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Pepperdine University
Graduate School of Education and Psychology

TENSIONS IN A NEPALI TELECENTER: AN ETHNOGRAPHIC LOOK AT
PROGRESS USING ACTIVITY THEORY

A dissertation submitted in partial satisfaction
of the requirements for the degree of
Doctor of Education in Educational Technology

by

Jeffrey Chih-Yih Lee

November, 2010

Paul Sparks Ph.D.–Dissertation Chairperson

This dissertation, written by

Jeffrey Chih-Yih Lee

under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

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DEDICATION

This dissertation is dedicated to my family and friends; to my parents who traveled thousands of miles so my sister and I could have rich opportunities; for my sister's support, guidance, and wisdom along the way; to Dr. Sparks for traveling to Nepal and taking interest in my work; and to my friends for always encouraging me to seek my dreams. I am forever grateful for your love and kindness. Namaste.

VITA

Universities Attended

Pepperdine University	Doctorate in Education	2010
Pepperdine University	Masters of Science	2001
University of Massachusetts	Bachelors of Science	1997
Long Beach City College	Associate of Arts	1995

Fields of study, majors and areas of concentration

Professor in Education—I am a professor in the School of Education at Azusa Pacific University. I teach several classes focusing on methods in teaching math in elementary school settings, methods in teaching English language learners, advanced technology in education and assessment courses.

Technology Integration Coordinator—I am the Technology Integration Coordinator for the Department of Teacher Education at Azusa Pacific University. In this capacity, I have many responsibilities including: helping faculty integrate technology into their teaching, developing appropriate and relevant technology assignments for all classes within the department, developing assessment tools that measure mastery of technology integration for all students who are in the program and training faculty on how to measure appropriate and relevant technology integration.

Educational Technology—I am interested in various ways educators can bridge the gap between how youth use technology today and how technology is used in the classroom. Web 2.0 provides an array of tools that can be integrated meaningfully into classroom instruction. I have also worked for ten years in a Title I elementary school where the digital divide is prevalent. As the GATE (Gifted and Talented Education) coordinator for the school district, I helped move the GATE program from an after school program to a hybrid online program. In the past five years, over 200 GATE students from six elementary schools learn together online.

Education—I have spent ten years of my career teaching elementary school. I taught in a school that adopted a “full inclusion” model where students with special needs are part of the general education classroom and support services are provided in the general education setting in the least restrictive environment. I regularly implement SDAIE strategies for English Learners and I d as the technology coordinator for the school. For five years, I served as a master teacher to student teachers from Cal State Fullerton, Cal State Long Beach and National University.

In addition to teaching elementary school, I also taught at National University and Pepperdine University in the Education department. I taught classes in the Masters in Educational Technology program as well as the Teacher Credential program. The classes I taught focused on integrating technology into teaching, technology leadership, curriculum design, and online learning.

International Development and Technology- Since 2004, I have been working with youth

in Nepal on an initiative called the Youth Managed Resource Center. I help run Community Development Network, a US based non-government organization, that mentors, trains and leads youth technology leaders in Nepal.

Management- In the summer of 2004, I was the director of a school in Shanghai, China where I led and managed 30 teachers from the US. The teachers taught English to 700 Chinese students ranging from kindergarten to twelfth grade.

Courses taught

Azusa Pacific University

EDUC 500 Advanced Technology in Education
TEP 525 Methods in Teaching Math – Multiple Subject
TEP 555 Methods in Teaching Second Language Learners – Multiple Subject
EDLS 411 Introduction to Assessments

Pepperdine University

EDD 667 Leadership and Educational Technology

National University

EDT 600 Evaluation of Research on the Internet
EDT 605 Creating Meaningful Learning with Technology
EDT 612 Technology as a tool for Educators
EDT 620 Media and Technology in K-12 Classrooms
EDT 630 Using the Internet to Enhance K-12 Learning Environments
EDT 655 Issues and Trends in Educational Technology

Publications, honors, awards, professional organizations

Conference Presenter, Comparative and International Education Society Conference 2009
Chang Kai Shek Scholarship, Pepperdine University, 2009
Teacher Abroad Fellowship, Fund For Teachers, 2008
Open Education Conference, The Center for Open Sustainable Learning 2008
Chang Kai Shek Scholarship, Pepperdine University 2007
Co-President of Pepperdine University's Student Chapter of Association of Computing Machinery 2007
Conference Presenter, Association for Educational Communications and Technology 2007
Open Education Conference, The Center for Open Sustainable Learning 2007
Conference Presenter, International Society for Educators and Scholars Annual Conference 2007
Innovative Educator of the Year Award, Project Tomorrow 2006, 2007
California Distinguished School Award Writing Team, Arthur F. Corey School 2000, 2006
Conference Presenter, Comparative and International Education Society Conference 2006
National Honor Roll, Outstanding American Teacher 2005, 2006
Conference Presenter, Orange County Reading Association 2004, 2005
Title I Award Writing Team, Arthur F. Corey School 2003, 2004

CalSTAT Grant 2002–2004
Golden Bell Award, California School Board Association 2003
Teacher of the Year, Buena Park School District 2002

ABSTRACT

Developing countries such as Nepal struggle to keep up technologically. While advances make it possible for average Nepalis to access mobile phones, computers, and digital cameras, barriers impede access. As with other governments (Huerta & Rodrigo, 2007; Mokhtarian & Meenakshisun, 2002), Nepal responded in 2004 with telecenters to push sustainable technology. Most telecenters still struggle to accomplish their purpose (M. K. Bhattarai, personal communication, June 29, 2009).

Developing countries struggle to meet communities' technological demands (Colle & Raul, 2003). Issues other than technology limit telecenters from fully providing services and meeting the needs of the local community. These issues, which are often cultural and historical in nature, inhibit communities from integrating fully technology.

This study explores issues within a telecenter located in Sankhu, a small village outside of Kathmandu. To understand the issues, an ethnographic approach was adopted as the method for data collection. Given the problem, Activity Theory was used as a framework for analyzing and understanding the tensions Sankhu youth face. As a descriptive theory, it fits properly with an ethnographic study (Spradley, 1979). The analysis of tensions provides valuable information for improving current and future telecenter programs.

This study takes an ethnographic approach in investigating the tensions that exist at Sankhu. Sankhu is a rural community located about 20 kilometers east of Kathmandu. Research was gathered during 2 months.

The researcher embedded himself in the community from late June 2009 and collected data until mid-August. A total of 43 people were interviewed, creating 206

pages of transcripts. Direct observations totaled 67 hours.

Tensions were discussed in order of the frequency mentioned in interviews. Major tensions included gender norms, generational distrust, lack of awareness, and funding. Mid-level tensions included lack of training and time. Minor tensions were location, power, and connectivity.

Through the application of Activity Theory, more tensions surfaced than anticipated. The observations and analysis yielded the following conclusions:

1. Females have fewer rights and access to technology
2. Lack of time to learn and use technology
3. Elders are gatekeepers
4. Funding models for telecenters impede sustainability
5. Local communities are not aware of technological benefits.

Chapter 1: Screeching to a Halt in the Himalayas

During my trip to Nepal in 2004, I conducted several site visits to telecenters. We had traveled in an off-road vehicle on a muddy road deep into the Himalayan ranges for hours without seeing another human being. Suddenly, our driver swerved off the road and screeched to a halt, almost skidding off the steep cliff - my heart nearly stopped! What I saw next was mind-boggling. A young boy, probably about 15 years old, appeared to be getting fatigued from riding his bicycle on the overgrown road. He set his bike down, laid in the middle of the road and began talking on his cell phone! Immediately, I considered how Youth in Nepal and youth in the elementary school where I taught [in America] were so alike; they embrace technology and are quickly immersed in it. Even in the most extreme circumstances, they find access and personal value (Lee, 2004).

This account was written when I was a Community Development Network (CDN) volunteer on my first visit to Nepal. CDN is a Non-Government Organization (NGO) in the United States and does community-based participatory projects in developing countries. Since 2004, I have been partnering on telecenter projects with NGOs and Nepal's High Level Commission on Information Technology (HLCIT), which has started more than 80 telecenters for youth to manage and use. HLCIT and other organizations like it hope to help local villages leapfrog into the 21st century by integrating technology in rural villages through telecenters.

All sense of reality screeched to a halt as I found modern technology in the most remote areas of Nepal. I began to discover issues surrounding technology in Nepal. I observed technology used in different ways than that of the Western world. I discovered that such trends are prevalent in other developing countries like Nepal and that very little

research has ever been done. Questions led to more questions, which ultimately inspired a need for further understanding. As a result, I became the researcher of this study.

Another CDN volunteer and I brought four desktop computers, 12 digital cameras, and 60 flash drives on this visit. The digital cameras and computers were intended to be used in several of the pilot telecenter sites. The 60 flash drives were to be distributed among the youth who visit the centers.

On this particular visit, we were accompanied by representatives of the local NGO sponsoring the telecenter. The community of Gorkha greeted us with open arms during an elaborate celebration. In front of the youth, the district elders and the headquarters representatives, CDN volunteers collaboratively presented the youth with the flash drives. The local elders took ownership of the box, thanked us for our generous gift, and gave it to the NGO headquarter representatives to bring back to Kathmandu, the capital of Nepal.

I speculate that cultural significance, proper procedures of distributing wealth, and the symbolism of material property are major factors affecting why many youth did not receive the flash drives that day. I suspect that for months of careful negotiation, some of the youth were able to use the flash drives that we brought. CDN discovered that youth at the telecenter were disheartened by the fact that only a small amount of the flash drives were delivered for their use months later. While the telecenter concept was the vision of NGO, the implementation of the concept still must face the rigorous historical and social norms of Nepalese culture (Lee, 2005).

All around the world, developing countries struggle to keep up with the 21st century in areas of economics, education, health care, and technology. The divide

between the have's and the have-not's seems to widen in countries that do not invest in technology. Like many other developing countries, Nepal recognizes that local people in rural villages need to take advantage of modern resources. Technology resource centers called telecenters were created in rural villages for Nepalese to use.

Nepal is one of the most extreme cases of developing countries that use telecenters. Wedged between Asia's two superpowers, India and China, Nepal's geography is rugged, mountainous and rural, thus providing an ideal opportunity for investigation. Documentation on the tensions telecenters face from developing countries around the world continue to reveal itself in literature. The experiences described above ignited questions for me as I was developed a longing for deeper understanding on how youth are using and managing technology telecenters in Nepal's rural villages. As globalization becomes a reality, even in developing countries, there rises a sense of urgency to understand such tensions.

Statement of Problem

According to the United Nation's Youth Agenda (United Nations, 2007), young people are a major force in the contemporary world. They are at the forefront of global, social, economic and political developments. In addition to their intellectual contributions and their ability to mobilize support, young women and men have a unique perspective. How our society progress is determined, among other things, depends on how much we involve youth in building and designing the future.

In Nepal, youth are faced with the reality of a new post-civil war government and economic instability. Youth in Nepal, like youth in other parts of the world, are eager to take control of their future and embrace technology as a means of creating change.

Technology in Nepal is growing rapidly. Whereas many homes do not have landlines, cell phone usage is cheaper and more reliable. Cell towers have been built throughout Nepal so that every district has coverage. Internet access was more limited in many parts of the mountainous regions of Nepal. Where land-line connections are not available, using sim cards from cell phones to connect to the Internet or a USB device called CDMI becomes the preferred network connection.

In developing countries like Nepal, technology often symbolizes wealth. Nepal's living conditions are poor, and government instability creates a climate of uncertainty. Ownership of technology is representative of power and authority. On many occasions, donated telecenter equipment was discovered locked up and inaccessible for the youth, the intended users. Male elders, who are the main decision makers for Nepalese communities, play a significant role in this struggle for control. Although HLCIT is aware of this decision-making dynamic, the goal of the telecenters continues to be focused on youth management. Several telecenters reported that elders do not understand how to use technology, yet lock the technology up as a means of control.

Similarly, John Wood (2006), founder of Room to Read, a non-profit company that helps Nepali villages set up libraries, discovered that because books were considered precious, and because schools did not want to risk children damaging them, often times, they, too, would be locked up. The symbolic struggle for power between elders and youth is ironic in that many times, Woods discovered that the few books that were locked up were of no educational significance; among them were Danielle Steel romance novels.

Investigating the issues surrounding telecenters, one will find that many telecenters in developing countries around the world, like Nepal, struggle with similar

challenges. Lack of funding, infrastructure, and computer knowledge, as well as effects of globalization are some of the major telecenter stressors. As a result, there seems to be a strong need for understanding how telecenters can sustain such challenges.

The problems Nepalese youth are facing when using technology are cultural, social, and historical in nature. Youth struggle with their daily use and management of the telecenters, and success is measured in very small increments. In theory, village elders and the community agree on the concept of youth management. But in practice, traditional norms still impede the progress of many centers. Thus, the problems youth leaders of telecenters are faced with are complex. The need for a deeper understanding of such problems is highly warranted as Nepal engages with the rest of the world.

Research Question

This research study used ethnography to capture a glimpse into the daily interactions in two Nepalese telecenters. The researcher investigated the question, “What tensions do youth face when managing and using technology telecenters?” The High Commission on Information Technology established the Sankhu telecenters in 2004. Since then, youth struggle to overcome countless obstacles when trying to sustain the center. Because many of these obstacles are culturally, socially, and historically significant to Nepal, and because the reasons for these obstacles are complex and cannot be understood via surveys and questionnaires, data gathered for this investigation was taken using an ethnographic approach. Once the data was gathered and coded, Activity Theory was used as the framework of how the data was analyzed.

Information and Communication Technology (ICT) for development has become a worldwide movement. In fact, ICT has become so important in education, commerce,

and governance that many developing countries, especially in Africa and Asia, are establishing national ICT policies (Colle & Raul, 2003). Developing countries that promote technological capability would, in the long run, emerge as ‘winners’ in the globalization process (Huq, 2004). Castelle’s description of the transformation from post-industrialization to the modern, is quickly being realized in Nepal. Globalization is not geographically defined by east and west. The modern globalized world is identified as a world metropolis with divisions of north and south (Capella, 2000).

Globalization objectively composes a new economic and cultural universe; as an ultimate condition. It is a part of the process generated by the third industrial revolution. The metropolitan destiny, the peripheral, and that of the poor are reciprocally interdependent. In short, the current globalization is a tension-generating process, one from which a new world rises (Capella, 2000).

Developing countries such as Nepal will be faced with global dilemmas such as: How will Nepalese use technology to leverage their position in this so-called tension-generating process? Can technology help create the upward mobility in the globalized metropolis Capella describes?

In *The World Is Flat*, Thomas Friedman (2006) describes how modern technology is flattening the round world once discovered by Christopher Columbus. As jobs become outsourced and local job markets move toward globalization, it is important for 21st century youth to learn how to navigate their way through the world. Social networking sites such as Myspace, Facebook, Friendster, as well as Web 2.0 tools such as blogs and wikis help people around the world live and function together online. Much of these technological advances are penetrating their way to Nepal, despite its geographically

isolated environment. Youth in Nepal face the struggle of balancing traditional customs, while keeping up with the rest of the world.

Purpose of Study

The purpose of this study is to better understand tensions youth face when using technology in two telecenters in Nepal. HLCIT's effort to build telecenters started as early as 2000 as an attempt to bring technology to rural villages. To date, over 80 telecenters have been established throughout Nepal. Like many telecenters around the world, Nepal's telecenters struggle with the daily realities of sustainability. Local communities wonder, "How does technology impact our lives? Who will use technology? What changes does technology bring to our village?" Without a deep understanding of such questions, youth struggle with sustainability and many telecenters simply fail. This research study used an ethnographic approach to collect data and applied Activity Theory for data analysis.

Significance of Study

The significance of this study is multifaceted. In the area of technology in Nepal, this study uncovered how the youth use and manage technology in the Sankhu telecenter. The results of this study could also become valuable to Nepal's Ministry of Education and Sports, HLCIT, and local communities using telecenters. It could also provide valuable discussion to the United Nations, United Nations Educational, Scientific and Cultural Organization (UNESCO) and the World Bank as technology becomes an important learning tool in developing countries.

From a research perspective, this study is unique in the tandem use of ethnography to capture the inter-workings of technology telecenters in Nepal and

Activity Theory to identify tensions within an activity system. Such a framework of identifying tensions youth face when using technology in developing countries may prove to be a valuable approach in future studies of telecenters.

Definition of Terms

Telecenters. Also known as Rural Information Technology Centers (RITS), telecenters are technological hubs residing in rural villages where youth manage community-based projects through the use of technology. Many centers are equipped with several computers, printers, Internet, and digital cameras. They are designed to be youth- managed and serve as gathering places where the entire community can participate in projects. Youth take into consideration the needs of the local area and construct projects that are beneficial to the community. These projects are designed to be participatory in nature and involve youth, elders, men and women, as well as people from all castes. Technology services and training are provided at the telecenters. Since 2004, over 80 telecenters have been established in Nepal.

Tulasi Meher UNESCO Club (TMUC). Tulasi Meher is perhaps the most noted social worker in Nepal, and is regarded at times as the Ghandi of Nepal. Tulasi Meher UNESCO Club (TMUC) is a non-profit organization in Nepal that organizes community-led projects in rural villages. TMUC organized development projects do not segregate between gender and caste.

High Level Commission on Information Technology (HLCIT). The High Level Commission on Information Technology is an apex level ICT policy and strategy development body formed under the Chairmanship of the Prime Minister of Nepal. As part of its operational strategies, HLCIT is involved in conceptualizing, designing, and

implementing projects and programs aimed at leveraging resourcefulness offered by ICTs to address development challenges faced by Nepal.

The respondent, informant, and actor. A respondent is any person who responds to a survey questionnaire or to queries represented by an investigator. An informant is a “native speaker engaged to repeat words, phrases, and sentences in his own language or dialect as a model for imitation and a source of information” (Garson, 2006, p 1). An actor is someone who becomes the object of observation in a natural setting.

Summary

Chapter One highlights the current status of youth using technology in Nepal. Nepal and other developing countries are faced with the challenge of integrating 21st century tools, including computers, cell phones, and digital cameras - into local environments with extremely low infrastructure. As a result, Nepal and similar countries, have leapfrogged into a modern setting, unsure of how technology can be used. Through the use of Activity Theory, this study unveiled and analyzed tensions youth face at the Sankhu telecenter. Chapter two guides the reader through literature related to this study such as ethnography, Activity Theory, technology in developing countries, youth leadership in developing countries, and Nepalese culture.

Chapter 2: Literature Review

This literature review captures previous research on the issue of youth managing telecenters in rural villages in Nepal, and other related topics, with the intent to create an organizational landscape for understanding developing countries, technology, telecenters, youth leadership, ethnography, and Activity Theory.

Telecenters

Telecenters offer a wide variety of services for their communities. The concept of telecenters has been around for the last decade and primarily is used in developing countries where hardships in owning technology exist. Many telecenters provide a means for access to information technology. They tend to be in the public sector and are operated by government bodies or nongovernmental organizations. “Generally they serve a low-income clientele and have a community development mission” (Colle & Raul, 2003 p. 388). Lunghabo James (as cited in Colle & Raul, 2003) comments on the significance of telecenters:

Community access centres are the way to go. In many third world countries, there is little chance to find individual ownership of all sorts of ICTs. Even mobile phones. I always come across scenarios in rural Uganda where two or three people own phones and are “forced” to offer public commercial calling services as a result of need. Telecenters create an aggregation of ICTs and enable the general public to access them at a nominal fee and benefit from the advantages they have to offer. [Since] a number of rural folk are not exactly financially liquid, it would be good for one to explore the possibility of accepting payment for services using alternative methods, e.g. farmer X brings a heifer to the telecenter, valued at an amount of XYZ and getting the services for the equivalent. (p. 388)

As Information and Communication Technology (ICT) becomes a reality in the lives of those in both developed and developing countries, the Internet plays a vital role in narrowing the physical boundaries of the world. Not only does the Internet promote

interaction, it has redefined learning. Developing countries have taken leaps that are unimaginable in previous times, and gained almost instant access to global knowledge (Gregson & Raj, 2000). Colle & Raul (2003) wrote:

Located in Nakaseke and Kaasangombe, Uganda, the Nakaseke Multipurpose Telecenter is regarded as one of the most visible telecenters in Africa. It was initially supported by the International Development Research Center, UNESCO, and International Telecommunication Union and hosts a library of over 3000 volumes. The Nakaseke Multipurpose Telecenter also provides access to various communication services such as telephones, photocopying, and faxing. Telecenters in Ghana provide services including: “[...] desktop publishing, community newspapers, sales or rental of audio and video recordings, book lending, training, photocopying, faxing, and telephone services. In Hungary, telecenters even provide postal, banking and employment services.” (p. 288–289)

Huerta and Sandoval-Almazan (Huerta & Rodrigo, 2007) point out that physical access to ICT only reduces the digital divide, a term used for highlighting the differences in opportunities to use ICT. When technology access is provided, but the skills to take advantages of the resources are not apparent, the digital divide still persists. Therefore, telecenters are only relevant solutions to bridging the digital divide if they address access, literacy, and computer literacy.

Ethnography

Ethnography, rooted in the fields of anthropology and sociology is a written representation of a culture or selected aspects of a culture (Genzuk, 2003). While they carry serious intellectual and moral responsibilities, ethnographic studies inform human conduct and judgment in innumerable ways by pointing to the choices and restrictions that reside at the very heart of social life (Van Maanen, 1988). Ethnographies offer perspective and insight to practice, and they are culturally significant to the environment studied.

To conduct ethnographic research, the researcher is required to have a minimum understanding of the language, concepts, categories, practices, rules, and beliefs used by members of the participant culture (Van Maanen, 1988). Often times, the researcher spends an extended amount of time immersed in the local environment where the research takes place in an attempt to gain deeper understanding of local cultures. Van Maanen (1988) wrote:

These are the stuff of culture, and they are what the fieldworker pursues. Such matters represent the ways of being and seeing for members of the culture examined and for the field worker as a student of that culture. The trick to ethnography is to adequately display the culture (or, more commonly, part of the culture) in a way that is meaningful to readers without great distortion. (p. 13)

In the attempt to display the studied culture, the researcher must forever keep in mind that research proceeds on two different levels at the same time. While examining small cultural details, the researcher also seeks to chart the broader features of the cultural landscape. An adequate cultural description will include an in-depth analysis of selected domains and an overview of the cultural scene in attempt to create a sense of the whole (Spradley, 1980). Spradley (1979) wrote:

People everywhere learn their culture by observing other people, listening to them, and then making inferences. The ethnographer employs this same process of going beyond what is seen and heard to infer what people know. Ethnographers make cultural inferences from three sources: 1) from what people say; 2) from the way people act; and 3) from the artifacts people use. At first each cultural inference is only a hypothesis about what people know. This hypothesis must be tested over and over again until the ethnographer becomes relatively certain that people share a particular system of culture meaning. None of the sources for making inferences- behavior, speech, artifacts- are foolproof, but together they can lead to an adequate cultural description. (p. 8)

Data Collection

Observations. Ethnographers often use participant observations as a strategy for gathering data. It involves both listening to people and watching them in their natural

settings. Those they study often times become both actors and informants at the same time (Spradley, 1980).

Field notes. There are several kinds of field notes taken during an ethnographic study. All notes taken during actual interviews or field observations represent a condensed version of what actually occurred. It is not humanly possible to write down everything that goes on or everything that informants say. Condensed accounts often include phrases, single words, and unconnected sentences. It is advisable to make a condensed account during every interview. Even while tape recording, it is good to write down paraphrases and words used by your informant (Spadley, 1980).

The second type of field notes represents an expansion of the condensed version. Spradley (1980) advises that as soon as possible after each field session, the ethnographer should recall the details that were not written in the condensed account of the field notes, even though a tape recording of the conversation might be available. Tape recorded interviews, when fully transcribed, represent one of the most complete expanded accounts.

Interviews. It is best to think of interviews as a series of casual conversations between the researcher and the interviewee in which the ethnographer slowly introduces new elements to assist informants to respond as informants (Spradley, 1980). “At a minimum, [careful analysis] will take six to seven one-hour interviews, so it is important to estimate whether a potential informant has adequate time to participate” (Spradley, 1980, p. 51).

Irving Seidman (2006) suggests the following two techniques for interviewing:

I use the first approach when I sense that I am hearing a public voice and I am searching for an inner voice. I try to figure out the person with whom the

participant might be most comfortable talking personally. I then try asking the participant to imagine that I am that person. I might say, “If I were your spouse (or your father, or your teacher, or your friend), what would you say to me?”

I also often ask participants to tell me a story about what they are discussing. In a sense, everything said in an interview is a story. But if a participant were talking about, for example, relationships with students, I might ask for a story about one particular student who stands out in his or her experience. (p. 87)

Seidman (2006) also suggests that while there is no recipe for the effective question, the truly effective question flows from an interviewer’s concentrated listening, engaged interest in what is being said, and purpose in moving forward. Sometimes an important question will start out as an ill-defined instinct or hunch, which takes time to develop and seems risky to ask. Other times the effective question reflects the interviewer’s own groping for coherence about what is being said.

Activity Theory

Russian psychologist Lev Vygotsky introduced a new concept to socio-cultural theory called Activity Theory, which suggests that in an activity’s system, tools, community, division of labor, and rules can be mediating factors. (Lave & Wenger, 1991) In fact, Munsterberg (1914) argues that cognition occurs not only in one’s head, but in the object elements of communication among individuals. Munsterberg gives the example of how a book exists outside an individual, yet intermediates between two or between millions in a social group, thus shaping social actions and thoughts.

Lave and Wenger (1991) state that observing learning is a situated event and happens in a community. It is impossible to understand learning in a study of an individual with limited access to others or mediating artifacts to accomplish the task.

In the situated perspective the notion of context refers to a social context defined in terms of participation in a social practice. People are studied in their activities in

everyday settings. The unit of analysis is the Activity of Persons-Acting in Setting. The unit of analysis is thus not the individuals, not the environment, but a relation between the two (Engestrom, Lompscher, & Ruckriem, 2005).

Activity Theory is a descriptive theory, not a predictive theory. In this model, the subject is referred to as the individual or group studied. The object refers to the ‘problem space’ where the activity takes place and the outcome is the desired result of the subject. Rules refer to explicit and implicit regulations, norms, and conventions that constrain actions and interactions within the activity system. The community refers to individuals or groups that interact with the activity system and the division of labor refers to tasks completed within the system (Center for Activity Theory and Developmental Work Research, 2003-2004). Tensions within the system impact the activity of the subject, the object, and the outcome. These tensions are identified by arrows between subject, object, community, division of labor, community, and instruments (See Figure 1). By using Activity Theory, researchers can identify underlying tensions within an activity system.

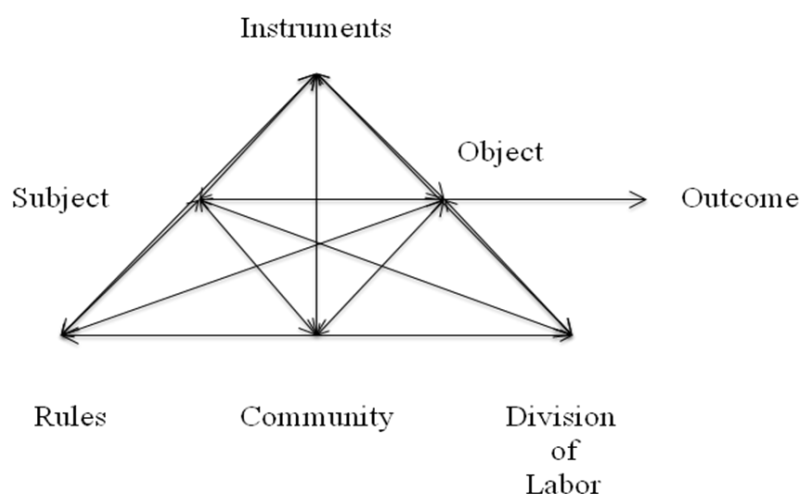


Figure 1. Activity Theory Triangle. This diagram shows the general layout of the Activity Theory and the corresponding parts. Figure also known as Basic Mediation Triangle taken from Cole & Engstrom (1993).

Because Activity Theory has a strong social-cultural foundation, it has been an important tool for research in the social learning field. Activity Theory was applied in a number of studies including: Wilson's (2008) *Activity-System Analysis of a Highly Effective First Grade Teacher and Her Students*; Wallace's (2007) *Using Cultural-Historical Activity Theory to Examine the Praxis of Teachers in a Middle School Site Embedded Professional Development Model*; and Cummings's (2007) *An Activity Theory Analysis of Three Instructors' Knowledge About Teaching Writing in a Pre-University English-for-Academic-Purposes Course: Teacher Mind as Mediated Action*. Each listed study applies Activity Theory to an activity system, takes into consideration most mediating factors in an activity system, and highlights tensions within the system.

The current study will utilize Activity Theory in an effort to analyze the activity system of youth (subject) using and managing technology (object) and finding sustainable approaches for telecenters (outcome). "Activity systems are best viewed as complex formations in which equilibrium is an exception and tensions, disturbances, and local innovations are the rule and the engine of change" (Salomon, 1993, p. 8). By categorizing the data into the tools, rules, division of labor and community (Engestrom et al., 2005), tensions begin to arise between the subject, the object, and the outcome. For this study, the researcher hopes to discover where tensions exist when youth are using and managing technology telecenters in the two sites studied.

Youth Leadership in Developing Countries

The United Nations Convention on the Rights of the Child (CRC) states that youth under the age of 18 have a right to express their views to adults, policy makers, and government officials. The CRC argues that youth need to be taken seriously and listened to. While adults often considered children having less expertise, and while the perspectives of children are historically less favorable, the CRC recognizes the voices of youth and, through policy-making, are helping to emphasize the significance of their voices (Lansdown, 2006).

Additionally, the United Nations Development Program has recently focused on two areas of interest. First, youth are directed to be aware of global situations by participating in youth-centered initiatives. Second, gender equality is central in many of the United Nations programs today. The Division for Advancement of Women, a United Nations Charter, promotes activities that improve the status of girls and women around the world (United Nations, 2007).

According to the United Nations (2007), young people are at the forefront of global, social, economic, and political developments. They are a major resource in combating global problems such as gender discrimination, insecure livelihoods, unemployment, armed conflict, ethnic prejudice, social exclusion, homelessness, environmentalism disease, and hunger. Awareness is also emerging about the profound impact children have on their community; children contribute to reconstructing communities after emergencies, disabled children advocate for opportunities, girls challenge early marriages, and boys advocate for girls' education (Lansdown, 2006).

Policies related to children are often created from the perspective that adults know what is best, often times ignoring the child's voice. As youth find their way to express themselves on social networking websites such as Facebook, You Tube and MySpace, it can be speculated that tensions will arise between youth and elders. In developing countries, first-hand accounts of violence against children, child labor, and child trafficking can be found on the Internet.

Nepal and Technology

Nepal, with eight of the world's 10 highest peaks, is a landlocked country tucked in the Kathmandu Valley of the rugged Himalayan Mountains. Eighty-six percent of Nepal's terrain is identified as rural, with an agriculturally-dependent economy. This dramatic landscape creates significant obstacles to education, health care, and dissemination of information. Compared to major cities, literacy rates are significantly lower in rural areas of Nepal (49% overall, 63% male, 35% female), and those living in remote mountain villages are often a day's walk from education and health services. Formal schooling is constrained by economic and cultural factors such as a need for children to work at home or in the fields and a bias against educating girls - much like the United States in the 17th and 18th centuries. Furthermore, Nepal is ranked amongst the poorest countries in the world with a per capita income of \$322. According to Nepali standards, 31% of the country lives below the poverty line (U.S. Department of State, 2000).

Nepal emerged a unified state more than 200 years ago. Nepal is influenced strongly by China in the north and India in the south and has a 2000-year history of urban civilization. Buddhism and Hinduism peacefully coexist in the Nepalese culture.

Lumbini, Nepal, the birthplace of Gautama Buddha, is considered the Mecca of Buddhism and is one of four holy places of the Buddhist religion (Whelpton, 2005).

In recent years, three major events helped shape the Nepal of today. The convergence of the People's Movement for Democracy that started in 1990, the massacre of the king and the royal family in 2001, and the intensified insurgency of Maoists (since early 1990s) led to the resignation of King Gyanendra Bir Bikram Shah and the formation of the first democratic government of Nepal. In the summer of 2008, Nepal elected its first president, Ram Baran Yadav (Whelpton, 2005).

Technology in Nepal and other developing countries. Information technology is a key tool in narrowing the digital divide, especially for developing countries. The Internet can help the disadvantaged gain access to resources that otherwise would be inaccessible due to economic and geographic constraints. For communities where households cannot afford technology, telecenters and community phone shops are providing access to these resources (Hafkin & Taggart, 2007).

It is said that two billion children in developing countries around the world are either inadequately educated or not educated at all; one in three does not finish fifth grade. The need for educational resources has been recognized by organizations like The One Laptop per Child (OLC) team, who suggest that any country's most precious natural resource is its children (Massachusetts Institute of Technology, 2007). Developing countries must leverage this resource by tapping into the child's innate capacity to learn, share, and create. One tool to achieve this is through the use of a personal computer.

The OLC project targets two key concepts in developing countries. First, it addresses the issue of access. OLC will mass produce and distribute \$100 laptops in an

effort to provide access to technology for children in developing countries. Second, OLC takes the constructionalist approach to technology integration; all children in schools will have their own laptops and a connected community will emerge (One Laptop per Child, 2007). According to Luciano Floridi (2001), only 7% of the world's population currently has access to ICT.

In Nepal, the High Level Commission for Information Technology created the National Information Technology Center (NITC) initiative in 2002. This implemented the creation of NITC's, also known as telecenters, throughout Nepal. The telecenters targeted rural areas, with attention to those with the most marginalized access to resources. They served as public facilities for communities to access information on the Internet, print and reproduce material through the use of computers, and learn how to use technology. The HLICT identified telecenters as "important vehicles for bridging the digital divide" (High Level Commission For Information Technology, 2007). In 2006, the HLICT had established 24 new rural telecenters in Nepal.

Castells (2004) recognizes that ICT is the most significant factor separating developed and developing countries. Developing countries are encouraged to join the information age because, if used properly, ICT can promote industry and increase productivity in administration and communication. According to Pradhan (2002), countries that are unsuccessful in keeping up with ICT often collapse and are unable to achieve social-economic growth.

Furthermore, Burbules and Carlos (2000) reveal that the most efficacious Internet struggles of recent times have intersected with struggles encompassing campaigns to free political prisoners, boycotts of corporate products, strikes and even revolutionary

struggles. These struggles are an everyday reality in developing countries; it is clear developing countries view technology as an essential tool for change. Rennie (2007)

wrote:

Learning in Nepal. Nepal's multiple barriers—both economic and cultural—allow only a small percentage to obtain education; 2% of the total population receive higher education, and half of the 2% drop out largely due to financial constraints. Remote access to learn via the Internet offers a way to reduce this barrier. Technological advances are penetrating Nepal's geographically isolated environment. Cell phone towers now provide coverage in all districts in Nepal. As technology becomes a reality in everyday lives, access to information is accelerating the interaction between Nepalese people and other communities and individuals around the world. Nepalese women and those in lower castes are empowered through this access significantly more than ever before in Nepal's history. (p. 7)

In terms of learning, there is a considerable cultural reliance on oral traditions, lectures, seminars, and discussions as the only means of information transmission. Nepal is open to Western influences more so than ever before, yet there are still cultural barriers that prevent trust in online information. Using information on the Internet is uncommon; academic staff, employers, and students who use the Internet counter Nepalese norms. Furthermore, because most Nepalese are either Hindu or Buddhist, they tend to find discomfort in critical thinking and critical appraisal as a part of the learning process (Rennie, 2007).

A shift in learning paradigm is underway. Whether it is done in the formal education realm or in the informal, this shift is quickly happening. Approaches to change need to be future-oriented. Although Nepal's educational system does not have this perspective historically, it is building capacity to look forward and anticipate the future. Change at the local, grassroots level is happening quicker than at the national level. The

Nepalese government resultantly passed the Decentralization Act, which requires the values of educational needs to be addressed at the local level (Hughes, 1984).

Gender is another factor that influences learning in Nepal. The patriarchal society is historically significant and is even present in curriculum material. Men are presented as “heroes”, while females have a low profile (Bista, 2004). Child labor is an important factor in Nepal’s agricultural economy. The report further reveals that girls contribute at least 50% more than boys to domestic labor and to agriculture; this contribution increases with age. Daughters are traditionally expected to do more chores at home than boys. This social norm is also religiously significant, as Hindu and Buddhist religions strongly support such values (Watkins & Murrari, 1991). Laxmi, a middle-aged woman from Western Nepal, described receiving an education and becoming literate as a life-or-death struggle; she compared herself to a “green cucumber” with reference to the Nepalese saying, “Why eat green cucumber at the time of dying” (Robinson-Pant, 1999, p. 14). Women who gained educational access gave compelling testimonies of empowerment. *A Song For Education Day*, included below, was written by a woman in a remote village in Western Nepal (as cited in Robinson-Pant, 2001):

Change is coming because of more progress in education
 It is education that opens our eyes within
 Through education is the only way for the illiterate to speak out

Change is coming because of more progress in education
 It would be so nice to have studied at school
 We spent our lives pounding and grinding grain, collecting firewood and fodder

Change is coming because of more progress in education
 At last when Save and Care came, our eyes were opened
 Through this important education, we were able to write our names

Change is coming because of more progress in education
 We could also write letters by ourselves to our husbands

We could read letters from abroad by ourselves...

Education is this curious light of development
It is father's and mother's fault for not sending us to the village school. (p. 317)

Chameli, the writer of this song, attends adult literacy classes in the evening. In the past, her husband remained in school and received an education while she completed the domestic and farm work. Robinson-Pant (2001) also recognizes that Chameli's realities in life are shared by the majority of women in Nepal. Chameli's illustration of seeing the light through education is common in milieu of development literature.

Youth and elders. The biggest struggle in the concept of the telecenter lies in the power struggle between youth and elders. Adults in Nepal who are involved at the implementation level of the telecenters find it difficult to relinquish control and allow the youth to have a voice. In the Lancet report, the CRC identified that in many cases, adults need to learn that participation of children does involve a sharing of power with them, but that this collaboration will not result in anarchy or less of respect. Listening to young people and taking them seriously is a fundamental human right, which enhances the development of children, strengthens their protection, builds understanding of democracy, and improves outcomes for all (Lansdown, 2006).

Gender and caste. Most Nepalese marry a partner of the same caste from either Nepal or India. Although individuals can marry across caste boundaries, it is typically understood that higher-caste parents are opposed to any relationship with members of impure groups. There is a preference for sons, and the belief that a woman should serve and obey her husband remained very strong in most communities. Nepalese daughters are not entitled to a share in their father's property unless they remained unmarried (Whelpton, 2005).

Summary

The literature review in Chapter 2 creates the framework for the background of the study, the approach to the study, and the theories used in the study. Although formal literature on the specific topic at hand is scarce, there is a limited amount of literature on related topics at hand. This study presents an in-depth analysis of how youth manage and use technology in the Sankhu telecenter. The valuable information gathered from this study and the conclusions made will add to the limited existing body of literature.

Chapter 3 will explore the methodology behind this study in detail. In an attempt to understand tensions youth face when managing and using technology centers in Nepal, I collected data using an ethnographic approach. Once the data was gathered and coded, the results were charted on a series of tension-identifying triangles through the use of Activity Theory. Activity Theory allows researchers to decipher tensions within an activity system and was a valuable tool for data analysis in this study.

Chapter 3: Methodology

Overview

Twenty-first century youth are faced with a new set of challenges in their lives. With advancements in technology, youth are tasked with navigating a complex world where traditional geographical boundaries are nonexistent. What was considered global can be easily accessed with a few clicks on a computer. Although this presents a new set of challenges for youth, the benefits are endless.

Nepal's rural villages are limited in access to modern technology. As electricity and Internet access slowly penetrates its way into the local ecosystem, some embrace it, and some reject it, knowing little about technology and its prospects. Nevertheless, technology in rural villages continues to struggle as a new member of the existing ecosystem. The examples in Chapter One illustrate how youth are quickly realizing the potentials of the limited technology they have access to and are discovering ways to use them.

Problem Statement

Reviewing literature related to technology in developing countries, one would commonly find stories of how villagers invent ways to adapt high-tech gadgets to their low-tech lives. Imagine the following: a local businessman charges a car battery using solar cells. He then charges villagers in a remote village a small amount of money to charge their cell phone battery. Because laying landlines for telephone use is expensive, locals resort to text messaging using second-hand cell phones in areas without electricity and telephone access. Next imagine this. While cooking over an open fire, a grandmother in the village summons her young grandchild to send a text message to inform family

members of a reunion. These examples of technology usage are two of the many that exemplify the current reality of technology being used in developing countries.

In Nepal, villagers simply cannot afford direct ownership of technology; therefore telecenters have become the primary resource of technology access in rural villages. As the High Level Commission on Communication, Information and Technology of Nepal continues to create telecenters and as youth continue to be the biggest consumers of technology in Nepal, telecenters have become a focal point of access to technology.

Research Question

Nepal, like other developing countries, strives to adapt to the technical changes of the 21st century. Youth in Nepal recognize the benefits of technology and are accessing it through telecenters. This study takes an ethnographic approach in gathering data in hopes to unveil tensions within the Sankhu telecenter. Once the ethnographic data is collected, transcribed and coded, Activity Theory will be used to analyze the tensions within the telecenter's activity system.

Ethnographic Approach

Social interactions are often effected by the environment, actions and reactions of others in the environment, culture, and history. Unlike the laws of physics, the rules governing human life and social interaction are always changing. There is no solid, unmovable platform upon which to base our understandings of human affairs. They are in constant flux (Seidman, 2006).

An ethnographic approach was taken for this study to capture a holistic view of interactions within the local community. Spadley (1979) defines ethnography as “the work of describing culture” (p. 3). Roles of various individuals, mediating factors such as

division of labor, rules, and even tools used influence the complex web of decisions made within such an environment. Ethnographies attempt to capture the whole picture in an effort to describe, interpret, and analyze the subject of the study (Creswell, 2003).

The use of an ethnographic approach allowed for an in-depth glimpse into the tensions of Sankhu's telecenter. Since the tensions present are complex and likely to be cultural, social, and historic in nature, Activity Theory provided a solid framework for analyzing these tensions. Such tensions were deeply layered by local norms such as gender roles and divides, elder and youth hierarchal rules, caste divides, and norms related to education and learning.

Typically ethnographers focus on a community and focus on key informants who are known to have an overview of the activities of the community. Informants may be interviewed multiple times, based on information gathered from previous informants to elicit clarification and deeper response upon re-interview (Garson, 2006).

While a survey using Likert Scale items with questions related to how the youth use technology in Nepal was considered as a research method, it had significant limitations in its ability to cover the entire landscape of data that related to tensions youth might face when using telecenters in Nepal; surveys generally limit the respondents' ability to describe nature of their interactions. Therefore, an ethnographic data collection approach was chosen during which I was embedded in the Sankhu community for more than 2 months.

Site Selection

Sankhu is a Newar community. The Newar people are believed to be the indigenous inhabitants of the Kathmandu valley. In ancient times, the Kathmandu valley

region was thought to have been known as “Nepal” and “Newar” (Publishing, 2007). Yet distinctly unique, the Newari language, a tribal language, is deeply influenced by other Himalayan languages. Newar men are considered to be handsome and good-looking, physically slender, and delicate. Their height is normally higher than that of the average Mongoloid people. The complexion of the Newar people varies from dark to fair and their build is not as strong as the hills people (Publishing, 2007).

According to scholars, it is believed that the Newar civilization started around the sixth century BC and were the oldest inhabitants of the Kathmandu valley (Publishing, 2007). Although the Newars are typically businessmen and shopkeepers, the Sankhu Newar community consists primarily of farmers. The Newar people live in large houses with the extended family living under one roof. Cooking and eating is done in a common kitchen, but families sleep in separate quarters. Modern times lend to a gradual breakup of this family structure, as some nuclear families are formed. “The children are breaking away from their parents establishing their own homes away from the *Mul Ghar* (main house)” (Publishing, 2007, p.8). While most Newars are either Hindu or Bhuddhists, these two religions coexist peacefully.

The Sankhu site was selected out of convenience. It is one of 10 telecenters I worked with in which I had ongoing communication and collaboration with the youth of Sankhu. The village of Sankhu is located 16 kilometers (10 miles) east of the capital Kathmandu. No longer an important settlement on the old trade route to Tibet, Sankhu is a quiet village largely unaffected by the changes that take place elsewhere in the Kathmandu Valley.

The Sankhu telecenter, also known as the Sankhu Youth Managed Resource Center (SYMRC), is located in the heart of Sankhu. This center is a common meeting place for the Sankhu community. On a typical day, the center opens at 7:30am and services over 20 people per day. This center provides photocopying, laminating, faxing, Internet, and email services to its community. The center also hosts computer training for local community members.

This center was created by the High Level Commission on Information and Communication Technology (HLCIT) in early 2000 and was one of approximately 20 centers created at that time. HLCIT hoped that after two years of full funding the community would embrace the concept of a telecenter and take over funding and sustainability. In the case of Sankhu, the abrupt halt to funding came as a shock to the community. Sustaining a telecenter is costly to a community like Sankhu because local villagers, like much of Nepal, makes under \$1 USD per day. It was impossible to sustain the center. For example, a Sankhu Telecenter youth took the leadership role at that time and gathered other youth to find ways to achieve sustainability. For several weeks, she charged local youth money to play computer games in order to pay the electric bills and rent. Since then, she and other youth volunteers have found other stable means of sustainability.

Participant Selection

Participant selection for interviews included 43 people, specifically 32 youth ages 18-26 and 11 adults or elders. For this study, it was important that all voices were heard and that there were equal representations of age, gender, and caste. The characteristics of the interviewees encompassed a variety of age, gender and caste and will be proportional.

Participants for interviews were selected with the help of the youth leadership team. Because the researcher has a professional working relationship with these youth, the selection process had to be methodical. Interviewees consisted of participants who interacted with the telecenters as well as locals in the community who were not directly involved.

Youth in Nepal are considered to fall between 16 to 26 years old. For the purpose of the Institutional Review Board (IRB) approval, this study only involved interviewees that were 18 years old or older. Although Nepalese consider youth as old as 16, those that are between the ages of 16 and 18 did not participate in this study. A total of 43 people were to be interviewed for this study. For more information on protection of human subjects in this study, refer to the IRB application (see Appendix E).

Sampling Procedures

Upon arriving to each telecenter, I spent the first few days acclimating to the center. The acclimation period was used to lower any anxiety the youth and other community members may have when working with me. It was designed to help me integrate into the normal environment of the villages. During this time, I planned casual visits with elders, youth, men, and women from each prospective village. Since having tea is a daily social event, I participated in tea activities with the villagers; I also dined frequently with local families and participated in local cultural activities.

The target population of this study was the local community of Sankhu. Since it was impossible to interview and observe every member of this community, I chose a sample from the target population. The sampling process for this study is systematic—every effort was made to have equal representation, based on availability, to

proportionally represent various age, gender, and caste. Burchinal (1990) reminds us that systematic sampling can introduce a special kind of bias. He suggests checking into the names and other attributes of the participants. If some kind of order exists, then a more random approach should be considered. Given the amount of time, access to the local community and the availability of translators, the 43 interviewees were selected with all considerations possible.

Types of Data

Interviews. Initial interviews took one to two hours per respondent. The interview began with an identified set of questions, and allowed for open answers (see Appendix A-D). Additional interviews were conducted to clarify questions arising during data coding analysis. Interview questions and responses were recorded using both an audio and video recorder, with subsequent transcribed responses, and interview notes to ensure authenticity of the responses. Group interviews were also conducted based on the demographics of the community.

Interview location protocol. Neutral interview locations were strategically chosen, as those hidden from the public may cause tension. Another protocol was to ask culturally-sensitive questions. Picking the location for placing a video camera to film interactions was necessary because subjects may react to being filmed differently. It was even necessary to avoid using video during some situations.

Observations, field notes and research log. During a period of four to six weeks, I spent several hours each day observing user interactions in and around the telecenters. Data from observations consisted of field notes, pictures, video, and research logging. Interaction with the youth was necessary at times, but I took proper consideration in not

harming them as research subjects. A digital camera and a video camera was also be used for data collection. When taking pictures and video, I tagged data for coding purposes. For example, a picture of a youth using a computer was assigned tags such as youth, female, computer, telecenter, and time of day.

As a result of issues that might arise related to researching in a developing country, my observation and interview times varied based on the availability of transportation, electricity, and telephone access. Nepal's electricity and telephone infrastructure was highly unstable. Rolling blackouts occurred throughout the day at any given time and often lasted upwards of six to eight hours per day. When observations were not possible due to electricity and telephone access, I was forced to be flexible with the schedule. Instead of observations, I often times analyzed data, and gathered additional artifacts.

Artifacts. I viewed telecenter usage logs, completed projects, pictures, and other artifacts local telecenters gathered in the past. If possible, artifacts were scanned, copied, or saved for data analysis. When studying artifacts, proper protocol for acquiring permission to look at the artifacts were considered. For example, for artifacts belonging to the HLCIT, proper permissions were granted. For artifacts belonging to a local telecenter, I acquired the necessary local permissions. Should IRB concerns arise, the researcher did everything necessary to minimize harming the subjects involved.

Additionally, artifacts such as video footage and photographs were used to capture events throughout the day and were stored for transcription and analysis at a later time. When pictures were taken, I documented notes for each picture. These notes were important to the coding process because cultural significance might be so local, without

such notes, the pictures would be meaningless. By coding the pictures immediately after taking them, I ensured the accuracy of the coding.

Data Analysis

Coding is the process of noting patterns, connections, similarities or contrastive points in the data. Bernard (1995) suggests asking questions such as, “Does anything stand out as a usual way of doing things at the site? What seems unusual, and why? What becomes clear analytically that was not clear before? The process of coding reduces data, extracting meaning from it, developing hypotheses about the people described in it, and finally deducing it down to a series of mnemonics” (p.394).

Two different attempts were made at coding the data. First, I coded the data in an attempt to draw themes from the research. A second attempt will be made at coding the data with the use of a computer program called NVIVO - a qualitative research data analysis program widely used by researchers who conduct qualitative research. By having various ways of coding data, the coding process becomes more valid. On cases where discrepancies exist, I engaged in conversations about the discrepancies with experts in the field, in an attempt to resolve them; all issues were resolvable for this study.

Discrepancies in data. During data analysis, if and when discrepancies in data appeared, the researcher planned to carry out the following steps:

- Consider the NVIVO code and see if the codes match. Although a computer cannot ultimately rule on the discrepancy, I planned on speaking with other experts in the field to resolve the conflict.
- If an agreement cannot be made, I discarded the data.

Deciphering data. The themes that emerged from data coding were then charted

using the Activity Theory triangle (see Figure 2). Data was sorted according to subcategories Instruments, Rules, Community, and Division of Labor.

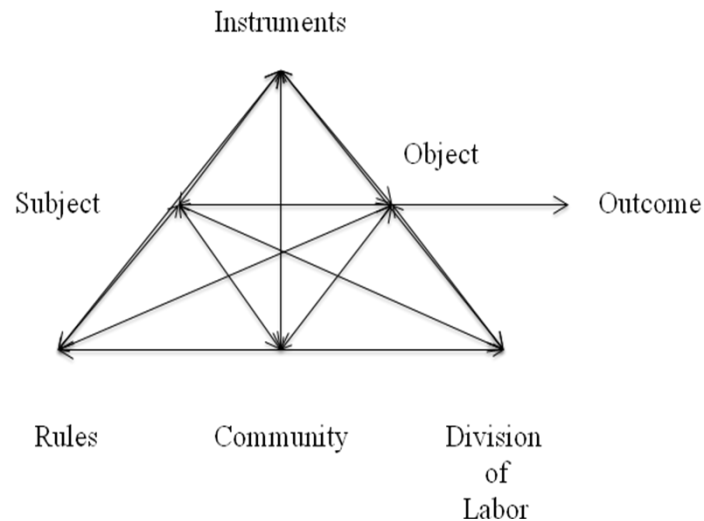


Figure 2. Activity Theory Triangle. This diagram shows the general layout of the Activity Theory and the corresponding parts. Figure also known as Basic Mediation Triangle taken from Cole & Engstrom (1993).

When the data was sorted, tensions (represented by arrows above) emerge. For example, should youth (subject) using and managing technology (object) and finding sustainable approaches for telecenters (outcome) face tensions of elders restricting access to technology due to cultural norms of elders controlling knowledge (rules), then the below triangle (see Figure 3) would be identified and analyzed.

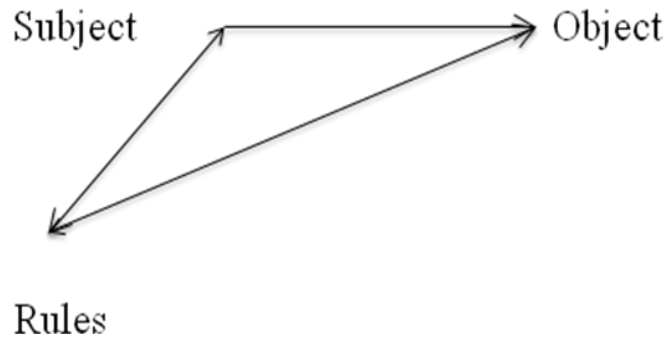


Figure 3. Smaller Activity Theory Triangle. This figure shows the smaller triangle of tensions between the subject, object and rules within an activity system.

In sum, the methodology of this study begins with an ethnographic approach to collecting data in the Sankhu telecenter. I took field notes, interviewed, collected artifacts, took pictures, and videotaped daily interactions. The data collected was coded independently by myself and by using the NVIVO computer software. When any discrepancies arose in the coding process, the coder discussed the discrepancies with experts and tried to find an agreeable outcome. When an agreeable outcome was not met, the data was disregarded. Once the data is coded, it was analyzed using Activity Theory. The use of Activity Theory mapped tensions youth face when using technology in telecenters in Nepal.

Potential themes. Activity Theory charts tensions in an activity system. Knowing that there are subcategories of rules, community, division of labor and tools, some potential themes were hypothesized before the study began. Under the tension category rules, cultural, social, historical and religious influences of Nepal may be present. For example, male elders are decision makers and control interactions in a community. Youth using technology contradicts traditional norms, especially when elders do not understand

how to use technology. Another example is learning. Historically, learning is very direct and explicit. Students who go to school wear uniforms, sit in rows, and memorize what teachers say to them. Youth conducting collaborative projects in the telecenters contradict this traditional way to learn.

Under community, tensions may be present when certain community members' attitudes towards the telecenters affect sustainability. Potentially, groups of people, based on their gender and caste, may not have as much access as others in the community; young girls may not be allowed to even enter the telecenter. Their local community is quite different than the online world that Nepalese youth participate in. Web 2.0 websites such as Facebook and MySpace allow immediate social interaction; blogs and wikis allow youth an immediate voice to a global audience. This contradicts the traditional Nepalese way of controlling image and reputation.

The Researcher

I am an Assistant Professor in the School of Education at Azusa Pacific University. In the past four years, I have visited Nepal four times and have worked with the Ministry of Education in Nepal, several NGOs, INGOs (international non-government organization), and the High Level Commission on Information and Technology. Tulasi Meher UNESCO Club and HLCIT provided a letter of affiliation for this research project and local assistance to this study's data collection process. Before embarking on this research project, I took the necessary steps to ensure proper permissions were granted and proper provisions were set for language barriers, especially in remote mountainous villages where local dialects are present. Moreover, since the people I worked with in the past have a sound understanding of English, a translator was only necessary when I

interacted with non-English speakers. When there was a need for a translator, someone reputable was hired.

Time Frame

Because this study uses an ethnographic approach to collect data, it was necessary for me to be integrated in the community, observing and interacting in the natural setting of the telecenter. “The ethnographer [then] goes about gaining entrance, which in turn sets the stage for cultural immersion of the ethnographer in the culture. It is not unusual for ethnographers to live in the culture for months or even years” (Garson, 2006, p. 1). This study took place between June and August 2009 and involved two and a half months of data collection.

A typical day for me began with waking up at 7 a.m. to review notes from the previous day. In the morning, I typically spent several hours at the telecenter observing, taking field notes, and interviewing the participants. In the afternoon, I took tea with local community members and participants of the telecenter. Late afternoon involved more interviews and observations. Immediately after leaving the telecenter, I wrote notes in my research log. The research log consisted of the researcher’s thoughts, reflections to interviews, analysis of data collection approaches and immediate responses to observations. Transcription of data from the day also took place in the evening. When transcription was completed, I coded the data.

Ethical Considerations

When collecting data, there are several considerations I took. They were enculturation of the researcher, reliability and validity of the data, participation versus unobtrusiveness, writing of field notes, and questioning. First, when conducting

ethnographic data collection, the researcher often times studies cultures that are different and unfamiliar from his or her own. This unfamiliarity keeps the researcher from taking things for granted, and in result, becomes sensitive to actions that locals take for granted. “The most productive relationship occurs between a thoroughly enculturated informant and a thoroughly unenculturated ethnographer” (Spradley, 1979, p. 50). Therefore, the ethnographer must have a sound understanding of the enculturation process, so that the data collected is raw, pure, and unenculturated.

Second, the ethnographic data collected needs to be analyzed for reliability and validity. The ethnographer wants to discover patterns that emerge from the data. This requires constant analysis of utterances, taking them apart to find the tacit relationship patterns (Spradley, 1979). It is only until these utterances are rigorous that themes can be drawn.

Third, Spradley (1980) suggests, “Ethnographers do not merely make observations, they also participate. Participation allows you to experience activities directly, to get the feel of what events are like, and to record your own perceptions” (p. 51). However, Spradley also suggests:

Participant observation almost always means some degree of unobtrusiveness... Rather than seeking to eliminate all obtrusiveness and concealing your presence completely, it is probably best to weigh carefully the extent to which a social situation will call attention to your activities. (p. 50)

Thus, regarding participation, the ethical consideration that an ethnographer must keep in mind is to strike a balance of participating and being unobtrusive.

Fourth, observations and field notes must be kept objective and free from opinion.

Seidman (2006) wrote:

Often a participant will say something and then laugh, sometimes because what he or she just said is self evidently funny. At other times, the laughter may be nervous or ironic, its origin unclear to the interviewer and often worth exploring. A laugh can [even] be a cry of pain, and a silence can be a shout. (p. 90)

It is important for the researcher to capture the entire setting, including emotions exhibited both through body language and verbal intonations. Such data will be valuable for data analysis.

Finally, the process of questioning also involved ethical consideration. The ethnographer's ultimate consideration for the study is to take part in experiences and interactions that do not harm the human subjects being studied. Different than other studies in the social sciences, ethnographic studies are more constructive in nature. Rubin and Rubin (2005) state, "When you know what information you need to answer your research puzzle, working out the main questions is straightforward. You create separate main questions that ask about each of the pieces of missing information" (p. 153). Ethnographers sometimes do not know the information required to answer the research question. One factor to consider is if the answers to the initial main questions are based only on the researcher's guesses, rather than on actual knowledge, the researcher might unduly restrict what experiences the interviewees rely on in providing the answer. Rather than learning from the interviewees' experiences, this would be simply involve testing the researcher's own ideas and losing the opportunity to get outside the researcher's own preconceptions.

How a researcher guides the interview but not limits the questions to those based on initial guesses is important to the validity of the data collected. Moreover, what is even more important in such a scenario is the ability of the researcher to ask follow-up questions while considering the safety and well-being of the interviewees. Even the

wording of follow-up questions should directly reflect the content of what the interviewees have said. When an ethnographer follows up during an interview, it is good practice to summarize what has just been said before asking the follow-up questions. When an ethnographer follows up in a later interview, it is good practice to include that part of the previous conversation that stimulated the follow-up (Rubin & Rubin, 2005).

Van Maanen (1988) best summarizes the art of questioning in an ethnographic study in the quote below.

Unlike a traveler's tale or an investigative report, an ethnography must present accounts and explanations by members of the culture of the events in their lives—particularly, if not exclusively, the routine events...note that realist ethnographers are at pains to produce the native's point of view...A good deal of typographical play, stage-setting ploys, and contextual framing goes into presenting the native's point of view. (p. 49)

Validity

Validity refers to the degree to which a study accurately reflects the specific concept that the researcher is attempting to measure. While reliability is concerned with the accuracy of the actual measuring instrument or procedure, validity is concerned with the study's success at measuring what the researchers set out to measure (Colorado State, 1993-2009). For this study, I ruled out factors in the data that may seem significant, but lack validity. For example, when the telecenter lack youth participation during certain hours, there may be some mediating factors that were culturally specific to Sankhu. Without assuming that youth do not use the telecenters, I explored unobvious reasons for such actions. Ultimately, my goal for this ethnographic study was to gain insight on reasons behind the actions in the environment studied.

Seidman (2006) brings up some interesting questions to validity during ethnographic interviews:

How do we know that what the participant is telling us is true? And if it is true for this participant, is it true for anyone else? And if another person were doing the interview, would we get a different meaning? Or if we were to do the interview at a different time of year, would the participants reconstruct his or her experience differently? (p. 23)

For this study, I interviewed a number of participants at different times of the day to ensure internal consistency of what the interviewees reported. The selection of these expert interviewees was instrumental to the success of the data collection. Expert interviewees were carefully selected with the assistance of local telecenter experts and the community. I made sure the interviewees resembled all sectors of the community, taking into consideration age, genders and castes. Also, I checked the responses of one participant against other participants to ensure consistency in responses. This interview structure helped with the validity of answers in the research study.

Reliability

Reliability is defined as the extent to which an experiment, test, or any measuring procedure yields the same result on repeated trials (Colorado State, 1993–2009). Because the current research takes an ethnographic approach to study human subjects and their interactions, an attempt to replicate the study will most likely not yield the same results. Reliability is not a significant concern in ethnographic studies because the factors are never the same.

Strengths and Limitations

Conducting observations, yielding richer and more complex data, is superior to other methods of data collection in a qualitative study. As new insights are gained, the observer can shift perspectives quickly and explore new areas of interest (Burchinal, 1990). Such a technique is a strength that is not possible with data collections such as

surveys. Interviews also carry similar strengths. The researcher begins with a set series of questions, but adapts the interview sessions based on what results are discovered along the way.

On the other hand, observations can be very demanding. As things progress rapidly during an observation, an inexperienced observer can miss part of the interaction or fail to record the action accurately. Furthermore, the added demand on the observer raises the possibility of bias in how the observations are made, recorded, analyzed, and interpreted (Burchinal, 1990).

Ultimately, the lens in which this study is conducted is through the eyes of the researcher. This could prove to be a major limitation of the study and must be minimized. Because the perspective on the data is taken from the point of view of the researcher, it is already skewed. Take for example the researcher's understanding a good use of technology. He might perceive this to be building WebPages, collaborating with others on the Internet, and creating PowerPoint presentations. What if the observation is of a local elder using a computer as a calculator? In the Western perspective, one that is experienced in the developed 21st century world, using a computer as a calculator is not a good use of technology; however, for the local elder, it is. Unbiased content of field notes becomes critical. Rather, the researcher should write down what is observed and clarify the observation with an elder. Recognizing beforehand that there will be potential limitations such as this is important for the researcher.

Another limitation of the study relates to the current political situation in Nepal. Nepal recently shifted from a monarchy to a democracy in the summer of 2008, and because political parties are struggling for political power, situations might arise where

my ability to interview certain members of a community will be limited. Although the ideal is to gather data representing different points of view of the community, it was not possible to gather data from various elders within the communities studied, due to political tensions.

Finally, instability in gasoline and electricity was a limitation of this study. In the summer of 2008, a gasoline crisis prohibited transportation throughout Nepal. In January 2009, power cuts were upwards of 15 hours per day (International, 2009). Strikes or protests can occur any time, as Nepal continues to form its new government. On a few occasions, I was unsuccessful in reaching Sankhu for data collection. I was forced to travel back to Kathmandu and try again the next day.

Summary

This chapter defines the current research methodology, supports use of an ethnographic approach, describes participants, site selection, and interview protocols, and defines data collection and analysis. Due to the fact that tensions youth face in the Sankhu telecenter are complicated, an in-depth analysis using an ethnographic approach was chosen as the means of data collection. I was careful to take into consideration age and gender during the participant selection process. Participants for this study signed consent forms certified by IRB. Additionally, the use of Activity Theory as a method of data analysis provides an insightful view of tensions that exist within the Sankhu telecenter. The data gathered for this study will be shared in Chapter Four.

Chapter 4: Presentation of Data

As a reaction to local demands for Internet access the Nepalese government responded in 2004 with a technological movement focusing on sustainable technology centers known as telecenters (M. K. Bhattarai, personal communication, July 22, 2009). Most telecenters, 5 years later, struggle with many challenges, infrastructure, cultural norms, division of labor, resulting in a need for investigation on the causes of these challenges.

Developing countries struggle with meeting the technological demands of the local communities (Colle & Raul, 2003). There are often issues other than technology that limit telecenters from fully providing services and meeting community needs. This study used ethnography to explore issues within the Sankhu telecenter and Activity Theory as a framework for understanding the tensions. Due to the nature of Ethnographic studies, they investigate culture while taking into consideration interactions between people, and due to the nature of Activity Theory, it uses qualitative data to sort tensions in an activity system, the use of Activity Theory to analyze ethnographic data proved to be a very natural process. The analysis of tensions will provide valuable information for improving current and future telecenter programs.

Description of Study

This study takes an ethnographic approach to investigate the tensions that exist at Sankhu, one of 80 telecenters in Nepal. Sankhu is a rural community located about 20 kilometers east of Kathmandu. Research data was gathered over two and a half months in the summer of 2009.

I arrived in Kathmandu, Nepal in late June and completed data collection in mid-August. A total of 43 people were interviewed. Transcripts for these interviews totaled 206 pages. I also conducted observations totaling approximately 67 hours. During this time, I travelled to Kathmandu to transcribe and analyze the data. I also used the data to form new questions for the next round of interviews and to better understand tensions, in an attempt to continually refine the study. I interviewed 25 male respondents and 18 female respondents, 32 of who were youth in various configurations. Interviews took place individually as well as in small groups. I also observed them interacting around the telecenter, market and main square.

Preparing for the Journey

In preparation for this trip, I began regular online voice chat sessions, using a chat software called Skype, with the local telecenter leaders in March 2009. These sessions allowed me to reconnect with students I have met with the Sankhu telecenter since 2004. The local youth were eager to help with my research. During these chat sessions, I prepared them for the data collection process. I explained that participation was voluntary and that everyone in the Sankhu community was welcome to participate. Furthermore, I began laying the groundwork for the community meeting, a meeting where I explained in detail the purpose of my research and what it meant to participate. I also covered the rights of the participants, as outlined by Institutional Review Board. The Sankhu community members have apparently never been a part of a formal research study before. They seemed to be fascinated by the formality of the process and were open and willing to assist. Several weeks before I arrived in Nepal, the local youth leaders began spreading

the word that research on the telecenter would be conducted. They were careful to inform all community members, including men, women, youth, adults and elders.

Arrival and Setup

Upon arriving in Kathmandu, I spent two days acclimating to the altitude and reengaging with the Nepalese culture. Friends in Kathmandu gave me first-hand update on the current political situation and the continual problems with government infrastructure. I quickly learned that the latest political tension involved the national army. Nepal elected its first president a year ago, after the king resigned power, which resulted in peace after a ten-year civil war. Maoist insurgents became a major political party in the new government of Nepal. In the summer of 2009, tensions of integrating the Maoist army and the national army heightened as the prime minister fired the army general. Since the prime minister did not have the legal authority to do so, the president reinstated the power of the army general. The army general resigned a few days later. Tensions were high throughout the summer of 2009.

This time period presented other local challenges. During a local bus strike in Kathmandu, local people protested poor road conditions in their village. In another incident, the local people held a strike in protest of the police not acting on the murder of three students. This made travel within Nepal extremely challenging. Because such challenges are a regular part of life in Nepal, I appropriately planned extra time.

Summertime is also monsoon season in Nepal. Typically, the weather is mildly hot with ongoing rains throughout the day. In Sankhu, monsoon season is also harvest time where the Newari community of Sankhu harvests rice. In the summer of 2009, the rains came late and were lighter than normal. Amazingly, locals understood the impact of

global warming, including on the amounts of rain they received. The local community of Sankhu is geographically isolated and has many economical and technological challenges, yet was knowledgeable about world news. Youth would tell me that they needed to recycle more, develop better means of producing electricity, and even expressed interest in learning more about how they can contribute positively to global issues, like global warming.

During the summer of 2009, I discovered that slow changes were happening in terms of access to technology, compared to my initial visit to Nepal in 2004. Although families, for the most part, still did not have landline telephones at home, youth were beginning to own mobile phones. Elders often told the youth to call or text message other family members in far away villages. Access to electricity was limited to those villages close to major cities such as Kathmandu or Pokhra and to small villages along the one main highway across Nepal. In the mountainous villages, electricity was still not available (Lee, 2009).

The Data Collection Process

Interviews. I began with group interviews focusing on specific age groups. These groups were also separated by gender. Table 1 shows the schedule for interviews.

Table 1

Interview Schedule

Group	Date	Time	Total hours
Elder Men Group Interview	7/4/09	3 p.m.	2 hrs
Elder Women Group Interview	7/3/09	1 p.m.	2 hrs

(table continues)

Group	Date	Time	Total hours
Adult Men Group Interview	7/6/09	5 p.m.	2 hrs
Adult Women Group Interview	7/5/09	2 p.m.	2 hrs
Male Youth 18–22 Group Interview	7/8/09	10 a.m.	2 hrs
Male Youth 23–26 Group Interview	7/9/09	1 p.m.	2 hrs
Female Youth 18–22 Group Interview	7/2/09	4 p.m.	2 hrs
Female Youth 23–26 Group Interview	7/7/09	3 p.m.	2 hrs
Elder Men Individual Interview	7/12/09	9 a.m.	1 hr
Elder Women Individual Interview	7/14/09	8 a.m.	1 hr
Adult Men Individual Interview	7/10/09	11 a.m.	1 hr
Adult Women Individual Interview	7/15/09	3 p.m.	1 hr
Male Youth 18–22 Individual Interview	7/11/09	2 p.m.	1 hr
Male Youth 23–26 Individual Interview	7/17/09	1 p.m.	1 hr
Female Youth 18–22 Individual Interview	7/13/09	9 a.m.	1 hr
Female Youth 23–26 Individual Interview	7/16/09	11 a.m.	1 hr

In addition to the group interviews, individual interviews were conducted with a wide range of participants. The participants for the individual interviews represented both male and females of all ages.

Observations and interactions with the community. From July 2 through July 25, I conducted approximately 67 hours of observations. The Sankhu telecenter opened at 7am and was typically bustling with students taking basic computer skill classes (Lee, 2009). Throughout the morning, the local Sankhu community freely used resources in the center.

Classes continued throughout the day and typically continued through the early part of the evening. I spent the majority of this time observing the interactions of the center.

Because it is important for the researcher to also participate with the local community (Spradley, 1979), I also spent a significant amount of time working with youth on technology initiatives. I interacted with the local community members in the Sankhu telecenter during classes, projects, and workshops. I was careful not to interject ideas and opinions in an effort to sustain a neutral sense of participation. For example, if a student needed technical assistance with a skill that she was learning, I would volunteer to help. However, if I observed a student to be curious about information on the Internet, I did not introduce new websites out of respect to the local culture and the local division of labor norms. The schedule for observations and interactions with community members is listed in Table 2 below.

Table 2

Telecenter Observation Schedule

Date	Time	Total Hours
7/2/09	10:00 a.m.	3 hrs
7/3/09	2:00 p.m.	4 hrs
7/4/09	6:00 a.m.	2 hrs
7/5/09	10:00 a.m.	3 hrs
7/7/09	8:00 a.m.	2 hrs
7/8/09	8:00 a.m.	4 hrs
7/9/09	10:00 a.m.	3 hrs

(table continues)

Date	Time	Total Hours
7/10/09	9:00 a.m.	4 hrs
7/12/09	3:00 p.m.	2 hrs
7/13/09	10:00 a.m.	3 hrs
7/14/09	2:00 p.m.	4 hrs
7/15/09	9:00 a.m.	5 hrs
7/18/09	10:00 a.m.	3 hrs
7/19/09	1:00 p.m.	4 hrs
7/20/09	2:00 p.m.	5 hrs
7/22/09	11:00 a.m.	5 hrs
7/23/09	10:00 a.m.	3 hrs
7/24/09	12:00 p.m.	4 hrs
7/25/09	9:00 a.m.	4 hrs

This became a challenge, as monsoon season during Nepal caused daily electrical blackouts called “load shedding”. Load shedding lasted minimally an hour, but can last up to 17 hours. Although I carried two laptop batteries with me at all times, and there were many occasions when I simply did not have electricity to transcribe. On July 19, when electricity was out for a long period of time in Sankhu, I returned to Kathmandu to focus strictly on data transcription and analysis.

Nightly data analysis. Once I was done with data transcription, I analyzed the data by reading it through several times and drafting up Activity Theory triangles based on the most current data. I also reviewed the literature relating to the study in an effort to not miss any significant interpretations of the data. For example, Newari culture differs from

other castes and by continuing to reengage with literature on Newari culture, I was able to understand nuances in matters such as local proverbs, body gestures, and gender norms. Ultimately, the end of the day ended my cycle of data collection, analysis, interpretation, and reflection. This ongoing cycle helped drive the data collection of the next day (see Figure 4).

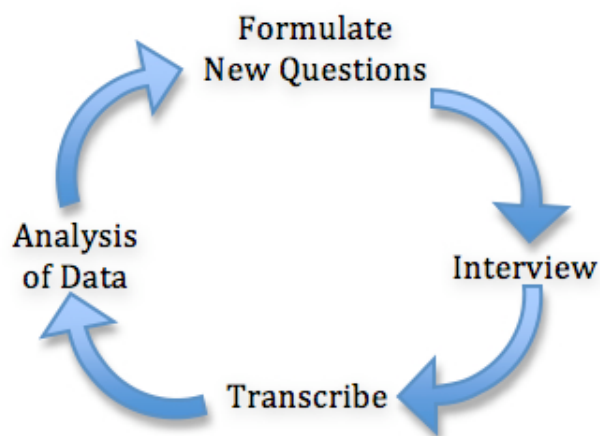


Figure 4. Interview cycle. This figure shows the cycle in which I collected, transcribed, analyzed and reformulated questions for interviews.

Research Log

I kept a research log during the data collection process. In my research log, I reflected on what data collection techniques worked well, what did not work well, and charted out other potential ideas related to data collection. It was a personal place to notate how data collection was progressing.

The Data

Benefits of the telecenter according to the community of Sankhu. Activity Theory is a predictive theory that takes into account local culture and local history. It allows for the voices of the people to paint the picture of the activity system as it teases out tensions within the system. For this study, the activity system took place in the Sankhu telecenter

located in Sankhu Nepal. The local culture and history of the system and its benefits are highlighted in this section and is described from the point-of-view of the Sankhu people. According to a representative from the High Level Commission on ICT, Nepal (personal communication, June 29, 2009):

There is also this hope and optimism that this maybe this technology, due to its intrinsic abilities, offers hope to the communities in rural areas, in the sense that this technology can be leveraged to provide services in the rural areas. Especially in Nepal where there you have very difficult geography and people are far in remote communities where services are difficult to be provided. There is hope that this technology will be leveraged to bridge the gap for the communities. Telecenters provide the hardware, software, connectivity and technical infrastructure needed for communities in rural areas to connect and engage with others in Nepal and around the world. (p. 7)

A villager who walks 3 hours each way to the of Sankhu telecenter states (personal communication, July 16, 2009):

This center is getting a benefit for everybody. The telecenter is kind of like a courtyard for a house so everyone can easily access it. My village, we have to give special thanks to this telecenter. In my village, many youth stopped going to school after four or five years. They feel quite sad they cannot go to school anymore. This center helped my village build a library. Many youth are able to learn about education and other things through the library. We are very glad, for this center is support. (p. 1)

The above youth is describing the benefits of the global networking that the Sankhu telecenter has provided. Youth in the Sankhu telecenter manage a Web site (Youth Managed Resource Center Sankhu, 2009). On this website, they regularly document the current projects in their village. In 2008–2009, a non-profit philanthropist group from Australia came across the Sankhu telecenter Web site. They contacted the youth and asked how they can help. After carefully planning with the Sankhu youth and the Australians, a library was built. Such benefits of global networking are starting to appear in formal literature, as technology bridges geographic divides round the world.

At the center, local youth reap immediate benefits of technology through the telecenter. A male youth in the group interview of youth between 18–22 states (personal communication, July 8, 2009):

Yes. Technology improves my life. For example, about five years ago, when I needed to contact my sister, I needed to make a phone call, I would have to travel very far to use a telephone. My sister, who also doesn't have a telephone, sometimes cannot receive my call. Now that I have a mobile phone, it is helping me. Also I would learn about a digital camera. In my childhood, if I needed a picture for a school before, it takes a couple of days. I would have to visit the photo station and it takes a long time. And now that we have a digital camera, we can quickly take our picture and within 5 to 10 minutes, we can print. (p. 5)

Printing digital pictures in the Sankhu telecenter is an immediate and direct benefit for the local community. As an ethnographer, it was interesting to see the contrasting realities of modern technology infused in a rural setting. Youth wearing flip-flops hiked across rice patties to use digital cameras from the telecenter. I often observed this phenomenon realizing that the phenomenon is only biased by my Western, non-local perspective. It was quite natural for such activities to take place. Furthermore, the Sankhu telecenter leapfrogged quickly into the 21st century. While youth have never held a film camera or rarely used an analog dial-up telephone, they naturally consume technologies such as digital cameras and mobile phones.

When a youth from the village near Sankhu was asked how the Sankhu telecenter should improve their current practices, he used the following metaphor (personal communication, July 16, 2009):

Yes, definitely. I have many suggestions. My biggest suggestion is that this telecenter should grow very big. Equipment here is not meeting the needs of the center. This telecenter should also try to get newer technology. It should also provide more technical knowledge to my village (which is two hours walking from the Sankhu telecenter). Our community are like fish trying to get out of the trouble. This telecenter is like a net trying to catch the fish to help us out through

technology and training services. This net should be very strong and they can help pull us out, just like the fish from the ocean. (p. 3)

I listened to this youth talk about catching fish using a net and realized the stark reality that Nepal is a landlocked developing country where youth never have, and probably never will, see an ocean, let alone fish with a net in the ocean.

Tensions of the Sankhu Telecenter

The data for this study focuses on the tensions youth face when using technology in the Sankhu telecenter. Tensions are analyzed using the Activity Theory framework.

The activity system this study focuses on the activity youth using and managing the telecenter in the Sankhu community (see Figure 5).

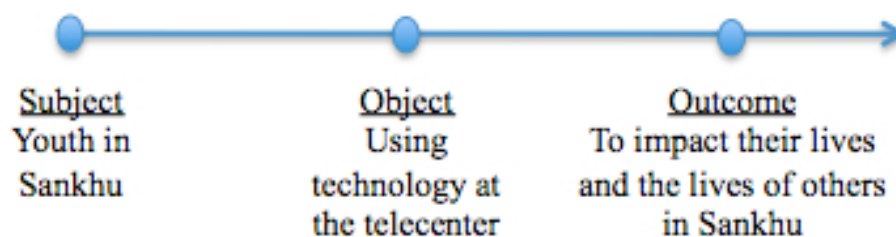


Figure 5. Activity system studied. This figure shows the activity system studied in this research.

Data were collected with this activity in mind. When youth in Sankhu used technology at the telecenter to impact their personal lives and the lives of others around them, they faced many obstacles along the way. Tensions were first extracted from the ethnographic data and then categorized into the categories of Tools, Rules, Community and Division of Labor (see Figure 6).

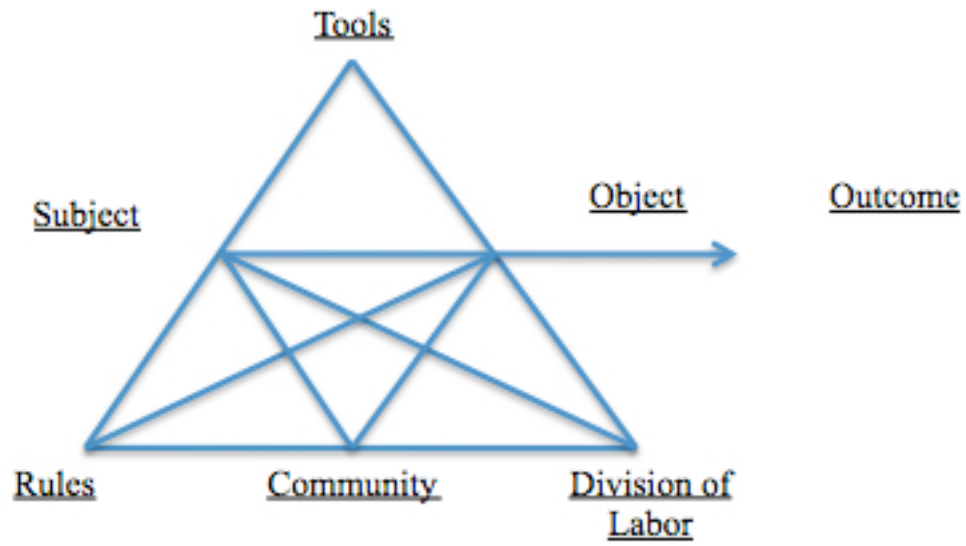


Figure 6. Activity system with tension categories. This diagram shows the general layout of the Activity Theory and the corresponding parts. Figure also known as Basic Mediation Triangle taken from Cole & Engstrom (1993).

In this study, some tensions were observed to be more prominent than others. The tensions collected in this study were categorized according to the frequency they were mentioned in interviews. Tensions that are most commonly found were categorized as Major Tensions. Tensions that are moderately found were categorized as Moderate Tensions and tensions that are less prominent were categorized as Minor Tensions. Prominence of the categorization for the data was decided based on the frequency of responses throughout the interview responses (see Table 3).

Table 3

Categorization of Tensions

	Elder Men	Elder Women	Adult Men	Adult Women	Male Youth 18–22	Male Youth 23–26	Female Youth 18–22	Female Youth 23–26	Total
Major Tensions									
Gender Norms		X	X	X	X	X	X	X	7
Old Board	X		X		X	X		X	5
Lack of Awareness on Benefits of Technology	X	X							2 *
Funding		X		X	X	X	X		5
Moderate Tensions									
Computer Training		X		X				X	3
Lack of Time		X		X		X	X		4
Minor Tensions									
Connectivity					X		X	X	3
Electricity					X		X	X	3
Location of Center							X		1

Note. Although the Lack of Awareness on the Benefits of Technology tension only has two total appearances in the data, it is categorized as a major source of tension because the Vice Chairman of HLCIT describes this as a major tension in detail. He has positional perspective that the other interview respondents do not have. See the corresponding tension section below for more detail.

Major tensions. For this study, significant tensions are defined as tensions that consistently emerge throughout various data collection methods. These tensions are triangulated through observations, artifact analysis, as well as word frequency counts and are validated by the responses by the interviewees (see Figure 7).

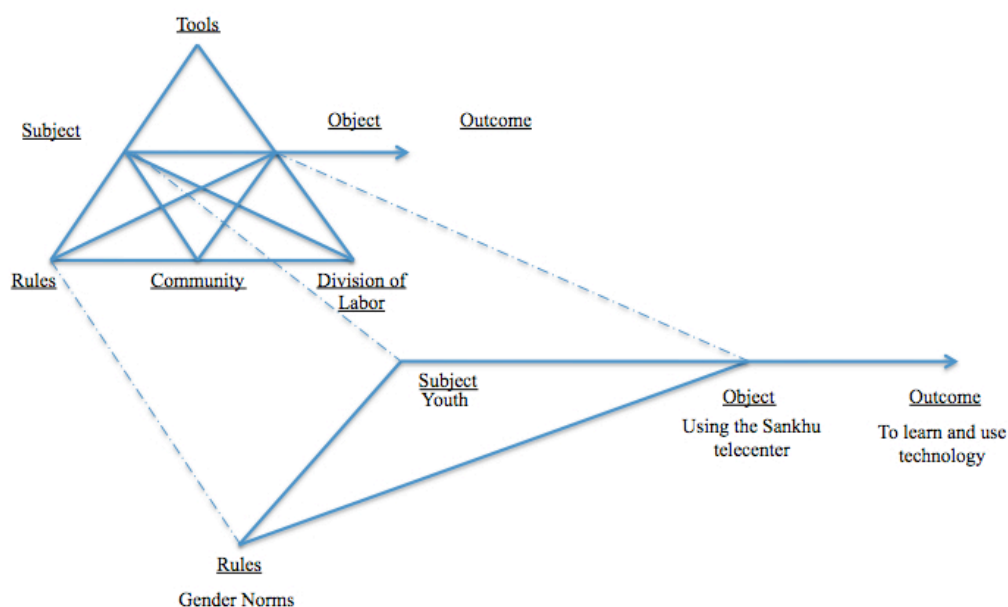


Figure 7. Tension 1: Gender norms. Gender norms, youth and the use of the telecenter.

In Nepal, gender norms dictate much of everyday life. Although women oversee and manage the activities within a house, men are the major decision makers for the family. Duties such as cooking, cleaning, farming during harvest time and raising children are solely affiliated with women. Extended families live in large houses and the gender specific activities, although dominating every aspect of Nepali life, work seamlessly throughout the day.

Gender inequalities are directly associated with the gender norms of Nepal. Boys are permitted to attend school, if school is affordable, and girls are typically limited to household responsibilities and do not attend school. It is a common Nepalese belief that it is a waste to educate a girl because girls will be married to another family.

During my research, I have seen how this ideology dominates every aspect of life in Nepal. The literature review shows challenges women faced a decade earlier during the literacy movement. Women at the time defied traditional norms and struggled to learn how to read and write. During this struggle, often times, men would make fun of women, put them down and even prohibit them from attending literacy classes (Robinson-Pant, 2004). For example, “eating green cucumbers at the time of dying” is a metaphor used in Nepal to scold someone that is doing something unnecessary, as eating green cucumbers is considered a luxury in Nepal, and anything done “at the time of dying” is a useless act. In the case of the women’s literacy movement, this metaphor was used to scold women when they wanted to learn how to read. I was shocked and intrigued that this metaphor is still used in Nepal in 2009. In the case of this study, it is used in the context of learning technology.

The following interview excerpt was taken from the elder women’s group interview (personal communication, July 3, 2009)

Respondent D: When I first came for computer classes, my husband gave me permission. However, the community did some backbiting. They asked why are you going there? They also said...

(Translator/Informant asked for assistance with translation from other youths) a proverb. They said a Nepali proverb...

(Translator/Informant struggled to explain the proverb, but all I could understand were the words why and die and finally said “you are going to die and you are making lots of plans”).

Jeff: I don’t understand.

Translator/Informant: They are backbiting and using this proverb.

Jeff: I still don’t understand.

Translator/Informant: Like a quote.

Jeff: Oh! A proverb! What is the proverb?

(other youth and women discuss in Nepali)

Translator/Informant: Like one man, when he or she is going to die and she is doing lots of planning.

Respondent B: Some other community members tell me that I’m used misusing my time. They say I am not going to get the benefit. You will not get a job, so

what is your benefit? But I will learn anyhow, I don't care.

Jeff: Is her... Is her... I'm sorry... Is the proverb... Does it have to do with green cucumbers?

Translator/Informant: (a very surprised look) Yea! That is the same!

Jeff: Why eat green cucumbers at the time of dying?" Is that the proverb?

Translator/Informant: Yea!!! (Translator/Informant explained to the women that I understood the cultural significance of the proverb. They laughed and were surprised.)

In the excerpt above, respondents heard a Nepalese proverb during the adult women group interview. As the translator/informant tried to describe the cultural significance of the Nepalese proverb, I realized that a major miscommunication had occurred, and ideas were lost in translation. Then, suddenly, I realized that the proverb is one that I am very familiar with through the work of Dr. Robinson-Pant. "Why eat green cucumbers at the time of dying" is a metaphor used to reprimand women who were taking literacy classes a decade earlier. "Amazing!" I thought. Such culturally significant and relevant contextual slogans still permeate through the local community of Sankhu an entire decade later, despite Nepal's rapidly changing times. The reference to the green cucumber proverb came up two other times during group interviews, and is a significant finding in this study. Interestingly, I observed women repeated this proverb with acceptance and a sense of normalcy. On the one hand, they found it somewhat humorous; on the other hand, the proverb described their plight.

In 2009, women continued to struggle for equality. Below is a portion of a transcript from a group interview with elder women. It is evident that even on rare occasions when the husbands of these women supported their desire to learn computer skills, the community did not. The negative feedback from the community could even be insulting. I asked the group what their husbands would say if they wanted to go to the telecenter to learn computers. Here is their response:

All Respondents: They will say you are not a literate people. You just barely learn how to be literate. If you take computer classes, how will you learn! (laughter)

Respondent E: If you think you can learn from the telecenter, then I urge you to go.

Respondent C: I don't think my husband will allow me to go, because the eyes are very bad. Are you able to see everything with your eyes? I don't think so. (personal communication, July 3, 2009)

I then asked if their husbands thought negatively about learning to use a computer. After a loud discussion in Nepalese, they responded:

Respondent E: Our husbands might encourage us. However, the community might not. But we should not care. In the past, when I went to literacy classes, my husband was supportive. The community was not. The community was talking about how I wanted to cheat my way out of doing my duties around the house by attending literacy classes. (personal communication, July 3, 2009)

This response was slightly shocking to me, as I did not know that the community not only looked negatively at women who wanted to learn computer skills, they even perceived learning computer skills as a malicious attempt to cheat their way out of doing household chores, a duty specifically assigned to women in the Nepalese culture. One respondent traced this cultural tension back a decade earlier to the women's literacy movement. She said the following:

Respondent D: When we used to attend literacy classes in the nighttime, the community thinks negatively about the women. At the nighttime, it is not good for women to go outside of the home.

It is clear that even on occasions when women might have been granted permission from their husbands to attend classes, the community pressured those women by scolding them. The community believed that going to classes is an act of defiance and that those women are cheating their way out of doing their chores at home. Moreover, a word frequency count unveils the fact that the word "permission" appears 15 times during interviews with women and appears zero

times during interviews with men.

The women of Nepal have many duties at home. A female youth during the 18–22 female youth group interview stated, “In the morning we have to cook the tea. And we have to prepare lunch. And we have to pray. And clean the house. Washing the clothes. All of her family members clothes. At that time we cannot go outside. But the boys can go.” Another female youth states that, “regarding visits here, we cannot come visit here until we are finished with our household work. For us, we spend time for income generation. For example, we do knitting. If we have those duties, then we will not come here” (personal communication, July 13, 2009). It is evident that unless learning technology can lead to income generation, females will be prohibited from using the telecenter until all chores are done and other income generating activities such as sewing are complete.

A married woman has even less access to technology. Married women become the possession of the husband’s family. She is required to become the backbone of the new family and is often times the nucleus of the new home. In such a case, time limitations become the single most prohibitive factor in using the telecenter.

Additionally, I learned that while there are countless religious and cultural holidays, 2 days are dedicated to reinforcing this patriarchal, male-centered cultural norm. Once a year, young girls participate in what is known as Brother Worship Day. Girls worship their brothers and wish them a prosperous and long life. When I asked if there is a Sister Worship day, the answer was a sarcastic, “no” (personal communication, July 13, 2009) The second holiday I discovered was Women’s Day. Just when I thought that a day dedicated to women was a cultural means of achieving gender equality, I

learned that on Women's Day, women do not have to work; they worship their husbands by going to the temple and praying for their husbands to have a long life.

Such defined and deeply rooted gender norms impact the daily activities of telecenters and create major tensions within the activity system. From elder women to female youth, all women face the challenge of gender norms in Nepal. In 2009, there is a vibrant climate for change. A new government is in place; women are being recognized equally in most arenas. However, at the local level, this change is slow, as evidenced by the data in this study.

As a summary, tensions in this category focus on the status of women in Nepal. Women are discouraged to get an education and lack opportunities that men have. There is simply no expectation for women to learn technology. Traditional women roles and responsibilities often times inhibit them from actively participating in telecenter activities (see Figure 8).

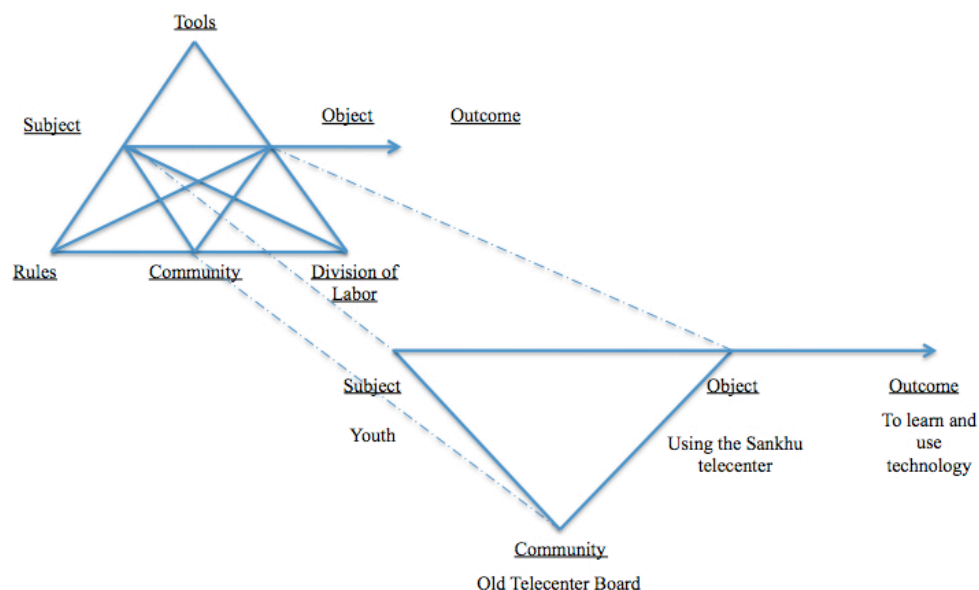


Figure 8. Tension 2: Old telecenter board tension. This figure shows the tension between the youth, old telecenter board and the use of the telecenter.

The Sankhu telecenter was initially created in 2004 with financial support from HLCIT. The initial governing board consisted of elder men in the community as a reaction to HLCIT's request for community leadership for the telecenter. This initial board made critical decisions for the telecenter, similar to other boards in Nepal, as evidenced by the literature review. Just as John Wood (2006) discovered that elders locked up books in villages as a symbol of control and prestige, the initial Sankhu telecenter board took on the same approach. This old board, made up of elder men who were trying to advance themselves politically, ultimately drove the telecenter to the verge of shutting down. I interviewed the Sankhu telecenter leader, who was at the time a female youth. In an interview with one female youth leader, I uncovered the following about the male telecenter board: (personal communication, July 23, 2009)

Jeff: I want to ask you about the community. In your opinion, and in the past, and in the present, who in the Sankhu community has made it difficult for the telecenter to be successful?

Female Youth Respondent: Yes. The old board, who is usually the elder political leaders. And sometimes even those that don't do anything. They always want to say something. They always like to disturb us. I have suffered lots of times. If I had lots of support, I could go so far, but I don't.

Jeff: What happened?

Female Youth Respondent: In the beginning the elder thought of youth as laborers. And when you have ideas, they never accept them. They never accept the youth's vision. In the beginning, the center was funded by the Nepal government for six months. We have three staff. After a while the other two left. They went to another job. They suggested to me to go get another job. At that time I felt comfortable leading the telecenter. I was hopeful that the government would fund the center in a few months. I was hopeful. I always request to the board for some things. At that time, whatever I request, the board does not like. They will not think about or consider anything. They just reject immediately.

Jeff: What happened next?

Female Youth: I don't know. They didn't give any feedback. They just say to me keep quiet.

This female youth telecenter leader was initially hired by HLCIT to run the telecenter. However, the telecenter board, which consisted of elder men, did

not understand technology. According to the respondent, the board only cared about their political advancement within the community. As a result, sustainability of the telecenter was jeopardized by the board's poor decisions. The female youth continued to explain that cameras and other equipment, although intended for youth to use in the telecenter, were often locked up and controlled by the elders. Funding and equipment was inaccessible to the youth. She continued to share about the male board in the excerpt below: (personal communication, July 23, 2009)

Another incidence was when an elder board member made a loud noise about needing funding for community projects. When the funding came, it was deposited into his [the board president's] bank account. Myself and another youth did projects in the community with the understanding that the funding was available. When we requested the funding from this board member, he refused to give it to us. An NGO once gave us some equipment like digital cameras. The youth were able to use the cameras a few times, but then the elders prohibited them from using it. Later, when the youth asked where the camera is, the elders say it is lost. We feel so embarrassed for the NGO.

Jeff: So the camera and the funding went to the president's account? And the youth use the camera just a few times? And later when the youth asked for the camera the answer was that it was lost?

Female Youth Respondent: Yes.

Jeff: So the money that was in the account was that ever spent for the project? Or did the board member withdraw it personally?

Female Youth Respondent: He withdrew it personally. And without the funding the youth still made it possible and we have success.

Jeff: And this person is an elder? Male?

Female Youth Respondent: Yes

Jeff: So it seems that the elders control a lot of what happens in the telecenter. Not just equipment, funding, but everything else, the interactions in the telecenter?

Female Youth Respondent: (acknowledges with head sways—a Nepalese gesture for agreeing) Yes.

It is clear that incidents like this take place in other projects in Nepal. Just as Woods discovered that books locked up by elders were, which on many occasions were Danielle Steel romance novels, here is yet another example of

male elders acting as gatekeepers to learning equipment and opportunity. I realize that the irony exists in the fact that those who control often times do not know how to use the actual item they are controlling! This interview was fascinating to me. This female youth became a national icon for leading technology in Nepal. In fact, she was invited to America to speak at a technology conference as the keynote speaker. She explains her struggle to get to America in the interview below (personal communication, July 23, 2009):

Female Youth Respondent: And in 2007, while I was sharing with CDN [Community Development Network, a USA based non-government organization] the many things we do in our community, CDN invited me to go to a conference in the United States at one of the universities. It was a great opportunity for me to represent a grassroots community project from Nepal. I went there in September 2007. At that time I also had a lot of hopes and expectations for my presentation at the conference because I presented as the keynote speaker. It was quite good.

Jeff: What was the community's reaction for you going to America?

Female Youth Respondent: After the director of CDN arranged for my visit to America, the community was very supportive. However, the board of the telecenter who was supportive at first, became unsupportive. After I received my visa the board was quite surprised. They demanded to speak to the director of CDN. They believe that if they speak the director of CDN, they would be the ones going to America and not me.

Jeff: Let me clarify what you just said. So the community of Sankhu were supportive of you going to America. However, when you received a visa to go to America, the board, which consisted of elders, were not supportive? They wanted to speak to the director of CDN so that they would be the ones going to America. Is this correct?

Female Youth Respondent: Yes

Jeff: What happened after that?

Female Youth Respondent: After receipt of visa, the board told me that I need to contact the Director of CDN and say that I cannot represent myself. They said that I have to have let the board President be the one representing the telecenter. Then the Vice President. They say you are just staff. You cannot go.

The elders then contacted the Nepalese government and tried to get the government to deny the youth leader's visa. They were unsuccessful. The youth leader negotiated with the board and said that they can have one of the computers

from the center if they let her go to America. They agreed. Upon her return from America, she found the center locked down. The old board members were so upset that they were not the ones who went to America, they shut the center down.

Evidenced by the interview response above, elders were in complete control of an activity system in which they knew very little about. This tension parallels much of the data revealed in the current literature review. As a result, the old telecenter board controlling both youth and technology is identified as a major tension in this study.

This power paradigm is also echoed by a director of the HLCIT, who states (personal communication, June 29, 2009),

And in reality, people are not on the telecenter board because they have not internalized the need for this idea. It becomes prestige, a status symbol. (laughing) A way to show their assertiveness. So they are on the board for all the wrong reasons. This happens typically in a society like ours. But still, to a large extent, there is a feudal mindset that is still there. And still there are caste systems. I think this well captures it.

Tensions with the old telecenter board are rooted in the Nepalese cultural norm that elder men control the interactions within a village. Because they are the gatekeepers to opportunities, they tend to distrust youth, often times scolding them and limiting their access to opportunities. The data in this study even identifies misuse of funds and equipment in a way that further limits youth from accessing technology (see Figure 9).

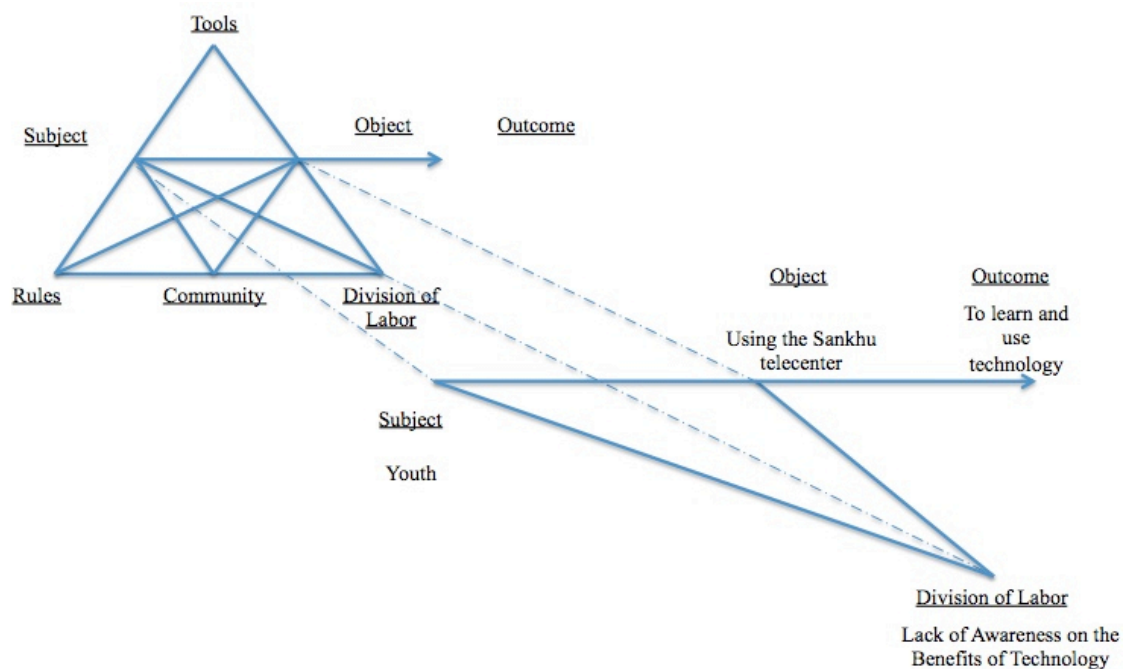


Figure 9. Tension 3: Lack of awareness on benefits of technology. This figure shows the tension between the youth, the lack of awareness on the benefits of technology and the use of the telecenter.

Another major source of tension telecenters face is the lack of awareness on benefits technology can bring to the lives of villagers. It is important to note that the data in this section comes from the interview with the Vice Chairman of HLCIT. Since he has a macro view of telecenters in Nepal and he has significantly more experience with technology than those in the local communities, the Vice Chairman's vantage point on this issue is significantly more valid than those on the ground utilizing the services of the telecenters. He sees the larger picture. Additionally, the local communities simply do not know what they do not know. For these reasons, lack of awareness on benefits of technology, despite the fact that it only has two appearances in Figure 9 Categorization of Tensions table, is identified as a major tension.

The Vice Chairman of HLCIT explains that local people do not have a direct and immediate connection to the value of technology in the interview excerpt below:

(personal communication, July 22, 2009)

Jeff: As I interview people in the community who don't use the telecenter, they say, "I don't need to know. Why do I need to know? How is a computer going to benefit my life?"

Vice Chairman of HLCIT: Yes. Exactly.

Vice Chairman of HLCIT: This is one area that the government should be working on, actually. There is something that is being done in the content area. There is content being packaged in a way that can be consumed by the local people, within their language, within the context of their daily living. And content that can be linked with the activities on the ground. So as to ensure that ICT can create and generate value to them. I want to explain a little more about the content aspect. You mentioned that there are televisions and DVD players in people's homes. That is driven by content. Television has content for 3 year old- Tom and Jerry. There is content for the 80 year old grand daddy- have access to spiritual programs. I don't know how familiar you are to the range of channels here. There are 2-3 channels dedicated to religion. This is where our 80 year old granddad finds relevancy. So you see the spectrum is about content. You own a TV because of news, entertainment. So this content captures the entire spectrum. There are channels catered to the ladies. So I think the uptake is driven by content. Value, entertainment value. So ICT has not been able to position to serve in that way. People do not immediately see a compelling way to use a computer. Of course, young people have that. For one, they want to be in touch with their friends overseas. But then again, if you forget about that particular demographic, there is no incentive for ladies, elders.

Jeff: What do you feel is the value of computers in the lives of the local villagers? What other benefits can telecenters provide?

Vice Chairman of HLCIT: There is an immediate value that she can derive from that. Gratification, entertainment. It all boils down to value. How can you create value in their daily living. That is why I focus on content and services. The services part might be a little confusing to you, Jeff. When I say services, I am talking about government services, health services, education services. Somehow technology should help. For example, if a computer can be a mechanism for getting some health advice. You can avoid that arduous trip to the district headquarters. You can get your work done online. That would be a service. And for example, in a Nepali scenario, what happens is that school certificate, an exam where everyone has to sit in, and then after that, you are eligible for college. And this is centrally conducted, government controlled. So this exam is given centrally. And the results are posted centrally. What happens is that a villager from a remote area, Kathmandu can only know those that can make the 10-15 day journey. So ICT can publish those results immediately. That way, everyone can have access to the same information on the same day. So there can be so many

service lines that can be done. Not in a very glorified context, but in everyday living. Of course knowledge is one thing, but knowledge, the way I see it, is that you cannot go very far with knowledge. For example, if I have a health condition that can only be cured in the United States. If I access that information, do I have the resources to act upon that knowledge?

The Vice Chairman of HLCIT projects a vision of the future of telecenters in Nepal, one that positively impacts the daily lives of the local people. Another example of how the local community is struggling with finding how and where technology fits in their lives can be seen in the interview with the elder women's group interview below (personal communication, July 3, 2009):

Jeff: Do you have opportunities to learn to use a computer?

All Respondents: No.

Jeff: Why are there no opportunities?

Respondent A and C: Because we're quite old. And because we don't see a need for us to learn. We know that there is learning at the telecenter for computers, but we don't see a need for us to learn.

Jeff: What I'm hearing is that there is a lack of interest and not a lack of opportunities. Is that right?

Respondents C: Yes.

Jeff: If somehow, we can show you how technology can assist in your lives, would you be interested in learning computers? For example, if a computer can help make your life better, would there be more interest. If we can show you how.

All Respondents: If we can find interest, then yes.

All Respondents: (discussion in Nepali) Yes. There is nobody inspiring us to learn how to use computers. We also think, after we learn how to use computers, what will we do next?

The last two statements above exemplify the mind-set of most local people.

“After we learn how to use computers, what will we do next?” On the one hand, local people are starting to learn about the benefits of technology, these benefits are still far from being an everyday reality. Without proper communication on the direct use of technology and without proper inspiration on how to use it, using technology to enhance one's life seems to be a myth to most (see Figure 10).

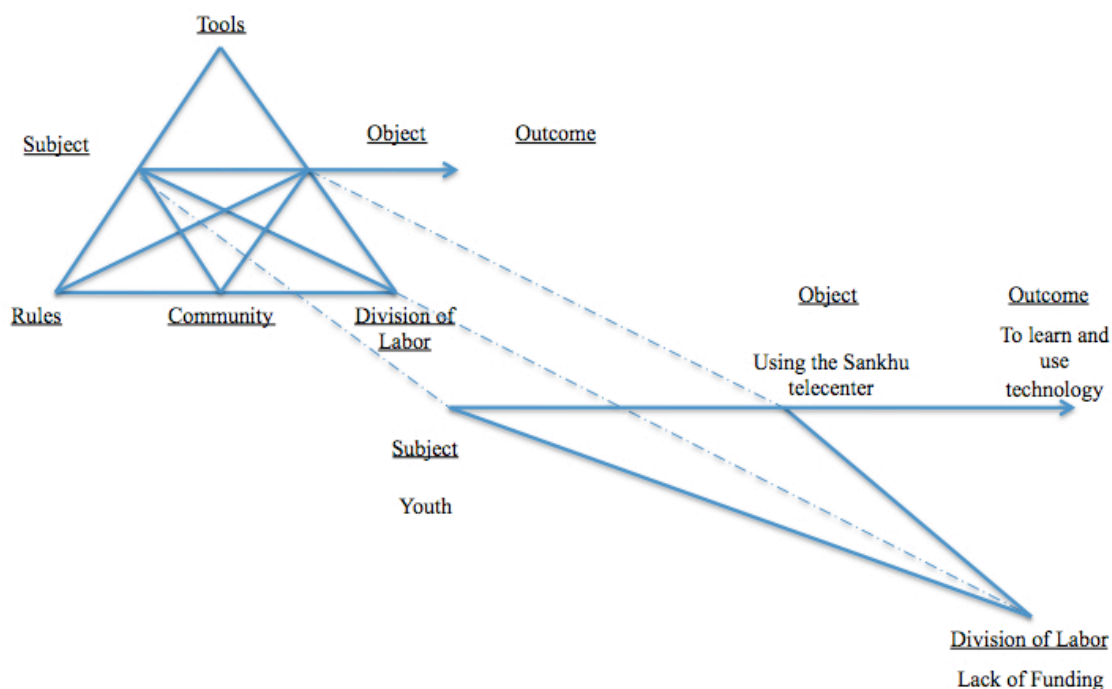


Figure 10. Tension 4: Lack of funding. This figure shows the tension between youth, lack of funding and the use of the telecenter.

Funding for telecenters has been a major source of tension ever since the beginning of the telecenter movement. The funding model for all 80 telecenters is problematic. The High Level Commission on Information and Communication Technology funds the telecenters for one year. After the one year period, telecenters must fend for themselves to come up the necessary funding for running the center. A representative from HLCIT states (personal communication, June 29, 2009):

And HLCIT generally supports the telecenters for one year, which is bare minimum salary for the staff. Only one year. Then after that, the telecenters are required to fend for themselves. But then again, this model, as I must admit, is a problematic model. You cannot realistically expect telecenters to fend for themselves after one year. So what happens is that after one year's support, the expectation that the telecenters need to support themselves is not a realistic expectation. One year is too short of a window to create a critical mass of users.

Although the one year funding model has been acknowledged as problematic by HLCIT, financial hardship and lack of resources limit how much

support the telecenters in Nepal receive. As a result, many centers either cannot generate funds to maintain sustainability or are barely limping along and are on the verge of collapse.

Moderate tensions. For this study, moderate tensions are tensions that have been identified and validated by most of the data collection methods. Although not all respondents, artifacts, observations, and interview responses correlate directly to these tensions, the majority of the data collection methods view these tensions as existing in the activity system (see Figure 11).

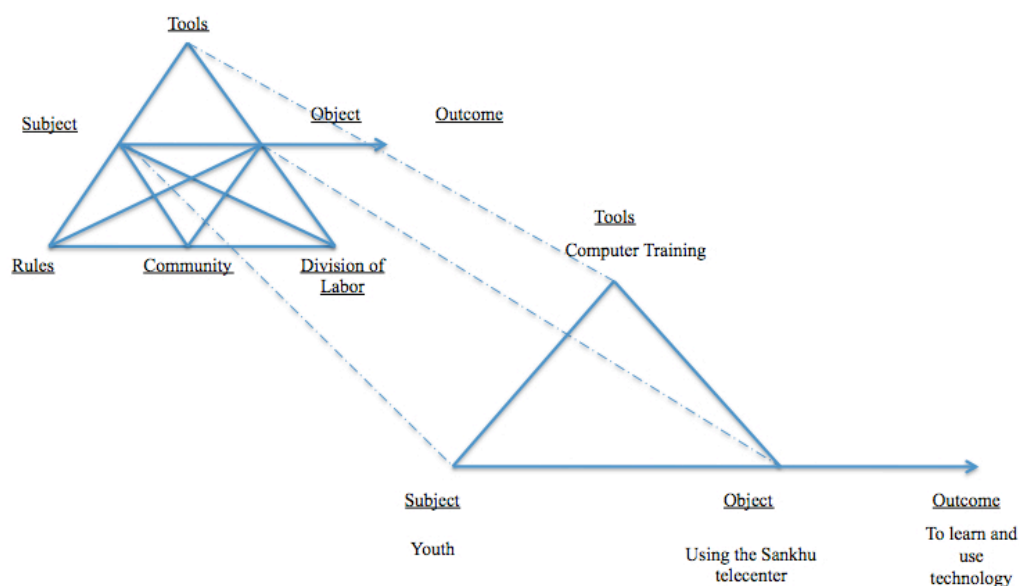


Figure 11. Tension 1: Computer training. This figure shows the tension between the youth, computer training and the use of the telecenter.

Computer training has been a struggle for the Sankhu telecenter since its inception in 2004. Telecenter leaders work with a community that has never been exposed to computer terminology. While the terms office, files, and folders, are quite common in the Western or developed world, they are foreign to those in the villages of Nepal. Telecenter leaders localize the content by telling the villagers that “these are not files or folders.

These are houses (computers), rooms (hard drives) and cupboards (folders). You must store things in the proper places” (personal communication, July 23, 2009). As a response to the need for proper training, youth leaders are innovative in how to connect 21st century tools with Nepal’s disadvantaged villages. Many community members identify the major obstacles of learning how to use a computer as learning the mouse and keyboard, and using English. Male youth between the ages of 23 and 26 share their challenges on learning how to use a mouse in the interview excerpt below (personal communication, July 9, 2009):

Jeff: Great, shall we move on? Think back at the first time you learned how to use a computer. What was the most challenging part about learning to use a computer?

Respondents C: The mouse was a problem for me. The mouse pointer doesn’t want to go where I want to go! (waves his right hand around in the air, chuckling) (everyone laughs)

Respondent C: When we want to close an application we would move the mouse player from here to here, yeah? (gesturing his hand on the floor to cover a large area)

(everyone laughs again)

Jeff: You run out of space!

Respondents C: The space to move the mouse is too small!

Jeff: What about the keyboard was that difficult?

Respondents C: Yep, for us it is difficult.

Similarly, female youth between 23 and 26 stated that typing and using the mouse were challenging skills (personal communication, July 7, 2009).

Jeff: Can you share with me the first time you learn how to use the computer, what was most difficult?

Respondent A: typing.

Jeff: Why?

Respondent A, C and D: Our fingers. They have to move a certain way (smiling). It is funny to do that!

Jeff: What about moving the mouse?

Respondent B: For me the mouse was also difficult.

Elderly women all stated that English was the major obstacle when learning how

to use a computer in the interview excerpt below (personal communication, July 3, 2009):

Jeff: I want to talk about actually learning how to use the computer for a few minutes. Many people learn how to use the computer using the English language. Would it be difficult for you to use a computer in English?
All Respondents: Yes, of course. We never learned English.

Because the terms associated with a computer are foreign to those in villages in Nepal, technology trainers must react creatively when teaching local villagers how to use a computer. Localizing such concepts becomes a key approach in teaching villagers how to use technology. Additionally, moving a mouse and having the hand-eye coordination abilities is a new task for those in Nepali villages. Sankhu telecenter leaders face such challenges when teaching technology to the local community (see Figure 12).

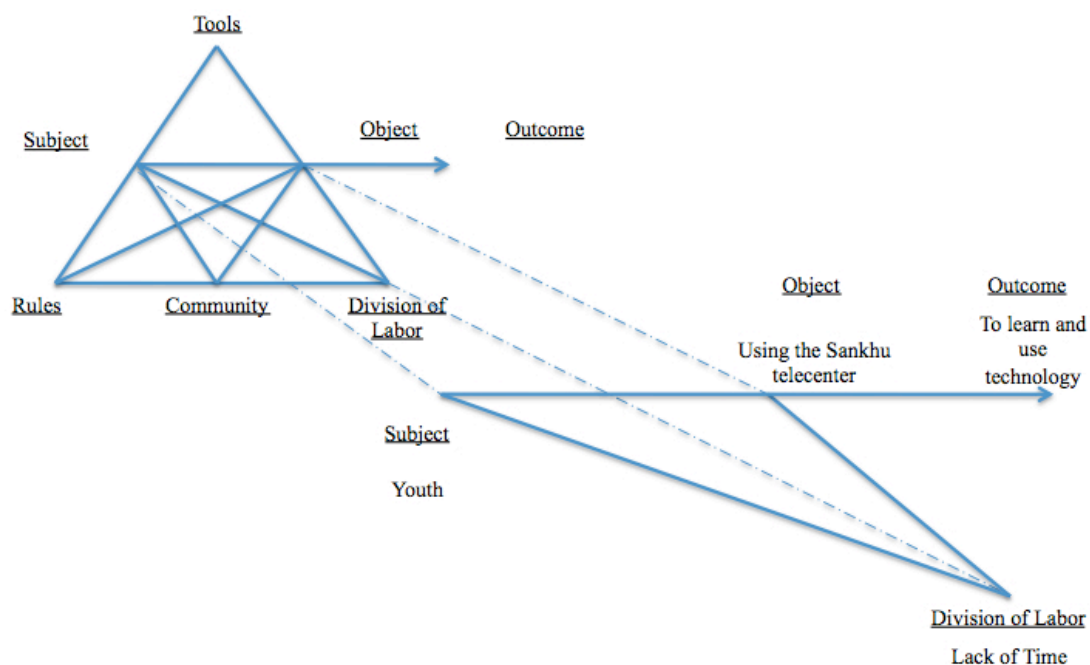


Figure 12. Tension 2: Lack of time. This figure shows the tension between the youth, lack of time and use of the telecenter.

In the Activity Theory triangles, the subject, object, and division of labor triangle best showcases the lack of time tension that community members in Sankhu face when

visiting the telecenter. For example, women have duties that exhaust their time from morning to evening. Children and youth, in addition to attending school, labor in the fields to harvest crops. In the end, there is very little time available for community members to learn and use technology. It should be noted that although lack of time is categorized in this study under the Division of Labor tension category, it is important to note that this tension also closely reflects cultural rules, which is another category of tensions in Activity Theory.

When interviewing the elderly women's group, the following daily activities were described as activities that are more important than learning how to use technology. They also share the ideal time to hold computer classes (personal communication, July 3, 2009).

Jeff: What is everyone's daily routine like a smart what do you do in the morning? In the afternoon? And in the evening?

Respondents C: In the morning time, we have to work in the house. We have to fetch water, go to the temple, fix breakfast, and sometimes we have to go on the farm during harvest time. Afterwards, we have to prepare many things for the kids. Our lives are very busy.

Jeff: What does everyone do in the afternoon?

Respondents C: In the afternoon, we have to work in the fields. Otherwise they will do work around the house. Sometimes we do knitting.

Jeff: If we set up a computer class in Sankhu for the elderly women, what is the best time for the class and why?

Respond A and D: The best time to have the class for the elderly women in Sankhu is around 11 am. At that time they are done with their morning work in the children have gone school and their work and there's some free time. Early in the morning, everyone is busy with activities. In the afternoon, everyone is busy working the fields. So 11 o'clock is the best time.

Similarly, the three respondents for the female 23–26 youth group had similar things to say about their daily chores as females (personal communication, July 7, 2009).

Jeff: I want to ask you about the culture of Nepal. The culture of Nepal is very special and unique. It is different than the culture of America. I think there are some parts of the culture of Nepal that I do not understand very well. So I need

your help. What are some cultural ideas that's the name you from coming to the telecenter? Can you think of any cultural aspects of Nepal that limit you from coming to the telecenter?

Respondent B: Our household work.

Respondent C and D: Fieldwork during harvest time.

Jeff: So you were busy during harvest time. What kind of household work you need to do every day?

Respondent B: Cooking, washing clothes, and sweeping. The traditional tasks.

During the 18–22 male youth group interview, the youth, despite the fact that they were male, agreed on the following (personal communication, July 8, 2009):

Jeff: I'm curious how coming to the telecenter compares to other daily activities you might have. What is more important than coming to the telecenter?

Respondent C: Farming.

Respondent C: I don't think I can come too much. I have to attend to the field. That is why I am not able to come much.

Although household chores typically are the sole responsibility of the female youth, farming is an activity that crosses gender boundaries. Men and women, boys as well as girls all farm during harvest time, as the Newari community of Sankhu relies on agriculture as a means of survival. When investigating categories of tensions, it is clear that a lack of time during the daily lives of Nepali villagers is a major source of tension.

Minor tensions. For this study, minor tensions are identified as tensions that have significance to the activity system, but have been mentioned and identified in some of the data. These tensions, although labeled as minor exist in the activity system and should be taken into great consideration when analyzing the landscape of the overall data (see Figure 13).

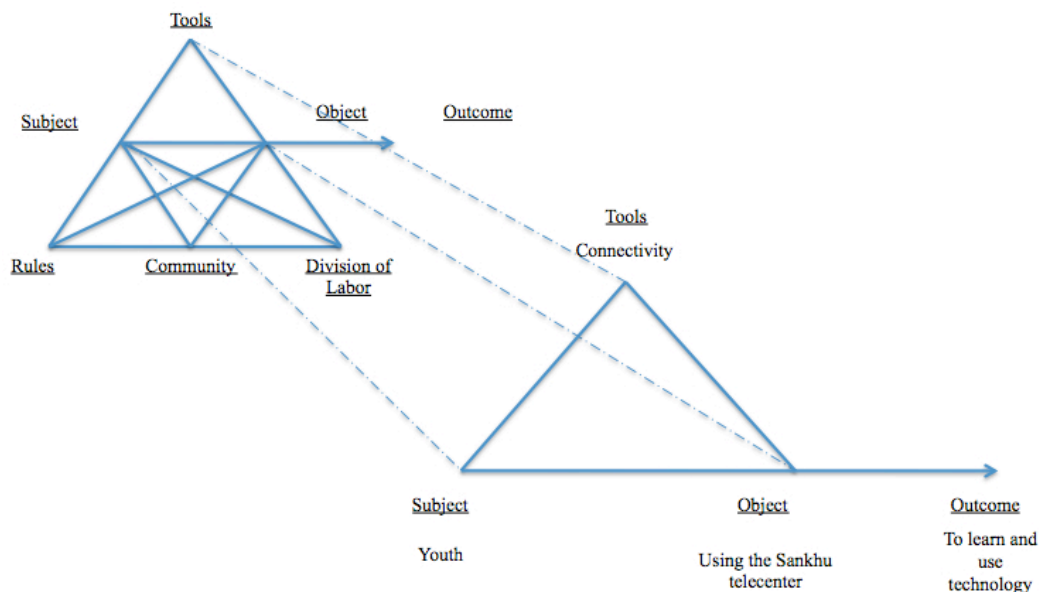


Figure 13. Tension 1: Connectivity. This figure shows the tension between the youth, connectivity and the use of the telecenter.

Internet bandwidth is a major obstacle in Nepal. In 2009, a typical telecenter has only one computer that potentially can connect to the Internet. Internet is connected through telephone dial-up. When I asked the youth groups about their frustration with Internet, they typically respond by saying, “Of course! [laughing]” (personal communication, July 13, 2009).

The laughing indicates a sense of acceptance and normalcy. Although the connections are spotty at best, the youth are optimistic and work through such challenges, knowing that it not is only the current state of technology in Nepal, it is the only access they have (see Figure 14).

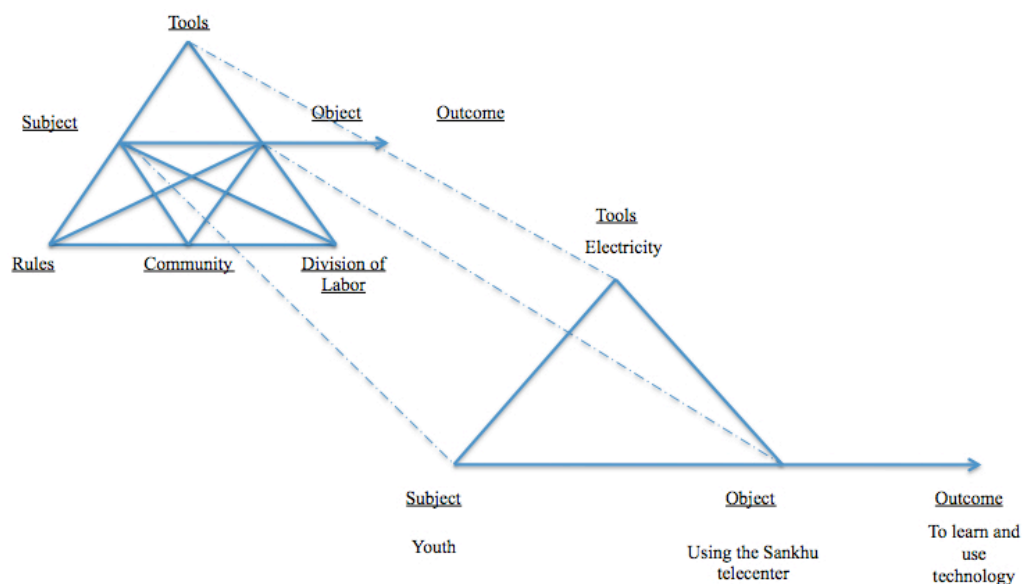


Figure 14. Tension 2: Electricity. This figure shows the tension between the youth, electricity and the use of the telecenter.

Nepal's electrical infrastructure faces geographical challenges. Additionally, lack of sufficient power generators forced much of the country to be handicapped with rolling blackouts. During the spring of 2009, when one of the three hydro-generators broke, the entire country faced blackouts averaging 14–18 hours per day. This lasted for several months.

When asked about the effects of blackouts, also referred to as “load shedding” in Nepal, youth responded, “of course it affects us. It affects our ability to come to the center.” A female youth during the group interview of 23–26 year olds stated, “yes at the time when there was no shedding, I wanted to come. But I could not come. And I feel so bored. It was about 16 hours a day! I felt like the world was going to collapse” (personal communication, July 7, 2009).

Below is an account of a youth who walks to the Sankhu telecenter each day. He is from a remote rural village and the walk is five hours each way. (personal

communication, July 7, 2009)

Jeff: Are there times you have come and there is load shedding?

Villager: the load shedding tears of such a headache. Because I have to walk far from the village, I have no way of knowing if there is electricity. It is quite hard. But the operators of this telecenter, at times when there is load shedding, they will teach me computer skills even without electricity. And they share the importance of computers to me and also other skills when there is no electricity.

Jeff: So even when there is no electricity, you can still learn from the center?

Villager: Yes.

Jeff: When you arrive and there is load shedding, how does that make you feel?

Villager: At that time I feel very bad. I had missed my time.

Jeff: Do you think if there is no more load shedding in Nepal, you will come more often?

Villager: Absolutely.

Regardless of the issue of load shedding, this villager makes the ten hour hike each day. He is the only means of communication between his rural village and the outside world. In fact, on days where electricity is not available, this youth picks up the newspaper from the Sankhu telecenter and carries it back to his village. Stories such as this demonstrate the persistence and the perseverance of the people of Sankhu. When obstacles arise, the people of Sankhu find ways to rise above (see Figure 15).

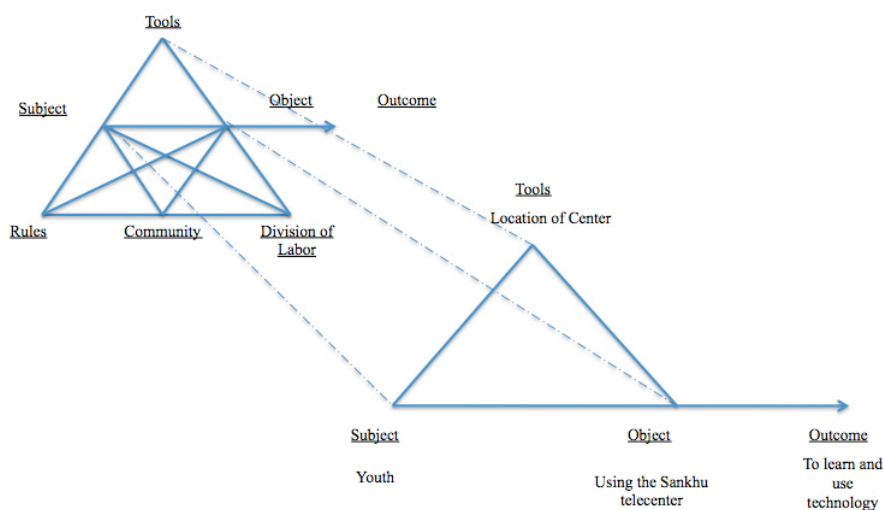


Figure 15. Tension 3: Location of center. This figure shows the tension between the youth, location of the telecenter and the use of the telecenter.

For the youth in Sankhu, the center's geographic location is important. Transportation challenges limit access to technology, especially due to Nepal's mountainous geographic setting. Roads and walking paths are often washed out. Very few people have access to motorized transportation, especially in rural areas. Western Nepal, for the most part, is only accessible by foot. Below is an account of youth discussing and sharing on the importance of the location of the center (personal communication, July 7, 2009).

Jeff: How did you learn about the telecenter?

Responded D: Actually the center is very close to my home. And when it first started we were curious to find out what it was doing. And when the youths started doing projects, I became interested.

Jeff: So the geographic location of the center is very important?
(discussion)

All Respondents: Yes. We all agree it is important. We all notice the center and the programs because of its location.

In another interview, youth responded (personal communication, July 8, 2009):

Jeff: What if I told you that tomorrow, we are moving the center to a far away part of the village. What will you say to me?

Respondent D: We will say don't do that!

Respondent C: We would say we will not be able to go to the center!

Respondent D: We already don't have a lot of time to come here.

Both respondents D and C responded to the question above with enthusiasm. They were adamant in their sentiment for the center not to be moved. Their voices rose and their facial expressions beamed with concern.

Contrary to the above two interview transcripts, the below transcript is taken from an interview with a youth who travels from a far village. This youth travels five hours each way to access the telecenter. Unlike the respondents above, who were concerned with the hypothetical movement of the telecenter within the Sankhu village, the youth below has no concern for the geographical location of the telecenter within Sankhu; he

already travels five hours to get to Sankhu from his rural village (personal communication, July 23, 2009):

Jeff: When you come to the telecenter, what do you do?

Villager: When I come to the telecenter to utilize computers that are here. I also use the telecom, which is the telephone. When I came to the telecenter at first I came here to learn how to use computers. This telecenter is important for us because I'm from quite far. My village is very remote. In my village some people do not know what is even a television. So I come here and get lots of information to share with my village. When I get more knowledge about the computer, I share the importance of computers and the benefits of computers to my village. So it is very hard for us.

Jeff: You mentioned that you walking about five hours to come to the telecenter. How many days a week to you for?

Villager: Daily.

Jeff: What inspires you to come to the telecenter?

Villager: I'm always curious to know more about the computer and technology. So when I come here, I always learn something new. Yes actually from this telecenter, we receive daily newspaper. And because I come to this telecenter, I can pick up the daily newspaper and bring it back to my village to share with everybody.

My analysis of the geographic location of the center relates to personal relevance of technology. While local youth within Sankhu have grown accustomed to using the telecenter on a daily basis, moving the telecenter to another part of the Sankhu village created inconvenience to those who frequent it. However, in the case of the villager, intrinsic motivation drives his daily walk to the telecenter. Geographic location within Sankhu is not an issue because technology is a necessary tool in his life. Nevertheless, in all cases above, the personal relevance of technology overshadowed the location of the telecenter.

Understanding Tensions in the Activity System

An activity system is complicated as shown by this dissection of tensions. As a result of this reduction, it becomes easy to lose sight at the relationships between tensions and the natural, ecological nature of these tensions. Therefore, it is important to

remember that these factors interact with each other in a dynamic real-time web.

Tensions coexist within the system. Analyzing individual subjects from this holistic perspective is instructional. Two examples from the field will illustrate the dynamic nature of coexistent related tensions.

First is the story of Suita (the real name is kept confidential). Suita was invited to visit the Sankhu telecenter by two friends who were newly introduced to technology. She was around 19 years old at the time, Suita was granted permission by her parents to visit the center once (dominant tension- rules tension of gender roles). Despite the fact she developed an interest to learn more, she had to return to work in the fields, as many of the female youth did in Sankhu. Her privilege to visit the telecenter quickly ended (related tension- division of labor tension of working in the fields during harvest time). Suita's family relied on her labor in the fields as a means of sustaining the family. Her repeated requests for permission to visit the center again were denied, leading to more friction (the dominant tension, a rules tension relating to gender norms) within the family. Cultural and historical rules were being challenged. Over one year later, tensions changed and Suita was given permission to visit the center again.

Other youth at the telecenter created opportunities income generation (related tension- rules tension of females' lack of time to use the telecenter). This allowed her the opportunity to learn technical skills yielding potential income (affecting other tensions). The telecenter also taught sewing, a female task that many Sankhu women wanted to learn; it was an income generating skill. Sunita eventually became one of the three managers of the telecenter and provides mentoring to other female youth the opportunities she once struggled to access. The story of Sunita shows how tensions are

dynamic and may shift creating new opportunities. Ultimately this story paints a colorful picture of the power of technology as a tool and how life is changing for women in Sankhu. It also exemplifies how the dominant tension of gender roles within the family are supported, related, and coexist with other tensions.

The second story involves an elderly man who I met on a site visit in a farming village near Sankhu. As I was led by village elders through various parts of the community, I couldn't help but notice an elderly man, probably in his 80s, following me with a stack of papers. After a short time, I asked a translator to help me communicate with the man.

He spoke Nepalese very fast. I think he was nervous to talk with me. What was fascinating to me was the fact that every few sentences, the man used the word eCommerce. My mind raced as I those words. It turned out that this man had won the Best Oranges in Nepal contest multiple years and that he wanted me to help him sell his orange internationally, using technology. He did not own a single piece of modern technology, nor did he have even electricity in his house. For this study, lack of electricity, lack of Internet and lack of opportunities to learn and use technology are categorized under the tools tension. Although independent stories support such categorization, this story weaves the tensions together in a holistic way. It is another example of the dynamic nature of tensions within Activity Theory. Somewhere along the way, this man learned of the potential benefits of technology and knew that I was in a position to help him.

For this study, data from the Sankhu telecenter has been categorized under major, moderate and minor tensions. Beyond the categorization of these tensions, using an

ethnographic approach to collecting data has allowed this study to present data in a comprehensive way. The stories from the people—Sunita, the orange certificate man, women elders, and all the others—contribute to the connecting back together of tensions into a larger, more meaningful picture.

Chapter 5: Conclusions

Chapter 1 describes the landscape for the study. It explains the state of technology telecenters in Nepal in 2009 as well as some of the geographical and cultural challenges telecenters face. Telecenters were created by HLCIT in response to the voices from the communities. There exists a growing need for access to technology, especially in rural areas of Nepal.

This study takes an ethnographic approach to observe the culture of the Sankhu telecenter and on the tensions it faces. Analysis of the data was completed using Activity Theory, which takes into consideration culture, history, people, division of labor, and tools related to a certain activity system.

Once the data was analyzed, it was categorized into three categories of tensions. Major, moderate, and minor tensions were separated based on the frequency of appearances throughout the data. Analysis of data using Activity Theory leads to a better understanding of tensions youth face when using the telecenter in Sankhu. The data collected for this study led to the following conclusions.

Findings

Several key findings were yielded from this study. These key findings contribute to the body of research relating to the topics of youth, technology, telecenters, developing countries, and Nepal. The major tensions in this study are gender norms, old telecenter board, lack of awareness on benefits of technology, and funding. Moderate tensions are identified as difficulties in computer trainings and lack of time to learn technology. The minor tensions are Internet connectivity, lack of electricity and the location of the telecenter. Below are the conclusions of this study:

Females have fewer rights and less access. Gender tensions permeate throughout Newari culture and dictate daily norms in Sankhu. This appears to be the greatest source of tension for this study. While youth are gaining more access to technology in 2009, males still have more access than females. Similar to the struggles women went through during the women's literacy movement a decade earlier (Robinson-Pant, 1999), females struggle with defying cultural norms when it comes to learning and using technology. "Why eat green cucumbers at the time of dying?" (p.14) is the proverb men say to women as they learn how to use technology. Unlike the Bangladesh telecenters where women have gained profitable income generating skills through telecenters (McConnell, 2001), the Sankhu community has yet to realize the opportunities that telecenters can bring for women.

Poor infrastructure. Poor technology infrastructure continues to impede on technological progress. Nepal's mountainous landscape presents major infrastructure challenges. Electricity is nonexistent in rural regions of Nepal (Gregson & Gaurab, 2000). In terms of connectivity, Nepal has leapfrogged into the 21st century with a mass infusion of mobile phones. Mobile phone signal towers cover every district in Nepal. In fact, Internet access can be achieved using a USB device called a CDMI card. This device uses the SIM card from a mobile phone and uses its signal to connect to the Internet. In the case of Sankhu, ADSL (high speed Internet) was installed in 2009. This leapfrogging into the 21st century can also be seen in the use of technology hardware, as Nepalese use digital cameras, not ever having used film cameras before. In terms of electricity, the few electrical generation plants in Nepal already cannot generate enough electricity for the country. When one is down for maintenance, or when one is

malfunctioning, the entire country is greatly affected. In the spring of 2009, rolling blackouts called “load shedding” were upwards of 16-20 hours per day. These infrastructure obstacles directly impact the daily running of the telecenters.

Lack of time to learn and use technology. In Nepal, cultural norms dictate daily activities. Like most communities in Nepal, farming communities such as Sankhu struggles with finding extra time for community members to indulge in activities that are considered luxurious. Attending school and learning technology are considered to be luxurious in most communities. In addition to a lack of financial support, a lack of time is a major source of tension. This is especially evident during harvest seasons when entire families work in the crop fields for the majority of the day. During harvest time, those children that have the luxury of attending school often times miss school to work in the fields. Likewise, during harvest time, attendance at the telecenter is low.

Elders as gatekeepers. The elder versus youth tension is a major rules tension presented in this study. Elders are the decision makers and gatekeepers of the community (Wood, 2006). As a result of this cultural rule, technology, a tool that many elders do not know how to use, becomes a pawn in the struggle for control. Furthermore, those who try to use technology, typically youth, are perceived as young people who are not wise enough to make major decisions in the village. The result is catastrophic in the struggle for telecenter sustainability. Those who control the telecenter are not understanding of three things: the benefits of technology, how to sustain and maintain a telecenter, and that elders can maintain control of a village while youth learn how to use technology (Rajalekshmi, 2007).

Funding model for telecenters impede on sustainability of telecenter. The current funding model for telecenters was designed by HLCIT. This current funding model supports both the initial startup of telecenters and salary for one telecenter staff for one year (Personal communication, July 22, 2009). What the model does not account for includes:

Not all communities can take over and sustain funding after one year. Local communities may not have enough time to build capacity in one year to embrace technology as a significant tool in their lives. For telecenters in Nepal, the one time startup costs are a high, when considered in the context of how much a Nepali family earns in one year. As a result, when hardware breaks, it is not possible for local communities to pay for repairing or replacing the broken part.

Local communities are not aware of benefits of technology. The lack of awareness on the benefits of technology is a major tension in this study. Local communities have not had enough exposure to the current technology to understand the positive impact it can have on their lives. Although technology is beginning to penetrate its way into the families of local communities, it is still at its infancy stage. As a result, awareness building is a major obstacle for many telecenters (personal communication, June 29, 2009).

Once local communities are able to get online, it is explained by a number of respondents that a lack of localized content is a major problem. Localized content is content that is culturally relevant to the local people. It is often times presented in the local language.

Ethnography is the study of culture (Spradley, 1979) and utilizes a qualitative approach. An ethnographer embeds himself or herself into a community, acclimates to the local surrounding and begins observing and participating within the community in an attempt to accurately describe the community. Although attributes such as people in the community and the physical structure of the community are simple to describe, the interactions between the different actors and objects within a community is what the ethnographer strives to understand.

Similarly, Activity Theory focuses on activities within a system (Engestrom et al., 2005). The origins of Activity Theory can be traced back to the work of Lev Vygotsky, a social constructivist psychologist. Activity theory compartmentalizes various sources of tension within an activity system through the use of a triangle diagram. Within the triangle, lines are drawn between the different categories. These lines represent tensions within a system.

Data that represent tension captured through an ethnographic lens can be easily transposed onto an Activity Theory triangle because the type of data that is captured naturally fits the paradigm of Activity Theory. Stories of the people, the observation notes, and the various artifacts collected during the study qualitatively gives the reader a glimpse into the local community (Spradley, 1980). This glimpse offers insightful knowledge, as it is purely the voices of the people and the images from the ground.

Recommendations

Study other telecenters in Nepal for comparison. One limitation to this study is the fact that data collection took place in only one telecenter. There are approximately 80 telecenters in Nepal. These telecenters possess a variety of different characteristics, such

as technological hardware and software, staffing, funding, local community, social norms, etc. Similar studies of other telecenters is recommended. Furthermore, this study suggests a need for a future study focusing on leadership of telecenters in Nepal.

Study in other developing countries for comparison. Future studies in other developing countries similar to Nepal would also be beneficial to the field. Conditions in selecting other countries for study should include: geographic region, geographic terrain, culture, social and historical norms. Additionally, technological access to hardware, software and connectivity should be considered.

Study successful youth leaders who are recognized internationally, but not locally. This study unveiled several cases where youth leaders were recognized internationally for their work. Gaining international recognition is easier, especially in the 21st century, through the use of technology. Although these isolated cases of success may appear to be phenomenological in nature, it would be beneficial to see if there are trends that emerge. Additionally, case studies on these phenomena would also contribute to the current body of relate research knowledge.

Study the impact of Web 2.0 on youth in developing countries, specifically looking at social capital. Because connectivity has significantly improved in the last decade, it is recommended that a study be conducted on the expanse of social capital a community gains from using a telecenter. While monetary capital might be scarce in a country like Nepal, youth seem to be extremely connected online with others in and out of their community, as well as around the world.

Explore whether technology tools or new rules can drive culture change. Explore the possibility of formally be set times and opportunities for females to use the telecenter in an attempt to balance out gender inequalities.

Summary

Developing countries such as Nepal struggle to keep up with 21st Century technology. While advances have made it possible for the average Nepali to access mobile phones, computers and digital cameras, barriers continue to impede access. Like other governments (Huerta & Rodrigo, 2007; Mokhtarian & Meenakshisun, 2002), Nepal responded in 2004 with telecenters to push sustainable technology to its people. Five years later most telecenters still have difficulties accomplishing their purpose (personal communication, June 22, 2009).

Developing countries struggle mightily to meet the technology demands of the local communities (Colle & Raul, 2003). Issues other than technology limit telecenters from fully providing services and meeting the needs of the local community. These issues, which are often cultural and historical in nature, inhibit communities to fully integrate technology in everyday life.

This study explored issues within a particular telecenter (Sankhu, a small village outside of Kathmandu, Nepal) using ethnography as the methodology to understand the issues. And given the nature of the problem, Activity Theory was used as a framework for better understanding the tensions. As a descriptive theory, it fits properly with an ethnographic study (Spradley, 1979). The analysis of tensions provided valuable information for improving current and future telecenter programs in Nepal as well as other countries that are implementing telecenters.

This study is an ethnographic study that investigates the tensions that exist at Sankhu, one of 80 telecenters in Nepal. Sankhu is a rural community located about 20km east of Kathmandu. Research was gathered during two months in the summer of 2009.

Tensions were discussed in order of the frequency mentioned in interviews. Major tensions included gender norms, generational distrust, lack of awareness, and funding. Mid-level tensions included lack of training and time. Minor tensions were location, power, and connectivity.

Through the application of Activity Theory, more tensions surfaced than previously anticipated. The observations and analysis yielded the following conclusions:

1. Females have fewer rights and access.
2. People lack of time to learn and use technology.
3. Elders are gatekeepers.
4. Funding models for telecenters impede sustainability.
5. Local communities are not aware of the benefits of technology.

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APPENDIX A

Interview Questions for General Users of the Telecenters

1. Describe the value of technology in your life.
2. How did you learn about new technology? How did you learn how to use it?
3. Describe the steps you take in acquiring the use of technology through the telecenter.
4. What do people in your family think about your use of technology?
5. What technology do you hope to own one day? Why?
6. Describe your weekly interaction with the telecenter.
7. Does using technology conflict with any personal values you might have?
8. Who expresses the most objections to your use of technology? Why?

APPENDIX B

Interview Questions for Village Elders, Women and Men from all Castes

1. Will the introduction of technology into your village positively or negatively affect the historical norm of your village? If so, how?
2. Who should use technology in your village?
3. Who should teach technology, and how should it be taught?
4. Should women have access to using technology?
5. Should people of all castes have access to technology?

APPENDIX C

Interview Questions for Youth

1. Do your parents like you to use technology?
2. What other types of technology do you and your friends use?
3. Are you using Facebook? High Five? MySpace? Blogs, Wiki? YouTube?

APPENDIX D

Interview Questions for HLCIT, NGO Leaders and Government Leaders

1. How do you see villagers use technology?
2. Describe what a village looks like in 3 years in terms of people using technology.
3. How does a village find sustainable uses of technology?