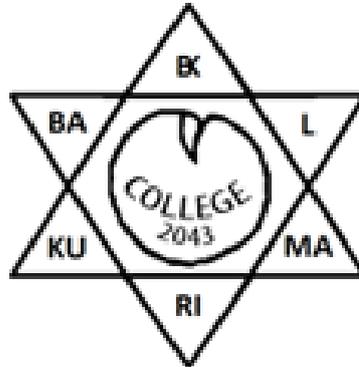# The Cause and Effect of Uses of Smartphone on Students at Balkumari College

A Mini Research

Submitted To:

Research Management Cell (RMC)

Balkumari College

Narayangarh, Chitwan

Submitted By

Mrs. Radhika Khanal (Sigdel)

Asst. Lecturer, Finance Department

Balkumari College

July 2020

DECLARATION

I hereby declare that this mini research work reported in the entitled "The Cause and Effect of Uses of Smartphone on Student at Balkumari College" submitted to the Office of the Research Management Cell, Balkumari College, Narayangarh, Chitwan is my original work completed in the prescribed format under the supervision and guidance of " Dr. Guna Raj Chhetri, Head, RMC."

……..……………………..…………

Mrs. Radhika Khanal (Sigdel)

Asst. lecturer, Finance department

Date: 2077/03/28

RECOMMENDATION SHEET

This is to certify that this Mini Research

Submitted by

Mrs. Radhika Khanal (Sigdel)

Asst. Lecturer, Finance department

Entitled

The Cause and Effect of Uses of Smartphone on Student at Balkumari College

Has been recommended and forwarded for the approval.

………..…………………

Dr. Guna Raj Chhetri

Mini Research Advisor

Head, RMC

Date: 2077/03 /28

ACCEPTANCE SHEET

We have conducted the Presentation work of the Mini Research

Presented by

Mrs. Radhika Khanal (Sigdel)

Entitled

The Cause and Effect of Uses of Smartphone on Student at Balkumari College

And found the mini research to be the original work of the research and written according to the prescribed format. We accept this mini research.

Evaluation Team

1) Jagadishwar Khanal (Principal)   **: ………………...**

2) Dr. Guna Raj Chhetri

(Head of RMC, Mini Research Advisor and Vice-Principal)   **: …....……………**

3) Bala Nath Sigdel (Vice-Principal)   **: ………………...**

4) Dr. Shyam Sedai (Head of IQAC)   **: ………………...**

Date:2077 /03/28 (12, July 2020)

ACKNOWLEDGEMENTS

Mrs. Radhika Khanal (Sigdel)

Post: Asst. Lecturer, Finance department

Date: 2077/03/28

Abstract

The research entitled **"The Cause and Effect of Uses of Smartphone on students at Balkumari College"** is a mini research proposed in an attempt to find out the extent of cause and impact of the use of smartphone. A smartphone is a mobile phone with highly advanced features. A typical smartphone has a high-resolution touch screen display, Wi-Fi connectivity, Web browsing capabilities, and the ability to accept sophisticated applications. These days we have Smartphones, Smart cars, Smartboards, Smart everything, but consider this: if technology is getting smarter, does that mean humans are getting dumber? Today more than 10 million people are using smartphones aged 10 to 65 in Nepal; this research covers the domain of uses of smartphone, cause and effect of smartphone and their relations with smartphone on Balkumari College student. The study tried answer of research problems: Why do academic student use smartphone? What impact does a smartphone give to an academic student? How does effect and cause depends on the use of smartphone?

The respondents were 165 semester students of bachelor and master level as sample from the Balkumari College of Chitwan district by random sampling method. The data were collected by using social media and Zoom meeting. Data were coded and analyzed by SPSS-20 software. Descriptive and inferential statistics were used to analyze data. The Spearman's test was done for correlation and $p < 0.05$ was consider statistically significant.

Based on analysis and interpretation of the data, the major findings of the study have been presented as: The mean of the participant's age was 20.03 years. Of them, 76(46.06%) were male and 89 (53.94%) were female. 43% students were busy for calling 15 to 30 minutes, 33% were using social media more than 5 hours, 10.62 % students were playing game more than 5 hours and 58% used smartphones to make photo/ video less than half an hour per day. 42.5% students used for academic search, 6.28% students of fourth year were taking presentation more than 5 hours, 14.5% students of above 25 years were busy in academic discussion and 40% students were busy in web surfing for less than half an hour per day. Most of time, 46.3% of students were suffering from eye sight problems, 50.24% of students were suffering from stress, 59% of students were suffering from neck and shoulders pain, 57.1% and 42.9% experienced seldom category of depression and anxiety due to uses of smartphone. Positive correlation of uses of smartphone with all variables except making note were

to be found and there was significant differences of mean for all variables at 5% level of significant.

The nature of smartphone is a useful servant but a dangerous master. The negative and positive effects of uses of smartphone are similar to Two-edge sword. Regardless of the benefits that students can connect virtually to improve academic and soft skill by uses of smartphone, distraction in physical relation, eyesight problems, painful body, increased anxiety and depression, was offered by the use of smartphone which could have serious consequences on the academic life of students as well as of old age.

Excessive use of smartphone produces Radio Frequency, which would have negative effect in human body. However, it is not possible to get rid of it completely in 21st century. In the enlightment of the findings, the following suggestions are made: Manufacturing companies should launch smartphones having low radio frequency, Central/local government should prioritize physical connections and activities rather than virtual connection among the youths through different programs and Health professionals should enlighten the effect on physical and mental body about uses of smartphone.

Keywords: Smartphone, Social media, Academic, Neck and Shoulders, Depression and Anxiety.

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Chapter-1

1.1 Introduction

The present study has been prepared to study the cause and effect of uses of smartphone on student of Balkumari College. It intends to show the cause and effect uses of smartphone by the Balkumari College students. This study consists of following topics: background of the study, statement of the problem, objectives of the study, hypothesis, and limitation of study, rational of the study and research structure.

1.2 Background of the study

Balkumari College is one of the leading college of Nepal, established on 18 September 1986 AD i.e. 2nd Ashwin 2043 (Policy and Acts of Balkumari College, 2010) in active participation of education lovers of Chitwan, imparting education at the University level in Nepal. It is affiliated to Tribhuwan University and has been awarded with Quality Assurance & Accreditation (QAA) certification by Quality Assurance & Accreditation Committee of University Grants Commission Nepal (UGC, 2011). It has also already entered second cycle QAA further certified IQ Net by ISO 9001:2015 for quality management system. It is also associated with 21 other national and international Universities. It contains six academic program with more than 145 human recourses and more than 3500 students.

There is a great revolution in the field of IT so as in mobile phones. First, there were simple and big mobile phones, which a human use only for text sending and receiving. Simple phone calls but with the passage of time this technology has developed and now there are really tiny mobile phones which contain our private and important data such as presentations, photos, e-mails etc. and these such small mobile phones called Smartphones. These smartphones have features like computers and laptops where we can check our mails, save our documents and can use for the entertainment purposes. There are many operating systems, which are being used by companies to introduce their smartphones, but most important system is Symbian, which is popular these days, and every other smartphone has this software. This is an open-source operating system and easy to understand comparing to other software's. Android System introduced by Google is also getting popular day by day because it also contains a lot of information which can help to make better improvements in smartphones.

Smartphones are a multi-purpose mobile computing device distinguished from featured mobile phones by their stronger hardware capabilities and extensive operating systems, which services wider software, internet, and multimedia functionality (including music, video, cameras, and gaming), alongside core phone operations. Smartphones typically contain a number of metals–oxide semiconductor (MOS) integrated circuit (IC) chips, include various sensors that can be utilized by their software (such as a magnetometer, proximity sensors, barometer, gyroscope, or accelerometer), and support wireless communications protocols (such as Bluetooth, WI-Fi, or satellite navigation. (Dictionary, 2020)

The use of smartphone as a scanner takes the least score. For teaching purposes, 90.76% of respondents have been using smartphones for supervising project students through social media applications. However, only half of the respondents are willing to solve students' problems through call or messaging applications. The least score was using smartphones for displaying students' grades. (Srinahyanti, Wau, Manurung, & Arjani, 2019). The adoption of Smartphone's has been tremendous in mainstream consumer markets all over the world. Surveys show that around 42% of mobile subscribers in US use Smartphone's, along with 44% of mobile users in 5 major countries of European Union (France, Germany, Italy, Spain, and UK) and same ratio in south Asian Countries. Media usage on mobile– including browsing the mobile web, accessing application and downloading content saw a major increase and surpassed 50 % in many markets; this introduced the high-speed networks and increased public Wi-Fi availability in those areas (Sarwar & Soomro, Impact of Smartphone's on Society, 2013).

Therefore, Rebecca McNutt quoted "These days we have Smartphones, Smart cars, Smartboards, Smart everything, but consider this: if technology is getting smarter, does that mean humans are getting dumber?" (Leonid, 2017)

Federal Communications Commission introduced cell phone in 1983 and its revised version is a smartphone in 1992 by IBM with an integrated computer and other features not originally associated with telephones such as an operating system, web browsing, and the ability to run software applications. It can be used by individual in both consumer and business context, and are now almost integral to everyday modern life and the users increased tremendously (Srinahyanti, Wau, Manurung, & Arjani, 2019). The world before smartphones was cold and unforgiving. People waited in lines for minutes on end without entertainment. Smartphones have irrevocably changed our

lives. Mobile internet access allows employees to work from anywhere, while countless apps help people file their taxes, track their spending, or simply stay in touch with old friends (Leonid, 2017).

1.2.1   Status of Internet Users

According to a recent report Statista, there were 4.13 billion internet users around the world. Considering that the number of humans living on Earth is presently estimated at some 8.5 billion, this means that over 41 % of the world population is inter connected with internet. There are, however, stark differences in user distribution according to region, where East Asia is home to 923 million internet users, while African and the Middle Eastern regions have lower user figures. China ranks first in a top of countries with most internet users.
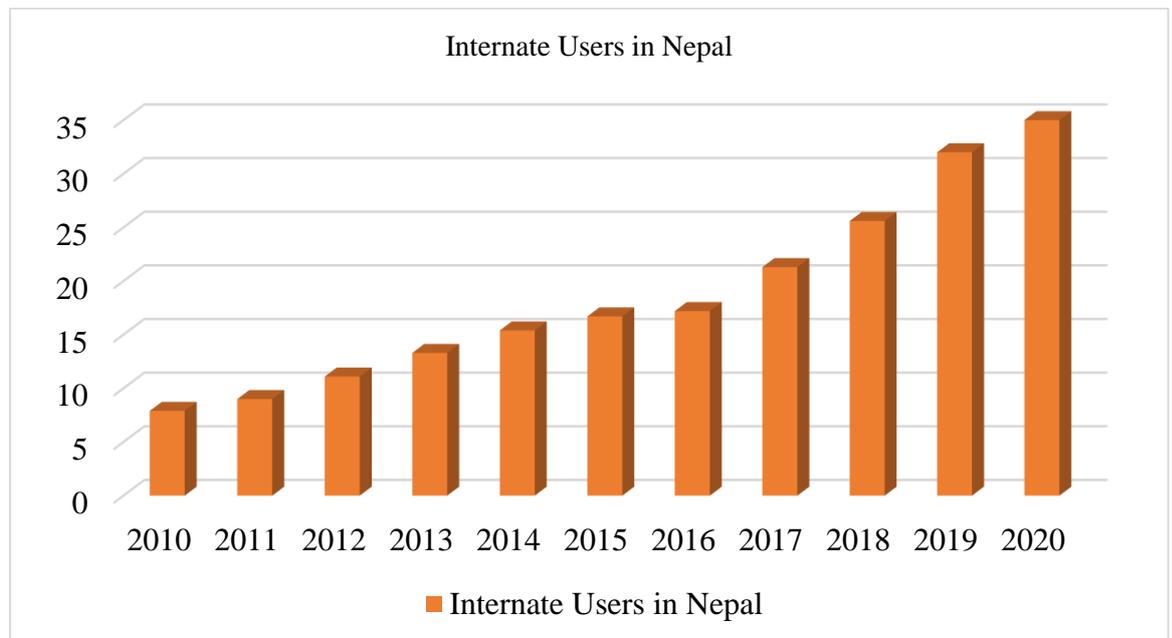
Figure No. 1. 1Regarding Internet Users in Nepal

[Source: Report of Nepal Telecommunication Authority]

Due to its ongoing and fast-paced economic development, but also to a cultural inclination towards technology, more than 854 million of the estimated 1.38 billion population in China are online. Some of the other notable emerging markets are India, with a projected number of internet users of 636 million by 2021, or Indonesia, which is expected to have 144.2 million of its citizens surfing the World Wide Web around the same year as of June 2019. The figure 1 reflected the internet users in Nepal from a decade. Before a decade, the total internet users in 2010 was 2 million (7.9% of population). The graph showed that internet users are increasing with uniform rate. In

January 2020, according to Datareportal, the total population on Nepal is 28.87 million, the total smartphone connection is 42.85 million (148% of population), total internet user is 10.21 million (35% of population) where the number of internet users increased by 0.32 million (3.2%) from 2019 to 2020 (Blog, 2020).

1.2.2 Status of smartphone users

The figure no. 2 reflected that China is leading the smartphone statistics chart probably will not surprise us. Countries like Bangladesh, where poverty is widespread, are at the other end of the scale. There are nearly 9 million smartphone owners there, which is very low, considering the 166 million population of the country. Smartphone stats also indicate that only 4% of the adult population in Ethiopia and Uganda own smartphones.
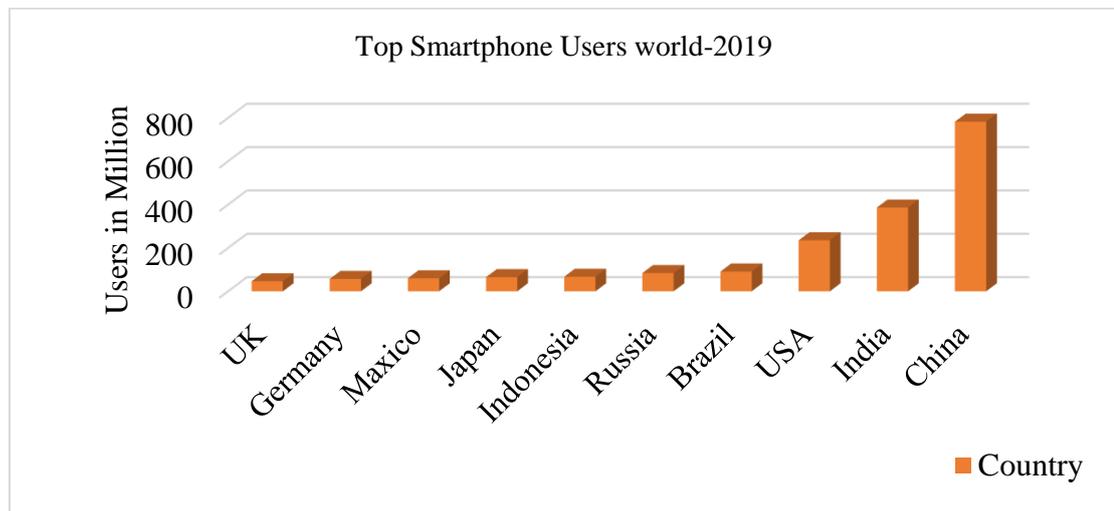
Figure No. 1. 2: Represented top smartphone users in world-2019

[Source: https://review42.com/smartphone-statistics/]

The online media blog Review42 state that 82.2% of the people in the United Arabian Emirates have a smartphone, which is the highest smartphone penetration in the world. On the other hand, Bangladesh has the lowest user to population ratio only 5.40%, 75% of adults in India do not have a smartphone, though 40% own a mobile device and 25% of people in Canada do not have a mobile phone of any kind. In the context of Nepal, only 10 million (36% of population) use social media.

According to Facebook report from May 2019 May to May 2020, among the people use social media in Nepal, total numbers of Facebook users is 10 million (35%) of population, among them 59.6 % are male. Graph 2 showed that 96.1% use Facebook followed by YouTube (1.3%), twitter (1%) and others (1.6%). Among the Facebook

users, 88.7% accessed only through a smartphone, 1% used laptops for or computers logging in, while 10.2% used Facebook via both phone and computers. Social media user is 10 million (35% of population). There is an increment of 0.88 million users (9.6%) in social media from last year. 99 % of social media users accessed through smartphones. The number of smartphone connection is increased by 3 million (7.6%) from last year (Silver, 2019).

Social Media Audiance Report-2019
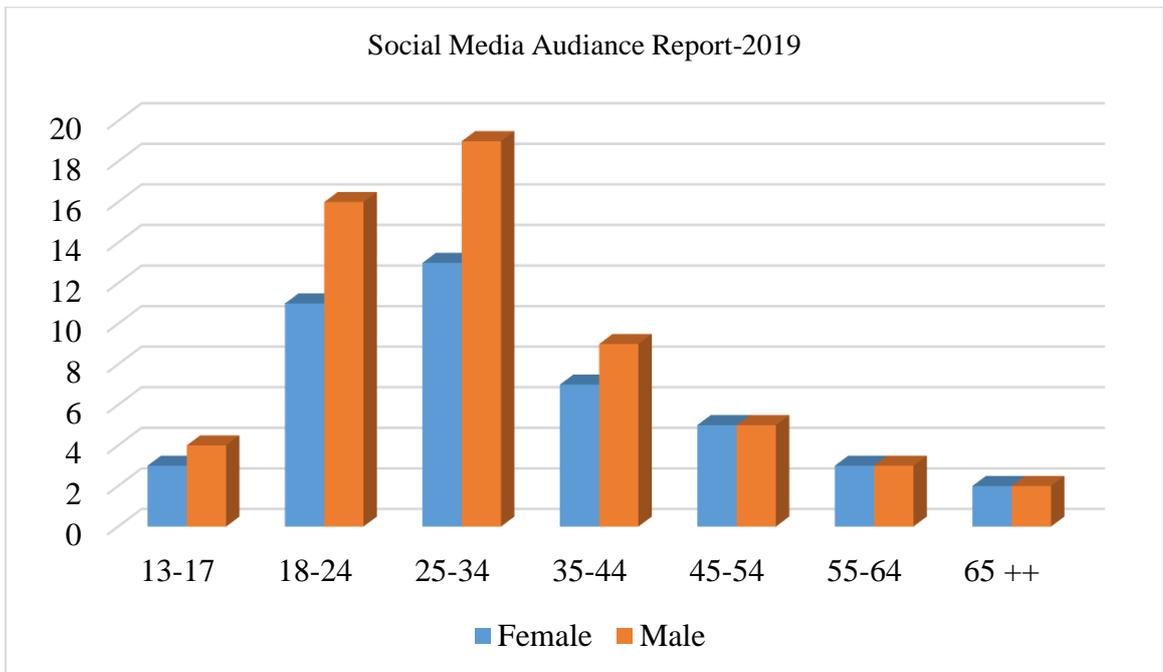
Figure No. 1. 3: Regarding Social Media Audience in Nepal

[Sources: https://napoleoncat.com/stats/facebook-users-in-nepal/2020/03]

Figure no 1.3 reflected that, There were 1,0856,000 social media users in Nepal in 2019, which accounted for 35.8% of its entire population. The majority of them were men 59.3%. People aged 25 to 34 were the largest user group (3,500,000). The highest difference between men and women occurs within people aged 25 to 34 where men lead by 900000.

1.2.3   Cause and effect of Smartphone

As we find the smartphone penetration growing significantly over the years, there are many advantages in the telecommunication market with it. At first, it will help the operator to migrate their customers to new technology like 4G or 5G. The newer technologies being more efficient will help the operator to be effective in handling their network (IDRC, 2019).

Many would argue that mobile phones are affecting students in a negative way.

However, is that true. Indeed the prevalence of mobile phones has started the debate on the negative aspects of this technology on students. However, the advantages of using mobile phones are too many to deny. Students are introduced to a wide range of apps and features that can transform the way they study. Various features available on mobile phones can help them in enhancing their skills and boosting their grades. Indeed, some caution is needed when students use mobile phones. When used they mobiles phones in right way. It can have many major positive effects on students, including the following.

Instant Communication: When you think about how cell phones have changed our lives positively; the immediate answer would be improved communications across the globe. Students nowadays can easily interact and connect with their family, friends and teachers instantly. Students have a wide range of options to call and text. Aside from traditional calling and texting from phones, different apps now offer instant calling and texting, including Facebook, Instagram, Snapchat and more. These platforms even have the option of video call and audio messages, which has definitely enhanced the communication process, thereby aiding students' academic and social life. The use of emoji are has also reduced the element of misunderstanding in messages and texting options. Even if a student cannot reach someone on call, they can still send him or her a video or audio message.

Entertainment: There is clearly a major impact of smartphones on our lives, especially when it comes to entertainment. Phones have become a means of unlimited entertainment for students, which helps them reenergize. After a day full of lessons and assignments, they can easily reduce their levels of stress by entertaining themselves through their phones. From latest movies, TV shows, to interactive games, as well as music, they have everything on their fingertips. Many entertainment sources can be both educational and fun. Many games help in enhancing various skills of the students that they can implement in their daily lives as well.

Academic Help: Among the many positive effects of smartphones on children, getting quick help in their academics is one of the most crucial ones. Students nowadays can easily look up any information they need for any subject on their mobile phones. Smartphones are equipped with the latest operating systems that often include educational apps. Moreover, a quick Google search is all they need to get the right information to help with their studies. While many of the sources include inaccurate information, students nowadays are well aware of this fact and make sure to look up

various different sources to check the accuracy of the information they have gathered. In case of any confusion while doing their homework assignment, they can clarify it that very instant. This increases their knowledge about their subject matter and helps them get better grades.

Increased Convenience: It is incredible how smartphones have changed society, especially in terms of convenience. There is no doubt about the increased convenience that students enjoy due to the usage of smartphones. Today, students can contact their friends, their parents, their teachers, order food, look for part time jobs, book cabs and do so much with just a few clicks. This saves them time. Which they can invest in their studies instead. Instead of spending time browsing through the many books in a library and find the right information they need, students can access a ton of academic sources right from their room with the help of their mobile phones.

Boosting Memory: Mobile phones can also work as a memory booster for students. During lessons, it is typically not possible to take notes of each thing. Therefore, students can use their phones to their advantage. They can capture the images of figures or diagrams shown by their teachers, voice record the explanation of a complex problem, record a science experiment for future reference, and take quick notes in case they don't have a notebook. This is one of the most effective positive effects of mobile phones as students can always refresh their memory before a class test, exam or an assignment through the things they captured in their phones.

Navigation Assistance: The positive influence of mobile phone in our life cannot be denied. This technology comes with navigation systems, which ensure that not just the students, but adults, too reach their destinations easily and safely without any chances of getting lost. Instead of getting lost, getting misguided directions from others, students can easily access the navigation on their phones. This helps them in finding the accurate direction, and the best possible route to take to reach their destination. This has improved transportation issues for students, enabling them to reach their schools on time. The navigation assistance tool also helps them locate the right libraries, cafes, bookstores, stationary store and whatnot to aid with their education.

Adapting to Modern Society: The many benefits of technology can be determined by how cell phones have changed our lives. The ever-changing technology has transformed all aspects of society. We have entered a modern society, which is incorporating latest technologies to aid everyone. By using mobile phones, students are

learning to adapt to this modern society. They are learning the best and fastest ways of finding solutions to their problems. It helps them use their creativity skills to come up with innovative ideas. Since mobile phones are being used in all professions, their regular usage is assisting students to familiarize themselves to modern technology, which would help them in their careers later on.

Aid in Group Projects: The many positive effects of smartphones on education include making it easy for students to communicate with their classmates and friends, especially in group projects. This means even if someone is unable to attend the group discussion in person, they can still become a part of it virtually. Applications like WhatsApp and more have video calling features through which students can connect with each other. Aside from this, viewing and sending documents and presentations to one another is easy with mobile phones. It also allows them to work on a document together online. Even staying home, students can still easily work on group projects.

Smartphone usage statistics suggest that an average person spends 2 hours and 51 minutes per day on their mobile device. What's more, 22% of us check our phones every few minutes, and 51% of users look at it a few times per hour. It suffices to say that we are getting dangerously close to becoming addicted. Smartphones and mobile devices dictate our lives. It is scary to think that the evolution of human beings in the last century has been mainly influenced by technology. After we researched this topic thoroughly we came up with some important smartphone trends that we want to share with you. Recent health studies have revealed an alarming number of obese people in the world. The risk of obesity has increased by 43%, and much is to blame on the modern and unhealthy lifestyle many people are leading. Further smartphone usage stats say that 86% of people constantly check their phones while talking to friends, which can be annoying if you are the other person in the conversation (Leonid, 2017).

All the research and studies we examined found that when people often used smartphones they showed reduced activity in the interior cingulate cortex resulting in reduced volume of grey matter in certain important areas. Further, around 10-30 per cent of children are using smartphones or other devices in a way that it causes them immense discomfort when they do not have a phone around them. Again, majority of Americans (92%) believe that smartphone addiction is real. Although 60% of Americans think, they touch their phone 100 times or less per day, the reality is that a typical user taps, touches, or swipes their phone a staggering 2,617 times per day (Blog, 2020).

In the shared bed at least once a week, 74% of the respondents used a smartphone and perceived to cause negative effects to sleep. However, only 18% reported using a shared smartphone together in bed. Of the respondents, 44% had been woken up by the noise and 41% by the light from a mobile phone in the bedroom. 99% of people still use their phone as an alarm clock, affecting negatively their quality of sleep. 67% of American s say that they somewhat or strongly agree that periodically unplugging or taking a digital detox is important for their mental health. Test subjects who received their notifications in batches three times a day reported they felt significantly happier, more focused, and less stressed than those who received notifications as usual, or not at all. Of the 75,000 married couples surveyed, 79 percent admitted technology distracts them from connecting with each other. On top of that, just 22 percent reported being satisfied with how much intentional couple time they spend together, 89% of participants said that insensitive use of smartphone had negatively affected their personal relationship (Demirci, Akgonul, & Akpinar, 2015).

Americans are viewing their smartphones more often than ever before, on average 52 times per day. That is up from 47 times a day, last year. 84% of adults cannot go an entire day without their phones in their hands, Conversation killer!, 85% of smartphone users will check their device while speaking with friends and family, 1In 3 People checks their smartphones in the middle of the night. 80% of smartphone users check their phone within 1 hour of waking or going to sleep, 35% of which will do within 5 minutes, 47% of smartphone users have attempted to limit their usage in the past only 30% of which feel they were successful. 79% of adult smartphone users have their phones with them for 22 hours a day, The average time spend on smartphones is 261 minutes a day. Nearly 3 out of 4 workers (70 %) admit they feel distracted when they are on the job. The problem is biggest for 6 to 35 age, with 74% reporting feeling distracted (Hyo-Jeong & Jin-Seop, 2015).

Countries like China or South Korea have recognized internet addiction as new disease (Internet Addiction Disorder (IAD)) and fund internet and gaming addiction treatment centers. "Our key advice? Start with the bedroom. Do not use your smartphone as alarm clock" (News B. B., 2019).

1.3   Objectives of the study

With analyzing the various ways: It is very hard to study as mini research The

Cause and Effect of Uses of Smartphone on Students at Balkumari College. As such, the present study will purposed three aims:

- To evaluate the relationship of smartphone with cause and effect.
- To study domain of uses of smartphone on students at Balkumari College.
- To assess the impacts of uses of smartphone on students at Balkumari College.

1.4   Problem of Statement

Recently the use of smartphone is widely spread in our society. Today more than 10 million people are using smartphones in aged 10 to 75 in Nepal for instant communication, academic help, increasing convenience, boosting memory, navigation assistance, adapting to modern society, aid in-group projects, handle e-commerce and many more. In which high frequency waves are used and this number is ever increasing. Mainly three frequencies 3G, 4G and 5G of electromagnetic waves are used for smartphone communication. These frequencies are known as radiofrequency (RF). Due to RF, smartphone users suffering from mental and physical health looks like; anxiety, depression, sleep steady, eye sighting, neck and shoulders pain and many more. Moreover, there exits significant relationship between smartphone uses with causes and effects. Therefore, the study "The Cause and Effect of Uses of Smartphone on Students at Balkumari College" have following research problems:

- How does effect and cause depends on the use of smartphone?
- Why do academic students use smartphone?
- What impact does a smartphone give to an academic student?

1.5   Hypothesis

The hypothesis of the study The Cause and Effect of Uses of Smartphone on Students at Balkumari College has been proposed as:

- There is no correlation between use of smartphone with cause and effects.
- There is no significant difference between effects and uses of smartphone.
- There is no significant different between cause and use of smartphone

1.6   Limitation of Study

The proposed study had the following imitations:

1. This research study was limited to only Balkumari College in Chitwan district.

2. This research was conducted for 165 out of 822 students of semester system taken as sample.

3. This research only used questionnaire as a research tool.

4. This research missed some important variables alarm, memo, texting.

5. This study was limited to only those students who are using smartphone.

6. This study was interpreted on the exact data from the respondents but not cross-checked on irrelevant responses.

1.7   Rationale of the Study:

This research explored the status of Cause and Effect of Uses of Smartphone on students at Balkumari College.   Several researchers explored that the uses of smartphone are in increasing order in developed country followed to developing country and Nepal does not except. Because of incensement of positive and negative effect, uses of smartphone has been only grow exponentially. It is important for the field of psychology to investigate the positive and negative impact of smartphone on physical, social and emotional development. On a practical level, the present study was important because the findings might indicate that it is important for parents, teachers and Colleges to take proactive measures in monitoring.

1.8   Research Structure

Research structure is an outline of the work and we are expected to provide the research structure towards the end of introduction chapter in our dissertation. The following is a sample of a research structure:

Chapter 1: It is introduction of the study. It contains introduction, background, objective, problems of statement, hypothesis, limitation, and research structure.

Chapter 2: It is the literature review of the study. It contains introduction, past to present of the smartphone network, theory on why the academic students use smartphones along with their positive and negative impacts on University Students, how these causes and effects depend on uses of smartphone and research gap of the study.

Chapter 3: It is research methodology of the study. It contains introduction, research design, population, sample and sampling design, nature and sources of data, methods of analysis, definition of variables and research framework.

Chapter 4: It is the result and discussion of the study. It contains introduction, demographic description, findings of the variables on why students use smartphones and what impact does it have on them along with the discussion of our finding.

Chapter 5: It is the summary and conclusion of the study. It contains introduction, summary, conclusion along with the implications and suggestions to this research.

Chapter-2
Literature Review

2.1 Introduction

Mobile technologies have brought about a paradigm shift for learning because learners can perform authentic activities in the context of their learning anytime and anywhere whenever they have access to information. Many previous studies have focused on identifying the factors that influence smartphone adoption or smartphone use behavior. Some studies on user behavior examined the roles of smartphones as learning devices as well as social interaction tools. Although the role of smartphones as learning devices is not negligible, few studies have paid attention to the association between smartphones and learning. This section explores the relationship between factors associated with learning utilizing smartphones that have been discussed in previous studies. The review helps in finding the gaps in literature available and eventually facilitates formation of a precise research problem. At last, the chapter visualized the research gaps in the existing explored from various studies literature. The analysis of literature is discussed below.

2.2 Past to present of Smartphone and Network:

Federal Communications Commission introduced cell phone in 1983 and its revised version is a smartphone in 1992 by IBM with an integrated computer and other features not originally associated with telephones such as an operating system, web browsing, and the ability to run software applications. It can be used by individual in both consumer and business context, and are now almost integral to everyday modern life and the users increased tremendously (Srinahyanti, Wau, Manurung, & Arjani, 2019). The world before smartphones was cold and unforgiving. People waited in lines for minutes on end without entertainment. Smartphones have irrevocably changed our lives. Mobile internet access allows employees to work from anywhere, while countless apps help people file their taxes, track their spending, or simply stay in touch with old friends (Leonid, 2017).

Regarding Telecommunication Nepal, the first telephone line was introduced in Kathmandu with an open-wire trunk between Kathmandu and Raxusl in 1914. The "Mercantile Communication" started providing internet service along with the service of email in 2051 BS (1994). Similarly, the "World link" also started providing internet

service in Kathmandu valley. The competition of these two companies, helped internet to grow. Similarly Nepal Telecom Started Providing Internet from 2058 BS causing thousands of Nepalese to connect internet through home. Today Nepal Telecom has become largest internet service provider (ISP) in Nepal followed by several other companies (NTA, 2020) . International Telecommunications Union (ITU) projected that within 12 years with the advance in the technology, the discovery of mobile phones internet users has increased in a drastic manner from 16% to 48% worldwide, and the rate is increasing day by day. ITU also added that, Nepal ranks on 73 based on the number of internet users. However, based on the percentage of internet users it ranks 174. Which means majority of percentage of Nepalese in 2019 are unable to use internet. Lately as per the report of Nepal Telecommunication Authority 11.33 % of population has access to fixed and the remaining 89 % subscribers use mobile internet. The trend of voice and data services has increased to 62% as of 2019 (Gautam, 2019) .

According to the survey conducted by International Development Research Centre (IDRC) 72 % of Nepalese have a mobile phone, while the desktop and laptop users are 5 % only, 80% of men and 65 % of women are using mobile, 52 % have a smartphone and 40 % uses a basic phone, 47% of the smartphone users are from the villages and rural areas. About them, 65 % are on the Internet. 60 % of Nepali has access in the social network, among them, 58 % of them read and watch news through social networks (IDRC, 2019). The Nepal Telecommunications Authority says there are more than 38.3 million mobile phone users as of 2019. Meanwhile, the total number of users of all kinds of telephone services is 39.2 million and Nepal's estimated population is 28.5 million. We says the number of mobile phone users in the country is 34 % higher than the total population of the country.

3G, 4G and 5D are all networks that connect your phone to the internet, obviously, there are some in-depth technology differences, but from a user's perspective, it is straight forward 5G is faster than other is. A survey shows that in 3G takes 5 sec, 7 sec, 21 and 38 sec to download 5 MB music file , Large photo of size 10 MB, video files of size 30 MB , apps of size 50 MB respectively. However, in 4G, network, same size downloaded in 1, 7, 21 and 38 sec respectively and 5G is 100 times faster than 4G (Kumaravel, 2018). In 2007, 3G can been introduced by NTA then after decay 4G, 5G has not been launched yet. Countries and operators are engaged in 'the race for cyberspace' seeking to roll out advanced high-speed networks and make the

upgrade from 4G to 5G. Operators compare and compete on the proportion of their subscriber base now on 3G, 4G and soon, 5G connections. Five G technologies would be expected to support applications such as smart homes and buildings, smart cities, 3D video, work and play in the cloud, remote medical services, virtual and augmented reality, and massive machine-to-machine communications for industry automation. 3G and 4G networks currently face challenges in supporting these services; 5G is expected to connect people, things, data, applications, transport systems and cities in smart networked communication environments. It should transport a huge amount of data much faster, reliably connect an extremely large number of devices and process very high volumes of data with minimal delay. (Kumaravel, 2018).

Therefore, Rebecca McNutt quoted "These days we have Smartphones, Smart cars, Smartboards, Smart everything, but consider this: if technology is getting smarter, does that mean humans are getting dumber?" (Leonid, 2017)

2.3   Why do academic students use smartphone?

The primary function of mobile phones is communication. Communication refers to interactions with others. Students prefer their communicative interactions to take the form of long chatting or fast interaction speeds, including quick feedback. For such interactions, students need to acquire knowledge and skills related to technologies such as smartphones. This knowledge and skillset can be referred to as interaction competency. N. Park and Lee (2012) examined the relationship between motives for smartphone use, social relationships, and psychological well-being. Students use smartphones mainly for communication; they talk with others to relieve boredom and enjoy the conversation, or simply say hello to others. The findings illuminate that smartphone use is positively related to bonding relationships, thereby supporting the psychological well-being of college students. Indeed, college students perceived social support and psychological well-being because of developing and maintaining social relationships through mobile interaction.

A survey was conducted on US healthcare students, administrators, providers and nurses by a software company. The reports showed that almost 83% use smartphone's to access, 72% use smartphone's to write notes and memos, 50% use it for drug references, 28% use smartphone to access clinical decision support tool and 13% to view medical images. Healthcare is no doubt complex and often requires area

of expertise and knowledge and locating its resources to assist with complex medical issues is somehow challenging. Smartphone apps are very useful as these apps assist healthcare workers to access specific information in areas of radiology, neurology, neonatology, pediatrics, and continuing education activities easily (Wyatt & Krauskopf, 2012)

Yi et al (2016) explored that student who have experience with smartphones tend to use smartphones for learning purposes or use them for that purpose once they feel it is useful and easy to apply for their learning activities. According to previous studies, That is, it is likely that college students have the intention to use or actually use smartphones for their academic tasks when they have a positive perception or expectation that smartphones help improve the efficiency or effectiveness of their learning or academic activities, and ultimately their academic performance (Yi, Soeun, & Beom, 2016). Positive perception of smartphones as learning tools tends to increase when there is a high association between smartphone technologies, college students' experiences of or abilities to use smartphones, and their academic tasks.

Hossain and Ahmed (2016) reviewed several peer review articles and founded that the most frequently used app categories were social and communication, search engines, tools and productivity, games or music, sports or other entertainment, and reference or libraries, respectively. The apps that had little use or no ownership included "hobbies", "casual reading", "finance and banking", and "shopping". Although the use of search engines was very low (only 10.4%) among the most frequently used apps, the students used them most frequently to find academic information. A significant number (75.0%) of students reported using apps to find academic information. Majority of students used their smartphones as a regular mobile phone, as a computer with an Internet connection, and as a digital camera to make photo and video. The trends in smartphone usage for learning, questions relating to learning activities, such as logging in to academic portals, using blackboard, downloading class materials, and taking and recording lecture notes. They found that 91.7 % of students used smartphones to login to their academic portal, 60.9 %, 66% and 69% of students never used their smartphones to use for blackboard, taking notes in a classroom and to record class lectures respectively (Hossain & Zabed, 2016).

Further, they studied Academic Use of Smartphones by University Students: a developing country perspective 316 students from various academic levels and programs participated in a questionnaire-based survey. The survey found the largest

number of respondents (207, 65.5%) indicated that they used them for accessing academic information, followed by those that used them for reading news (200, 63.3%), accessing social media sites (190, 60.1%), obtaining sports news (129, 40.8%), for entertainment (120, 37.9%) and listening to music (119, 37.6%). A few participants (11, 3.5%) noted that they used their smartphones for other purposes (Hossain & Zabed, 2016).

According to Siew et al (2017). descriptive statistics reported that the most frequent use of smartphones, based upon mean scores, was for communicating with others by texting (M = 593.32, SD = 744.324), followed by accessing reference materials (M = 537.17, SD = 501.434), and reading news (M = 485.16, SD = 667.881). The smartphone uses rated as being used least often were viewing course video (M = 221.11, SD = 400.067), record class lecture (M = 218.98, SD = 415.841) and record class presentations (M = 186.69, SD = 363.309) (Siew, Hassan, Mohammad, & Abdul, 2017).

From the online source stat counter Global Stats showed that there were 93.74% uses Facebook, 2.12% uses YouTube, 1.71% uses Twitter, 1.28 % uses Instagram, 1.02% uses Pinterest and 0.07% uses LinkedIn in April 2020 by smartphone. Facebook users in Nepal in April 2020, which accounted for 35.8% of its entire population. The majority of them were men 59.3%. People aged 25 to 34 were the largest user group. The highest difference between men and women occurs within people aged 25 to 34 where men lead by 8.3% (Yii, 2020).

2.4   What impact does a smartphone give to an academic student?

As indicated earlier, using smartphones to access social networking sites has both positive and negative effects on college students. Many researcher argue that social networking can yield both benefits and problems with similar individuals, and it highlights both negative and positive effects on students.

2.4.1   What are positive impact of uses smartphone to University students?

(Cochrane, 2010) Smartphones can also work as a memory booster for students. During lessons, it is typically not possible to take notes of each thing. Therefore, students can use their phones to their advantage. They can capture the images of figures or diagrams shown by their teachers, voice record the explanation of a complex

problem, record a science experiment for future reference, and take quick notes in case they do not have a notebook. Useful apps that help students with their organizational skills include Keep Notes, stopwatch, calendar, encyclopedia, alarms, recorder, Google Maps, Google Drive, Office and more. Students can take notes, send and receive important documents, consult the encyclopedia or dictionary, record lectures, and do so much more to keep on top of their studies. Aside from this, viewing and sending documents and presentations to one another is easy with mobile phones. It also allows them to work on a document together online. Even staying home, students can still easily work on group projects.

Several previous research happed on positive effect of smartphone on students. Theses studied indicate that students nowadays can easily interact and connect with their family, friends and teachers instantly. Social media even have the option of video call and audio messages, which has definitely enhanced the communication process, thereby aiding students' academic and social life (Woodcock & Nortcliffe, 2012)

Today, students can contact their friends, their parents, their teachers, order food, look for part time jobs, book cabs and do so much with just a few clicks. This saves them time. Which they can invest in their studies instead. Instead of spending time browsing through the many books in a library and find the right information they need, students can access a ton of academic sources right from their room with the help of their mobile phones. It makes way to a digital learning experience in classrooms, as students can have the lectures, class discussions, and assignment briefs directly on their phones. They can easily access any article, video, or other information as needed (Sarwar & Soomro, Impact of Smartphone's on Society., 2013).

Hossain & Zabed (2016) studied Academic Use of Smartphones by University Students: a developing country perspective 316 students from various academic levels and programs participated in a questionnaire-based survey. The survey used 7 Likert scale It found that (mean, SD) of easier to search for information improve study skill, easier to access on study, easier in class discussion, increase knowledge and motivate to complete study are respectively (4.8, 1.67), (4.5, 1.57), (4.5, 1.50), (4.5, 1.59), (4.7, 1.46) and (4.4, 1.62). The mean and SD of overall academic quality was 4.7 and 1.5 respectively. The test results found that there were significant differences in six out seven scores. (Hossain & Zabed, 2016).

After a day full of lessons and assignments, they can easily reduce their short levels of stress by entertaining themselves through their smartphone by latest movies,

TV shows, to interactive games, as well as music, they have everything on their fingertips. There is clearly a major impact of smartphones on student lives, especially when it comes to entertainment. Smartphones are equipped with the latest operating systems that often include educational apps. Moreover, a quick Google search is all they need to get the right information to help with their studies. In case of any confusion while doing their homework assignment, they can clarify it that very instant. This increases their knowledge about their subject matter and helps them get better grades (Vahedi & Saiphoo, 2018).

Singh and Samah (2018) studied impact of smartphone. It helps students to improve their knowledge and social skills by (1) increasing student activity in creating and sharing information, (2) Access to various learning resources and provide opportunity for distance learning, (3) asking for academic assistance and support, (4) providing a good way to release student pressure and (5) motivate to complete dissertation (Singh & Samah, 2018).

The open sources also explored the positive effect of uses smartphone on students. It found that positive influence of mobile phone in our life could not be denied. This technology comes with navigation systems, which ensure that not just the students, but adults, too reach their destinations easily and safely without any chances of getting lost. Instead of getting lost, getting misguided directions from others, students can easily access the navigation on their phones. This helps them in finding the accurate direction, and the best possible route to take to reach their destination. This has improved transportation issues for students, enabling them to reach their schools on time. The navigation assistance tool also helps them locate the right libraries, cafes, bookstores, stationary store and whatnot to aid with their education. One of the major effects of smartphones on students is that it enhances their time management skills. It allows students to keep a check on time, be punctual for their lessons, and manage their assignment tasks accordingly. The clock, calendar, and alarm feature on mobile phones enables them to set reminders about important dates like assignments deadlines, class tests, group discussions and more. Using a mobile phone, students can stay on top of their academic activities and improve other aspects of their lives through proper time management.

Hossain (2019) investigated impact of smartphone usage on academic performance. A face-to-face survey was conducted among 274 students, which include 159 male students and 115 female students ranging from second year to fourth year

from different departments of Jahangiragar University. This study found that Smartphone is also helpful for the students for exchanging of useful information with their classmates. Students use this fascinating magic device also in a very better way. Some of the studies proved that this technology has increased the academic performance. In this context, the study tried to find out the positive effects on learning achievements of youth. A majority (60%) agreed that they can easily contact the teachers for study purposes and 10.2% strongly agreed that they contact the teachers for this purpose. In addition, more than 80% of respondents agreed that they could easily contact their classmates for help in studies. However, about 66% agreed that their academic performance has been increased due to mobile technology whereas about a quarter of the respondent disagreed. Moreover, more than 60% agreed that smartphone has helped to increase the level of quality of education whereas 28.1% disagreed. Majority (more than 80%) of the students use it as dictionary/thesaurus/calculator in Classrooms and about 15% disagreed with this statement (Hossain M. , 2019).

2.4.2 What are negative effect of uses smartphone to University students?

The existing research has focused on the health risks associated with smartphone use and the radiofrequency (RF). This question, World health Organization (WHO) takes very seriously. The radiofrequency (RF) fields emitted by mobile phones is generally more than a 1000 time higher than from base stations. The RF effects the patron of electroencephalogram (EEG), increases the risk of brain cancer, leads to brain tissue damage, and damages the Senses, blindness, decrease immune system (Rongen, 2009)

Study conducted on smartphone users revealed that users that overuse smartphone experience higher level of depression, trait anxiety and state anxiety compare to normal smartphone users. Spending hours chatting with friends, texting, browsing social media can result in harmful effects of mobile phones on students, including a drastic increase in their stress levels (Hwang, Yoo, & Cho, 2012).

Study by Kabana and Mgaya (2015) shows that most of the students utilize smartphone for social activities (65%) compared to education activities (20%). Moreover, 65 percent of the students agreed that they utilize smartphone to surf social networking sites (Twitter, WhatsApp, Instagram, Facebook) while doing their academic assignment. 48 percent of them spent around 5 to 7 hours per day on smartphone. This study further identified 85 percent of the students are addicted to their

smartphones (Kibona & Mgaya, 2015).

Ifeanyi & Chukwuere (2018) examined the impact of using smartphone on the academic performance of undergraduate students. This study concluded state that "some time" 71.2% students are disturbing in class room, 61.6% receive the call, 63.2% receive text massage, 69.3% replay text message, 62.4% ring up, 52.3 % taking video in classroom uses of smartphone. 58.4% of students can lost enough sleep, 56.2% cannot summit dissertation due to uses of smartphone. Overall, 72% suggested that the use of smartphones decreases academic performance (Ifeanyi & Chukwuere, 2018).

Singh and Samah (2018) studied impact of smartphone: A Review on Positive and Negative Effects on student. This study founded negative effects such as, motivation on updating the social media rather than learning purpose, lack of real life social interaction, distract learning process, do not pay attention during lecturer, development of smartphone use from habit to an addiction, experience headache and interruption on students concentration and on completing their coursework, smartphone addiction negatively impacts academic performance and life satisfaction (Singh & Samah, 2018).

The scientists found that 2% to 3% of irradiated male rats developed brain tumors, and 2% to 7% of irradiated rats developed heart tumor. It is interesting that female population is less impacted to RF and it composed 1% of developed brain tumor and 2% of heart tumor of the total population of the tested species (Leonid, 2017)

Yanfe, Grace & madeleine (2016) studied "A comparison of muscle activity in using touchscreen smartphone among young people with and without chronic neck–shoulder pain". This recent study shows that 79% of the population between the age 18-28 have their cell phones with them almost all the time, with only 2 hour of their walking day spend without their cell on hand . Text neck most commonly causes neck pain and soreness. In addition, looking down at your smartphone too much can lead to upper back pain ranging from chronic, nagging pain to sharp and severe upper back muscles spasm. Shoulder pain and tightness, possibly resulting in painful shoulder muscle spasm. It also focus on level of neck pain due to neck posture. It found that 0, 15, 30, 45, and 60-degree on' spine curvature pressurized 12, 27, 40, 49, and 60 lb respectively at neck and shoulder (Yanfe, Grace, Jie, & Madeleine, 2016)

Junhyuk and et al. (2015) examine "The effects of heavy smartphone use on the cervical angle, pain threshold of neck muscles and depression". The aim of this study was to evaluate the crane vertebral angle, head position angle, pain threshold of

the sternocleidomastoid and upper trapezius muscles, and presence of depression in heavy smartphone (n=10)users compared to a control group (n=10). The Comparison of cervical angles and depression status shows that (mean, SD) of examine groups cervical angle A, cervical angle B and depression are respectively (53, 7.56), (34.85, 5.39) and (20.20, 10.62). Similarly, of control group are (51.20, 6.61), (39.70, 3.02) and (9.1, 4.12). When comparing the cervical angles and depression, there were significant differences in cervical angle B and depression status between the two groups (p<.05). For cervical angle A, there were different angles between the two groups, but this difference was not significant (Junhyuk, et al., 2015).

When student were in University, cheating included looking at a neighbor's paper or copying a friend's homework. The most scandalous attempts to cheat most likely involved a student who wrote the answers to a test on the cover of his or her notebook. Cheating in today's world has evolved. Technology makes cheating all too common and too easy. A whopping 35% of teens admit to using their smartphones to cheat on homework or tests, according to a Pew Research Center study. 65% of the same surveyed students also stated they have seen others use their phones to cheat in school. Smartphone's can encourage bullying and hazing also. Bullying and hazing are very serious problems in University across many countries. Smartphone's come equipped with camera and video. The number of cheating incidents in GCSE and A-level exams has more than doubled in the past five years, New figures from Northern Ireland's exams body showed the number of penalties issued for malpractice increased from 55 in 2014 to 115 in 2018 (News B. B., 2019). A study by McAfee on teen internet behavior shows that 48% of teens admitted to have looked up answers to a test, exam, assignments online, 22% of them said they cheated specifically on a test using their cell phones, 14.1% admitted to looking up how to cheat with cell phones online (News, 2018).

2.5   How does effect and cause depends on the use of smartphone?

Demirci, Akgonul, & Akpinar (2015) studied "Relationship of smartphone use severity with sleep quality, depression, and anxiety in university students". Three hundred and nineteen students were included in this study. Of all participants, 78% were smartphone users and 22% were not smartphone users. This study found that Smartphone Addiction Scale (SAS) were significantly higher in females (80.5) than

males(66.59).In this study participants were divided into three different groups, as follows: a smartphone non-user group, a low smartphone use group (SAS score < the median value of 72), and a high smartphone use group (SAS score $\geq$ the median value of 72). Of the participants enrolled in the present study, 71 (22.3%) were in the smartphone non-user group, 121 (37.9%) were in the low smartphone use group, and 127 (39.8%) were in the high smartphone use group. Depression, anxiety, and the day time dysfunction component of the Pittsburg Sleep Quality Index (PSQI) scores were higher in the high smartphone use group than in the low smartphone use group ($p = 0.001, p < 0.001, p = 0.0011$, respectively). When correlation, concern, the study found that the coefficient of correlation of SAS score to depression, anxiety, sleep quality is positively correlated to 0.267, 0.276 and 0.138 respectively. Moreover, the study focus on multiple regression equation. Model I contains four variables sleep quality, SAS, depression and anxiety. In model I, sleep quality is dependent variable. The rate of change of sleep with respect to SAS, depression and anxiety were respectively -0.022, 0.325 and 0.273. For model II, the rate of change of depression with respect to SAS and PSIQ were 0.226 and 0.448. Similarly, in model III, the rate of change of anxiety with respect to SAS and PSIQ were respectively, 0.24 and 0.424 (Demirci, Akgonul, & Akpinar, 2015).

In 2017, a survey done by Boumosleh & Jaalouk entitled "Depression, anxiety, and smartphone addiction in university students- A cross sectional study" at Notre Dame University. The sample consisted of 688 undergraduate students (53% men and 47% women) with a mean age of 20.64±1.88 years. This study reported that mean age at first use of smartphone was found to be 15.09±2.12 years, with about 49% reporting excessive smartphone use. 83 % reported that the reasons for uses of smartphone for texting, Entertainment and calling family members are 67% while calling friends are 62%. 38.5% reported that surfing the smartphone has exercised negative effects on their physical health. 40.7% and 35.8% reported that their interaction with family members was decreased because of smartphone use, and using smartphone has exercised certain negative effects on their schoolwork or job performance, respectively. 63.5% reported that the idea of using smartphone comes as the first thought on mind after waking up each morning. 54.3% reported that they were told more than once that they spent too much time on smartphone. Mean of Smartphone Addiction Inventory (SPAI) score: >5 hrs. /weekday 60.61 vs. < 5 hrs. /weekday 50.63, p = 0.000. Mean of

SPAI score use of smartphone for entertainment: users 58.80 vs. non- users 54.64, p = 0.015. Use of smartphone for calling family members (mean SPAI score: users 54.71 vs. non-users 57.97, p = 0.044), depression (mean SPAI score: depressed 61.11 vs. non-depressed 54.73, p = 0.004) and anxiety (mean SPAI score: anxious 59.04 vs. non-anxious 54.62, p = 0.028). Moreover, each unit increase in depression score increases the SPAI score by 3 units (i.e. 3 SPAI= depression). Similarly, each unit increase in anxiety score increases the SPAI score by 1.7 units (1.7 SPAI= anxiety) (Boumosleh & Jaalouk, 2017)

2.6 Research Gap

Research is an ultimate option to develop a nation. Research-based technologies can be imported, like goods; however, the imported technologies alone may not be sufficient to meet the necessity of the nation, as feasibility of the technology may not be effective equally in all places. Thus, need-based research is essential differently. The study of causes and effect of uses smartphone on Student of Balkumari College. As the human knowledge grew superior with varied dimensions, the uses of smartphone became formal and systematic. The former researchers had worked in the area of causes and effect of uses smartphone on university level education. However, no significant academic research has been under taken to explore the causes and effect of uses smartphone on Student of Balkumari College at which the present study shall endeavor to address. The present study is probably the first study exploring the unchartered waters of causes and effect of uses smartphone on Student of Balkumari College and its impact in education of Business and IT Colleges in Nepal.

Chapter-3
Research Methodology

3.1 Introduction

This chapter we explains in detail the methodology used in gathering the information necessary in this study. It highlights the sources of data and the survey design, which includes the sampling plan and data analysis method employed. The steps involved are elaborated in details and have been carried out systematically in order to achieve a high degree of reliability and validity. The methodology used in a study is integral to the reliability of the findings and the validity of the study. Therefore, this section focuses on the research technique adopted and used for this study with the aim of achieving the research objectives. This section of the document also contains description of the instruments used to measure various constructs applicable to this study.

3.2 Research design

A research design is all about converting a research into a testing project. It is regarded as the DNA of the overall research and it serves as the basic structure like a blue print. It is based on cross sectional descriptive research design.

What this research revolves around is on the understanding and analyzing of the causes and effects of uses of smartphone. Smartphone has been a very vital tool to share personal information and offer a handy way of communication for the youngsters today. The research is about understanding the positive and negative roles played by smartphone. The research focuses on two major factors, which are, cause and effect on regular youth life in terms of changes like their educational goals and achievements.

Why this research is conducted is to promote and capitalize on the importance of telecommunication and media network due to which technological development among the youth society would enhance. In a developing country like Nepal, the smartphone users have increased significantly under the present time period. Simultaneously, sending text and message, watching and making videos, engaging on social media, listening music, playing game, searching academic materials and connectivity has spanned significantly. The students of our country according to their behavior engage in various activities for spending time such as, involvement with the smartphone, social dynamism and ability to understand and position the products and

services, which are very crucial. With this research, the researcher wants to understand how these youth will contribute in different area. This research document will create clear understanding on how the youth life is guided through the usage of smartphone by collecting and analyzing their variety of opinions regarding this with the help of questionnaire.

Moreover, due to this current pandemic around the world, sampling cannot be carried out physically which motivated us towards more interactive way of sampling. We collected the response of students through different Zoom meetings and messaging (WhatsApp, viber and Messenger). We asked the respondents, who were selected randomly involving at least 5% students from each semester, to provide the necessary response in our questionnaire which further help us to carry out the study in our research.

Where Balkumari College is a majorly contributing College to the Chitwan and Nepal (according to UGC) producing skilled human resources in management, pure science, health science, education, information technology, hotel management since a long time. It is the students of this Balkumari who will continue the growth story and hence it becomes very interesting to understand how this use behaves in terms of smartphone which has transformed the nation's dynamics altogether in the present era.

Students, who are the prospect of today and tomorrow, are the forces that will define the world in upcoming future. Balkumari College is said to have shining future because of its students, which is a huge source of an edge over other countries. The term students is defined by citing various definitions and available references from different literature available. Student, in this research, is considered and used in various senses; generally burn to deaths, not have an exact definition and much depends on an individual's social circumstances but not on chronological numerical figure representing total time spent on nation.

Which questions are to be studied, what the relevant data should be, what should be the data to be collected, and how the results will be analyzed is overviewed through this research. The response of the student is the main input of this research and hence is mainly a primary data, which is involved. Descriptive Research design has been used and classification, calculations, analysis, interpretation, and recommendation and suggestions have been offered whenever and wherever needed in the research.

A research should have a perfect blend of the theory and the practical learning. Research design is a blue print of any research project. All the three research issues are

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under the umbrella of research design. While framing a research design work, the researcher needs to understand various issues of the research for causes and effects of uses of smartphone on student at Balkumari College.

3.3   Population, sample and sampling design

The present research being exploratory cum descriptive in nature, focused on the uses of smartphone by student at Balkumari College. Eight hundred twenty two students were taken as the population of interest in order to address the limited research with this 18-30 age group. Total 165 semester students were sample of the study. The sample size of each semester were chosen neither less than 5 nor more than 20 students. Data on proposed study were collected by asking student to fill out a five Likert scale questionnaire to achieve research questions about various purposes. Usage of Smartphone was measured by using rating scale for measuring the time intervals, less than 1 hour, (1-3) hours, (3-5) hours and above 5 hours. Further measuring the causes as per time intervals, less than 0.5 hour, (0.5-2) hours, (2-3.5) hours and above 5 hours and effects of smartphone users from Balkumari College students using Five Linkert Scale. The samples were taken from students of each semester of each streams M.B.S, I.T., B.H.M., B.B.A. and B.I.M.

3.4   Nature and sources of data collection

Mainly there are two kinds of data, primary and secondary. Some of the data already exists primarily meaning that these data were collected earlier and used for similar or different kind of research. Whereas some data are available on different resources called Secondary data. So far as this research is concerned, the researcher has to collect the secondary data in the area of causes and effect (positive and negative) for uses of smartphone through, various types of social media and their users, their usages patterns, the evolution pattern of smartphone, Internet network and its history. Since the research revolves around the student users, the articles/cases/news with references to the combination of students and social media have been considered and analyzed as well.

In this research, the researcher has explored all the possible resources of secondary data collection. Recent newspapers, research journals, media websites, books, magazines, published research papers in the national and international journals

has been referred for the secondary data. Recent cases involving use of smartphone has been taken from various English and Nepali newspapers and online papers. Even some articles from the supplements of a newspaper has also been discussed. Websites of media channels like BBC and their content were taken and various online dictionaries like Oxford and Cambridge have been referred in order to get the theoretical content and various definitions for many terms. Various pictorial presentations and charts have been referred for a better understanding with the courtesy provided. Some websites dedicated to social media have also been referred and referenced as when needed.

Primary data is the original data, collected for the particular given purpose and received through first hand only, and is tailored to the exact needs of the researcher. When conducting the research, researcher can ask the questions to collect the exact data needed for the research. Primary data lets the researcher be more definite about the results over the secondary data as it is specifically collected from survey method. Which state that a research method used for collecting data from students of Balkumari Colleges is to gain information and insights on our study to achieve the objectives. Primary data has been collected from random sample method. A 5-interval Likert scale from Strongly Disagree (measuring 1) to Strongly Agree (measuring 5) has been employed to measure psychographic profile (attitudes, interests and opinions) of Balkumari College students. The secondary data has been collected from different printed sources: research articles, internet, library search, etc. There are the two variables in the present study namely first causes and second effect of smartphones uses.

3.5   Methods of analysis

Statistics is concerned with the scientific method by which information is collected, organized, analyzed and interpreted for the purpose of description and decision making. It deals with all aspects of data including the planning of data collection in terms of the design of surveys. After administering the tests to students, comparison was done between them, including the causes and effect variables to uses smartphone variable. The relationship between effect and causes variables has been studied using appropriate statistical measures. This relationship has been examined using graphs, figures, tables and crosstabs. Both descriptive and inferential statistics were employed for the present study.

The Statistical Package for the Social Sciences (SPSS)-20 software has been used to analyze the data. The present study runs two different types of statistical analysis: descriptive and inferential. The Descriptive statistical measures are utilized to describe the characteristics of the sample in totality. They limit generalization to the particular group of persons studied. It also helps to describe, show or summarize data in a meaningful way like Frequency distribution, Percentage, Arithmetic Mean, Standard deviation; Person's coefficient of correlation which has been used in analysis. Inferential statistics, which draw significant differences from data that are subject to random variation analysis of data for hypothesis testing. They are discussed as below.

The Z test is a significant test amongst the several tests of significance developed by statisticians. The Z-test is a statistical measure used in the context of sampling analysis for comparing sample mean and variance to population mean and variance. As a non-parametric test, it can be utilized to determine whether or not the categorical data shows dependency or the two or classifications are independent. It can also be used to make comparisons between populations and sample when categories are used. In the present study, Z- test has been employed to find out the difference mean of different levels of academic stress and shyness. The Pearson's coefficient of correlation has been examined to test the relationship between variables.

3.6   Definition of variables

A variable is an object, event, idea, feeling, time, or any other type of category. we are trying to measure. There are two major types of variables-independent and dependent. Variables are of different types and kinds. There are descriptive variables, which refer to those variables in research, which has been reported on, without relating them to anything in particular. There are also categorical variables, which has been resulted from a selection from categories, such as 'agree' and 'disagree'. Every study has at least two types of variables: independent and dependent. The independent variable is often thought of as our input variable. Whereas the dependent variable or outcome variable is dependent on our independent variable. In this, study D1, D2 and D3 are demography variables. The variables in cause and effect cluster are categorized as dependent variables and other variables consider as independent variables. This study contains four social cause variables represented by SC, four academic cause represented by AC, five positive effect variables represented by PE, five negative effect

variables represented by NE and only SP represented as uses smartphone. The variables and their definition follows as;

Code	Term	Definition
D1	Gender	Gender （Male and Female) of students (Respondance)
D2	Age	Age of student (Respondance)
D3	Education	Educational qualification of student (Respondance)
SC1	Calling phone	Calling is the act of communicating through 3 G and 5 G network to each other's.
SC2	Online Game	An online game is a video game that is either partially or primarily played through the internet or any other compute network available.
SC3	Social Media	Social media are interactive computer-mediated technologies that facilitate the creation or sharing of information, ideas, career interests and other forms of expression via virtual communities and networks
SC4	Making Video/ photography	Making video / photography is a process for recording of movie pictures and especially as digital file, DVD, etc.
AC1	Academic search	Academic search is the search about dissertation / homework/assignment / activities of teaching/ learning from virtual library/world wide web
AC2	Presentation	A presentation is the process of presenting / taking a topic to an audience / a professor from internet/network.
AC3	Academic discussion	Academic discussion is the discussion related about dissertation/homework/assignment / activities of teaching/ learning from professors and Collings.
AC4	Web surfing	Web surfing describes the act of browsing the Internet by going from one web page to another web page using hyperlinks in an Internet browse. I.e. jumping from page to page on web.
SP	Smartphone	A smartphone is a mobile phone with highly advanced features. A typical smartphone has a high-resolution touch

		screen display, Wi-Fi connectivity, Web browsing capabilities, and the ability to accept sophisticated applications.
PE1	Virtual Connected	Virtual connection is a connection or path through a network. It is the connection rather than physical between any human parties.
PE2	Make Notes	Make a note is to write down/collect something quickly, especially as a reminder of important matters.
PE3	Virtual class	A virtual classroom is an online learning environment that allows for live interaction between the tutor and the learners as they are participating in learning activities.
PE4	Entertainment	Entertainment is a form of activity that holds the attention and interest of an audience or gives pleasure and delight
PE5	Boost memory	Boost memory is the increment of knowledge/ techniques/skills/Navigation.
NE1	Eye Sight issues	Eye sight vision is the major problem in visual perception that people does not see simply a translation of an image on the retina
NE2	Stress	Stress is the body's reaction to any change that requires an adjustment or response.
NE3	Neck /Shoulder /Head ache	Neck/shoulder/head pain is a common complaint. Neck /shoulder/head muscles can be strained from poor posture
NE4	Depression	Depression is a mood disorder that involves a persistent feeling of sadness and loss of interest
NE5	Anxiety	Anxiety is a feeling of unease, such as worry or fear that can be mild or severe.

Table No.3. 1: Definition of Variables

There were four cluster of variables. The first cluster named C1 contained four social causes (SC1, SC2, SC3, SC4) variables, C2 contained four academic causes (AC1, AC2, AC3, AC4) variables , C3 contained five positive effects (PE1, PE2, PE3, PE4, PE5) variables, C4 contained five negative effect effects (NE1, NE2, NE3, NE4, NE5) variables and uses of smartphone (SP).

3.7   Research Framework

Theories are formulated to explain, predict, and understand phenomena and, in many cases, to challenge and extend existing knowledge, within the limits of the critical bounding assumptions. The theoretical framework is the structure that can hold or support a theory of a research study. The conceptual framework introduces and describes the theory that explains why the research problem under study exists. The conceptual framework can demonstrate an understanding of theories and concepts that are relevant to the topic of current research study and that would related it to the broader fields of knowledge in the class we are taking. The conceptual research framework of our study presented below as;

Figure No. 3. 1: Regards Conceptual Frame of Study

Chapter- 4

Results and Discussion

4.1   Introduction:

In this chapter, we describe the analysis of data followed by a discussion of the research findings. This documentation and analysis process is aimed to present data in an intelligible and interpretable form in order of research questions. Descriptive statistical analysis was used to identify frequencies and percentages to answer all of the questions in the questionnaire and inferential statistics analysis was used to identify significant differences. The level of significance was set at 0.05. Data was analyzed to identify, describe and explore the relationship between uses of smartphone and cause and effect of smartphone on the students of Balkumari College.

4.2   Demography Description:

Categories		Categories	
Gender	Percentage	Qualification	Percentage
Male	46.06% (76)	M.B.S	36 (21.82%)
Female	53.94% (89)	I.T.	52 (31.52%)
Age			
Below 20	32.6%	B.H.M	47 (28.48%)
20- 22	39.6%	B.B.A.	16 (9.7%)
22-25	14.3%	B.I.M	14 (8.48%)
Above 25	13.5%		

Table No. 4. 1: Represented the demography figure of uses smartphone at Balkumari.

The Table no 4.1 represents the demographic figure of uses smartphone on student at Balkumari College. It showed that 165 students were taken as sample. Among this, 53.94% sample were female. The mean and standard deviation of age category were found to be 20.03 years and 1.02 respectively. 39.6% respondents lied on age between 20-22 followed by 32.6%, 14.3% and 13.5% to below 20 age, 22- 25 age, and above 25 age group respectively. In concern to qualification, it was found that 4.48% were from B.I.M. stream followed by 9.7%, 21.82%, 28.48%, and 31.52%, and to B.B.A., M.B.S., B.H.M. and I.T. stream respectively.

4.3   Why do academic student use smartphone?

4.3.1   Calling phone (SC1):

Figure No. 4. 1The figure (Pie- diagram): Represented as calling phone minute per day.

The figure (Pie- diagram) no. 4.1 represented the major social cause for uses of smartphone is calling phone. The diagram showed that all most 43% students were busy on their smartphone for calling 15 to 30 minute per day followed by 29% , 21% and 7% busy with less than 15 minute, 30 to 45 minute and more than 45 minute per day respectively. All service provider release their voice pack especially night service and motivate them to use that package. Most of the users used that pack leading in decreasing order of landline users. It is used only officially. Therefore, the calling user through direct phone is in decreasing order.

4.3.2 Busy in Social Media (SC2):
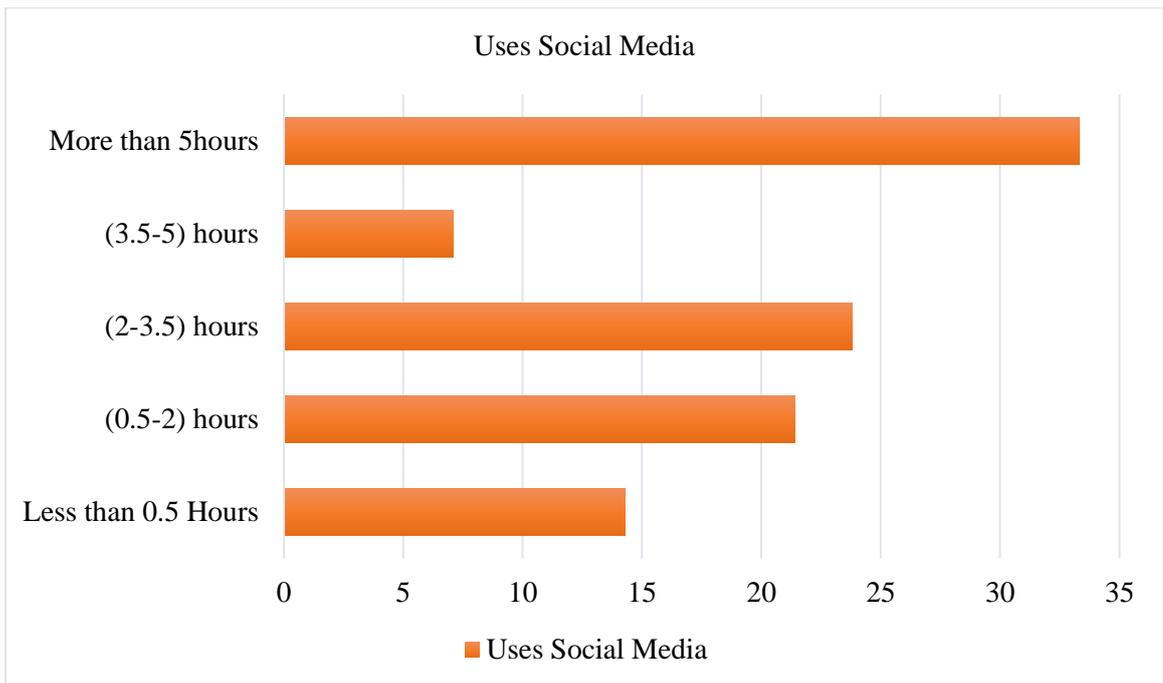
Uses Social Media

Figure No. 4. 2The figure (Bar-diagram): Represented as Use of Social media.

Figure no 4.2 describes the association between uses of social media and usage per day. The figure described that all most 33.3% are busy on their smartphone with social media (Facebook, Twitter, WhatsApp, text, messenger, Instagram, watching video etc.) more than 5 hours followed by to 23.8%, 21.4%, 14.3% and 7.1% to (2-3.5) hours, (0.5-2) hours, (3.5-5) hours, less than 0.5 hours respectively. The social media usage for more than 6 hours is happening due to lock down (effect-COVID-19) of country and sample are collected since time. The mean and standard deviation of social media category are 3.24 and 1.49 hours respectively.

4.3.3 Playing game (SC3):

Table no 4.2 reflects the crosstab table of playing game on smartphone in hours for each streams of Balkumari College. This table represented that the probability of play game on smartphone from 2 hours to 3 and half hours is all most 0.45 followed by 0.36, 0.11, 0.06 and 0.04 to (3.5 - 5), above 5, (0.5-2) and less than half hours respectively. Most of the IT stream students play game on smartphone 2 to 3 and half hours per day as similar result was found in others stream as well. The probability of IT and BIM stream to play game on smartphone less than half hours is zero. The probability of playing game above 5 hours per day of IT stream is 0.353. Moreover,

0.39 is the probability of MBS student playing game for 3.5 to 5 hours per day on smartphone. The probability of play game above 5 hours of BIM and BBA stream is almost 0.045. The probability of play game in 0.5 to 2 hours per day of each stream almost equally like 0.17. Students are bored from lockdown all day long with nothing to do. They were not the only one; many of us were also facing the same boredom with the ongoing COVID-19 outbreak. Keeping that in mind most of all student are busy playing online games like PUBG, UNO, LUDO and ClashRoyale etc.

Stream/Hours	IT	BHM	MBS	BBA	BIM	Total
Less than 0.5 hours	0	3	1	1	0	5
(0.5 to 2) hours	3	2	2	2	1	10
(2 to 3.5) hours	24	23	15	7	6	75
(3.5 to 5) hours	19	14	14	5	6	58
Above 5 hours	6	5	4	1	1	17
Total students	52	47	36	16	14	165

Table No. 4.2: Regarding crosstab table of play game in hours

4.3.4   Taking Picture /Video (SC4):

All respondents indicated that they take photo/video on their smartphones per day with mean 26 minutes and SD 1.10; categorically it is in decreasing order as shown in figure 4.3. The largest group of students 59% take photo/ video per day less than 0.5 hour followed by 26%, 8.25% , 6.75% and 0% to (0.5 to 2), (2-3.5), (3.5-5) hours and 0 hours respectively. The figure also indicated that female students in each category are busier to take photo/video than male students. The female students in category less than 0.5 hours were 32 %, 0.5 to 2 hours category were 15%, 3.5 to 5 hours category 6% and 5% in 2 to 3.5 hours. Moreover, 26%, 11%, 4% and 3% male students were busy to take photo/ video in category less than 0.5, (0.5-2), (3.5 -5) and (2-3.5) hours respectively. However, there is no student in category busy above 5 hours on smartphone. Students, in order to place their videos and contents of their notes safe in their folders, use the means of picture/video. Besides, some students also use their passion, rituals, cultures, cuisines as picture/video for memories.
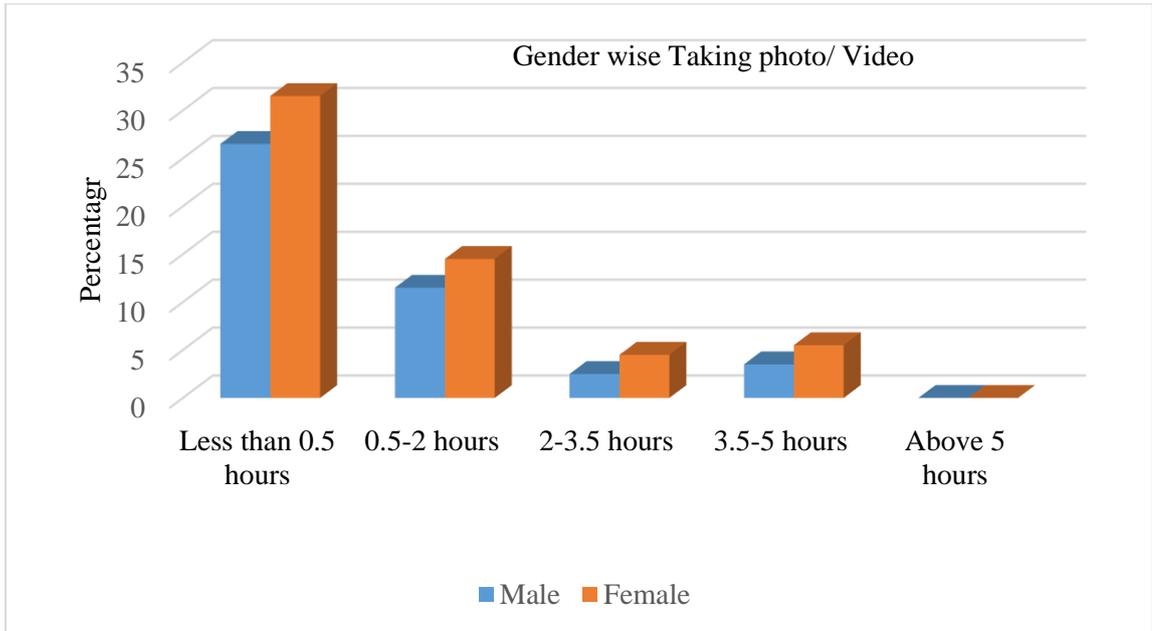
Figure No. 4.3: Regarding Gender wise taking Picture/Video

4.3.5 Academic Search (AC1)

Hours / Genders	Number of Female Students	Number of Male Students	Total Students
Less than 0.5 hours	33	24	57
0.5-2.0 hours	40	35	75
2- 3.5 hours	5	7	12
3.5-5 hours	6	5	11
Above 5 hours	5	5	10
Total Students	89	76	165

Table No. 4.3: Representation of gender wise academic search

Balkumari College students search academic material from various time allocation with mean 1.2 hours per day and S.D. 1985. As can be seen in table no 4.3, the largest proportion of students (75, 45.45%) was from 0.5 to 2 hours category followed by (57, 34.54%) in less than 0.5 hours, (12, 7.27%) 2 to 3.5 hours, (11, 6.66%) 3.5 to 5 hours and (10, 6.06%) above 5 hours. According to Alexa, the top ten search engine in Nepal are google is the first priority as world followed by YouTube, onlinekhabar.com, ratopati.com, facebook.com, reportersnepal.com, khabarhub.com,

news24nepal.com, janaboli.com, dcnepal.com. Alexa further added that estimated daily time on Facebook site is 18.28 mm:ss followed by google (13.57), YouTube (13.46), khabarhub.com (11.22), denepal.com (7.51), onlinekhabar.com (8.29), reportersnepal.com (8.10), ratopati.com (6.02), janaboli.com (4.20), news24 nepal.com (3.16) per visitor per site. However, daily page view per visitor of google was 15.24 mm:ss, facebook.com (8.07), YouTube (7.33), onlinekhabr.com (3.61), ratopati.com (3.21), janaboli.com (4.20).This concluded that all are busy in news portal due to world is suffering COVID-19 in study time.

4.3.6 Taking Academic Presentation (AC2)
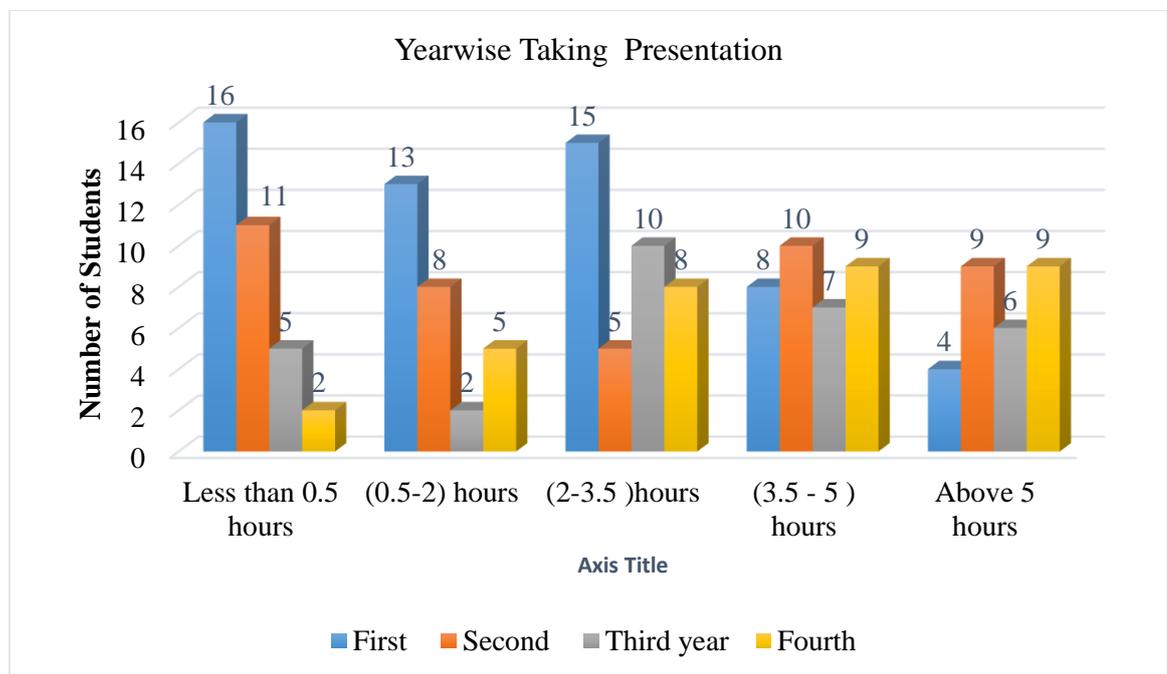
Figure No. 4.4: Regarding year wise taking Academic Presentation

Balkumari College students were busy in their smartphone taking academic presentation from various time allocation with mean 1.86 hours per day and SD 1.002. Figure no 4.4 shows the year wise time allocation for taking academic presentation. The figure showed that 16 of first year students took academic presentation for half an hour and students were decreasing when time for taking presentation increased. However, it is exactly opposite with the fourth-year students as number of students increased with the increase in time taken for academic presentation. Mixed results were shown in second- and third-year students. Moreover, the rate of students allocating time for less than half an hours and (0.5 to 2) hours is also in decreasing order year wise.

The major cause for this result comes out to be the negligence nature of first-

and second-year students as they are not cautious about their future and the excitement of higher studies and meeting new friends distract them from studies. However, by the time, they reach final year they grow up and their entire time is engaged on studies and future that means they take life seriously.

4.3.7 Taking Academic Discussion (AC3)
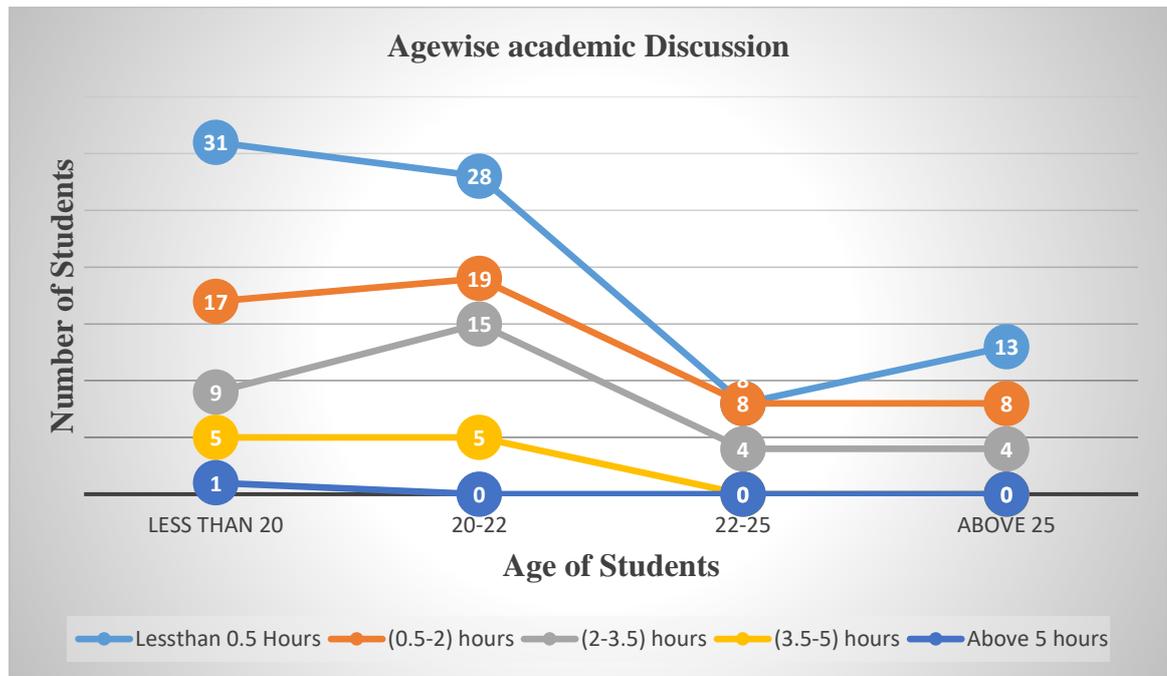
Figure No. 4.5: Regarding Age Wise Academic Discussion

Figure no 4.5 reflects the age wise academic discussion of students. The figure reflected that the time of academic discussion of time less than half an hours and between 0.5 to 2 hours was decreasing on age. The mixed results were shown in time discussion on age. Moreover, the time allocated to academic discussion was almost also decreasing order. 74 (35.75%) students were busy to academic discussion in 0.5 to 2 hours followed less than half an hours, 2 to 3.5 hours, 3.5 to 5 hours and more than 5 hours by 32.85%, 26.1%, 0.03% and 0.03% respectively. The mean and standard deviation of age was 20.07 years, 1.022, 0.75 hours, and 0.965 of time taken academic discussion.

4.3.8   Web Surfing (AC4)
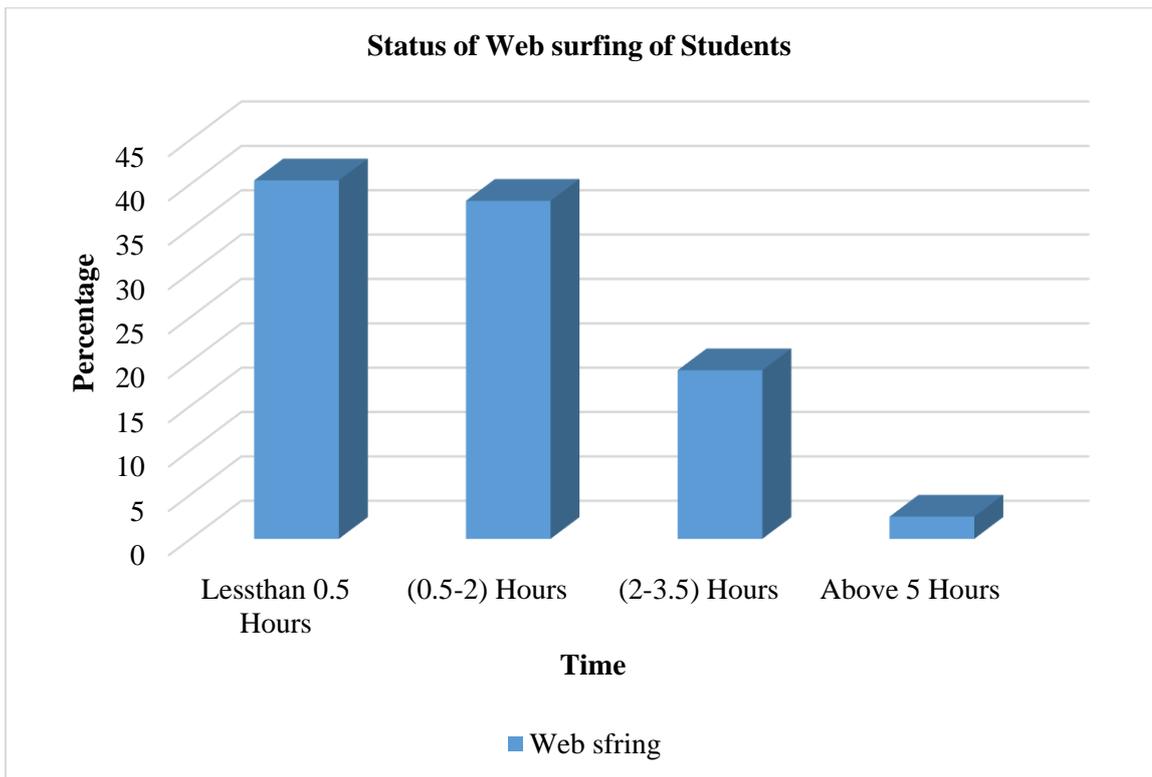
Figure No. 4.6: Representation of Web Surfing of Student

Balkumari college students were also busy with their smartphone in web surfing which is most important cause for uses of smartphone. The study found that the web surfing of Balkumari college student has mean = 1.45 hours, Median =1.5 hours, standard deviation = 0.899 and variance = 0.808. Here the figure 4.6 reflects the web surfing by students that was in decreasing order with respect to time and 40.4 % fell in less than half an hour and 2.5% on above 5 hours. We might conclude from this reading that students might have felt tired searching contents on web while surfing. However, it is also possible that due to extreme precision on contents, students will have been satisfied with the result they got without surfing for much longer.

4.3.9 Uses Smartphone (SP)

Uses time Intervals	I.T.	B.H.M.	M.B.S.	B.B.A.	B.I.M.	Total
Less than 1 hours	2	5	2	1	1	11
(1-3)hours	4	13	18	3	4	42
(3-5)hours	12	21	9	5	6	53
Above 5 Hours	34	18	7	7	3	69
Total	52	47	36	16	14	165

Table No. 4.4: Represented as Stream Wise Uses of Smartphone

Table no 4.4 shows the uses of smartphone through stream with respect to time. Regarding the computation of means and standard deviation, we found that mean of, 4.7, 4.64, 4.31, 3.47, to B.H.M., B.I.M., B.B.A. and M.B.S. respectively. Table presented that 34 and 2 students of IT used smartphone above 5 hours and less than an hour per day respectively. 21 out of 47 BHM students, and 6 of 14 B.I.M. students were busy with smartphone for 3 to 5 hours per day, which was most number for each stream. However, 18 of 36 students of MBS have been engaged for 1 to 3 hours. Moreover, a total of 69 and 19 out of 165 students fell in above 5 hours and less than an hour per day respectively. All the streams. had minimum number of students in less than an hour category. However, three students of B.I.M. were engaged in smartphone above 5 hours per day; even 34 students of IT occupied same category. Students of IT, BHM and BBA stream were strictly increasing with respect to time intervals whereas mixed results were shown for others stream.

4.4   What impact does a smartphone give to an academic student?

4.4.1   Virtual connection (PE1):
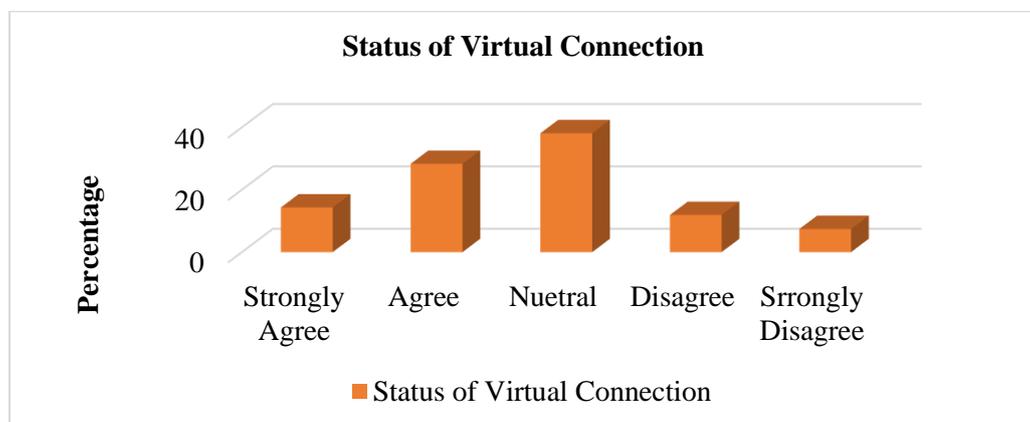
Figure No. 4.7:Representation of Virtual Connection for Learning

The figure 4.7 shows the usage of smartphone for Balkumari College Students for virtual connection to communicate. The figure showed that most of the students (38.1%) viewed their argument in neutral category followed to agree, strongly agree, disagree and strongly disagree respectively by 28.3%, 14.3%, 11.9% and 7.4%. In descriptive point of view, the study indicated the mean and standard deviation was 2.55 and 0.968. This information was sufficient to say that the students of Balkumari College were effected moderately on uses smartphone for virtual connection to communication.

4.4.2   Make Note (PE2)

EFFECT OF MAKE NOTE

■ Strongly Agree ■ Agree ■ Neutrol ■ Diaagree ■ Strongly Disagree
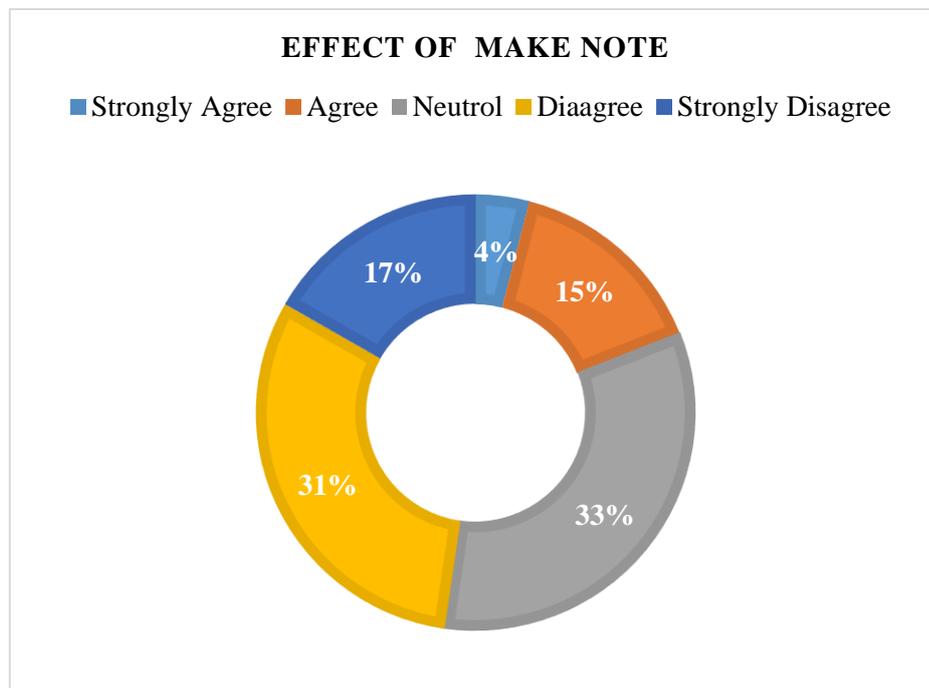
Figure No. 4.8: Representation of Effect to Make Note

The figure 4.8 shows the usage of smartphone for Balkumari College Students to make note for learning purpose. The figure showed that most of the students (33%) viewed their argument in neutral category followed to disagree, strongly disagree, agree and strongly agree respectively by 31%, 17%%, 15% and 4%. In descriptive point of view, the study indicated that mean and standard deviation was 3.45 and 0.993. This information was sufficient to say that the students of Balkumari College were not affected by uses smartphone for make note in learning purpose. This finding is aligned with other research reporting that make note with mean 3.63 and standard deviation 175 minutes per weak is a common (Siew, Hassan, Mohammad, & Abdul, 2017) and 20% who use their smartphone for academic purposes like sharing of materials or notes provided by lecturers/instructors (Kibona & Mgaya, 2015)

4.4.3 Virtual Classes (PE3)
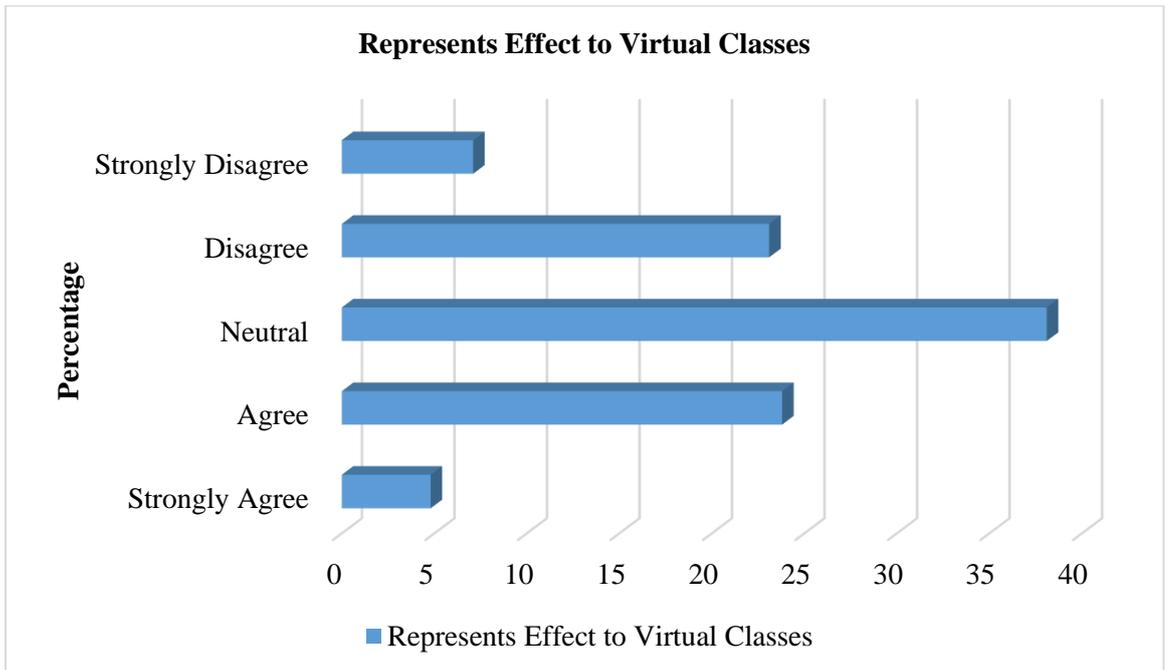
Figure No. 4.9: Representation of Effect to Virtual Classes

The figure 4.9 shows the usage of smartphone for Balkumari College Students related on making notes to take virtual classes. The figure showed that most of the students (38.1%) viewed their argument in neutral category followed to disagree, agree, disagree, strongly disagree and strongly agree respectively by 23.8 %, 23.8 %, 7.8 % and 4.8 %. In descriptive point of view, the study indicated that mean and standard deviation was 3.05 and 0.999. This information was sufficient to say that the students of Balkumari College were normally effected by uses of smartphone for taking virtual classes in learning purpose.

4.4.4 Entertainment (PE4)

Category	Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)
No of Students	11	54	52	43	5
Percentage	6.67	32.73	31.51	26.06	3.03
Mean = 2.85			Standard Deviation = 0.997		

Table No. 4.5: Regarded of Entertainment Uses of Smartphone.

The table no 4.5 shows the usage of smartphone for Balkumari College Students on entertainment. The table showed that least of the students (2.9%) attributed their view in strongly disagree category followed by 6.67%, 26.06%, 31.51% and 32.73% respectively to strongly agree, disagree, neutral and agree. Moreover, in descriptive point of view, the study indicated that mean and standard deviation was 2.85 and 0.997. These results concluded that the students of Balkumari College were at most neutral on uses smartphone for entertainment. Rather than seeing films and TV programs, people utilize the net as their source of entertainment. A number now use social media, not for a platform for communicating and sharing of data, but they have found benefit for entertainment purposes out of it. According to new research from Hossain, respondents say they spend about 22% of their time on their smartphones playing games, watching streamed content, listening to music or surfing the Web. They reported spending the same amount of time using their phones for texting or making calls. Social media and e-mail only account for about 10% each (Hossain M. , 2019). Moreover, the majority of respondents responded positively on the use of smartphone for social purposes (65%) like communications, chatting with friends, browsing some social news (Kibona & Mgaya, 2015).

4.4.5 Boost Memory (PE5)

Category	Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)
No of Students	8	35	43	47	32
Percentage	4.8	21.21	26.06	28.48	19.4
Mean = 3.45			Standard Deviation = 1.131		

Table No. 4.6: Representation of Boost memory uses of Smartphone.

Table no 4.6 reflects the students attitude to boost memory by uses of smartphone. Table reflected that 28.48% of students disagreed on boosting memory by uses of smartphone. Similarly, 26.06%, 21.21%, 19.04% and 4.8% put their view to neutral, strongly disagree, agree and strongly agree. The study further indicated that the mean and standard deviation were 3.45 and 1.131. These results forced us to conclude that the student of Balkumari College moderately disagreed on boosting the memory through smartphone. If the smartphone is close to the ear then, more radiation may enter the body and loose our brain memory. The investigation, led by the Swiss Tropical and Public Health Institute, found that radiofrequency electromagnetic fields might have adverse effects on the development of memory performance of specific brain regions exposed during mobile phone use. This was the findings of a study involving nearly 700 adolescents in Switzerland. That institute also explored that the majority of people both with and without brain injury used smartphones for three main reasons: for communication, as a memory aid and for internet access. That research clearly showed that the brain has been transformed because of internet or smartphone addiction. (Kibona & Mgaya, 2015).

4.4.6   Eye Sight Issue (NE1)

Category	All time (1)	Seldom (3)	Most of Time (2)	Some of Time (4)	Never (5)
No of Students	9	76	56	17	7
Percentage	5.4	46.06	33.94	10.30	4.24
Mean = 2.62				Standard Deviation = 0.909	

Table No. 4.7:   Representation of sight Issue uses of Smartphone

Table no 4.7 reflects that student's eyesight problems experienced by uses of smartphone. Table reflected that 46.06% of students were suffering from sight problems seldom by uses of smartphone followed to most of time, some of time, all time and never by 33.94%, 10.03%, 5.40% and 4.24% respectively. Table also showed that mean and standard deviation were 2.62 and 0.909 respectively. Therefore, the coefficient of variance was 34.73 %. This descriptive statistics showed that most of students would suffer from eyesight problems in future.

A study in 2018 found that those who spent a lot of time on a smartphone or tablet was increasingly common among young who were more prone to dry-eye disease. It is a condition where the eyes do not produce enough moisture; it comes as a survey of 2,000 people in UK and Statistics suggested that 43% of under 25 years' experience genuine eyesight problems (Vahedi & Saiphoo, 2018). Hence, it may be important issue.

4.4.7 Stress (NE2):

Category	All time (1)	Seldom (3)	Most of Time (2)	Some of Time (4)	Never (5)
No of Students	11	83	37	25	9
Percentage	6.67	50.30	22.42	15.15	5.45
Mean = 2.62				Standard Deviation = 1.011	

Table No. 4. 8: Regarded Stress Issue uses of Smartphone.

Table no 4.8 represents that student's stress problems experienced by uses of smartphone on student at Balkumari College. Table reflected that 50.30% of students were suffering from stress problems seldom by uses of smartphone followed to neutral, some of time, all time and never by 22.42%, 15.15%, 6.67%, and 5.30% respectively. Table also showed that mean and standard deviation were 2.62 and 1.011 respectively with coefficient of variance 38.59%. Thus, the data converges to most of time category.

A study in 2015 found that mean and standard deviation and coefficient of variance were 14.5, 9.40 and 64.82%. This study also stated that modern technology has gained such a presence in our lives that it is easy to become addicted to social media and smartphone use to the point it starts influencing our relaxation and sleep. In turn, this causes even more stress to build up through the day, resulting in a cycle of stress accumulation. This study also added that the stress related issues were compared strongly agree (17%), agree (58%), neutral (15%), disagree (8%) and strongly disagree (2%) (Demirci, Akgonul, & Akpinar, 2015).

This descriptive statistics and previous study indicated that most of students would be suffering from technology stress in future.

4.4.8 Neck and Shoulder Pain (NE3)

Category	All time (1)	Seldom (3)	Most of Time (2)	Some of Time (4)	Never (5)
No of Students	11	97	29	19	9
Percentage	6.67	58.78	17.57	11.51	5.45
Mean = 2.38			Standard Deviation = 1.094		

Table No. 4.9: Observed Neck and Shoulders Issue due to uses of Smartphone

Table no 4.9 observed that student's neck and shoulders pain problems experienced by uses of smartphone on student at Balkumari College. Table observed that seldom 97 (58.78%) of students were suffering from neck and shoulders by uses of smartphone followed to most of time, some of time, all time and never by 17.57%, 11.51%, 6.67% and 5.45% respectively. The study also observed that mean, standard deviation and coefficient of variance were 2.38, 1.094 and 45.97%. Hence respondents converges to seldom category.

A recent study in 2017 showed that 79% of the population between the ages 18-44 had neck pain due to uses of smartphone almost all the time. The mean, standard deviation and coefficient of variance were 90.98, 5.1 and 5.6%. This study also explored that if the neck is band by 60 degree to vertical then it has pressure of 60 lbs. followed 45 lbs., 40 lbs., 27 lbs., to 45 degree, 40 degree, 27 degree respectively (Neupane, Ifthikar, & Mathew, 2017).

Typically, incidence of neck pain increases with age. However, today we are seeing and treating younger patient who never reported neck pain before. Our percentage frequency table (4.9), descriptive statistics and previous study indicated that most of students would suffer from neck and shoulders in future.

4.4.9 Depression (NE4)

Category	All time (1)	Seldom (3)	Most of Time (2)	Some of Time (4)	Never (5)
No of Students	4	20	94	39	8
Percentage	2.42	12.12	57.0	23.63	4.8
Mean = 3.17			Standard Deviation = 0.794		

Table No. 4.10: Observed Depression due to uses of Smartphone

Table no 4.10 represents the frequency of depression occurrence due to uses of

smartphone at Balkumari College student. The table indicated that at most 5 (2.4%) students experienced they are suffering depression due to smartphone in all time followed to never, most of time, some of time and seldom by 4.8%, 12.12%, 23.63% and 57.0% respectively. The table also indicated that mean, standard deviation and coefficient of variance were 3.17, 0.794 and 25% respectively. The respondents were converges to category.

In a study of 346 older adolescents, aged 18-20, researcher Lim and his collaborators found that smartphone dependency predicts higher reports of depressive symptoms and loneliness, rather than the other way around. The study also found that the mean, standard deviation and coefficient of variance were 13.6, 10.1 and 74.26 % respectively and rare of change of depression with respect to smartphone is 0.8. Previous studies found that participants who spent more time on their smartphones were found to be at higher risk for smartphone addiction "overuse" and smartphone addiction was not associated with the severity of depression. (Lim, Amer Nordin, Yee, & Tan, 2020).

4.4.10 Anxiety (NE5)
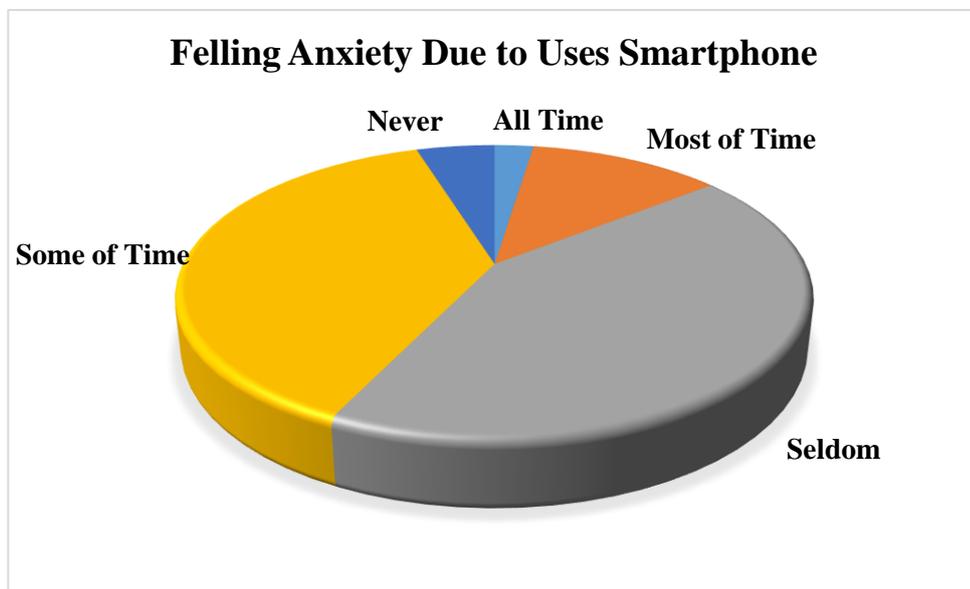
Figure No. 4. 10: Felling Anxiety Due to Uses Smartphone

Figure no 4.10 represents the frequency distribution of anxiety occurrence due to uses of smartphone at Balkumari College student. The figure represented that most of the students (42.9%) experienced seldom category of anxiety followed by some time (38.1%), most of time (11.9%), never (4.8%), all time (2.4%). The study found that mean, variance and coefficient of variance were 3.11, 0.841 and 25.41% respectively.

Hence, the students of Balkumari College were felling anxiety in seldom category.

An article going to be published by WHO reported that at most 50.5% students of Taif University, Saudi Arabia of suffering mild trait anxiety followed by moderate (29.3%), severe (13.6%) and very severe (6.9%) in male cluster and 42.4%, 27.5%, 18.7% and 11.4% in female cluster. The mean age of the participants was 20.58 years out of them, 825 (54.5%) were female and 688 (45.5%) were male (Desouky & Abu-Zaid, 2020).

Here, by previous research, we concluded that heavy smartphone use could often be stressful, anxious, depressing, or lonely. Those who struggle with mental health problems are more likely to be addicted to their smartphones.

4.5 How does effect and cause depends on the use of smartphone?

These topics are divided into parts. The first parts contained cause and second part contains effect.

4.5.1 Relation of Social and Academic Cause on Smartphone

Social and Academic Cause Variables	Correlation to SP	Mean ± SD	Regression Coefficient to SP	z-value with SP
Calling Phone (SC1)	0.060	2.02 ±0.894	0.078	13.13
Uses Multimedia (SC2)	0.563	3.24±1.478	0.98	0.95
Playing game (SC3)	0.276	1.83±1.102	0.44	15.11
Making video (SC4)	0.178	1.76±1.101	0.28	15.8
Smartphone (SP)	1	3.36±0.692	1.00	0
Academic Search (AC1)	0.143	1.98 ±1.07	0.22	13.94
Presentation (AC2)	0.216	1.86±1.002	0.313	15.79
Academic Discussion (AC3)	0.230	2.05±0.962	0.32	14.13
Web Surfing (AC4)	0.396	1.86±0.889	0.89	14.48

Table No. 4. 11:   Represented Social and Academic Cause of uses of Smartphone.

Table no 4.11 represents the relationship of social and academic causes on uses of smartphone at Balkumari College students. The table represented that there was all positive correlation on social cause and academic cause to smartphone. The coefficient of correlation and regression coefficient of uses of multimedia on smartphone were 0.563 and 0.98 respectively with level of significant 0.004. The study also indicated that there is significant differences between social and academic variables. Therefore, the alternative hypothesis were accepted for social cause and academic causes. The column of z-value represents the z calculated value of causes and uses smartphone. This column indicates that the mean score of uses of multimedia and smartphone are not significantly different but other means are significantly difference to mean of uses of smartphone.

4.5.2 Relation of Positive and Negative Effect on Smartphone.

Positive and Negative Effect Variables	Correlation to SP	Mean ± SD	Regression Coefficient to SP	Critical Value of correlation 0.101	Z-value between SP and variable
Virtual Connection (PE1)	0.915	2.55±0.968	1.28	71.72	7.03
Make Note (PE2)	-0.347	3.45±0.993	-0.50	4.74	0.78
Virtual Classes (PE3)	0.107	3.05±0.999	0.15	1.37	3.99
Entertainments (PE4)	0.282	2.85±0.997	0.41	3.74	5.412
Boost Memory (PE5)	0.461	3.34±1.145	0.76	6.63	0.143
Eye Sight Issue (NE1)	0.405	2.62±0.909	0.53	5.65	8.28
Stress (NE2)	0.164	2.62 1.101	0.26	2.1	7.28
Neck/ Shoulders Pain (NE3)	0.68	2.38 ±1.09	1.07	11.84	9.68
Depression (NE4)	0.113	3.17±0.794	0.13	1.37	0.1
Anxiety (NE5)	0.141	3.11±0.917	0.19	1.37	2.78

Table No. 4. 12:   Represented Positive and Negative Effect of uses of Smartphone

Table no 4.12 represents the relationship of positive and negative effect to uses of smartphone on students of Balkumari College. The table represented that all most all were positively correlated to uses of smartphone except PE2. The coefficient of correlation and regression coefficient of making note on smartphone were negative 0.347 and 0.5 respectively. Virtual connection for communication was highly positively correlated to smartphone with rate of change 1.28 and taking virtual classes was on very low degree of positively correlated to smartphone with rate of change 0.15. The critical value of correlation coefficient showed that all effect variables were dependent on smartphone. The study also indicated that there was significant difference in mean between effect variables and uses of smartphone except PE2, PE5 and NE4. Therefore, the alternative hypothesis was accepted between effect variables and uses of smartphone except PE2, PE5 and NE4.

4.6 Discussion

We found an average age of respondence was 20.3 years with 53.94% were female and 33.3 % of respondence were busy their smartphone more than five hours per day with social media and average duration of daily use smartphone was 3.5 hours per day which liked agreed with other International studies (Desouky & Abu-Zaid, 2020). We analyzed the cross table of time via stream, found that probability paly game between 2 to 3 an half hours was 0.48 and 42.5 % of the students were search academic from 0.5 to 2 hours which was likely agreed with other international studies (Kolan & Dzandza, 2018). The mean of the making a note in smartphone was 3.65 was a common (Siew, Hassan, Mohammad, & Abdul, 2017) and 20% who use their smartphone for academic purposes like sharing of materials (notes) provided by lecturers/instructors (Kibona & Mgaya, 2015) was similar to our study. 28.5 % students of Balkumari College disagree boost brain by uses smartphone was liked to international study (Kibona & Mgaya, 2015). Spending hours chatting with friends, texting, browsing social media can result in harmful effects of mobile phones on students, including a drastic increase in their stress levels (Hwang, Yoo, & Cho, 2012) was contract to our study. The international study found that 0, 15, 30, 45, and 60-degree on' spine curvature pressurized 12, 27, 40, 49, and 60 lb. respectively at neck and shoulder (Yanfe, Grace, Jie, & Madeleine, 2016) was all most similarly to our study. In our study, all of dependent variables were low degree positive correlated to uses of smartphone

likely similar results (Hyo-Jeong & Jin-Seop, 2015). Nevertheless, some other studies concern about depression, anxiety and pain in neck/shoulders related to medicine were some difference in methodology (Desouky & Abu-Zaid, 2020) (Demirci, Akgonul, & Akpinar, 2015). For testing hypothesis, Our study showed that there is differences between means of variables and correlation by using t- test and Fisher- Z test and other studies were applied more tests Mann–Whitney and Kruskal–Wallis.

Chapter- 5

Summary and Conclusion

5.1 Introduction

This chapter includes the research that has been carried out. In this part, all issues such as the research questions, methodology are discussed. Subsequently, the major findings of the study are presented. In this section, the conclusion, implication and suggestions of the current study are also discussed.

5.2 Summary

The research entitled Cause and Effect of Uses of Smartphone on students of Balkumari College' is a mini research proposed in an attempt to find out the extent of cause and impact of the use of smartphone. The study tried to answer of research problems: Why do academic student use smartphone? What impact does a smartphone give to an academic student? How does effect and cause depends on the use of smartphone? The researcher were 165 students of semester bachelor level (I.T, B.H.M., M.B.S., B.B.A. and B.I.M) as sample from the Balkumari College of Chitwan district by random sampling method. All the samples were requested to fill up and answer the questionnaires (4-demography, 4-social cause, 4-academic cause, 5-positive effect, 5-negative effect and 2-open questions) prepared by the researcher. Based on analysis and interpretation of the data, the major findings of the study have been presented as: The mean of the participants was 20.03 years. Of them, 76(46.06%) were male and 89 (53.94%) were female, 52 (31.52%) from IT, 47 (28.48%) from BHM, 42 (20.29%) from B.Sc., 36(21.82%) from MBS, 16 (9.7%) from BBA and 14 (8.48%) from BIM stream. 43% students were busy for calling 15 to 30 minutes, 33% were using social media greater than 5 hours, 10.62 % students were playing game more than 5 hours and 58% used smartphones to make photo/ video less than half an hour per day. 42.5% students used for academic search, 6.28% students of fourth year were taking presentation more than 5 hours, 14.5% students of above 25 years were busy in academic discussion and 40% students were busy in web surfing for less than half an hour per day. Most of time, 46.3% of students were suffering from sight problems, 50.24% of students were suffering from stress, 59% of students were suffering from neck and shoulders, 57.1% and 42.9% experienced seldom category of depression and anxiety due to uses of smartphone. Positive correlation of uses of smartphone except

making note were to be found and there was significant differences of mean for all variables at 5% level of significant.

5.3   Conclusion

It is without doubt that smartphone so called social media, will remain an important tool in human life as far communication concerned. Today humankind is harvesting tremendously from its existence not only in mere communication point of view but also in most scholarly activities. Different forms of education including distance education has been widely recommended and facilitated to some degree through these social media networks. Acquiring information both locally and internationally from friends, lectures or experts is no longer a struggle as compared to the olden days and the internet is the ultimate master behind this success. "Smartphone is a useful servant as social media but a dangerous master". It can also be "described as a two-edge sword" and as such, users especially students must be alert about its dangers and be careful in its utilization.

The nature of smartphone is a useful servant but a dangerous master. Two-edge sword of uses of smartphone revealed in the findings that positive and negative effect. Regardless of the benefits that students can connect virtually to improve academic and soft skilled by uses smartphone. Nevertheless, in physical relation, eyesight problems, painful body, increase anxiety and depression, effected by the use smartphone which could have serious consequences on the academic life of students as well of old age.

5.4   Implication

We already know that excessive use of smartphone produces Radio Frequency, which would have negative effect in human body. However, it is not possible to get rid of it completely in 21st century. The study we have done is only the beginning. Hence, it is very essential to study about this subject in Nepal.

The present study was conducted in the Balkumari College and the respondents were focused among semester system. The study may be expanded in other academic institutions in Chitwan district with multiple disciplinary.

This research only involved only one independent variable smartphone and dependent variables (social cause, academic cause, positive effect, and negative effect). The study may be expanded taking additional dependent and independent variables.

The present study was using simple descriptive tools and simple hypothesis examined. The further study may be included cross-section, using medical tools and more related relevant tool with strong hypothesis tools.

5.5 Suggestion

These findings can benefit all the manufactures, educators, teachers, students, parents and policy makers who are involved in manufacturing and education fields directly or indirectly. In the enlightment of the findings, the following suggestions are made:

Manufacturing companies should launch smartphones having low radio frequency.

Central/local government should prioritize physical connections and activities rather than virtual connection among the youths through different programs.

Seminars should be organized in the various academic institutions or faculties to acknowledge students more about the possible implications of smartphone usage on their academic performance.

Students should make sure that they use these social networking sites judiciously to ensure that they do not become detrimental to their academics.

Teachers/lecturers can adopt new strategies by channeling assignments or discussions on social media platforms to help inculcate the habit of using these sites for academic work.

Students must minimize the time they spend on social media to avoid being obsessed by these sites for unnecessary chatting.

Health professionals should enlighten the effect on physical and mental body about uses of smartphone.

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Appendix

The Questionnaire on Cause and Effect of Uses Smartphone on Student of Balkumari College-2077.

1. Which is your gender?   Male [   ]   Female [   ]   Other [   ]

2. What is your age?   Below 20 [   ]   20 to 22 [   ]   22 to 25 [   ]
   Above 25 [   ]

3. Which stream do you belong to?
   i. MBS [   ]   iii.   BHM [   ]   v.   BBA [   ]
   ii. B.Sc [   ]   iv.   BIM [   ]   vi.   ICT [   ]

4. Which semester do you belong to?
   I-sem [   ]   II-sem [   ]   III-sem [   ]   V-sem [   ]
   IV-sem [   ]   VI Sem [   ]   VII Sem [   ]   VIII Sem [   ]

5. You are busy on smartphone per day (SP). Less than 1 hrs. [   ]   1 to 3 hrs [   ]
   3 to 5 hrs [   ]   above 5. [   ]

6. You are busy on calling from smartphone per day. (SC1).
   less than 15 min [   ]   (15 -30)min [   ]   (30-45) min [   ]   above 45 min [   ]

7. Please tick (√) the one you favor about cause of uses smartphone on students:
   1 = up to 1 hrs. 2 = 1 to 2 hrs. , 3 = 2 to 3.5 hrs. , 4 = 3.5 to 5hrs. and 5= More than 5 hrs.

Code	Particulars	1	2	3	4	5
SC2	How much are you busy on social media per day?					
SC3	How much are you busy on playing game per day?					
SC4	How much are you busy on taking photo/ video per day?					
AC1	How much are you busy on academic searches per day?					
AC2	How much are you busy on academic presentation Per day?					
AC3	How much are you busy on academic discussion Per day?					
AC4	How much are you busy on web surfing per day?					

8. Please tick (√) the one you favor about effect of uses smartphone on academic student:

      1 = strongly agree, 2 =Agree, 3 = Neutral, 4 = Disagree and 5= strongly disagree

Code	Particulars	1	2	3	4	5
PE1	Does smartphone help to establish virtual connection?					
PE2	Does smartphone help on your notes?					
PE3	Does smartphone help to establish virtual classes?					
PE4	Does smartphone help on entertainment?					
PE5	Does smartphone help to boost memory?					

9. Please tick (√) the one you favor about effect of uses smartphone on academic student:

      1 = All time, 2 =Most of time, 3 = seldom, 4 = some time and 5= Never.

Code	Particulars	1	2	3	4	5
NE1	How frequently do you have sight problems?					
NE2	How frequently do you have stress?					
NE3	How frequently do you have headache/ shoulder/neck pain?					
NE4	How frequently do you have depression?					
NE5	How frequently do you have anxiety?					

10. In your opinion, why do College students use Smartphone?

    a. ……………………………..   b. ………………………………

    c. ……………………………..   d. ………………………………

11. In your opinion, what impact does a smartphone have on an academic student?

    a. ……………………………..   b. ………………………………

    c. ……………………………..   d. ………………………………

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