A QUALITATIVE, PHENOMENOLOGICAL STUDY ON THE AFFECTS OF TECHNOSTRESS AND TECHNOLOGY SYSTEMS ON END USERS SATISFACTION

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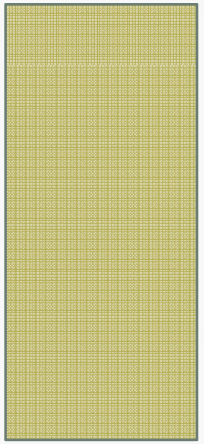

E-LEADER SINGAPORE
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STATEMENT OF THE PROBLEM

- The problem is hardware and software technology failure causing end users to have technostress that severely restricts organizations from conducting daily operations efficiently.
- The specific problems are to understand how work related stress (technostress) involving technologies influences the end users' satisfaction in the workplace and how leadership in the workplace influences the behavior of end users working with HST systems.
- Understanding technostress is a social concern because work related stress (technostress) results in low morale, absenteeism, and high employee turnover resulting in high cost to employers (Rizavi, Ahmed, & Ramzan, 2011).

PURPOSE OF THE STUDY

- The purpose of this qualitative phenomenological research study was to explore the degree to which technostress affected end users who used Hardware and software technology systems to complete job tasks in Cheyenne, Wyoming.
- The qualitative research with a phenomenological design was used to address the notion of how an organization managed technostress in the workplace environment that influenced end users' satisfaction when working with technology.

THEORETICAL FRAMEWORK

- The broad theoretical framework consisted of technostress in the workplace, transformational, servant, trait leadership theories, and the effect of Hardware and Software Technology failure in the workplace environment.
- Technostress is a new and understudied topic originating from the study of work related stress that focuses on stressors in the technology environment (Tarafdar et al., 2010).
- Technostress results from the how an organization employs HST systems that affects individual experiences (Weil & Rosen, 1997).

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THEORETICAL FRAMEWORK

- Work overload and faulty HST systems contributes to technostress (Ragu-Nathan et al., 2008).
- Ragu-Nathan et al. (2008) described technostress creators as events and situations associated with stressors.

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DR. JOHN
; 6. 9. 2012

THEORETICAL FRAMEWORK

- The second theoretical study consists of transformational leadership, servant leadership, and trait leadership.
- Transformational leadership provides change in the organizational culture through charismatic leadership (Bailey, 2001).
- Transformational leadership allows managers to encourage end users to become proactive in reducing technostress by communicating one-on-one and in groups to brainstorms ideas to improve morale in the workplace.

THEORETICAL FRAMEWORK

- Servant leadership is placing the priority on team members by providing resources to the organization without seeking rewards in return (Black, 2010). The focus of trait theory is on temperament traits rather than personality traits (Piekkola, 2011).

THEORETICAL FRAMEWORK

- The third theory for the current study was examining the variety of HST components in the workplace and the effect HST systems have on end users' satisfaction.
- Despite the sophistication of powerful HST systems, work overload, computer failure, and network disruption continue to lessen the satisfaction level experience by end users (Tarafdar, Tu, Ragu-Nathan, & Ragu-Nathan, 2007).

RESEARCH QUESTIONS (RQ)

1. How do leaders in your organization show transformational and servant leadership traits to encourage members in the organization to adapt to constant changes in HST?
2. How do end users, managers, and leaders in the organization who use HST to complete job tasks meet goals when HST failure occurs suddenly?
3. How do end users in the organization communicate needs on technology such as computer training, software training, and faster computers to managers and leaders?

RESEARCH QUESTIONS (RQ)

4. How do end users, managers, and leaders in the organization prepare for scheduled network outages?
5. How do end users interact with the IT support staff for high priority problems?
6. How do end users report computer problems that occur in the workplace?

INTERVIEW QUESTIONS (IQ)

1. Can you tell me how you use a computer or software applications to conduct job tasks?
2. Can you tell me how a computer failure, unavailable software data, or network outage that disrupted your ability to perform a job task?
3. Talk about servant leadership. How do leaders, managers, and supervisors ensure that needs of the employees comes first when it comes to implementing IT systems?
4. Talk about transformational leadership. How do leaders, managers, and supervisors in your organization encourage employees to learn more about technology?
5. Determine if the participant works as an end user, leader, manager, supervisor, IT specialist, or a combination roles in their organization. Can you elaborate on your function in the organization? For example, does your job consist of processing information, supervising others, or performing IT related assistance?
6. Talk about techno-complexity. How do you deal with the complexity issues that come with learning new technology? How do leaders, managers, and supervisors ensure address these issues?
7. Talk about techno-insecurity. Some people feel overwhelmed when having to learn new software such as going from Microsoft Office 2007 to Microsoft Office 2010. How do you meet the challenges of learning something new? How do leaders, managers, and supervisors address the issue that new software may make some people in the organization feel insecure?
8. Talk about techno-invasion. Many times, employees cannot complete their assigned job tasks before the end of the work day and have to take work home. What do you do when work that was needed to be completed to before a deadline would not be complete unless you either worked overtime or took the work home? How do leaders, managers, and supervisors address the issue of either working overtime or taking the assignment home to complete the tasks?

INTERVIEW QUESTIONS (IQ)

9. Talk about techno-overload. Technology has provided the worker with the ability to complete more tasks almost simultaneously. Now with the creation of Apps, the worker has the ability to do even more tasks that may over-load us with work. How do you deal with handling a noticeable increase in job tasks given to you? How do leaders, managers, and supervisors in your organization address the issue of a noticeable work increase?
10. Talk about techno-uncertainty. Many times, we do not know what to expect when it comes to technology in the workplace. How do you deal with software upgrades that may or may not hamper work? How do leaders, managers, and supervisors in your organization address the worries of the organization if they were to hear that the organization is getting new software or a big upgrade that may affect the operability of the systems?
11. Talk about techno-budgeting. Every organization has a budget for technology. However, concerning the technology that you use; how do you bring to the attention of your organization that your computer or software applications are old and you need a new computer? How does your organization decide how and when to purchase? How do leaders, managers, and supervisors in your organization address the need to upgrade new computers and software?
12. Talk about techno-empowerment. Many times you will need simple updates such as Adobe Flash or the Java. How do you ensure that you have the latest updates to perform your tasks? How do leaders, managers, and supervisors along with the IT team in your organization ensure that the installations of these happen immediately so that you can perform your tasks?
13. Talk about techno-envy. An employee in your office has just received a new fast computer, with multiple monitors, and upgraded software. You would like the same upgrade. How do you go about communicating the need for an upgrade? Others, in the office begin to voice their opinion as well. How do leaders, managers, and supervisors in your organization address the concerns to ensure that everyone has the latest technology?
14. Talk about techno-verification. Many times an IT specialist has to perform hardware and computer upgrades when the customer is not available. How do you verify that the upgrade was works properly and if required that you receive training to use the system? How do leaders, managers, and supervisors ensure that upgrades work properly?
15. Talk about techno-needy. IT specialist responds to all technology related issues. However, there are people who saturate the IT department with a continuous request for assistance. How do you ensure that you get the required assistance from your IT department? How do leaders, managers, supervisors, and the IT team deal with a particular person or persons who saturate the system with request?
16. Talk about techno-nonprocedural. Procedures consist of employees following the policies when dealing with issues in the organization. Can you explain the procedure that you would follow if you need IT assistance? How do leaders, managers, supervisors, and the IT team ensure that employees use the proper method for contacting the IT department?
17. Recap the interview by connecting leadership all topics previously discussed. We are at the end of the interview. Is there anything that you would like to add that you believe would add information to the discussion?

TRIANGULATION OF SOURCES

The variety of ages (27 - 67 years) allowed me to acquire different perspectives from the difference ages as some participants shared information from different computer eras. Using both Genders provided an insight into the work environment; however, for my themes, I regrouped this data to look at the positive and negative attitudes toward the types of technostress.

Triangulation provided another method to check the accuracy of the data. The researcher of the present qualitative phenomenological study chose to implement triangulation to validate the accuracy of the data. Creswell (2005) noted that triangulation consists of corroborating evidence from different types of people, types of data, or methods in data collection in description and themes in qualitative research.

CORRELATIONS OF RQ AND IQ

Note: IQ1 and IQ2 determined if the participant met the standards to participate. IQ5 determine the capacity the participant served when using HST technology to conduct job tasks. IQ17 gave the participant the opportunity to contribute more information not asked by the researcher.

Research questions	Interview Questions
RQ1	IQ3, IQ4, IQ8, and IQ9
RQ2	IQ10
RQ3	IQ6, IQ7, and IQ11
RQ4	IQ12 and IQ14
RQ5	IQ13
RQ6	IQ15 and IQ16

IQ RESULTS

Interview questions reveal through discussion that each type of technostress exist in being that the participants all participated in discussing each topic. The researcher categorized the discussion as either positive (p) or negative (n) when it came to the attitude of the response.

Interview Questions	Attitude	Interview Questions	Attitude
IQ3	p=15, n=5	IQ11	p=7, n=13
IQ4	p=16, n=4	IQ12	p=8, n=12
IQ6	p=20, n=0	IQ13	p=16, n=4
IQ7	p=17, n=3	IQ14	p=16, n=4
IQ8	p=4, n=16	IQ15	p=16, n=4
IQ9	p=8, n=12	IQ16	p=15, n=5
IQ10	p=10, n=10		

POPULATION

- The population consisted of end users living in Cheyenne Wyoming or the surrounding area who use technology to complete job tasks and understanding the stressors involved (technostress).

The participants consisted of end users who use HST systems to complete tasks for an organization.

- The targeted population included technology users of any race and gender and a minimum age of 18.

The participants consisted of end users who use HST systems to complete tasks for an organization.

- Two questions were used to screen potential candidates to decide if they met the requirements to participate in the present study:
  - Can you tell me how you use a computer or software applications to conduct job tasks?
  - Can you tell me how a computer failure, unavailable software data, or network outage that disrupted your ability to perform a job task?

SAMPLE

- The sample included 20 participants who operated computers on HST systems at work to complete tasks for an organization in Cheyenne, Wyoming.
- The recruitment method consisted of advertising in the Wyoming Tribune Eagle local newspaper (and started the snowball sampling strategy to find more participants.
- The selected participants were asked to recommend two potential candidates for the present qualitative phenomenological study.

EXISTING TECHNOSTRESS

- ***Technostress***. The inability for end users who cannot cope with how the technology systems use applies to the organization (Tarafdar et al., 2010).
- ***Techno-complexity***. Describes instances in which end users experience inadequateness when operating complex hardware and software applications after they have spent an enormous amount of time and effort to understand the technology (Tarafdar et al., 2010).
- ***Techno-insecurity***. Describes end users who experience a loss of job security as a result that technology replaces the need for a human to conduct the tasks or a job candidate with better technology skills becomes available (Tarafdar et al., 2010).
- ***Techno-invasion***. Occurs when technology provides the ability to reach end users at any time and blurs the meaning of personal time and work-related tasks (Tarafdar et al., 2010).
- ***Techno-overload***. This occurs when technology forces end users to work harder and faster (Tarafdar et al., 2010).
- ***Techno-uncertainty***. This occurs when constant upgrades and changes to applications worries end users about constantly learning and educating themselves about technology (Tarafdar et al., 2010).

METHODOLOGY AND GAP

- The aim of this qualitative phenomenological research was to explore the lived experience from the perspectives of the participants as an end user for an organization and **add knowledge to the gap** in information relating to technostress witnessed by the researcher of this study that includes **techno-budgeting, techno-empowerment, techno-envy, techno-remote verification, techno-needy, and techno-nonprocedural.**

METHODOLOGY

- The qualitative phenomenological research method provided the basis for the study to elicit an open discussion to ask broad and general questions in which the researcher relives the views of the participants (Creswell, 2005).
- The purpose of the qualitative study consisted of learning about the lived experiences of the participants who provided a deeper understanding of the phenomenon (Creswell, 2005).
- A qualitative approach was more appropriate because the interview process permitted the researcher to clarify answers immediately.

DESIGN

- The phenomenological design involved asking open-ended questions to engender discussions to explore, determine, differentiate, and illustrate how technostress influences end users satisfaction when using HST systems in the workplace.
- A detailed understanding of the central experience consists of useful information that helps people learn about the phenomenon and gives a voice to silenced people (Creswell, 2005).
- NVivo 9 software was used to analyze the rich, textural data collected through interviews

ASSUMPTIONS

- It was assumed that
  - information provided by the participants contains truthful information.
  - TheNVivo9 software provides accurate data.
  - The study would provide valuable information to leaders and managers whose end users work in an environment dependent on technology to complete tasks.

LIMITATIONS

1. A study limitation might be a lack of honesty from the participants.
2. Interviews conducted over the phone lack the observation of body language.
3. Phone interviews remain susceptible to disruption for a variety of reasons.
4. The snowball method limits the results when current participants share detailed information of answers given to questions that alters the thinking process of potential candidates.
5. The number of participants (end users, managers, and organizational leaders) and the amount of time to conduct the study limited the research.
6. The validity of the study was limited by the researcher's ability to select keywords for the interview questions.
7. Finally, interpretation of keywords of each researcher may differ from the true meaning meant by the interviewee.

DELIMITATIONS

1. Participants were delimited to currently employed people who use an HST system to complete jobs tasks for a business or an organization to complete tasks
2. Participants were delimited to people who responded to the advertisement in the Wyoming Tribune Eagle local newspaper and using the snowball method to find additional participants.
3. Potential candidates were screened with the question, *could you tell me a computer failure, unavailable software data, or network outage that disrupted your ability to perform job tasks.* A candidate who had never experienced any form of HST system failure becomes ineligible to continue with the research resulting in a halt of the interview.

DELIMITATIONS

4. The length of each interview was delimited to between 45 to 60 minutes.
5. Expanding the geographical area to recruit viable candidates remained an option of the researcher. Pilot study participants did not have to reside in Cheyenne, Wyoming. Recording telephone interviews allow pilot study participants who cannot attend the interview in person to participate in the present qualitative phenomenological study.

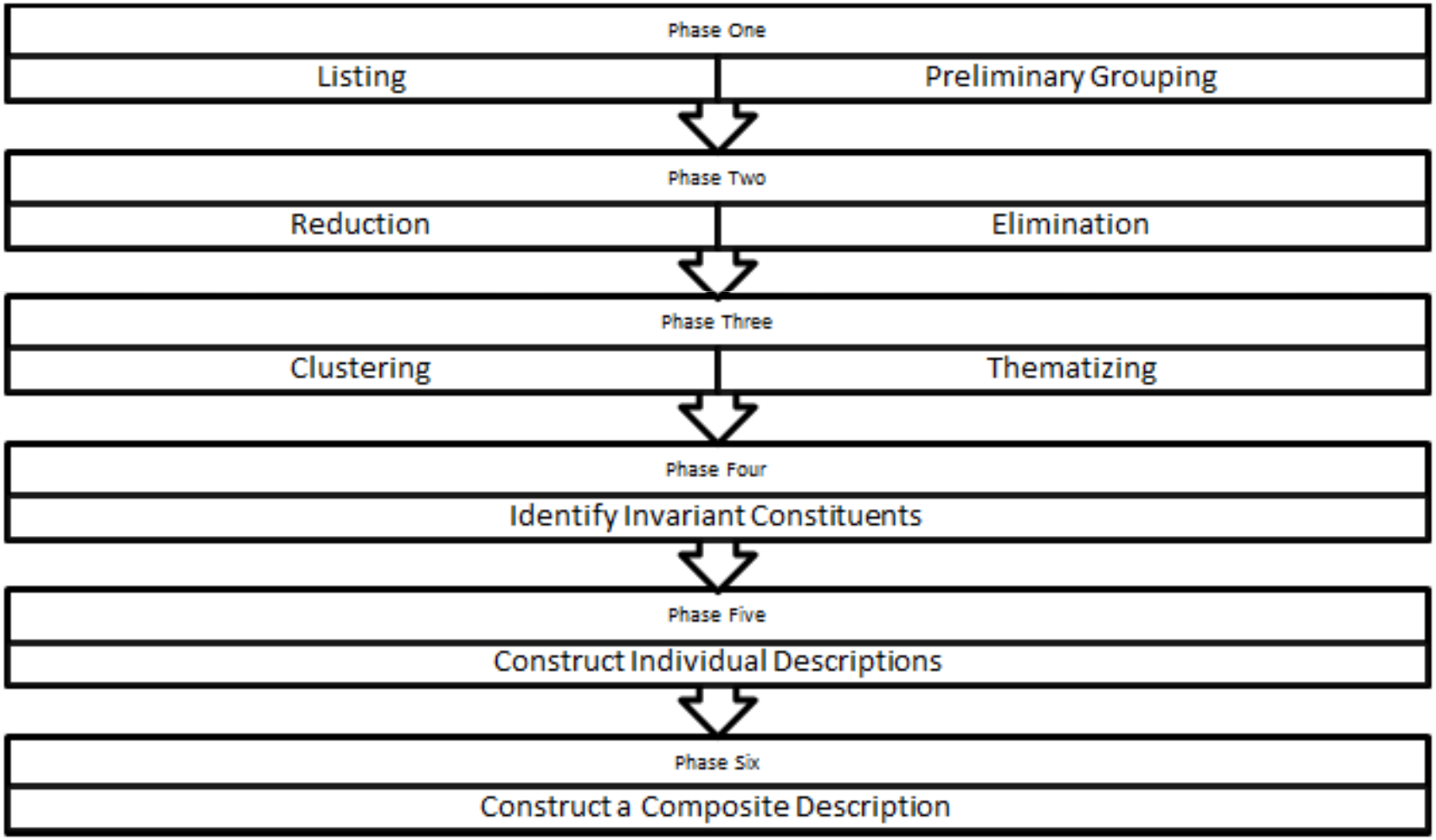
DATA COLLECTION

- The researcher and interviewee began the interview by recording the questions and answers into a digital audio recorder that was processed through the NVivo 9 software and displayed on a Microsoft Word document.
- Each interview lasted between 45 and 60 minutes.
- Interviews were conducted both face-to-face and over the phone.
- Open-ended questions provided the interviewee the ability to elaborate on the research questions to describe their lived experiences (Creswell, 2005).

DATA COLLECTION

- The end users describing their experience with computer and HST interruptions, and how technostress affects the work environment provided valuable information for the study.
- Phone interviews allowed the researcher to document only verbal inflection; whereas, face-to-face interviews provided additional information through nonverbal communication.

DATA ANALYSIS – MOUSTAKAS' MODIFIED VAN KAAM METHOD



DATA ANALYSIS

- The process was initiated by listing and preliminary grouping participants followed by reduction and elimination.
- The next phase was clustering and thematizing monitored by the concluding identification of invariant constituents.
- The fifth phase consisted of constructing individual descriptions that led to the sixth phase of the construction of a composite description.

LEADERSHIP AND COMMUNICATION IN WORKPLACE.

- Concerning servant leadership, 15 of 20 participants reflected positively on leadership; whereas, five of 20 participants reflected negatively about leadership putting the needs of end users first. Participants' positive views included "leaders ensured that we have the proper software" (P03), "leaders understand our needs" (P02) and "leaders know that we are up to par" (P06). Participants who commented negatively stated, "The supervisors give minimal guidance" (P01). "I believe it is a severe failure of our organization to conduct leadership for training individuals to use computers" (P11). "I am not sure the needs of the employees come first in our organization" (P04).
- Concerning transformational leadership, 16 of 20 participants reflected positively; whereas, four participants reflected negatively. Participants' positive statements were "our supervisors usually encourage us to learn more through training and have many online webinar sessions to inspire us to achieve more knowledge" (P03). "Our managers provide computer-based training that everyone can sign up for" (P07). "We have tuition assistance" (P05). Participants' negative comments against transformational leadership consisted of "they don't" (P01) "Employees are encouraged to learn new technology; however, not too many educational opportunities are supported" (P18) and "My organization is not concerned about training" (P11). The overwhelming message from participants is that organizational leaders do communicate effectively and attempt to ensure that all employees have the best IT systems to perform job tasks.

TRUSTING COMPUTER USERS TO MANAGE SIMPLE UPDATES.

- Twelve of 20 computer users possessed no administrative rights and could not download basic software such as Adobe Flash and Java that permitted the participant to view and interact with web pages. No sense of empowerment was evident from the interviews from 12 of the 20 participants who possessed no administrative rights. Participants stated, "Upgrade was blocked" (P01) and "computers' upgrades are managed only by our IT department" (P19). Eight of 20 participants possessed some local administrative permission that allowed the participant to download basic software that pertained to a specific computer. However, Participant P19 with IT administration duties stated, "I can't do any of those tasks and will have to contact the IT department if I need an update because IT is in charge of all updates."

ORGANIZATIONAL CULTURE AND THE WORK EXPERIENCE.

- The organizations work in more similar ways than dissimilar ways by encouraging growth. However, the participant's statement revealed cultural differences in the manner of how support was made available. Participants stated that the organization received formal training for learning new software to improve the work environment better. The participants statements included "we have a good time-management system that we use to organize our work" (P07) to the opposite "not dealing with it very well" (P18).

DEPENDENCY ON TECHNOLOGY.

Dependency on technology is one area in which all participants agreed. Participants shared concerns that the failure of hardware and software technologies would create a catastrophic work stoppage. Participant's statements included no technology "bring my job to a standstill" (P01) "not be able to communicate" (P03) and "I rely on my computer for all of my work" (P07).

SUBMISSION TO POLICIES CONCERNING TECHNOLOGY IN THE WORKPLACE

Procedures consist of processes designed to give an organizational structure to achieve services or products. Participants shared lived experiences on following organizational policies in relation to attaining and using hardware and software. The main concern for participants was not getting instant assistance to rectify problems because of policies that block direct interactions with the IT departments. Participant statements included "computer upgrades should (be) managed behind the scene by IT members" (P03), "Well, normally any updates or upgrades are done between two o'clock and five o'clock in the morning when it's really slow so that it does not affect the business" (P05), and "IT is in charge of all updates" (P19).

DOMINANCE CREATED BY THE PURPOSE OF TECHNOLOGY DESIGN.

- All of the participants discussed the manner of how technology is designed to keep employees from downloading and installing programs. Participants agreed with the need for organizations to control access to the network infrastructure. Participants were also frustrated with the lack of power to do anything about the situation when problems arose. Participant's comments included, "We used to be able to make basic changes to update software such as you mentioned flash and Java. But lately it's becoming harder to do things on the computer that we used to be able to do" (P07), "if everybody had the ability to do IT stuff, they will probably screw up the network and things get even worse" (P11), and "on our system, we're not even allowed to upgrade anything" (P12).

RESULTS - NEW TECHNOSTRESS

- ***Techno-budgeting*** goes beyond simply assigning money for leasing or buying hardware and software technology (HST) and is used to examine the cost for the specific technology for long-term growth.
- ***Techno-empowerment*** provides empowerment for end users to install limited software without the need to contact the helpdesk for assistance.
- ***Techno-envy*** describes the problem of updating some end users with the latest computer devices and the end users with older computer devices complain about the need for the latest technology.
- ***Techno-needy*** relates to end users who constantly need technical support for problems not witnessed by any administrators. Symptoms are recurring hardware and software issues by the end user.
- ***Techno-nonprocedural*** is the end user either unaware or refuses to follow the correct procedure for contacting the IT support team and initiates contact on a face-to-face basis by either going to the office or stopping the IT support team member in the hallway.
- ***Techno-remote verification*** occurs when IT support responds to a helpdesk ticket and provides software installation or troubleshoots problems without the presence of the end user who fails to inform the IT support team that the team resolved the issue.

RESULTS

Themes	Invariant Constituent
Leadership and communication in workplace.	Leadership and communication is very important.
Trusting computer users to manage simple updates.	No trust or very little trust exists.
Organizational culture and the work experience.	Getting the organization to support end users is possible.
Dependency on technology.	Independency from technology is impossible
Submission to policies concerning technology in the workplace	Submission to policy is unavoidable.
Dominance created by the purpose of technology design.	External forces cause organizations to protect data by streamlining access to control data.

RECOMMENDATIONS

- Once each technostress is identified, supervisors should prepare to discuss each identified technostress one at a time to ensure that focus and conversation remain on track.
- Senior managers could decide to talk to every employee or have supervisors communicate with their sections about technostress and choose a representative to attend the meeting.
- Senior managers and IT officials meet and discuss what changes can be done to improve the work environment for end users and implement the necessary changes.

RECOMMENDATIONS

- An analysis can be conducted to assess if the changes improved the conditions of end users.
- End users can create social forums to have their voices heard so that their organizational leaders, creators of technology, and IT departments can gain a deeper understanding of the end users experience.
- Organizational leaders should take a proactive role in discussing IT related topics to see if the requirements to work at maximum capacity in relation to technology exist.

RECOMMENDATIONS