)	0.2471
Scaled explained SS		17.00263	Prob. Chi-Square(11)	0.0743
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-269.3220	123.1461	--2.187013	0.0297
SSI	-0.147223	0.574767	-0.256144	0.7981
PTC	1.539534	3.216605	0.478621	0.6327
MS	9.292357	23.00156	0.403988	0.6866
MN	-8.088589	24.59044	-0.328932	0.7425
LOG(IQI)	90.94863	32.39586	2.807416	0.0054
G	-7.500274	17.92159	-0.418505	0.6760
ES	19.51909	18.79025	1.038788	0.3000
EAI	-0.099918	0.478178	-0.208956	0.8347
B	22.66172	17.54402	1.291707	0.1978
AEDI	0.126834	3.149077	0.040277	0.9679
R-squared		0.052270	Mean dependent var	75.93112
Adjusted R-squared		0.011064	S.D. dependent var	130.9939
S.E. of regression		130.2672	Akaike info criterion	12.62162
Sum squared resid		3902994.	Schwarz criterion	12.78068
Log likelihood		-1509.905	Hannan-Quinn criter.	12.68570
F-statistic		1.268511	Durbin-Watson stat	2.047197
Prob(F-statistic)		0.249292		

Table 5 presents post estimation results for checking heteroscedasticity. Log specification of IQI makes this estimation results different from table 2. In particular, the Breusch-pagan-Godfrey

²³ See the heteroscedasticity test in next page

heteroscedasticity test has been applied to check heteroscedasticity in the model. This particular test assumes the Null hypothesis such that there exists homoscedasticity and variance of residuals are not changing in repeated sampling. In this regard, results show that the overall model is satisfactory as the probability value of F-statistic and chi-square are greater than 5% level of significance and thus the null hypothesis is accepted which assumes homoscedasticity in the model. Based on these log-transformed estimation results, one can conclude that the issue of heteroscedasticity has been resolved.

Evaluation of the Estimation Process for During-COVID-19 Data

In this segment, we will evaluate and interpret the estimated results for DURING-COVID-19 online student involvement. We have estimated results for online student involvement in two ways. First of we performed multiple regression analysis using OLS method. When we evaluated our model we found issue of heteroscedasticity in the model, and this time Log transformation option didn't able to resolve the issue thus we decided to run robust least square method to control the issue of heteroscedasticity. We have presented this whole process in below coming sections.

Table 10: OLS estimations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SSI	0.109965	0.064790	1.697237	0.0910
TSI	0.281860	0.058202	4.842744	0.0000
MS	-1.479957	2.065708	-0.716440	0.4744
MN	2.734284	2.170477	1.259762	0.2090
IQI	0.128258	0.060828	2.108523	0.0361
G	1.056724	1.589281	0.664907	0.5068
ES	1.722037	1.675382	1.027847	0.3051
B	0.082355	1.551109	0.053094	0.9577
EAI	-0.183495	0.051209	-3.583262	0.0004
AEDI	-0.450039	0.172489	-2.609086	0.0097
C	6.118738	5.136865	1.191142	0.2348
R-squared		0.271270	Mean dependent var	23.95424
Adjusted R-squared		0.239587	S.D. dependent var	13.37937
S.E. of regression		11.66703	Akaike info criterion	7.795980
Sum squared resid		31307.53	Schwarz criterion	7.955037
Log likelihood		-928.4156	Hannan-Quinn criter.	7.860061
F-statistic		8.561779	Durbin-Watson stat	1.913238
Prob(F-statistic)		0.000000		

Table 6 presents OLS estimation results during COVID-19. Again, the overall model is statistically significant based on the value of the F-statistic which is less than a 5% significance level. It shows that predictive variables are statistically significant, and roughly 23% of variations in the dependent variable can be explained through this model. In other words, based on adjusted R-squared, 23% of the variation in criterion variable is explained by predictive variables. Statistical significance of individual variables can also be determined using the same probability criterion. First, the following variables are statistically significant at a 5% level of significance TSI, IQI, EAI, and AEDI. However, the rests of the variables are statistically insignificant as their associated probability values are greater than a 5% level of significance. In particular, the coefficient for EAI is -0.18 and its associated probability value is less than a 5% level of significance. It implies that, by keeping other variables constant, EAI can predict a 10 percent variation in student involvement across the sample.

Table 11: Multicollinearity Test

Variance Inflation Factors			
Variable	Coefficient Variance	Uncentered VIF	Centered VIF
SSI	0.004198	19.39415	1.216229
TSI	0.003388	20.07645	1.113587
MS	4.267151	3.573732	1.883253
MN	4.710970	2.699504	1.825806
IQI	0.003700	8.286190	1.212188
G	2.525814	1.762804	1.067923
ES	2.806906	1.525944	1.057397
B	2.405941	1.838219	1.044963
EAI	0.002622	6.061767	1.051377
AEDI	0.029753	3.090254	1.045180
C	26.38738	46.71887	NA

Table 3 presents post estimation results for multicollinearity. As with earlier results, all predictive variables are showing normal VIF except the two variables (MSS and MNS) which were transformed into dummy from the categorical variable. The reason for their high VIF value has been explained in the earlier section.

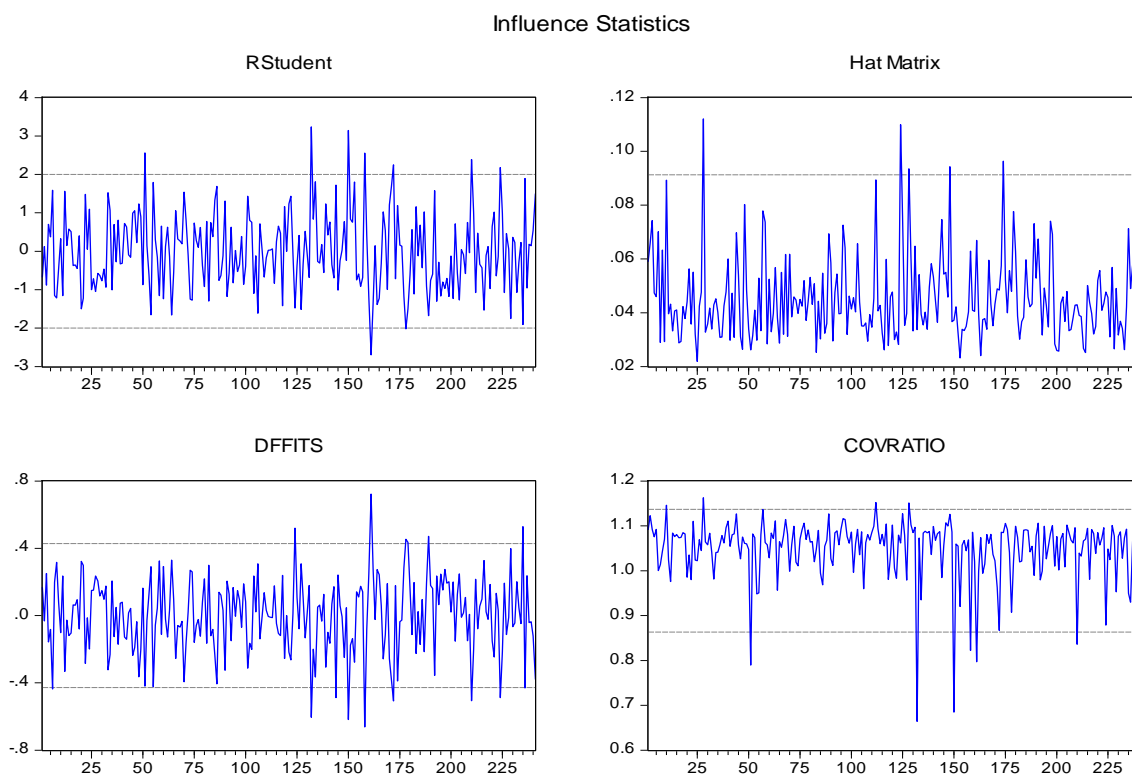
Table 12: Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey				
F-statistic		2.412723	Prob. F(11,230)	0.0096
Obs*R-squared		22.88091	Prob. Chi-Square(11)	0.0112
Scaled explained SS		21.02409	Prob. Chi-Square(11)	0.0209
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16.56789	79.11858	0.209406	0.8343
SSI	1.433160	0.997908	1.436164	0.1523
TSI	1.779948	0.896442	1.985571	0.0483
MS	22.98046	31.81628	0.722286	0.4709
MN	44.52934	33.42994	1.332020	0.1842
IQI	-0.195725	0.936884	-0.208910	0.8347
G	-20.83692	24.47829	-0.851241	0.3955
ES	-5.776724	25.80443	-0.223866	0.8231
B	-5.089598	23.89037	-0.213040	0.8315
EAI	-2.285994	0.788724	-2.898345	0.0041
AEDI	1.734214	2.656699	0.652770	0.5146
R-squared		0.094942	Mean dependent var	129.9068
Adjusted R-squared		0.055591	S.D. dependent var	184.9102
S.E. of regression		179.6970	Akaike info criterion	13.26499
Sum squared resid		7426933.	Schwarz criterion	13.42405
Log likelihood		-1587.431	Hannan-Quinn criter.	13.32907
F-statistic		2.412723	Durbin-Watson stat	2.036348
Prob(F-statistic)		0.009566		

Table 8 presents post estimation results for checking heteroscedasticity. In particular, the Breusch-pagan-Godfrey heteroscedasticity test has been applied to check heteroscedasticity in the model. According to the Breusch-pagan-Godfrey heteroscedasticity test, the Null hypothesis is such that there exists homoscedasticity and variances of residuals are not changing in repeated sampling. In this regard, results show that the overall model is not satisfactory as the probability value of F-statistic and chi-square are less than 5% level of significance and thus the null hypothesis is rejected which assumes no heteroscedasticity in the model.

More specifically, EAI and TSI are associated with error terms as probability values are lower than the 5% level of significance and thus create heteroscedasticity issues in the model. In the earlier case, the issue of heteroscedasticity was removed by transforming IQI into LOG. Here, the EAI is a negative predictor thus we cannot apply LOG on it, however, we do apply LOG to TSI. But, on this occasion, the log transformation did not help us in controlling

heteroscedasticity. Generally, the heteroscedasticity problem arises in cross-sectional data due to outliers' effect. Therefore, we see influence statistics to see whether our data is affected by outliers or not. In EViews 8, we use Influence Statistics to identify the outliers. According to Jula, (2014) the influence statistics are a technique for determining influential observations or outliers. "They are a measure of the difference that a single observation makes to the regression results, or how different an observation is from the other observations in an equation's sample" (Jula, 2014).



The spikes in all four graphs of influence statistics have shown that there are influential observations or outliers in data. Based on these findings we conclude that the issue of heteroscedasticity is due to the presence of outliers in the data set. Ordinary least squares estimators are sensitive to outliers thus results based on OLS estimation is neither efficient, not unbiased. Therefore, we use the Robust least square method which is efficient in handling

outliers, and it is the best alternate to OLS²⁴. We present estimation results of the Robust least square method in the next section.

Table 13: Estimation results based on Robust Least Squares method

Method: MM-estimation				
S settings: tuning=1.547645, breakdown=0.5, trials=200, subsmpl=11, refine=2, compare=5				
M settings: weight=Bisquare, tuning=4.684				
Random number generator: rng=kn, seed=2050593381				
Huber Type I Standard Errors & Covariance				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
SSI	0.109580	0.066900	1.637957	0.1014
TSI	0.289623	0.060098	4.819193	0.0000
MS	-1.589705	2.132979	-0.745298	0.4561
MN	2.703054	2.241159	1.206097	0.2278
IQI	0.123215	0.062809	1.961743	0.0498
G	1.315049	1.641036	0.801353	0.4229
ES	1.574142	1.729942	0.909939	0.3629
EAI	-0.170928	0.052876	-3.232593	0.0012
B	0.178170	1.601622	0.111243	0.9114
AEDI	-0.492039	0.178106	-2.762612	0.0057
C	5.243894	5.304148	0.988640	0.3228
Robust Statistics				
R-squared		0.224896	Adjusted R-squared	0.191196
Rw-squared		0.307725	Adjust Rw-squared	0.307725
Akaike info criterion		221.9141	Schwarz criterion	265.0755
Deviance		27411.83	Scale	11.57084
Rn-squared statistic		80.17791	Prob(Rn-squared stat.)	0.000000
Non-robust Statistics				
Mean dependent var		23.95424	S.D. dependent var	13.37937
S.E. of regression		11.68009	Sum squared resid	31377.64

Table 9 presents Estimation results based on Robust Least Squares method during COVID-19. The difference between robust and non-robust estimation methods is that, the former is built with

²⁴ Visit http://www.eviews.com/help/helpintro.html#page/content/robustreg-Robust_Least_Squares.html

an efficiency setting, and contains different methods of computing standard errors. In other words, by using the robust least square method we have minimized the effect of outliers in the model. Despite these differences, estimated results are quite similar and variables retained their expected sign as well statistical importance. However, R-squared drop to 22 from the previous 27%, while adjusted R-squared declined to 19%. Now, robust statistics R-squared and Rw squared indicate that 22 to 30% of variations in criterion variable is explained by independent variables in the model. Similarly, Rn-squared assumes the null hypothesis that all non-intercept coefficients are equal to zero. Rn-squared statistics is 80.17 with a probability value of less than 5%. It implies that the null hypothesis is rejected and all non-intercept coefficients are not equal to zero.

Method: MM-estimation				
S settings: tuning=1.547645, breakdown=0.5, trials=200, subsmpl=10, refine=2, compare=5				
M settings: weight=Bisquare, tuning=4.684				
Random number generator: rng=kn, seed=832617058				
Huber Type I Standard Errors & Covariance				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
SSI	0.111254	0.066754	1.666639	0.0956
TSI	0.288830	0.060005	4.813478	0.0000
IQI	0.125039	0.062701	1.994216	0.0461
G	1.149961	1.619928	0.709884	0.4778
ES	1.347342	1.710060	0.787892	0.4308
EAI	-0.171978	0.052755	-3.259956	0.0011
B	0.321814	1.585468	0.202977	0.8392
AEDI	-0.475211	0.176888	-2.686505	0.0072
MN	3.801860	1.699900	2.236520	0.0253
C	4.048107	5.064155	0.799365	0.4241
Robust Statistics				
R-squared		0.222865	Adjusted R-squared	0.192587
Rw-squared		0.305758	Adjust Rw-squared	0.305758
Akaike info criterion		221.6998	Schwarz criterion	260.8519
Deviance		27459.61	Scale	11.54541
Rn-squared statistic		79.66008	Prob(Rn-squared stat.)	0.000000
Non-robust Statistics				
Mean dependent var		23.95424	S.D. dependent var	13.37937
S.E. of regression		11.66767	Sum squared resid	31447.05

Owing to multicollinearity between MNS and MSS, by dropping MSS when we regressed again MNS value became significant along with previous significant predictors. And R^2 and adjusted R^2 as well as other estimates also remain almost remain the same. It can be observed in the above results table. Then again, when we estimated RLS by dropping MNS and including MSS and MBM (previously dropped variables) then we got the following results.

Method: MM-estimation				
S settings: tuning=1.547645, breakdown=0.5, trials=200, subsmpl=11, refine=2, compare=5				
M settings: weight=Bisquare, tuning=4.684				
Random number generator: rng=kn, seed=1340039357				
Huber Type I Standard Errors & Covariance				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
SSI	0.107931	0.067000	1.610918	0.1072
TSI	0.290152	0.060155	4.823373	0.0000
IQI	0.125610	0.062872	1.997871	0.0457
G	1.366595	1.642031	0.832259	0.4053
ES	1.577646	1.732174	0.910789	0.3624
EAI	-0.172642	0.052947	-3.260618	0.0011
B	0.181181	1.604429	0.112926	0.9101
AEDI	-0.494687	0.178722	-2.767916	0.0056
MBM	-2.433479	2.278619	-1.067962	0.2855
MSS	-4.114178	1.813445	-2.268708	0.0233
C	7.791421	5.252009	1.483512	0.1379
Robust Statistics				
R-squared		0.223738	Adjusted R-squared	0.189987
Rw-squared		0.306651	Adjust Rw-squared	0.306651
Akaike info criterion		222.8864	Schwarz criterion	265.9744
Deviance		27433.13	Scale	11.55000
Rn-squared statistic		79.64317	Prob(Rn-squared stat.)	0.000000
Non-robust Statistics				
Mean dependent var		23.95424	S.D. dependent var	13.37937
S.E. of regression		11.68908	Sum squared resid	31425.97

This time along with previously significant predictors, the MSS was also found to be significant whereas, R^2 and adjusted R^2 as well as other estimates, also remained almost the same. It can be

observed in the above results tabulated results. Hence, we can say that earlier in the first RLS results the value of MNS and MSS were insignificant because of due multicollinearity between them.

THE LIST OF THE UNIVERSITIES FROM WHICH SAMPLE HAS BEEN DRAWN

- University of the Punjab
- National University of Sciences and Technology
- University of Management and Technology
- COMSATS Institute of Information Technology
- Bahria University
- Institute of Business Administration
- Quaid-i-Azam University
- International Islamic University, Islamabad
- Bahauddin Zakariya University
- Pakistan Institute of Engineering and Applied Sciences
- Iqra University
- University of Sargodha
- Government College University, Lahore
- Ghulam Ishaq Khan Institute of Engineering Sciences and Technology
- Government College University, Faisalabad
- Pir Mehr Ali Shah Arid Agriculture University
- National University of Modern Languages
- Pakistan Institute of Development Economics
- University of Peshawar
- Khyber Medical University
- Air University
- The University of Agriculture, Peshawar
- National Defence University
- Qurta University
- Federal Urdu University of Arts, Sciences and Technology
- Islamia College Peshawar
- Dawood University of Engineering and Technology
- Muhammad Nawaz Shareef University of Agriculture, Multan
- Al-Hamd Islamic University

Appendix (2)

Survey Questionnaire

Hello, I am an MPhil student from the Pakistan Institute of Development Economics (PIDE), Islamabad. Currently, I am doing my thesis in the partial fulfillment of my MPhil degree. To accomplish my research, I need data from the students who are currently enrolled in BS, Masters, or MPhil programs in Pakistani universities. For this reason, I need your support and precious time. This questionnaire will take no longer than 25 minutes to complete. All of your responses will be kept strictly confidential and never associated with your name in the dissertation.

PLEASE BE COOPERATIVE AND RESPOND HONESTLY. THANK YOU!

Demographic Characteristics

Please insert your good name _____ Insert your household monthly income _____

Insert the name of your educational institute _____

Specify your gender Male Female Other

Specify your academic discipline Natural Science Social Science/Art/Literature
 Management/Business

Specify your enrollment status BS/Master Program MPhil Program

Specify your belonging Rural Area Urban Area

SECTION (A)

The questions in this section are dedicated to your pre-Covid-19 experiences. So, please carefully specify your responses according to your pre-Covid-19 experience. Please note that next to many of the following questions, there are Blue Question Buttons, which you can use to get tips regarding the questions.

1. Before Covid-19, for both curricular & co-curricular activities, approximately how much time you used to spend on campus per working day?

Hrs	▼		▼
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2. Based on the pre-Covid-19 conditions, please rate your usual attention span during lectures and academic group discussions.

Very Low Low Normal High Very High

3. Before Covid-19, in which range your university grades were falling?

Below 50% 50-59% 60-69% 70-79% Above 80%

4. Before Covid-19, approximately how much time you used to commute each day to reach your campus?

Hrs Min

5. Before Covid-19, approximately how much time you used to spend on social media networks per day (such as on Facebook, Instagram, TikTok, YouTube, WhatsApp, etc.)?

Hrs Min

6. Before Covid-19, approximately how much time you used to spend watching television broadcasts?

Hrs Min

7. Before Covid-19, approximately how much time you used to spend on gaming per day?

Hrs Min

	Not at All	Slightly	Moderately	Substantially	Extremely
8. Before Covid-19, how much you used to distract from essential mental or physical activities due to social media usage?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Before Covid-19, how much you used to distract from essential mental or physical activities due to watching television?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Before Covid-19, how much you used to distract from essential mental or physical activities due to gaming?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Never	Rarely	Sometimes	Mostly	Consistently
11. Before Covid-19, how often you used to feel anxious about your household economic conditions?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Before Covid-19, how often you used to feel anxious about your employability prospects?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Before Covid-19, how often you used to get anxious about monthly accommodation payments?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Before Covid-19, how often you used to feel anxious regarding your monthly personal consumption needs?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Never	Rarely	Sometimes	Mostly	Consistently
15. Before Covid-19, how often you used to feel anxious about your academic cost?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Before Covid-19, how often you used to feel anxious due to acquired loans?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Before Covid-19, how often you used to feel anxious about the ongoing economic condition of the country?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Before covid-19, how often you used to miss your classes?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. Before Covid-19, how often you used to ask questions in your classes?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. Before Covid-19, how often you used to complete your assignments within the due date?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Before Covid-19, how often you used to participate in academic group discussions actively?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Before Covid-19, other than the lectures, how often you used to interact with your teachers?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Before Covid-19, how often you used to participate in on-campus fitness/physical activities? (such as sports/athletics/exercises, etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. Before Covid-19, how often you used to participate in on-campus student councils/student government activities?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. Before Covid-19, how often you used to participate in on-campus art and cultural activities?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. Before Covid-19, how often you used to participate in on-campus workshops and seminars?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Poor	Below Average	Average	Good	Excellent
27. Based on your pre-Covid-19 experiences, rate your family in providing you emotional support.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. Based on your pre-Covid-19 experiences, rate your family in providing you useful information and advice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. Based on your pre-Covid-19 experiences, rate your family in assisting you in your personal tasks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. Based on your pre-Covid-19 experiences, rate your campus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

41. In which range your current university grades are falling?

- Below 50%
 50-59%
 60-69%
 70-79%
 80% or Above

42. In the last four months, approximately how much time you used to spend on social media networks per day? (Such as on Facebook, Instagram, TikTok, YouTube, etc.)

Hrs Min

43. In the last four months, approximately how much time you used to spend watching television broadcasts?

Hrs Min

44. In the last four months, approximately how much time you used to spend playing games per day?

Hrs Min

	Not at All	Slightly	Moderately	Substantially	Extremely
45. In the last four months, how much you used to distract from essential mental or physical activities due to social media usage?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
46. In the last four months, how much you used to distract from essential mental or physical activities due to watching television broadcasts?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
47. In the last four months, how much you used to distract from essential mental or physical activities due to gaming?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Never	Rarely	Sometimes	Mostly	Consistently
48. In the last four months, how often you felt anxious about your household economic conditions?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
49. In the last four months, how often you felt anxious about employability prospects?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
50. In the last four months, how often you felt anxious about monthly accommodation rent payments?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
51. In the last four months, how often you felt anxious regarding monthly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Not at All	Slightly	Moderately	Substantially	Extremely
personal consumption needs?					
52. In the last four months, how often you felt anxious about your academic cost?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
53. In the last four months, how often you felt worried due to acquired loans?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
54. In the last four months, how often you felt anxious about the ongoing economic condition of the country?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
55. In the last four months, how often you missed your online-classes?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
56. In the last four months, how often you asked questions during your online-classes?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
57. In the last four months, how often you completed your online-assignments within the due date?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
58. In the last four months, how often you participated in online-academic group discussions?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
59. In the last four months, other than the online-lectures, how often you interacted with your teachers using virtual communication means? (such as WhatsApp, email, phone, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
60. In the last four months, how often you participated in online-student councils/student government activities?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
61. In the last four months, how often you participated in online art and culture activities?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
62. In the last four months, how often you participated in online-workshops and webinars?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Poor	Below Average	Average	Good	Excellent
63. Based on your last four months, rate your family in providing you emotional support.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
64. Based on your last four months, rate your family in providing you useful information and advice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
65. Based on your last four months, rate your family in assisting you in your personal tasks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
66. Based on your last four months, rate your campus friends in providing you emotional support.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Not at All	Slightly	Moderately	Substantially	Extremely
67. Based on your last four months, rate your campus friends in providing you useful information and advice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
68. Based on your last four months, rate your campus friends in assisting you in your personal tasks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
69. Based on your last four months, rate your campus staff (such as teachers and administrative actors) in providing you emotional support.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
70. Based on your last four months, rate your campus staff in providing you useful information and advice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
71. Based on your last four months, rate the quality of your university's online curriculum.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
72. Based on your last four months, rate the quality of your university's online co-curriculum.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

73. Based on your last four months experiences, you will recommend your university to your acquaintances.

- Definitely Not
 Probably Not
 Maybe
 Probably
 Definitely

74. Do have your own computer/laptop?

	Poor	Below Average	Average	Good	Excellent
75. Based on your last four months, rate the net speed available to you.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
76. Based on your last four months, rate the stability of the net available to you.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
77. Rate your computer literacy level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thanks for your precious time and responses.