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Entitled

Technostress and 3rd Party Technostress

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Abstract

This study investigated if the advances in technology in recent years have increased or decreased the levels of technostress that users have. This study also explores an original concept known as 3rd party technostress, which shows the levels of stress technology causes not to the users but to the people around the users. To fairly compare levels of technostress over time, the GATCS (General Attitudes Towards Computer Scale) questionnaire from Rosen and Weil's (1995) original study will be used and a comparison of their results and this studies' results will be completed. An original set of questions will also be sent to determine the levels of 3rd party technostress and also the levels of technology addiction the participants have. The results from these question sets will show if there is any correlation between technostress and technology addicts. The researcher received 102 completed questionnaires, which gave a good sample for this study to be based on. From the data, it was clear that although technostress is still a major concern, with 44% of people showing signs of technostress, a bigger issue is the fact that 81% of participants showed some levels of 3rd party technostress. 3rd party technostress can have a huge impact on friendships and relationships. This study concluded, that with the rapid advancements in technology over the recent years, many more people have been engrossed in using the technology even during socially unacceptable times, which can upset people around them. Overusing technology may be an addiction that has to be acknowledged and managed by the user. As this is an original topic, much more research needs to be undertaken to fully understand 3rd party technostress.

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Introduction

1.1. Project Rationale

Technology has become an integral part of everyday life. Figure 1 below shows that over 22% of the world's population (1.4 billion people) own a smartphone (Heggestuen, 2013), allowing them to receive emails, texts, phone calls, social media notifications and more at anytime, anywhere. On top of that, 26% of the population own a computer, a tablet or both.

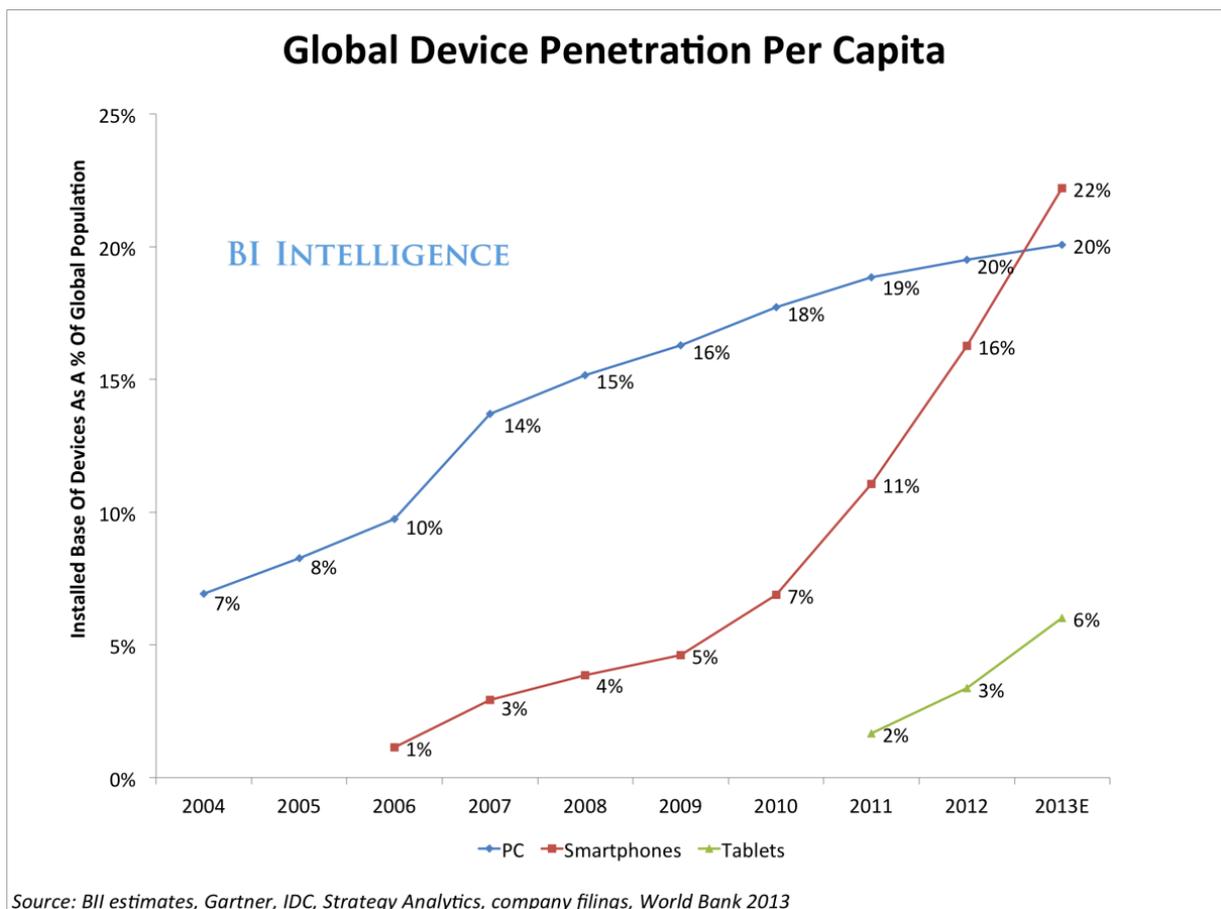


Figure 1: Global Device Penetration Per Capita (Heggestuen, 2013)

This study will investigate if the rise of technology has increased the amount of stress caused by technology (technostress) over the last 20 years. To see if the levels of technostress have risen, the original 20 GATCS (General Attitudes Towards Computer Scale) questions from the Rosen and Weil study will be used, to allow the results can be compared fairly.

This study will also carry out some original research to see if technology can cause stress not to the user but to a third party, for example, if a husband is watching TV or playing a video game and therefore ignores his wife, does this cause stress to the wife. This will be named 3rd party technostress.

1.2. Project Aims

The primary project aim is to see whether the levels of technostress has decreased due to living in what is known as the digital generation (Buckingham and Willett, 2006) as people are growing up with technology or if technostress has increased due to the constant access and change in the technology.

The secondary aim is to identify whether 3rd party technostress exists or not and if it does, the project will find out if 3rd party technostress correlates to the level of normal technostress.

1.3. Objectives

The objectives are:

- To understand the concept of technostress, the effects it has and the causes.
- To identify 3rd party technostress and the stress technology has on relationships.
- To use Rosen and Weil GATCS questions to measure the levels of technostress and compare the results from 19 years ago.
- To create a new set of questions to identify to measure the level of 3rd party technostress
- To see if there is a correlation between technostress and 3rd party technostress

2. Literature Review

2.1. Introduction

The increase of technology over recent years has triggered an interest to investigate the potential impact technology can have on the users. A great deal of research has been conducted on technostress, however the idea of 3rd party technostress remains an area in need of further exploration. This chapter of the dissertation intends to offer an overview of the conceptual framework of technostress, outlining its various dimensions and effect on individuals. This chapter will include research on 3rd party technostress and will also entail discussion on the role of stress in deteriorating the quality of relationships.

2.2. Technostress

Technology does not only increase work efficiency but it also brings a greater degree of connectivity to people. However, the use of technology also appears to also have negative effects on the psychological wellbeing of individuals. Technostress, a term originated in 1980 is the effects technology has on the physical and psychological of individuals. Technostress is known as “the inability to adapt to or cope with new computer technologies which reveals itself in one of two ways: (1) computer users struggle to accept the technologies or (2) computer users over identify themselves with the technology” (Brod, 1984). People are exposed to a wide array of technological tools and in an effort to keep pace with technology evolution; they may feel pressurised to learn to use the new forms of technology. In addition to this, the inability to fully comprehend the requirements and functionality of technology-based gadgets may create frustration and stress for the individuals (Quinn, 2001).

In recent years, the concept of technostress has evolved even further, with researchers now identifying it as an outcome of excessive emphasis on constant upgrading of Information Technology (IT) and Information Communication Technology (ICT) related skills among personnel (Tarafdar, Tu, Ragu-Nathan & Ragu-Nathan, 2011; Tu, Wang & Shu, 2005; Shu, Tu & Wang, 2011). Lee, Chang, Lin, and Cheng (2014) have studied technostress in the context of Smartphone users, regarding the excessive exposure to information and communication tools can cause additional pressure on the consumers. Palfrey and Gasser

(2013) presented a similar conclusion; they perceived the overload of information as the prime cause of technostress among this generation.

2.2.1. Symptoms and Effects of Technostress

Technostress can influence the functioning of a person on two levels; physical and psychological. As far as the impact on physical functioning is concerned, people with technostress show continued physical fatigue, body ache specifically pain in shoulders and back and disrupted sleep pattern (Tiemo & Ofua, 2010). Other physical complaints such as disrupted heart rate, increased level of cholesterol and migraine have also been attributed with high level of technostress (Palfrey & Gasser, 2013).

The symptoms of the psychological aspect of technostress are deterioration in mind processing and thoughts. For instance, difficulty in learning new information or retrieving previously gained knowledge is a symptom of technostress. Another symptom that can be commonly seen in people experiencing technostress is the feeling of constant agitation and anxiety, which effects the day-to-day functioning of an individual. Clute (1998) has offered a deeper insight into the symptoms of technostress identifying the experiences of social isolation and rising dissent towards the use of computers as key indicators of a person dealing with technostress. In addition to this, angry outbursts were also listed as an indication of stress related to technology use. Furthermore, in an organisation, repeated absence of employees, decline in job commitment and willingness to invest time and energy in job related activities suggested are the results of technology induced strain. Tiemo and Ofua (2010) have further added that the symptoms associated with panic attack can also accompany technostress, suggesting its damaging impact on the psychological wellbeing of the victim. The effect on psychological functioning is further highlighted by the research of Tarafdar et al (2011) who stated that the reduction in the job satisfaction of personnel is one of the leading symptoms of technostress. In addition to this a decline in group cohesion and collaboration can manifest in the form of more instances of role conflict and overload (as illustrated in figure 2).

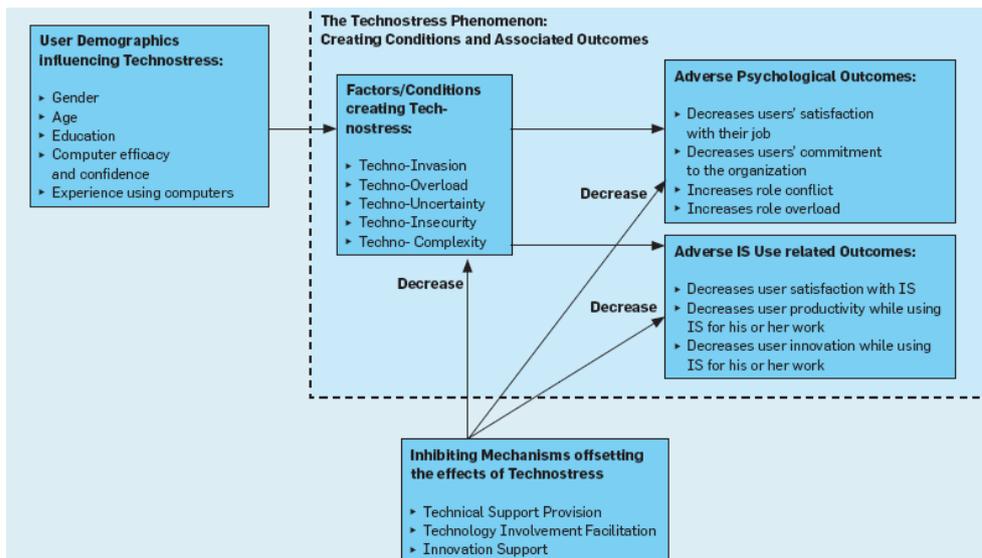


Figure 2: Causes and Symptoms of Technostress (Tarafdar et al, 2011)

2.2.1. Causes of Technostress

The causes of technostress have been examined by various researchers (Prabhakaran & Mishra, 2012; Shu, Tu & Wang, 2011) that provide us with an outline of factors that contribute to the increase of technology related strain in an individual. Garson (1995) claimed that the dynamics of interaction between an individual and technology are further complicated with the advancement of new technologies, giving rise to a heightened sense of isolated existence.

Clute (1998) in a comprehensive study identified various factors that serve as a source of technostress for an individual. One of the primary variables in this study was related to the personal limitation that could impose additional stress on a person. For instance, the lack of orientation about the use of computer and its various functions resulted in higher level of frustration when encountering a barrier to use computers effectively. In a similar manner, the pre-existing anxiety about the use of computers also contributes to the creation of stress. Also, organisations have an equal level of influence on the magnitude of technostress a person is exposed to while managing their job related responsibilities.

Tiemo and Ofua (2010) have investigated the experience of technostress among the librarians and found that the shift to computer based catalogue and tracking of library material was a difficult transition for the librarians. The lack of familiarity with the computer technology and

minimal support in this domain further increased their stress. Therefore, although the increased use of technology may have added more stress upon the librarians in their job role, the stress could have been reduced had they been provided with the appropriate training and support in the transition.

Ayyagari (2012) proposed the model showing the relationship between technology based tasks and overload of information as prime causes of technostress as shown in figure 3 given below. It has been reported that the relationship between task allocated to an individual and the technology used to perform this task would determine the level of strain it will cause for the employee. In cases where technology based tasks was a bad fit, the person is unable to use the technological tools in an effective manner to perform the tasks, and therefore experiencing heightened level of frustration. Similarly, information overload can reduce the capability of the individual to concentrate on the task at hand, leading to a decline in the quality of performance, which eventually induces higher levels of stress in the people. Ayyagari (2012) has further asserted that the idea of task-technology can be used to reduce the negative impact of technology related strain in the physical, psychological and job related functioning of an individual.

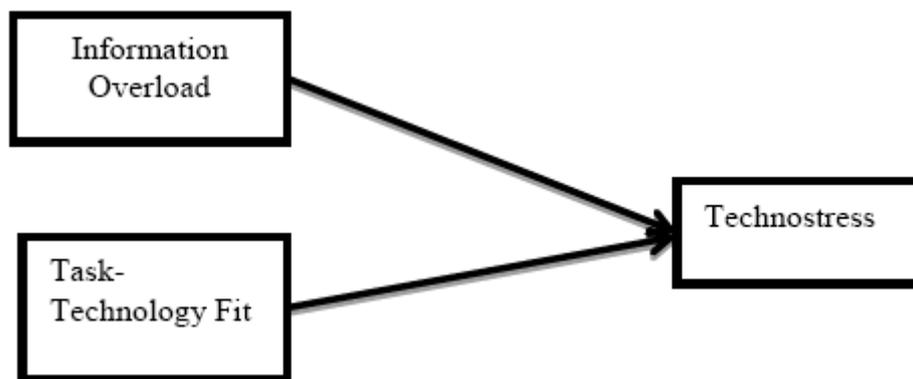


Figure 3: Interplay of overload and task-technology fit with technostress (Ayyagari, 2012)

Tarafdar et al (2011) have also outlined the factors that increase technostress among people (refer to figure 2). These causes can be identified as “techno-invasion, techno-overload, techno-uncertainty, techno-insecurity and techno-complexity” (Tarafdar et al., 2011, p. 115). Techno-invasion is considered to be a drawback of increased connectivity provided by technology. Employees are exposed to greater degree of technology related stress as they

assume to be available for work related queries even after the regular office hours, subsequently resulting in decline in quality of their social and family life.

Techno-overload is when the individuals are expected to keep the balance of information they receive between their varied forms of technology such as their mobile phones, social networking websites, job related computer use, etc. The overload of connectivity and response need from these different technology sources can result in increased level of stress for the person. Since an individual is not able to effectively handle the increase of information from these different sources, stress becomes an inevitable outcome in such a situation. A similar conclusion has been offered by Lukoff and Gackenbach (2004) who claim that the efforts at multitasking can push people to engage in tasks that are beyond the capacity of the individuals' abilities, therefore resulting in physical, emotional and psychological strain.

Techno-uncertainty can induce strain in the life of an individual by propelling them to quickly respond to the emerging forms of technology, shifting from the previous technology tools to newer version, however the inability to have adequate time to adjust with these changes can result in physical and psychological strain on the person. Technology is not something static and continues to evolve, thus requiring the people to keep pace with the development, which can create technostress.

Tarafdar et al (2011) have further discussed about the role of techno-insecurity in creation and enhancement of technostress by claiming that the emphasis on technological competence has created feelings of job insecurity among people. They fear that someone who is better with technology will replace them, due to their limited knowledge of technology.

Finally techno-complexity has been can also be as a reason of technology related stress. It can create a higher level of stress among professionals, as they have to spend greater amount of time and energy to acquire knowledge about latest upgrades of information technology. In order to maintain relevance with the modern skill sets, the employees have to become familiar with the complex terminologies and conceptual frameworks of using technology. This adds additional pressure on their jobs, demanding them to become familiar with new version of applications promptly to maintain a positive position in their respective organization. Tu, Wang and Shu (2005) have stated that the job related tasks that are not complicated in nature

create lower level of stress, while tasks that require greater understanding and comprehension are marked by techno-complexity.

Yu et al (2009) have explored the technostress caused by the use of mobile phones specifically, labeling it as mobile technostress. It has been argued that the use of computers can trigger physiological changes, which are similar to the biological functioning of an individual under stress. Based on this premise the use of mobile phones are linked with mobile technostress. Yu et al (2009) have focused on the negative attitude of individuals towards technology-based gadgets such as mobile phones. Techno-anxiety was found as the main symptom of stress experienced by the users of mobile phones. It has been reported that the basic purpose of the use of technology by an individual is to facilitate the fast paced completion of tasks. When the users feel a sense of loss of control while using the technology such as mobile phones, the completion of tasks becomes difficult, therefore generating frustration and anxiety among them.

2.2.2. Coping with Technostress

Technostress can be managed by engaging in activities that reduce the negative implication on the cognitive, physical and emotional functioning of an individual. Weil and Rosen (1997) have highlighted a few of the remedial actions that can help an individual in dealing with the causes and symptoms of technostress. One of the important activities that can support coping is through identification of the needed information, while trying to stop spending time and energy in unnecessary information. This could help in reducing the occurrence of techno-overload. The issue of techno-invasion can be managed by allocating a specific time frame for using technology such as computers and mobile phones. The time spent watching television can be managed effectively through adopting this approach as well. In addition to this, technostress can also be reduced by allocating time for activities that allow an individual to engage in face to face social interaction with significant others. Also, scheduling time for physical exercise can also boost the energy level of a person, reducing the risk of technostress to a significant extent (Weil & Rosen, 1997).

Another useful suggestion put forward by Weil and Rosen (1997) to manage the anxiety or agitation a person, is to find alternatives that can be used when relying on the technology for connectivity. For example, if the use of mobile phones creates stress, an individual can opt to

utilise voice mail to minimise the level of stress experienced due to mobile phone use. In some cases switching off these connectivity tools can be a key source of relaxation (Technostress, 2007).

Ragu-Nathan, Tarafdar, Ragu-Nathan and Tu (2008) have said that users are often confused and face additional pressure in order to rapidly adapt with the change of technology. Assisting the users to understand and comprehend the functionality of the technology can reduce this pressure. Such support is of important business organizations as the level of technostress of employees can be significantly reduced through it. Managers should ensure staff understands the new technology and the reasons why the technology is being implemented, as it helps the employees in overcoming anxiety, as they can identify the benefits of the technological change, moving beyond uncertainty.

Poole and Denny (2001) have offered further evidence of coping mechanisms that can be useful in dealing with technostress. It has been stated that focus on creating equilibrium between technology uses and spending time in face to face interaction with others helped in mitigating the adverse effects of technology induced stress. Also, taking short breaks during the use of technology devices can also support in bringing some balance into face-to-face social connectivity. In addition to this, using humor to cope with technostress has also been indicated as a useful tool.

2.3. 3rd Party Technostress

3rd party technostress can be identified as the stress experienced by a person due to the technology use by another person. The increased integration of technology in day-to-day life of an individual has made technostress an unavoidable part of life. There is some research on the impact of technology gadgets, such as smartphones, on the interaction between family members. The increased reliance on technology in the form of smartphones, tablets, computers, social networking websites, etc. has significantly changed the traditional notion of family time. The greater the inclusion of technology in the life of a person results in the decline in social functioning, which indicates it to be a prime cost an individual has to pay for greater connectivity through technology (Technostress, 2007).

Technology has invaded the social life to such an extent that people have lost touch with real life interaction and invest a greater degree of time and energy in online or technology based interaction. For instance, family members even when occupying the same room will engage in technology related tasks more than talking to the family members. A common observation in this context can be that parents are occupied by office related task on their computers or reading work emails on their smart phone and the children will be busy playing video games or watching TV. The traditional family time has been invaded by technology increasing the feelings of isolation and frustration among the technology users and the people in their surroundings.

A common observation is that individuals regard the use of technology as a means to support their day to day functioning; however the inability to manage the impact of technology on personal life can create issues for the individual. Technology has the potential to drive an individual towards loss of control, hence establishing the foundation of technostress (Technostress, 2007). Third party technostress can also arise out of the overuse of technology by others, as the person using technological gadget is not able to respond to others in the immediate surroundings. Instead, the technology user is more apt to respond to the people they are connected to through the technology as reported by Enayati (2013). Researchers have found that excessive use of mobile phones or other forms of technology can have bad effects on the level of interaction among family members (Jarvenpaa & Lang, 2005). Subrahmanyam and Greenfield (2008) have claimed that the dominance of technology on the lives of adolescents has inadvertently damaged the quality of their relationship with their parents and siblings.

2.3.1. Examples of 3rd Party Technostress

The use of technology is not only a source of stress for the users but technology use can also have an indirect effect on the people in their surroundings. Individuals have elaborated how the use of technology by other people can be a source of frustration and stress for their own selves.

For instance Rosenwald (2014) has indicated how the reliance of the older generation on a younger age group for technical support while using gadgets such as the Phone can cause stress for the latter. Even though elders are the users of iPhone, the constant queries directed

at the younger people can cause strain for those who find it difficult to communicate the instructions in an effective manner. An example has been used to illustrate this point, using the interaction between a 69-year-old mother and her son about an iPhone password as an example. The frustration experienced by the son eventually leads him to ask his mother to seek support from the company helpline, thus refraining to offer her any further guidance to deal with her iPhone password as it created stress for him.

Another example to show the manifestation of third party technostress is highlighted through the incident shared by an individual. The lack of orientation about the functions of Samsung Galaxy created a high level of stress for Tammy, who couldn't comprehend how to switch off or turn her husband's Galaxy phone on silent. The series of texts from her husband's friend resulted in repeated beeping and the inability to know how to turn off the device or its sound was frustrating her even further. Eventually, out of her frustration she had to go to the kitchen downstairs, looking for a suitable place to keep the smartphone to reduce its disturbing beeping (Rosenwald, 2014).

Enayati (2013) has summed up 3rd party technostress by narrating an experience where a woman was having dinner with a relative and during the two hours of their meal, her companion was engaged in sending text messages on her smartphone, taking pictures, playing an online game and even went away to attend a call she claimed to be absolutely necessary. At the end of the meal, the woman who had to stay with the technology obsessed relative ended up having a headache, which shows the physical effects of 3rd party technostress.

Another article published on news.com.au (2014) has expressed a similar notion, through the findings of a survey. It was reported that 7 out of 10 men could be categorised as tech-obsessed as they can't avoid using their technological gadgets even while having dinner with their family members. It has also been reported that approximately a third of the men included in the survey reported excessive use of their technological gadgets, leading to the point where the significant others were ignored while the technology users were engrossed in dealing with their online community. The females included in the survey proclaimed that the excessive use of technology is likely to reduce the level of social interaction of men, resulting in poor social and interpersonal connectivity in the real world. A ratio of 8 out of every 10 women expressed negative attitudes towards the use of mobile phones, tablets, PCs by their significant others and friends.

Telegraph Reporters (2012) have put forward the findings of a survey. It has been inferred that a significant number of participants who observed their companion holding a mobile phone during a conversation results in a negative opinion about that person. The interesting fact in this research is that the use of mobile phone is not the key factor triggering such negative perception, but the mere presence of the gadget during the interaction can be source of such negativity. It has also been indicated that mobile phones had negative implications on the level of closeness experienced by the individuals as well as the overall quality of their interaction with each other. Furthermore, the study has also concluded that in cases where people are engaged in discussion about some important area of concern, the presence of a mobile phone or other devices of connectivity can decline the experience of face-to-face connectivity, which creates a form of dissatisfaction from the interaction.

Encounters like these turn into unpleasant social hanging as the people on the other end find it confusing to be in a situation where the mobile phone or other technology gadgets receive far more attention than themselves. A study conducted by Royal Voluntary Service (2014) shows that in UK, a substantial number of people consider the use of cellular phones while dining a frustrating habit. The survey found that 78% of the participants reported feelings of annoyance and anger when they were having dinner with their companions and their companions are using a mobile phone or tablet. Furthermore, the use of technology gadgets during dinner is regarded as a violation of dining etiquettes. Individuals who check their mobile phones, reply to texts and make or answer phone calls tend to create stress among their companions.

Apart from the family members of the technology users being exposed to 3rd part technostress, the users of technology can also create stress for the people offering them technical support. Rosenwald (2014) has indicated that consumers who tend to request the technical support personnel to repeat the details of using their devices all over again can create undue strain for these employees. The obsession with technology gadgets holds the potential to create technostress for people in general public as well. Ho (2012) has outlined a number of ways that the use of technology can be a source of annoyance for other people. The behaviors such as looking at the mobile phones and blocking the path of others while shopping in a store, using tablets to take pictures at an event without considering the irritation

being caused by the tablet blocking the view of others are some of the instances of technostress of general public.

In addition to this, Ho (2012) has also pointed out another form of strain that the use of technology can cause by indicating that the heightened use of social media may cause strain in relations. In an effort to post the news quickly, people can find themselves in situations where others already share their good news on social networking websites prior to their own posts, thus resulting in negative emotions. It can be seen that the third party technostress has moved beyond the simple phenomenon of experiencing negative emotions due to the excessive use of technology by significant others.

Even though third party technostress has become a global issue as evident from the discussion presented above, there are no available empirical research studies exploring the concept of third party technostress, indicating the need to conduct a study in this area. The current research will fill in the gap existing in the area of third party technostress, providing insight into its dynamics and implications on individuals.

2.4. Stress: Effect on Relationships

Stress tends to have a negative effect on the ability of the people to form and maintain meaningful relationships with others. Lopes et al (2005) have analyzed how negative experiences can induce stress, which in turn tilts the emotional expressions towards negative dimension. As a result, the quality of interaction an individual can have with others declines. Individuals who experience high level of stress may find it unable to cope with the life situations, thus becoming unable to positively respond to the social needs of their significant others. In case of technology users, individuals may tend to be experience frustration due to their inability to cope with the demands of social interaction, striving to maintain similar interaction experiences in their social surrounding as in case of digital world (Ayyagari, 2007).

Excessive use of technology also causes strain in social relations. Gonchar (2013) has indicated the high level of isolation an individual can experience due to the use of technology by others in the surroundings. It has been further pointed out that people tend to show more interest in their digital lives, interacting with others through their technology gadgets rather

than spending some quality face to face time with others. Subrahmanyam and Greenfield (2008) have maintained the notion that increased use of social networking and online communication has reduced the quality of interaction among adolescents and parents, thus creating strain on the relationship between them.

2.5. Conclusions

It can be concluded that the emergence of new forms of technology has increased the level of stress users experience in their day-to-day life. On the other hand, the individuals (family and friends) are involuntarily pushed into the background as the technology users become more engaged in their gadgets. Third party technostress holds central position in creating a decline in the quality of social interaction people experience. In the above content, various instances of third party technostress have been discussed where an individual was exposed to high level of stress due to use of technology of others. The use of cellular phones while dining has become a norm, nevertheless, it is perceived as an unpleasant behaviour. Third party technostress needs to be explored further as there seems to be no available empirical studies in this domain.

2.5.1. Key Issues

The key issue that has been identified in the above literature is the impact of technology use on third party. The tech-obsession of significant others (spouse, siblings, children, parents, friends etc.) can induce stress. It is important to explore the magnitude of such stress and its effect on the physical, psychological and social functioning of an individual. Another area that should be focused in research is the coping mechanisms that can be useful in dealing with third party technostress.

3. Research Methodology

3.1. Introduction

In this digital generation (Heggestuen, 2013), technology has become an essential tool in day-to-day life. Smartphones, tablets, TV, computers and many more devices are accessed and used on a daily basis by a large proportion of the population. This study being conducted will use the GATCS questions by Rosen & Weil and will compare the results from 1995 to present day to determine the levels of technostress in society. This study will also investigate whether technostress can occur from others using technology in which we are calling 3rd party technostress.

3.2. Research Strategy

As this study is an extension of the Rosen & Weil study, a survey will collect the data. The survey will contain two main parts, firstly the GATCS question from the Rosen and Weil as this will enable comparisons to occur between the results obtained in 1995 and the results obtain from this research. The second part of the survey contains two different types of questions; questions focused on 3rd party technostress to see if it exists and questions to see if the participants consider themselves to be addicted to technology.

To receive replies to my questions as quickly as possible, the survey will be on an online form which allows anyone to take the test from anywhere. This will allow instant results from anywhere in the world in a very short time.

3.3. Data Generation Methods

The data will be generated in the form of an online questionnaire. The questionnaire will be created using a tool called LimeSurvey. LimeSurvey allows the questionnaire to be distributed globally in seconds reaching a vast amount of people.

Online surveys also allow the data to be easily manipulated into tables, charts and graphs. If the survey was done by hand, not only would it take a much longer time to get many results as it will reach fewer people but also visualising the data, to make the data easy to understand, would of taken a lot longer too.

The questions will all be closed and pre-defined in a scale format, which will allow the data received to be turned into numbers allowing an easy visualisation of the data. Turning data into numbers is known as quantitative data.

3.3.1. Rosen and Weil Questions

Rosen and Weil had 60 question split into 3 categories; GATCS, CTS and CARS. Each category contained 20 questions.

CTS (Computer thoughts survey) and CARS (Computer anxiety rating scale) are to do with computer learning anxiety and consumer technology anxiety. Baring in mind that the Rosen and Weil questionnaire is over 20 years old, it was decided that the CTS and CARS questions were out dated and can no longer identify levels of technostress in people.

GATCS (General attitudes towards computer scale) was created to determine people attitudes towards computers and the future of computers (Rosen and Weil, 1992). Though the GATCS questions are over 20 years old and a couple of the questions seem a little out dated, the GATCS questions will be used in this study, as levels of technostress can still be identified from the set of questions.

3.3.2. Custom Questions

Alongside the GATCS set of questions, an additional 20 questions have been created two identify:

- levels of 3rd party technostress
- levels of self-confessed addiction to technology

These new set of questions should provide results which will allow a correlation to be identified between people are suffer from technostress, people of suffer from 3rd party technostress and people who are addicted to technology.

As well as the 40 questions already mentioned, there will also be 7 demographic questions that will help spot trends in the data collected.

3.4.Data Analysis

As mentioned in the Data Generation Methods section, the answers from the questions will be transformed into numbers allowing the results to be implemented into bar charts, pie charts and frequency tables. Charts and tables will allow the data to be easily read, understood and analysed.

GATCS questions are divided, half the questions are positive questions and the other half is negative. Transforming the answers to numbers will work by giving the positive questions giving:

“Strongly Agree” a value of 5, “Agree” a value of 4, “Neutral” a value of 3, “Disagree” a value of 2 and “Strongly Disagree” a value of 1.

For the negative questions the answer values will be reversed. The participants’ results will then be totalled and the higher the score, the more comfortable they are with technology, which means the less technostress they have.

The same principle will be applied to the custom made questions too.

GATCS determines the boundaries as people would score 65% or higher have no technostress, people with a score of 55% or less as having moderate/high technostress and everyone in between have low levels of technostress. This principle is also applied to the custom questions too (as seen in Table 2 and Table 3)

3.5.Sampling

The survey will be online using an open source tool called LimeSurvey. LimeSurvey allows surveys to be created online therefore only a link needs to be given to participants to answer the questionnaire. The link for the survey will be sent over social media, so people from all around the world will be able to see it and fill in the survey in a short amount of time.

3.6.Ethics

To ensure the survey being conducted is ethical, the participant must accept consent forms. During the research, participants will be anonymous and their answers will be kept confidential.

A consent form is the first page participants will see when accessing the link to the survey. To be able to access the survey they must read the consent form. By accepting the consent forms, the participants acknowledge:

- The objective of this study.
- What their answers to the survey will be used for.
- When their data will be kept until.
- That they can decline to answer some questions.
- That they can withdraw from the study completely and their answers will not be used.
- That their information will not be disclosed to any third party.

Names will not be asked for in the survey to keep participants anonymous. Privacy will be maintained by keeping the results confidential and using the data collected only for this study.

3.7.Limitations

This study is about how the use of technology causes stress to individuals and the individuals around them. As the research question is set online the participant will have to answer it questionnaire online, which insinuates that the participant is comfortable with using a computer though it does not tell us if it causes them stress or not.

Using social media as the main way to distribute the survey to people means that the majority of the audience will be people in the same generation and country as me. This means the participants will be less broad. To overcome this I have asked friends from different countries to share the survey with their friends in their country and I have also asked elder and younger family members to share the questionnaire to their peers. This should result in a vast and varied amount of results.

3.8. Conclusions

The research strategy implemented for this study should get a broad and reliable set of data. Through the power of social media, not only will my friends see and fill in the survey but so will their friends creating a snowball effect. With the limitations in mind, the research will still receive a good amount of data that can be analysed in the form of charts and graphs.

4. Findings and Analysis

4.1.Introduction

The general aim of this study was to identify if technostress has increased or decreased over the last 20 years and also to see if 3rd party technostress exists. A comparison between the Rosen & Weil GATCS results and the findings of the current research has been identified. This section offers insight into the technostress and 3rd party technostress, using the information provided by the participants. This section of the study offers key research findings.

4.2.Analysis

The General Attitudes Toward Computers Scale (GATCS) has been adopted from the study of Rosen & Weil (1995). The questionnaire was based on five-point scale with the responses ranging from Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree. The data analysis is based on the evaluation of the responses provided by the participants for each question on the questionnaire. The result of each question has been given a numeric value (see section 3.4 Data Analysis) and then totalled to identify the level of technostress experienced by the participant for GATCS.

4.2.1. Levels of Technostress

GATCS	Frequency of Participants	Result Boundaries
No Technostress	58	65-100
Low Technostress	38	55-64
Moderate/High Technostress	6	0-54
Total:	102	

Table 1: Participants' Levels of Technostress

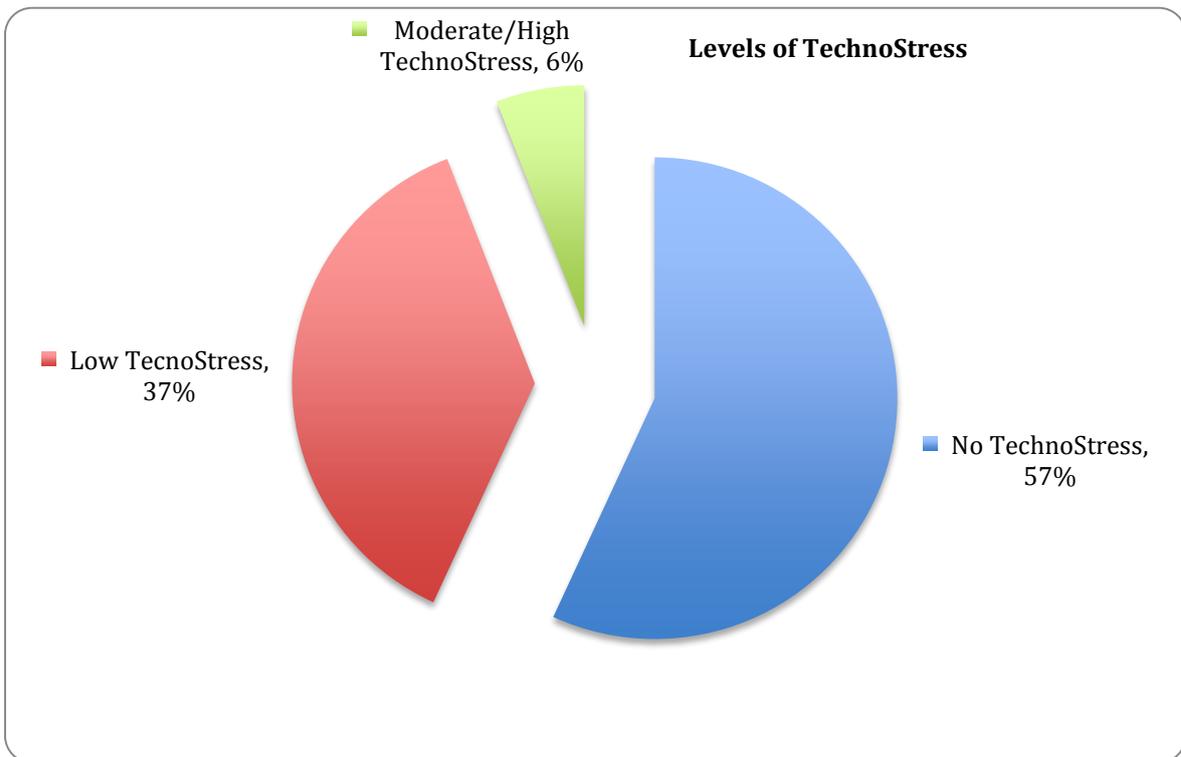


Figure 4: Participants' Levels of Technostress

When the GATCS results had been totalled, the majority of participants indicated having no technostress. There were 58 participants, whose score was 64 or more, showing a high level of comfort with the use of technology. On the other hand, 38 participants had low level of technostress and 6 participants reported to have moderate or high level of technostress due to low comfort level with their use of technology. Figure 4 shows a graphical representation of the percentage of participants who have each level of technostress.

4.2.2. Levels of 3rd Party Technostress

3rd Party Technostress		Result Boundaries
No	20	0-35
Low	17	36-41
Moderate/High	65	42-65
Total:	102	

Table 2: Level of 3rd Party Technostress

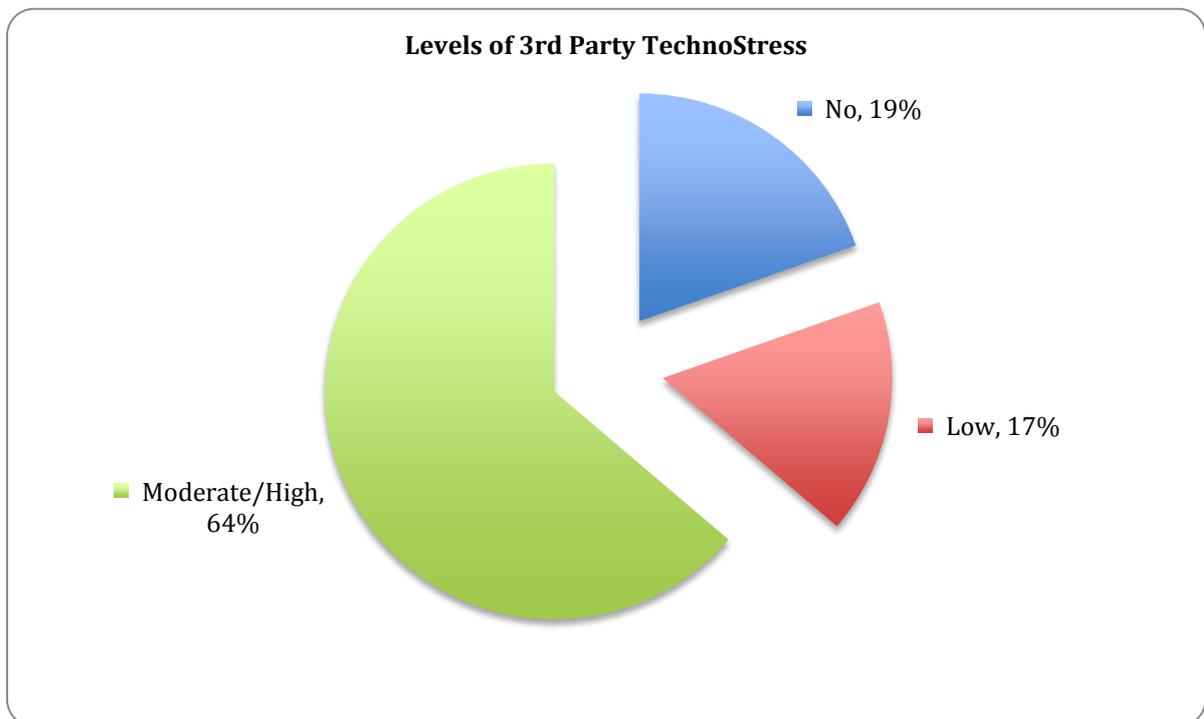


Figure 5: Level of 3rd Party Technostress

Table 2 illustrates that in 3rd party technostress, a significant number of participants (65) experienced moderate or high levels of 3rd party technostress. There are 17 participants showing low levels of 3rd party technostress, while 20 participants have little to no experiences of 3rd party technostress. This finding shows that a total of 81% of participants get annoyed with other peoples' use of technology. This shows that stress can occur from other peoples use of technology (3rd party technostress) which in turn can effect the quality of relationships between individuals, which is the research objective.

Due to the rising number of people using technology, 3rd party technostress is at a all time high. Figure 5 shows the percentage of participants in each level of 3rd party technostress, with 82 respondents depicting low, moderate and high level of technostress.

4.2.3. Levels of Technology Addiction

Technology Addict		Results Boundaries
No	37	0-18
Low	34	19-22
High	31	23-35
	102	

Table 3: Level of Technology Addiction

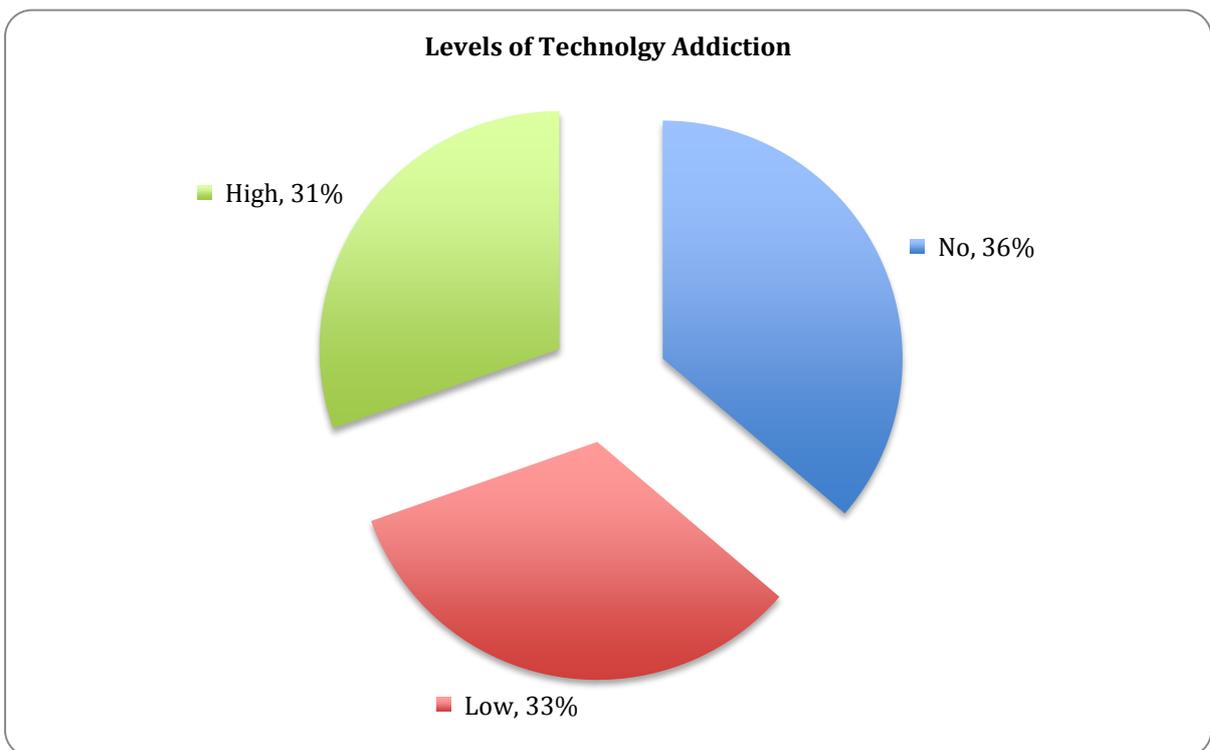


Figure 6: Level of Technology Addiction

Another area which has been investigated in the study was related to the level of technology addiction of the participants. This data will enable us to see if there is a correlation between people of love technology and people of get annoyed by technology.

Table 3 and figure 6 show that there are only minor differences between percentage of individuals who claim to have no, low and high technology addiction. The largest segment shows that majority of the participants are not addicted to technology while the smallest frequency was of participants show having high levels of technology addiction.

4.2.4. Correlations

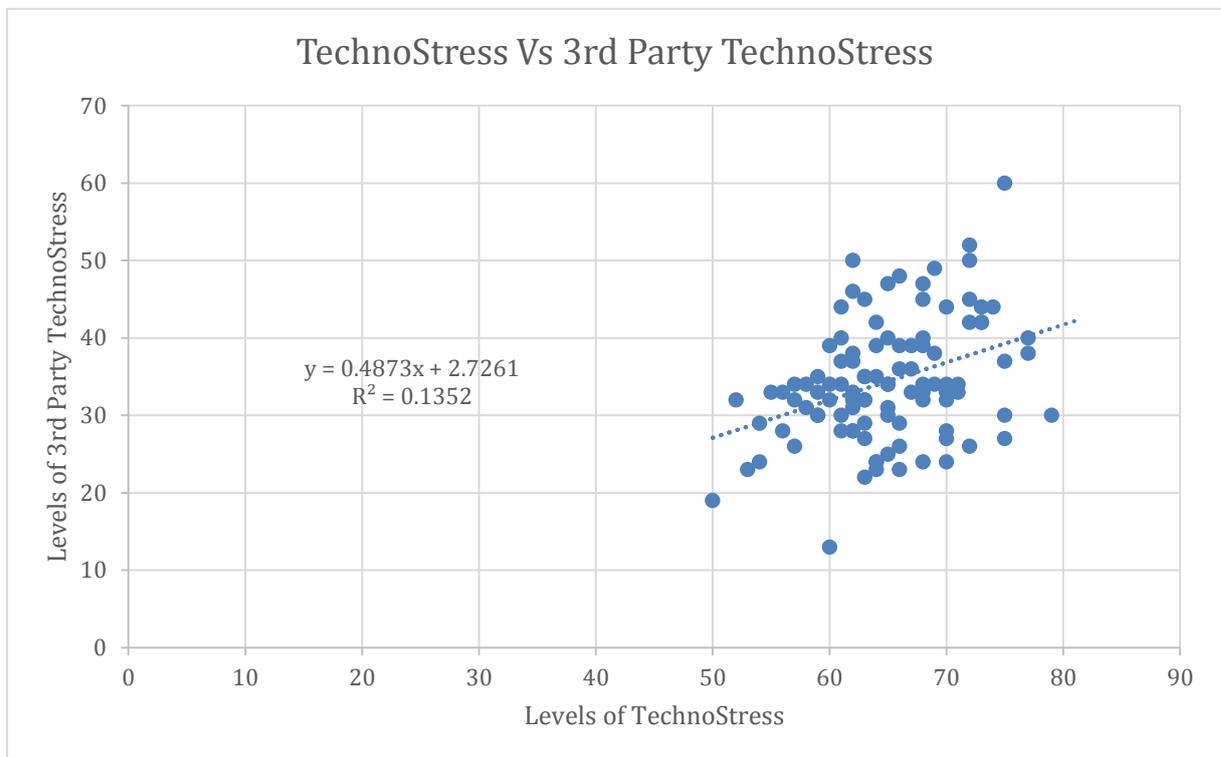


Figure 7: Comparison of Technostress Vs 3rd Party Technostress

Figure 7 represents the comparative analysis of technostress and 3rd Party Technostress. As depicted in the scatter graph, there is a positive relationship between the level of technostress and level of 3rd party technostress. Though it is not a strong correlation, figure 7 does show that if someone suffers from technostress they may also be likely to suffer from 3rd party technostress.

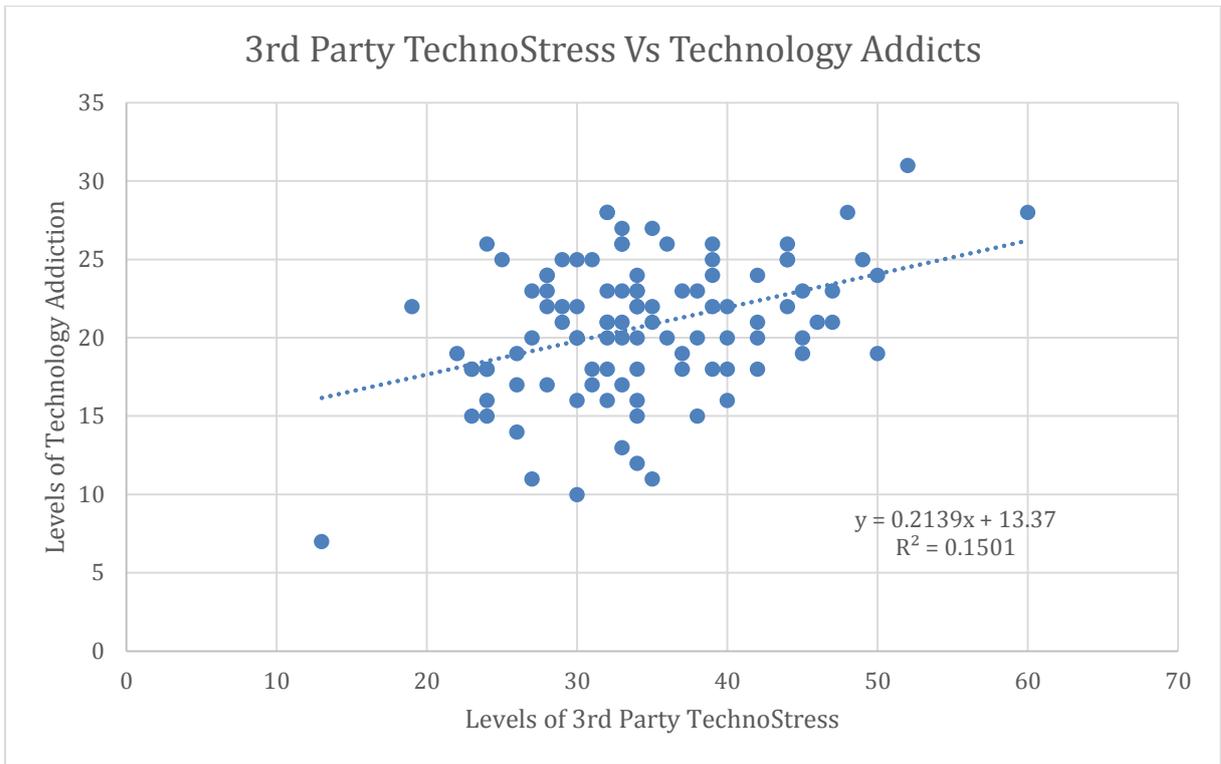


Figure 8: Comparison of 3rd Party Technostress Vs Technology Addiction

Figure 8 shows that there is a positive correlation between technology addicts and the level of 3rd party technostress that they have. This can be somewhat hypocritical of the participants as they get annoyed with others using technology in their presence but they are addicted to technology themselves and probably annoy others with their use of technology.

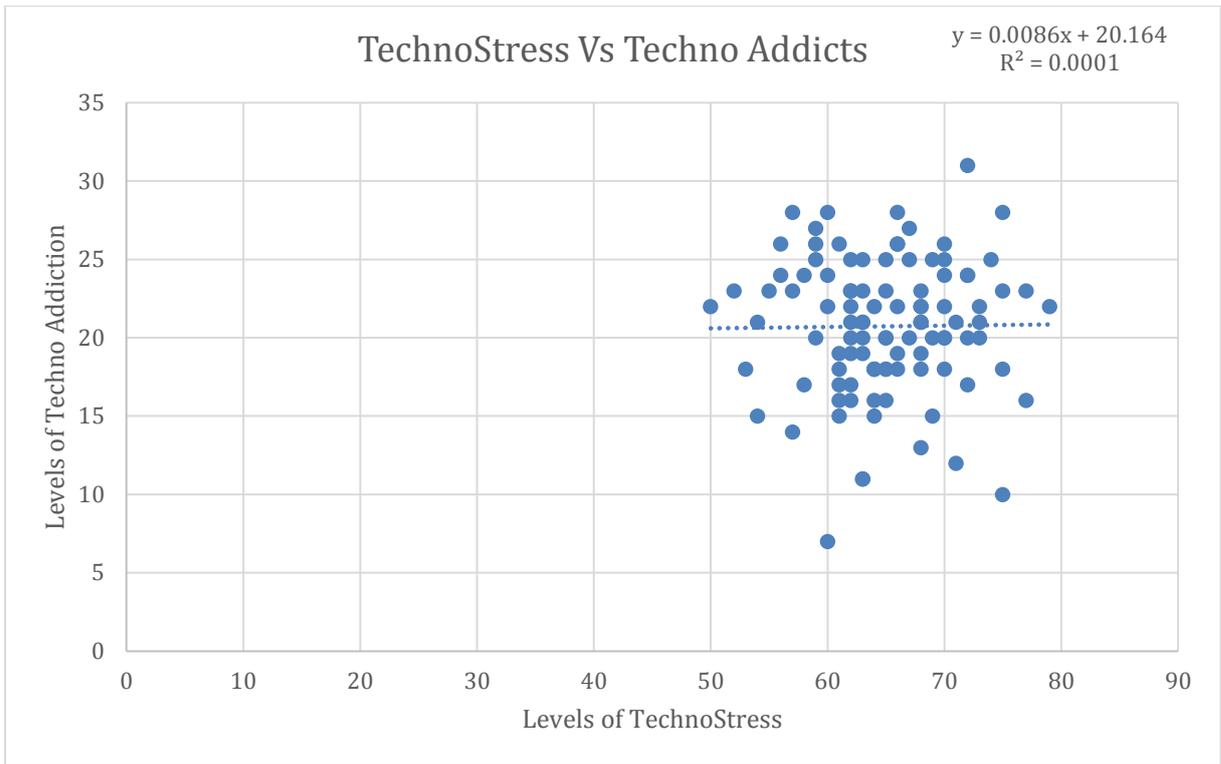


Figure 9: Comparison of Technostress Vs Technology Addiction

Figure 9 shows that there is almost no correlation between technostress and technology addiction at all among the participants.

4.2.5. GATCS Results Comparison

Another objective of the study was to identify the differences in the level of technostress that had emerged over the 20 years since Rosen and Weil published their GATCS results.

	Rosen and Weil (1995)	Anthony, Clarke and Anderson (2000)	Hogan (2009)	Present Study
No TechnoStress	64%	50%	46%	58%
Low TechnoStress	12%	17%	20%	38%
Moderate/High TechnoStress	24%	33%	34%	6%

Table 4: Comparison between results of level of technostress (1995-Present Study)

Table 4 shows how the number of people experiencing moderate to high level of technostress have increased over the years. However, the current study indicates a sharp decline in the ratio of people experiencing moderate or high level of technostress. Table 4 also indicates that the number of people having low level of technostress has increased with the passage of time. Rosen and Weil (1995) found 12%, Anthony, Clarke and Anderson (2000) found 17% and Hogan (2009) reported that 20% of individuals in the sample had low technostress. In case of the present study 38% participants have shown low technostress. The percentage of individuals experiencing no technostress have varied from one study to another. Rosen and Weil (1995) indicated that 64% of the respondents had no technostress while Anthony et al (2000) reported 50% individuals with no technostress. The study of Hogan (2009) shows that 46% of the participants had no technostress. In the current study 58% of the participants have depicted no technostress. The figure 10 also illustrates the different percentages of technostress levels reported by various studies.

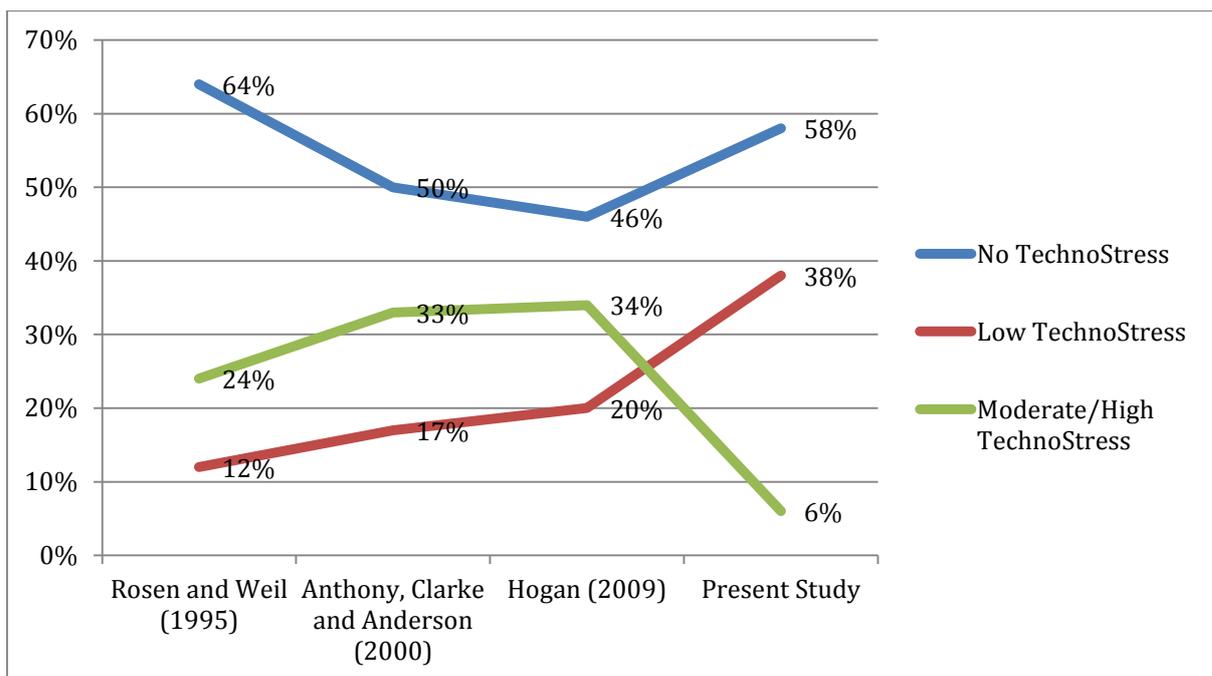


Figure 10: Comparison between results of level of technostress (1995-Present Study)

4.2.6. Male Vs Female

		Male	Female
Technostress	No	69%	43%
	Low	24%	53%
	High	7%	4%
3rd Party Technostress	No	22%	17%
	Low	13%	21%
	High	65%	62%
Technology Addiction	No	31%	43%
	Low	40%	26%
	High	29%	32%

Table 5: Gender differences in technostress, 3rd party technostress and technology addiction

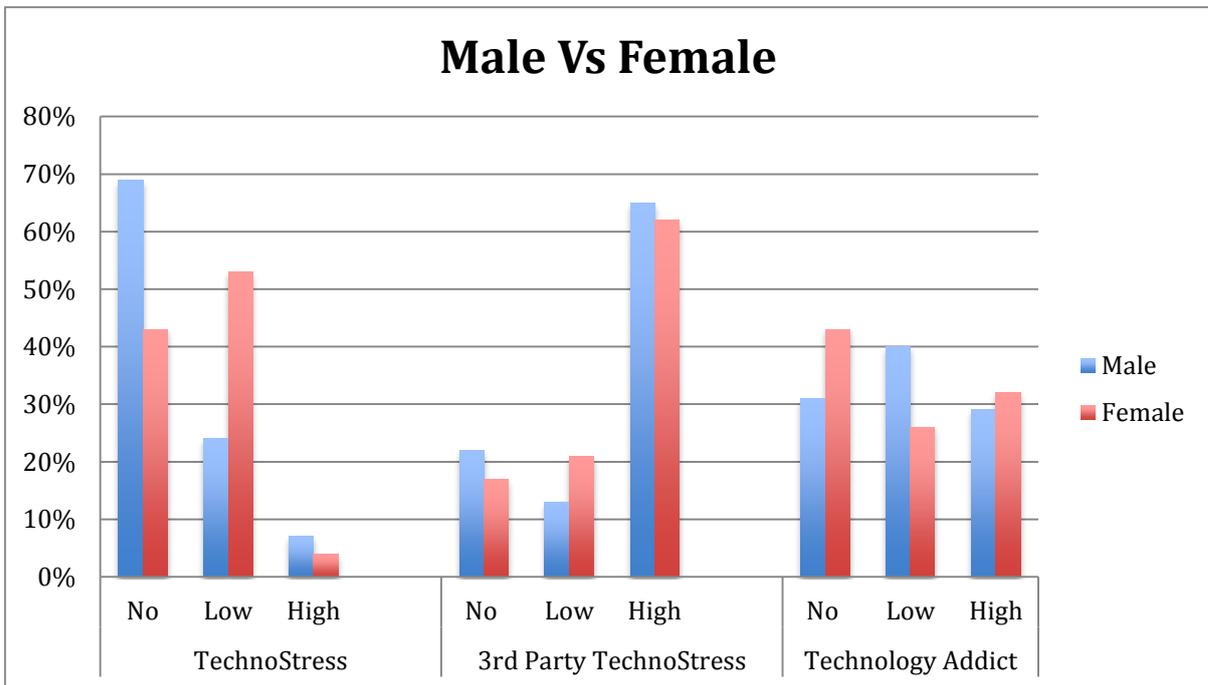


Figure 11: Gender differences in technostress, 3rd party technostress and technology addiction

The data has also been analysed to see if gender influenced the level of technostress, 3rd party technostress and technology addiction (see table 5, figure 11). The study shows that a higher percentage of males (69%) show no technostress, while only 43% of females have no technostress. Interestingly though, a higher percentage of males show levels of high technostress (7%) than the females (4%). For low technostress; females have a significantly higher percentage (53%) than the males (24%).

As far as 3rd party technostress is concerned, a greater percentage of males had no 3rd party technostress (22%) while 17% of females had no 3rd party technostress. Interestingly again, though the percentage of males that show no signs of technostress is more than the females, the percentage of males who have a high level of 3rd party technostress is higher than the females (Male = 65%, Females = 62%). More females have reported the low level of experiences of 3rd party technostress (21%) but only 13% males had reported low 3rd party technostress.

In the case of technology addiction, the findings suggest that more females have no technology addiction as compared to males as shown by percentage of 43% and 31% respectively. Fewer females have reported low levels of technology addiction (26%) while a greater segment of males have indicated low levels of technology addiction (40%). For high levels of technology addiction females had higher ratio (32%) as compared to males (29%)

4.3. Conclusions

It can be concluded that 3rd party technostress is becoming a predominant issue in today's society. As evident from the findings of the study, it can be seen that a very large percentage of people show signs of 3rd party technostress (81%), which can seriously damage the quality of relationships between the user and their friends and family.

On a better note, it seems that the percentage of people with moderate to high levels of technostress has significantly reduced over the years and as the percentage of people with no technostress has increased. This shows that people have become a lot more comfortable with technology.

5. Discussion

5.1.Introduction

The phenomenon of 3rd party technostress has not been widely studied by researchers. This study provides insight into the presence of 3rd party technostress. One of the key implications of 3rd party technostress is the decline in quality of interpersonal relationships.

5.2.3rd Party Technostress and Interpersonal Relations

As observed in the previous section (section 4), the majority of participants have indicated that they have no levels of technostress (57%), but an even greater majority have reported signs of 3rd party technostress (81%). 3rd party technostress therefore seems to have become an inevitable part of the digital age. Individuals commonly ignore the people in their surroundings while being engaged in communicating with others in the digital world. Similarly, the quality of relationships the users friends and family has been negatively affected due to the constant occupation with mobile phones, laptops, TV's, etc.

Turkle (2011) has provided a case where Ellen communicated with her grandmother through Skype, which allowed both of them to see each other while talking. The use of technology for communication was supposed to improve their relationship. Instead, it created distance between them because of their dissatisfaction with connectivity through technology. It was found that Ellen while talking to her grandmother was also engaged in other tasks such as responding to the emails, which created gap between the two. As a result, their relationship worsened. Turkle (2011) has further pointed out that even though technology has brought a greater degree of connectivity, it has also have increased the level of isolation experienced by individuals. It has also been inferred that using technology as a primary means of communication with others and decreasing the time spent in face to face conversations has a great psychological effect. The individuals with who have a high use of the Internet and technology manifested higher levels of emotional disconnection.

Price (2011) has stated that people may use technology and social networking as a means of escaping from the real life socialization. Therefore in some cases, the use of technology is used with the intention to minimize the need in the face-to-face communication. In other

cases, the use of smartphones or tablets becomes a part of daily routine and people do it without knowing that they are ignoring others in their surroundings. For instance, Price (2011) has discussed the frustration children experience when they are not able to communicate with their parents in real life due to their parents' constant use of technology. Another example provided by Price (2011) is that instead of talking to the children during advertisements on T.V, parents prefer to respond to the emails and check their mobile phones. This has increased the degree of disconnection between parents and children.

Marche (2012) has argued that greater involvement in social networking websites such as Facebook creates a feeling of separation from the real world. Therefore individuals experience greater degree of loneliness. Digital intimacy may seem to be a common objective of the technology users; however, constant presence on the social networking websites takes the users away from the real life connections. At the same time, the significant others are likely to experience distress as they are not able to get the time or attention they expect from the user.

Power (2011) has used the term “cyber widow” to illustrate the loneliness women experience when their spouses spend excessive time with their technology such as tablets, computers and smartphones, who end up ignoring the women as a result. Instead of spending time communicating with each other, husbands have become more engrossed in the virtual world, leaving the wives feeling like an outsider. Victoria, a 38-year-old female has been used to describe how excessive use of internet declined the quality of her marital relationship, reaching a point where she and her husband were hardly able to talk with each other. The author has further discussed that people nowadays spend more time in talking to their friends on social networking websites, than spending time with their spouses in face-to-face conversation. The use of technology has provided a means of avoiding the responsibility of dealing with real life communication, which undoubtedly creates 3rd party technostress. Power (2011) has also narrated the case of Charlotte where her husband's addiction to Twitter has been the leading cause of their arguments. The constant obsession to check the mobile phone, Twitter updates, text messages and emails pushes the people in the surrounding into the background, while the user of technology engages people into conversations in the virtual world.

5.3. Technology Addiction and Technostress

Technology addiction can create higher levels of technostress among an individual. Archer (2013) has reported the findings of a survey, indicating that there are 70% of females and 61% of males who have shown symptoms of phone separation anxiety. This indicates that the technology addiction is on the rise among the population and instances such as forgetting to take your smartphone when you leave the house can induce feelings of distress. In addition to this, Archer (2013) has also stated that the presence of smart phone addiction can manifest in the form of subtle signs of checking your mobile phone frequently as well as experiencing anxiety if an immediate reply received via text message. More apparent signs include picking up the mobile phone, halting the face-to-face conversation with family members or friends to take a call or respond to a text message. Price (2011) narrated a case where a 16 year old he interviewed received more than 100 text messages during the 60-minute session. Such text overload created a great deal of stress for him.

Ehrenberg, Juckes, White, & Walsh (2008) considered technology addiction to manifest symptoms that are similar to other forms of drug dependency. Individuals with technology addiction indicated the presence of withdrawal, loss of control and salience (Ehrenberg et al., 2008, p. 739). Young (2004) has further outlined a criterion that could help differentiate between the use and abuse of the Internet. It has been reported that the time and energy people spend in interacting with others in the cyber world can negatively influence their real life relationships. The author has also asserted that use of technology such as the Internet to the extent of addiction can create major issues in the personal relationship of a person. In some cases, technology addiction has caused marital dissatisfaction to such a degree that it eventually resulted in divorce. Young (2004) has suggested another behavioural problem that can be associated with excessive use of technology such as the Internet. Individuals are prone to engage in cyber affairs, which can have severe effects on the real life interaction and connection.

The personality of an individual also influences the development and sustenance of technology addiction. Technology tends to provide individuals with an alternative means of interacting with others. People who are not comfortable in real life communication may opt to use a technology-based interaction, considering it to be a more feasible means of

communication. Shaffer, Hall and Bilt (2000) have proposed a similar idea, suggesting that people may use the Internet for communication to the extent of developing an addiction in an effort to hide other issues that they are dealing with.

In another article, Hough (2011) has reported that a significant number of adolescents find it difficult to spend time without using technology. One of the students included in the survey stated that striving to avoid the use of technology made them feel best described as “itching like a crack head (crack cocaine addict)”. A large number of individuals have claimed that their interpersonal relationships were more meaningful when they were not using technology.

Spencer (2013) has stated that people are so dependent on their mobile phones that they tend to peek at the mobile screens every 6 and half minutes. Smartphone users tend to check their gadgets at least 150 times a day, while the users of mobile phones who use it for basic functions such as checking the time or when they actually hear that they have received a message or phone call only look at the screen 18 times during a day. This report shows how technology addiction pushes people to use their mobile phones for various tasks, including the basic task of checking time. The use of wristwatches has also been replaced with the clock available on mobile phones. Spencer (2013) has further added that checking text messages and responding to calls or making calls is just one aspect of a smartphones use. With the addition of the basic functions, smartphones are used for a source of entertainment, playing games on them as well listening to music and surfing the Internet. In addition to this, mobile phones have replaced the use of cameras, offering the function in the device. These different uses enhance the likelihood of becoming addicted to the use of technology.

5.4. Conclusion

As people have experienced lower levels of discomfort using technology they have become more engaged in excessive use of technology. Issues such as technology addiction on devices like smartphones, tablets, laptops and services like social media and excessive use of the Internet has emerged as seen from the above discussion. The increase in time people spend with the technology has created a stress on real life relationships. As a result, instances of 3rd party technostress have gradually increased. Technology addiction has further enhanced the experiences of disconnection.

6. Conclusions and Recommendations

6.1. Conclusions

This chapter will provide a conclusion to the study, pointing out the key inferences that can be drawn from the data. The conclusions will be followed by recommendations for 3rd party technostress. This chapter will also elaborate on areas of investigation for future research.

6.1.1. Increase in 3rd Party Technostress

3rd party technostress has become a significant social issue. It can be concluded that as time goes on 3rd party technostress is likely to increase because as technology advances, more and more people will become users of the technology, this can already be seen from the increase of usage in devices like tablets and smartphones which have been available for less than a century for proving very popular. According to this study 81% of the participants reported experiences of 3rd party technostress, in the future, that percentage is likely to increase as technology improves, addicting even more users with their rapidly improving capabilities.

As a consequence, 3rd party technostress is also going to increase because software updates, social networking, text messages and other applications that connect users to a virtual world. Consequently, the increased 3rd party technostress may propel the people who are getting stressed to adopt the use of technology as a means of connecting with others, creating a cycle that will make it difficult to move beyond the virtual communication into real life conversations.

6.1.2. 3rd Party technostress effects quality of relationships

The increased penetration of technology into our daily lives has made technology an inevitable part of the routine life. People have started spending more time interacting with people online than with other around them in real life. Issues such as feeling disconnected, marital discord, and relationship breakdown are common effects of 3rd party technostress. Furthermore, the increased dependence on technology to connect with others has made people feel lonelier. It can be concluded that 3rd party technostress has significant implications on quality of relationship for an individual with their family and friends. The more dominant a

technology has become for a user, the more loneliness their significant other and people in the surroundings will experience.

Individuals spend more time with their technological devices than their significant others unfortunately. The distance technology has created between family members and friends can only be eradicated if people are able to understand how technology is ruining their real life relationships and the potential harm it carries for their interpersonal communication.

6.2. Recommendations

6.2.1. Management of effects of 3rd party technostress

It is important to manage the effects of 3rd party technostress to mitigate the damaging influence it can have on the quality of relationships. Therefore it is recommended that the time spent with technology needs to be minimized, creating more time for face-to-face conversations and real life connections. The obsession of constantly checking and reply to emails, text messages and updates on social media need to be dealt with as well. In addition to this, it is also recommended that the users of technology need to understand how the excessive use of technology is damaging their relationship with their significant others. This understanding can provide the basis for identifying the actions that need to be taken to improve the quality of relationships.

6.2.2. Future research directions

3rd party technostress is an underexplored area that is in need of further investigation. Though technostress has been heavily researched, research for 3rd party technostress has been minimal. Further studies need to be conducted on 3rd party technostress to further validate the findings of this research as well as expand the understanding about 3rd party technostress.

Future researchers can focus on identification of 3rd party technostress in various age groups to identify the differences existing between their levels of technostress. Another area that future researchers can use is to investigate about the measures people have taken to reduce the influence of 3rd party technostress in their lives. This current study has used questionnaire based on the study of Rosen and Weil. Further studies can be conducted to explore the implications of 3rd party technostress using in-depth means of investigation such as qualitative

interviews or focus groups. These methods can provide detailed insight into the dynamics of 3rd party technostress and its effects on relationships. The researchers can also focus specifically on how the relationship between adolescents and their families have been affected due to 3rd party technostress. The level of 3rd party technostress can also be influenced by the personality traits of an individual. Researchers can analyse the implications of personality on the experiences of 3rd party technostress.

7. Personal Reflection

This study has made me realize how I may be causing 3rd party technostress to my family members and friends. I have related to a number of the cases I have read while collecting information for literature review and discussion, which further increased my awareness on the influence of 3rd party technostress on the relationships. I personally have a habit of checking my smartphone in the middle of the conversations when I receive any kind of notification on my device. There have been various cases where I have stopped the face-to-face conversation to attend a phone call. I now realize that this behaviour could be a source of annoyance for others. When I go out and forget to take my mobile phone with me, I feel irritated as if there is something important missing that I can't function without.

One of the important things I have learned in this study is how technology has made people more connected in the virtual world, but lonelier in the real life. A few of my friends spend most of their time on social media sites, playing video games and watching TV. They seem to have developed an addiction for technology too but in different forms than myself. While I am addicted to using my smartphone to always stay connected, it seems my friends are addicted to video game and TV shows which allows them to live in a fictitious world.

I have come across methods of how people manage to reduce 3rd party technostress in certain situations. One of the methods people use is by creating a mobile phone stack. When a group of friends dine together, they can stack their mobile phones in the centre of the table and no one is allowed to pick up their phone until the meal is over. If someone does pick up their phone over the course of the meal, they will have to pay for everyone's meals.

I believe we need to control our use of technology rather than letting technology control our lives, which in turn can ruin relationships.

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9. Appendices

9.1. Questionnaire

Demographic

1. Gender
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
2. Age
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
3. Country/Continent
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
4. Ethnicity
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
5. Computer Experience
 - a. Strongly Agree
 - b. Agree
 - c. Neutral

- d. Disagree
 - e. Strongly Disagree
6. Do you have a job?
- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
7. Religion
- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree

GATCS

1. Computers can save people a lot of work
- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
2. It takes a good math background to learn to use a computer
- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
3. You need to know how to use a computer to get a good job
- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree

- e. Strongly Disagree
4. Computers can help solve society's problems
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree

 5. Computers are taking over
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree

 6. Computers can increase control over your own life
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree

 7. Computers increase the amount of time we have for other activities
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree

 8. Men are better with computers than women
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree

9. Computers may eventually act independently of people
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
10. In the future there will still be jobs that don't require computer skills
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
11. Computers are good teaching tools
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
12. Use of computers can cause physical health problems
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
13. Computers prepare students for the future
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
14. Computers are taking jobs away from people
 - a. Strongly Agree

- b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
15. Some ethnic groups are better with computers than others
- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
16. There is an overemphasis on computer education in this society
- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
17. Computers can ruin interpersonal relationships
- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
18. In five years everyone will need to know how to operate a computer
- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
19. Computers create new jobs for people
- a. Strongly Agree
 - b. Agree
 - c. Neutral

- d. Disagree
 - e. Strongly Disagree
20. Computers will never be smarter than people
- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree

3rd Person Technostress

1. When with family/friend's, majority of the time will be spent using technology
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
2. If a family/friend's phone goes off during a face to face conversation they will pick it up, ending/pausing the conversation
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
3. I get ignored when a family/friend is watching TV
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
4. I get ignored when a friend/family is playing a video game
 - a. Strongly Agree
 - b. Agree
 - c. Neutral

- d. Disagree
 - e. Strongly Disagree
5. A family/friend often have work related calls or emails which disrupts a conversation
- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
6. A family/friend often receives a social networking notification which disrupts a conversation
- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
7. A family/friend will use their phone during dinner
- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
8. I have a family/friend who is a smartphone addict
- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
9. It is hard to convince a family/friend to do an activity outside because they prefer to do something at home using technology
- a. Strongly Agree
 - b. Agree
 - c. Neutral

- d. Disagree
 - e. Strongly Disagree
10. I get annoyed with a family/friend's use of technology
- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
11. A family/friend's use of social media when around me frustrates me
- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
12. I preferred it when phones could only text and call
- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
13. Technology can kill a face to face conversation
- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree

Technology Addiction

1. I use a lot of technology on a daily basis
- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree

- e. Strongly Disagree
- 2. I am a smartphone addict
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
- 3. Social media is the main reason I use my phone
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
- 4. I annoy others with my use of technology
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
- 5. I use my phone mostly for work
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
- 6. I use my phone mostly for social networking
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
- 7. I have been told that I ignore people when using technology

- a. Strongly Agree
- b. Agree
- c. Neutral
- d. Disagree
- e. Strongly Disagree