

A STUDY ON PERCEPTION OF POST GRADUATE STUDENTS ABOUT CYBERSPACE

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Abstract

Cyber Space has touched every one's life today and everyone has a different opinion about it. The study uses both qualitative and quantitative methods to decipher the perceptions of post graduate students about cyber space.

A qualitative study identifies the different dimensions through interview which leads to construction of a questionnaire, data collection and a factor analysis to identify and name these factors.

Keywords: Cyber space, Dimensions of cyber space, Post graduate perception

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Research Objectives

- To bring about the understanding of cyberspace through literature review
- To identify the dimensions of cyberspace as perceived by students
- To identify the dimensions most closely associated with student perception of Cyber Space

Literature Review

Word "cyberspace" was first used by William Gibson in his book "Burning Chrome" in 1982.

"A consensual hallucination experienced daily by billions of legitimate operators, in every nation, by children being taught mathematical concepts... A graphic representation of data abstracted from the banks of every computer in the human system. Unthinkable complexity. Lines of light ranged in the nonspace of the mind, clusters and constellations of data. Like city lights, receding."¹

The above description provides a vague idea of cyberspace but is not very clear is to define what cyberspace exactly is.

"The space of interactivity between communication media. For example, the point of personal contact between two telephones." "The mutual connective fabric of the conceptual universe. An encounter halfway between here and not-here. Can be visual, acoustic, or conceptual." "A community linked through electronic media, experimenting with new forms of social organization." "Soon to be a major virtual reality near you." "The universe next door."²

The author of above definition focuses on connectivity social organization and of virtual reality which clarifies the description before.

"A new universe, a parallel universe created and sustained by the world's computers and communication lines. A world in which the global traffic of knowledge, secrets, measurements, indicators, entertainments, and alter-human agency takes on form: sights, sounds, presences never seen on the surface of the earth blossoming in a vast electronic night."³

¹ -- William Gibson (in "Neuromancer" , page 51)

² -- Henry W.Targowski (in Mark/Space, 1994).

³ -- Michael Benedikt (in Cyberspace: First Steps).

The meaning of the term has connoted different meanings for people with different backgrounds. This study focuses on the interpretation of Cyberspace by students in post graduate programs.

The metaphor used to describe the "sense of a social setting that exists purely within a space of representation and communication . . . it exists entirely within a computer space, distributed across increasingly complex and fluid networks."⁴ The term "Cyberspace" started to become a de facto synonym for the internet, and later the World Wide Web, during the 1990s, especially in academic circles.

Author Bruce Sterling, who popularized this meaning, credits John Perry Barlow as the first to use it to refer to "the present-day nexus of computer and telecommunications networks."⁵ Barlow describes it thus in his essay to announce the formation of the Electronic Frontier Foundation⁶. In 1989, Autodesk, an American multinational corporation that focuses on 2D and 3D design software, developed a virtual design system called Cyberspace.⁷

A more systematic and in-depth contribution to the ontology of cyberspace is provided by Coyne (1995). He also starts from the intuitive observation that "the Internet technology makes space within its own virtual environment"⁸

Cyberspace as an internet metaphor

While cyberspace should not be confused with the Internet, the term is often used to refer to objects and identities that exist largely within the communication network itself, so that a Website, for example, might be metaphorically said to "exist in cyberspace." According to this interpretation, events taking place on the internet are not happening in the locations where participants or servers are physically located, but "in cyberspace".

Firstly, cyberspace describes the flow of digital data through the network of interconnected computers: it is at once not "real", since one could not spatially locate it as a tangible object, and clearly "real" in its effects. Secondly, cyberspace is the site of computer-mediated

⁴ -- Vanderbilt University, "Postmodernism and the Culture of Cyberspace", Fall 1996 course syllabus

⁵ -- Principia Cybernetica "Cyberspace"

⁶ -- John Perry Barlow, "Crime and Puzzlement," June 8, 1990

⁷ -- Andrew Pollack, New York Times, "For Artificial Reality, Wear A Computer," April 10, 1989

⁸ --Coyne, R. 1995. *Designing information technology in the postmodern age: From method to metaphor*. Cambridge, MA: MIT Press.

communication (CMC), in which online relationships and alternative forms of online identity were enacted, raising important questions about the social psychology of internet use, the relationship between "online" and "offline" forms of life and interaction, and the relationship between the "real" and the virtual. Cyberspace draws attention to remediation of culture through new media technologies: it is not just a communication tool but a social destination, and is culturally significant in its own right. Finally, cyberspace can be seen as providing new opportunities to reshape society and culture through "hidden" identities, or it can be seen as borderless communication and culture⁹

The "space" in cyberspace has more in common with the abstract, mathematical meanings of the term (see space) than physical space. It does not have the duality of positive and negative volume (while in physical space for example a room has the negative volume of usable space delineated by positive volume of walls, internet users cannot enter the screen and explore the unknown part of the internet as an extension of the space they are in), but spatial meaning can be attributed to the relationship between different pages (of books as well as web servers), considering the unturned pages to be somewhere "out there." The concept of cyberspace therefore refers not to the content being presented to the surfer, but rather to the possibility of surfing among different sites, with feedback loops between the user and the rest of the system creating the potential to always encounter something unknown or unexpected.

Videogames differ from text-based communication in that on-screen images are meant to be figures that actually occupy a space and the animation shows the movement of those figures. Images are supposed to form the positive volume that delineates the empty space. A game adopts the cyberspace metaphor by engaging more players in the game, and then figuratively representing them on the screen as avatars. Games do not have to stop at the avatar-player level, but current implementations aiming for more immersive playing space (i.e. Laser tag) take the form of augmented reality rather than cyberspace, fully immersive virtual realities remaining impractical.

Some virtual communities explicitly refer to the concept of cyberspace, for example Linden Lab calling their customers "Residents" of Second Life, while all such communities can be positioned

⁹ -- New Media, an Introduction: Flew, Terry

"in cyberspace" for explanatory and comparative purposes (as did Sterling in *The Hacker Crackdown*, followed by many journalists), integrating the metaphor into a wider cyber-culture. Cyber space has made a new world called virtual world A virtual world is an online community that takes the form of a computer-based simulated environment through which users can interact with one another and use and create objects¹⁰

The Virtuality Continuum is a phrase used to describe a concept that there is a continuous scale ranging between the completely virtual, a Virtuality, and the completely real: Reality. The reality-virtuality continuum therefore encompasses all possible variations and compositions of real and virtual objects. It has been described as a concept in new media and computer science, but in fact it could be considered a matter of anthropology¹¹. The concept was first introduced by Paul Milgram.

The area between the two extremes, where both the real and the virtual are mixed, is the so-called Mixed reality. This in turn is said to consist of both Augmented Reality, where the virtual augments the real, and Augmented virtuality, where the real augments the virtual.

Popper's theory of World 3 says that we can distinguish at least three different worlds of our experience. First of all, the material world, second the mental world, and The elements of World 3 form the body of objective knowledge, which can eventually be used as a blueprint for reconstructing human civilization and culture.¹²

The metaphor of the "vortex" implies that a web site is not merely a point in space, but a spatial-temporal synthesis, which we call a "place." Place is a space with experience added in.¹³

Virtual reality, is a term that applies to computer-simulated environments that can simulate physical presence in places in the real world, as well as in imaginary worlds.

Cyber space as a playground for crimes

Many forms of cyber crimes exist the major ones that are emerging are
Cyber-bullying

¹⁰ Bishop, J. (2009). Enhancing the understanding of genres of web-based communities: The role of the ecological cognition framework. *International Journal of Web-Based Communities*, 5(1), 4-17.

¹¹ Milgram, Paul; H. Takemura, A. Utsumi, F. Kishino (1994). "Augmented Reality: A class of displays on the reality-virtuality continuum". *Proceedings of Telemanipulator and Telepresence Technologies*. pp. 2351-34. http://vered.rose.utoronto.ca/publication/1994/Milgram_Takemura_SPIE1994.pdf. Retrieved 2007-03-15

¹² Popper, K. R. 1972. Epistemology without a knowing subject. In *Objective knowledge*, ed. Karl R. Popper, pp. 84-136. Oxford: Clarendon Press.

¹³ Sewall, L. 1999. *Sight and sensibility: The ecopsychology of perception*. New York: Jeremy P. Tarcher/Putnam.

"Bullying is an attempt to raise oneself up by directly demeaning others; the attacker hopes to improve his social status or self-esteem by putting others down."¹⁴

Cyber-harassment

Like harassment in the physical world, cyber-harassment should technically be limited to targeting people by virtue of their membership in a protected class such as race or gender.¹⁵

Cyber-stalking

Cyber-stalking involves conduct directed at a victim, rather than general communications about a victim. At least in some jurisdictions, cyber-stalking legislation requires a credible threat to the victim for there to be a violation of law.¹⁶

Hacking

Hacking in simple terms means an illegal intrusion into a computer system and/or network. There is an equivalent term to hacking i.e. cracking, but from Indian Laws perspective there is no difference between the term hacking and cracking.

Denial of service Attack

This is an act by the criminal, who floods the bandwidth of the victim's network or fills his e-mail box with spam mail depriving him of the services he is entitled to access or provide

Software Piracy

Theft of software through the illegal copying of genuine programs or the counterfeiting and distribution of products intended to pass for the original.

¹⁴ -- Wild west 2.0: how to protect and restore your online reputation on the untamed Social Frontier By Michael Fertik, David Thompson

¹⁵ --FED. COMM'NS COMM'N (FCC), UNDERSTANDING WORKPLACE HARASSMENT, <http://www.fcc.gov/owd/understanding-harassment.html> (last updated Jan. 8, 2008) (noting that harassment occurs in cases of "unwelcome verbal or physical conduct based on race, color, religion, sex (whether or not of a sexual nature and including same-gender harassment and gender identity harassment), national origin, age (40 and over), disability (mental or physical), sexual orientation . . .")

¹⁶ Kate E. Schwartz, *Criminal Liability for Internet Cyprits: The Need for Updated State Laws Covering the Full Spectrum of Cyber Victimization*, 87 WASH. U. L. REV. 407 (2009)

Credit Card Fraud

The unauthorized and illegal use of a credit card to purchase property.

Phishing

The act of sending an e-mail to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft. The e-mail directs the user to visit a Web site where they are asked to update personal information, such as passwords and credit card, social security, and bank account numbers, that the legitimate organization already has.

The study was conducted in the management department of SJCE Mysore. The choice of the institution was because of the proximity of the research area to the researcher. The study was conducted in two phases a preliminary study to provide a base from where to start after literature review. The main study comprised of a questionnaire development, administration and analysis.

Research Methodology

A preliminary study included open ended interview of 10 respondents on their views about cyberspace. Six of them identify cyberspace with internet and its usage whereas the other four included internet along with the hardware used to access internet as part of cyberspace.

A close examination of the answers revealed that the following dimensions of cyberspace are relevant for the students.

Findings and Analysis

The portions of the interview that identify the dimensions are quoted. Names of the respondents have not been disclosed

News

“I use net to stay updated on latest happenings”

“One of my morning rituals is to read news paper online”

The above two statements reveal that cyber space has been used as a source to gain knowledge current happenings. The respondents use it as an alternative to reading paper based newspaper and watching news channels.

Pursuing Education

“I am perusing certificate courses to enhance my resume”

“I am doing courses from SMU to enhance my skills and better my prospects of getting selected in placement”

“I prefer doing an online course because of its flexibility”

“I download e-books to save money”

Students were seen to have a need for education and skills apart from their regular courses hence they used cyberspace as substitute to traditional class room programs

Doing assignments

“I search research papers on Google scholar to prepare my literature review”

“It helps me to find answers to questions”

“It gives me directions as to which books to refer to answer assignments”

“I am able to add extra to what is available in the text book”

Cyber space as is evident from above statements has become a tool to aid teaching and self learning of students. It provides high involvement active learning since the participation of students in searching is high.

Entertainment

“It provides me a recreational activity after my college hours”

“I love spending time on cyber space. It gives me a break from real space”

“I play games on gaming sites”

Some students are attracted to the entertainment quotient provided by the cyberspace. However apart from gaming other activity was not clear during the interview.

Communicating

“I blog out my ideas and opinions”

“I send important messages through mail”

“I love spending time with my friends on net”

“I like chatting with strangers and making friends”

The urge to stay connected with others is a major dimension in today’s youth students. They wish to share their experiences via cyberspace

Downloading

“I download important notes and other stuff from the internet”

“Latest songs and videos are my first downloads”

“I download open source softwares regularly”

The download of information by students was the major portion of their bandwidth and data usage. The most popular downloads were videos, audios and softwares.

Media

“I watch live TV and save on cable connection”

“I listen to online radios as the choices are a lot”

It appears to be an offshoot of entertainment but have been included separately since entertainment was not well expressed by respondents

Cloud Computing

“I save my photos and documents on net so that I can access them anywhere”

Few people have been using the new cloud computing features and mainly they use it only to store and retrieve data files

E commerce

“I regularly buy and sell books”

“I buy fashion accessories and electronics from eBay”

The students don't hesitate to buy stuff from websites and are well versed with the transactions associated with buy/sell.

Banking

“Banking transaction from cyberspace is much easier and convenient for me”

Banking transactions were rather limited for students since mostly use ATM's to get cash.

Travel

“I compare air fares on many sites before buying a ticket”

“I use IRCTC to book my tickets”

Most of the students buy train tickets through web and hence showed a shift from earlier generation in order to avoid the queue.

Trading

“I trade in stocks using my lappie”

“I trade in small amounts to learn”

Most finance students were into online trading to apply the concepts learned in class to practical use on a small scale.

A questionnaire was framed based on the identified constructs. The questionnaire was administered to 100 respondents selected based on convenience sampling. The questionnaire used five point likert scale.

The validity of the instrument was verified by cronbach's alpha. The value was .86 which is above .7 hence the instrument is reliable.

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy had the value of .860 which is greater than .5 hence the sample was adequate for factor analysis. Five factors were extracted based on Eigen values greater than 1 after varimax rotation for better factor loading. After the analysis of the questions under each factor the factors are named as

File Transfer, Information search, Social Interaction, Financial transactions & Education by the researcher after the analysis of the questions that compose each factor

Conclusion

The study identified how cyberspace has evolved during the times by literature review from different authors of different time periods and it identified how cyberspace is perceived by the students of post graduate course by taking a sample from SJCE Mysore. Majority of students considered cyber space to be synonymous with Internet and its usages. The use of cyber space has become a part of their life and hence will be crucial as they progress in their careers after completing their post graduate courses.

References

- 1) William Gibson (in "Neuromancer" , page 51)
- 2) Henry W.Targowski (in Mark/Space, 1994).
- 3) Michael Benedikt (in Cyberspace: First Steps).
- 4) Vanderbilt University, "Postmodernism and the Culture of Cyberspace", Fall 1996 course syllabus
- 5) Principia Cybernetica "Cyberspace"
- 6) John Perry Barlow, "Crime and Puzzlement," June 8, 1990
- 7) Andrew Pollack, New York Times, "For Artificial Reality, Wear A Computer," April 10, 1989
- 8) New Media, an Introduction: Flew, Terry
- 9) IGNOU Study Material

Appendix

Table 1: Reliability Statistics

Cronbach's Alpha	N of Items
.86	25

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.860
Bartlett's Test of Sphericity	Approx. 296.833
df	15
Sig.	.000

Table 3: Rotated Component Matrix

	Component				
	1	2	3	4	5
I use cyber space to pursue online courses					.775
I use cyber space to download movies	.656				
I am active on social networking sites			.712		
I Watch videos in cyber space					
I am/was enrolled in distance education in online mode					.841
I use cyber space for chatting			.899		
I download songs and music from cyber space	.656				

I use cyber space for email			.694		
I listen to songs in cyber space	.685				
I use cyberspace for entertainment		.699			
I play cyber games					
I use my banking transactions over cyber space					.873
I use cyberspace to store documents	.561				
I download softwares from cyber space	.765				
I buy travel deals online					.876
I use sites to download/upload presentation notes				.752	
I use cyber space to store photos					
I stay updated with the current news using cyber space		.517			
I regularly buy sell in cyberspace					.898
I buy tickets for my travels online					.752
I regularly use blogs			.773		
I use online news sites		.651			
I prefer reading e books		.883			
I use online libraries		.565			
I access research papers on cyber space		.777			

Questionnaire

Please answer the following questions

Questions					
	Strongly Agree	Agree	Neither Agree/Neither Disagree	Disagree	Strongly Disagree
I use cyber space to pursue online courses					
I use cyber space to download movies					

I am active on social networking sites					
I Watch videos in cyber space					
I am/was enrolled in distance education in online mode					
I use cyber space for chatting					
I download songs and music from cyber space					
I use cyber space for email					
I listen to songs in cyber space					
I use cyberspace for entertainment					
I play cyber games					
I use my banking transactions over cyber space					
I use cyberspace to store documents					
I download softwares from cyber space					
I buy travel deals online					
I use sites to download/upload presentation notes					
I use cyber space to store photos					
I stay updated with the current news using cyber space					
I regularly buy sell in cyberspace					
I buy tickets for my travels online					
I regularly use blogs					
I use online news sites					
I prefer reading e books					
I use online libraries					
I access research papers on cyber space					