Purposeful Use of Technology among Kansas Youth: A Descriptive Analysis

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Abstract

This paper investigates the awareness of information and communication technologies (ICTs) among Kansas youth. It assesses their access to and use of these technologies. We used a structured questionnaire distributed to a convenience sample to collect information from Kansas elementary, middle and high school students. The results show a very high awareness of ICTs among our respondents. They also show that these young people are using all the various ICTs intensively. We found that they use the internet both for games and work. We conclude that while Kansas young people are using ICTs purposefully, there is still an opportunity to develop structured programs that facilitate leveraging the connectivity of social networking sites with the outcome-focused activities of organizations such as 4-H and Scouts to create innovative learning and personal development environments for young people.

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Introduction

Information and communication technologies (ICTs) have become necessary tools for modern living around the globe. They are ubiquitous in business as in private lives, in classrooms and offices as they are in people's homes and their automobiles. They are increasingly being applied in telemedicine (which allows people in remote regions of a country (or even the world) to get access to modern medical service), distance education (which allows students to access content from various educational institutions), and in reducing travel costs (as in telecommuting and teleconferencing). While awareness, access and use of these technologies are far from equal across the country, within communities, and across age groups, there is consensus that young people are more engaged in their use than older people (USC Annenberg School Center for the Digital Future, 2008). Lenhart et al. (2001) conducted an online survey of young people and their parents on ICT use and found agreement between both groups that the internet has virtually replaced the library as a resource for completing homework. Indeed, many middle and high schools now provide textbooks online and teachers frequently direct students online to conduct research. Associated Press (2006) found a similar trend in the use of cell phones, where young people use their cell phones as a multipurpose device—camera, music player, personal computer, calendar, etc.—in comparison to adults who generally use them only as telephones.

In thinking about how young people use ICTs, there is significant research on guided application of ICTs, as in school work (Alvermann, 2006). Unfortunately, there is not much on how young people are using these technologies without guidance. That is, how are they using the different forms of ICTs to which they have access when left on their own? Answering this question sheds light on the purposeful use of ICTs by young people and helps to identify opportunities for leveraging their knowledge, passion and available resources to improve their productivity while improving their knowledge and love for learning and their contribution to the creation of solutions to local, regional, national and global challenges.

The overall objective for this research is to investigate how young people are using ICTs. The research focused on Kansas youth in 5th to 12th grade, about age nine to 19. A convenience sampling technique was used in collecting the information because of the fact that young people were involved in the research. The project was supported by the Kansas Agricultural and Rural Leadership Program (KARL) and the Kansas 4-H Foundation. These organizations provided the distribution network for the 1500 questionnaires distributed around the state. The questionnaires targeted teachers as the primary linkages to the students who were the expected respondents. They were distributed in packets of 30, giving a total of 50 packets. Each questionnaire had a parental consent form requiring the student's parent or guardian to sign a permission form allowing the student to participate in the survey. Only students submitting signed permission with their completed questionnaires were included in the study.

Our post-distribution conversations with the survey supporters indicated that not all of the 50 packets were distributed to teachers. Our best estimate is that only about 30 packets were distributed to school teachers and/or principals, i.e., 900 questionnaires. Additionally, we are

unable to determine how many questionnaires reaching teachers were actually distributed to students. This makes the estimation of a response rate nearly impossible. But, assuming teachers distributed all of the questionnaires they received to all their students and using the State Legislature assumption of the top-end average class size of 25 (Legislative Post Audit Committee, 2006), then effective number of distributed questionnaires is estimated at 750. We received 266 useable responses back and 23 that were not used. The potential response rate for the survey under the foregoing assumptions is, thus, estimated at 35.46 percent. The survey was conducted between November 2008 and March 2009.

The survey had 17 questions covering demographic information—age, grade, county and state of residence—as well as awareness of, access to and use of ICTs. We assessed respondents' awareness of eight different technologies: Desktop Computer; Notebook Computer; Cell Phone; Smart Phone; MP3; iPod[®]; Internet; and Wii[®]. We looked at their access to these technologies in terms of ownership and availability when needed. We evaluated their use in terms of time spent using the technologies and the purposes for which they are used. The results are presented using a descriptive analysis approach.

Demographics
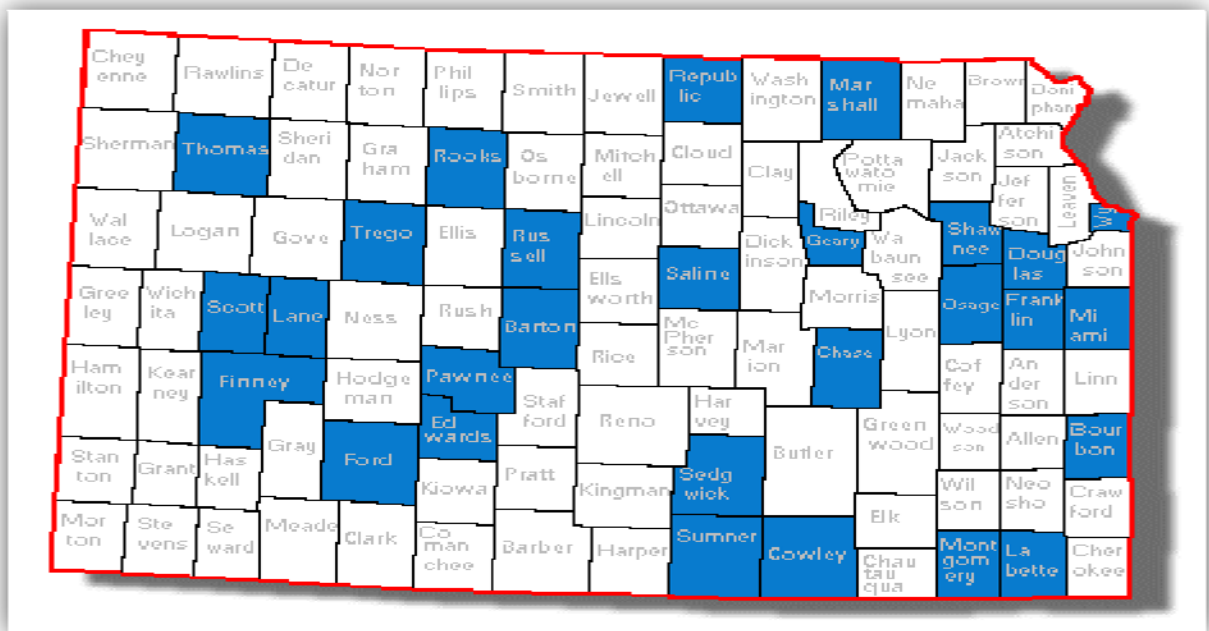### Respondents' Grade

The survey's respondents may be grouped into two classes: elementary and middle schools; and high schools. About 65 percent of respondents were in the first group with the balance in the other. Of the respondents in elementary and middle school grades, 35 percent of them were in the 8th Grade and about 31 percent were in the 5th Grade. For the high school students, 40 percent were in the 11th Grade. As a whole, the highest respondents were in 8th Grade (23 percent of all respondent) and the least number of respondents in the survey were 7th Grade. The average age of respondents was 13.5 years and the standard deviation was 2.45 years. This implied that 95 percent of respondents were between age 8.6 and 18.4 years.

Figure 1: Distribution of Respondents by Grade (n = 266)
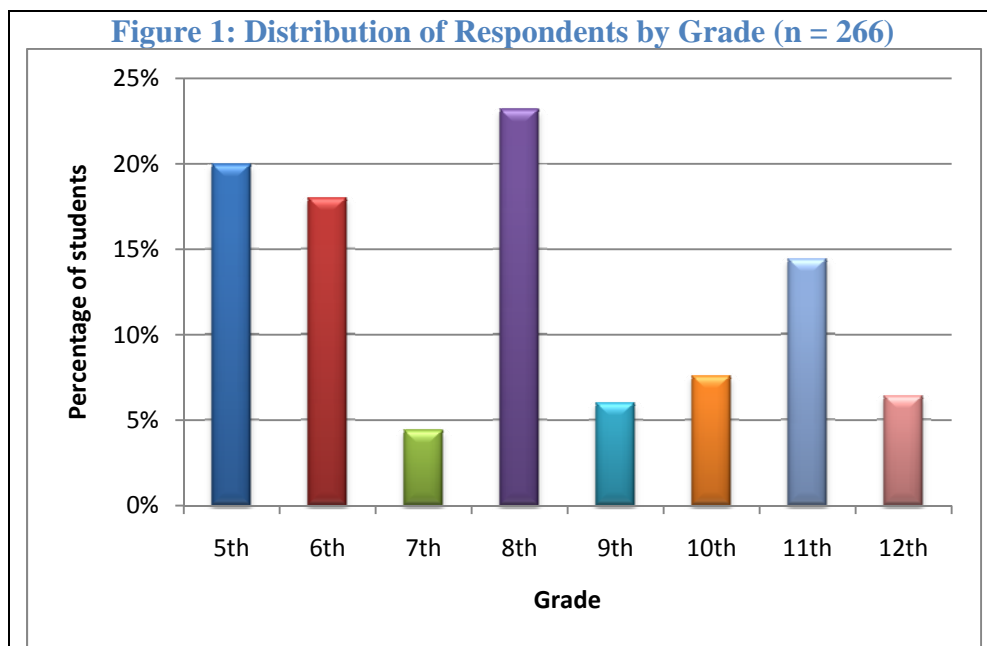
Respondents' Residence

The majority of our respondents (66.2 percent) resided in seven counties in the state. About 13 counties had only one respondent, including one respondent from Oklahoma. These counties were not necessarily rural counties. For example, Miami County (2008 population: 30,989) and Finney County (2008 population: 40,998) were in this group of counties. On the other hand, rural counties, such as Chase County (2008 population: 2,804) had 20 respondents. Ten respondents did not provide any information on their county of residence and four interpreted "county" as "country" and indicated the United States as their response. The distribution of respondents by county of residence is presented in Figure 2. The figure shows that despite the concentration of respondents, the represented counties were not as concentrated, with representation from all six regions of the state.

Figure 2: Respondents by their County of Residence

Awareness of, Use of and Access to ICTs
Awareness

Recall that we identified eight different ICTs in this research: Desktop Computer ; Notebook Computer; Cell Phone; Smart Phone; MP3; iPod®; Internet; and Wii®. Respondents' awareness of all of them was very high.

- 100 percent of respondents were aware of the internet.
- 99 percent of respondents knew what a laptop computer, cell phone, and iPod® were.
- 98% percent were aware of MP3s and Wii®
- 79 percent of respondents were not aware of the smart phone.

The level of awareness about these information and communication technologies observed in this survey is confirmed by previous surveys. See, for example, the recent report released by

the Pew Internet and American Life Project (Lenhart et al., 2008) and the USC Annenberg School Center for the Digital Future (2008).
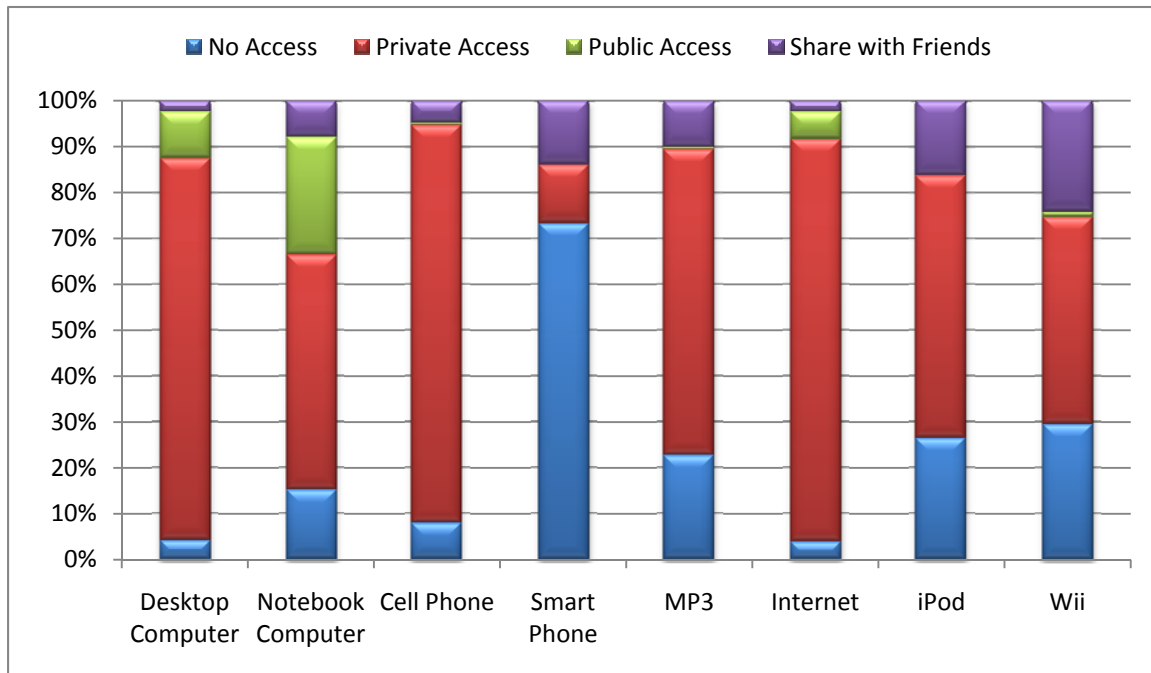
Access to ICTs

Young people may access the different technologies at home, where they may have full control over them or share with other family members, or access them in friends' homes. They may also access ICTs at school or in the public library. Figure 3 shows the distribution of where survey respondents access the different ICTs. In all cases, with the exception of smart phones, private access (in the home) was dominant.

Given the strong private access to the internet, we were interested in how respondents were doing this. The results are as follows:

- 12.6 percent use dial-up
- 28.74 percent use DSL
- 18.9 percent use cable

- 11.42 percent connect using satellite
- 20.87 percent connect using cell phones
- 19.29 percent using wi-fi

Figure 3: Distribution of Access to Different ICTs

Use of ICTs

As the oldest technology, desktop computers had the longest access and/or use, with nearly 90 percent of respondents indicating they have had access to or used it for more than two years (Figure 4). This was followed by the internet, with 84 percent of respondents indicating more than two years of access or use. The technology with the least access and/or use duration was the smart phone, and that is to be expected given its newness in the commercial marketplace.

Figure 5 shows that while 13.5 percent of respondents did not have access or use of cell phones, nearly 40 percent of them spent more than four hours per day on their cell phones, higher than desktop computers and the internet combined. This high use of cell phones

makes sense because of its portability and versatility. For example, current cell phone technologies serve not only as telephones but they can be used as MP3s and for texting, instant messaging, surfing the internet and as cameras. About 63 percent of respondents use the internet for more than one hour a day while more than 36 percent of respondents use their MP3s for more than one hour per day, which is about the same as iPod. The results show that, on average, young people use all the technologies for some time on a daily basis.

Figure 4: Distribution of Respondents by Duration of Access and/or Use of Different ICTs (n = 266)
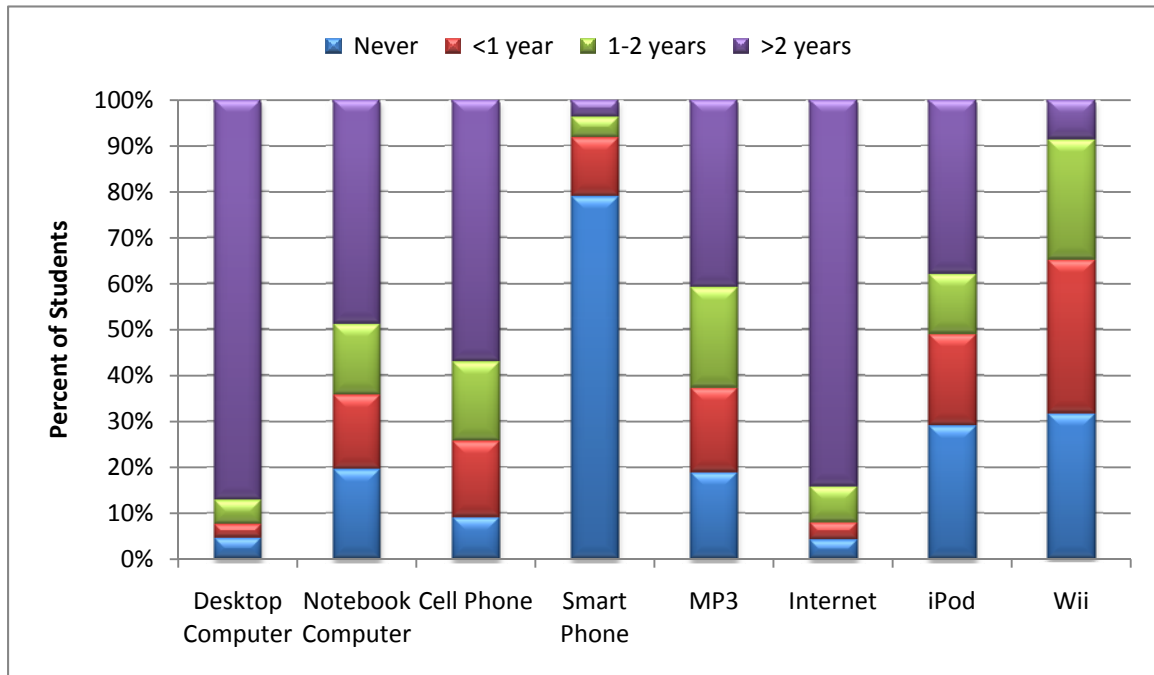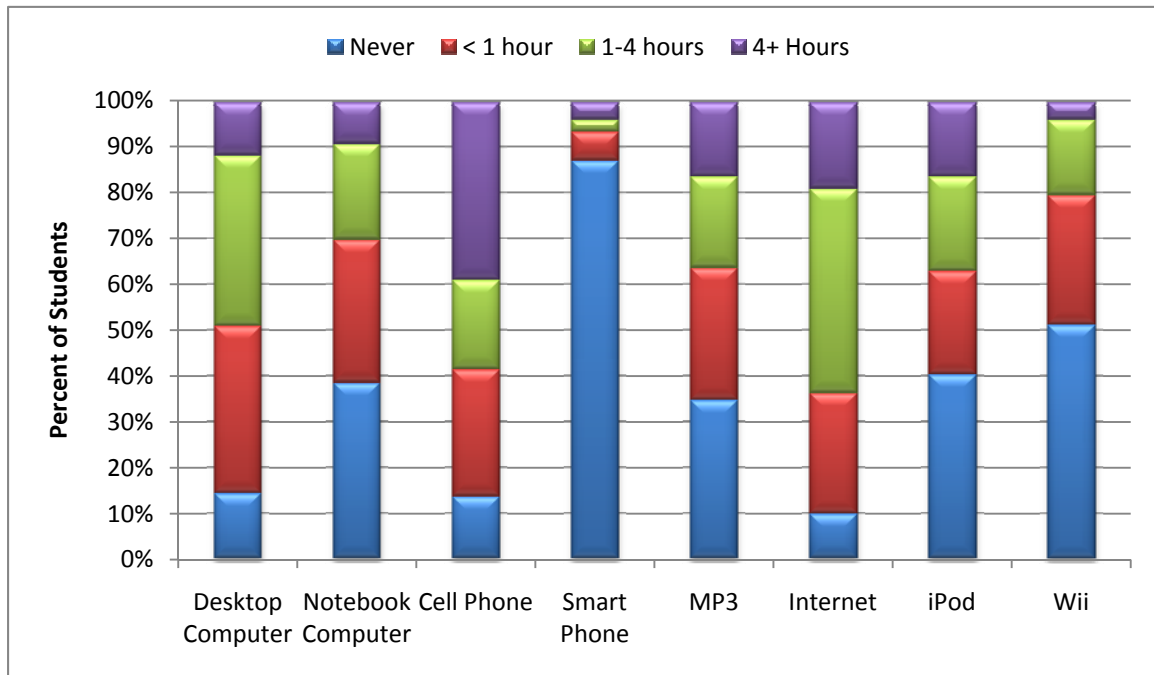
**Figure 5: Number of Hours Students Use ICT per Day**

On the amount of time per week respondents spent on the internet, we found that:

- 14 percent spent less than 1 hour
- 16 percent spent between an hour and 2 hours
- 22 percent spent between 2 and 4 hours

- 25 percent spent between 5 and 10 hours
- 13 percent spent between 11 and 20 hours
- 8 percent spent more than 20 hours.

How are they using these hours on the internet? By far, the most popular activity on the internet is playing games, identified by 88 percent of respondents (Figure 6). Lenhart and her colleagues at the Pew Internet and American Life Center found similar results in their 2008 survey, arguing that teens who participate in social interaction related to the game they are playing online, such as providing commentary or contributing to discussion on the game's websites or boards, tend to be more civically and politically engaged. This suggests that there might be some positive externality to using online games as purposeful engagement tools for young people.

Figure 6: How Respondents are using the Internet
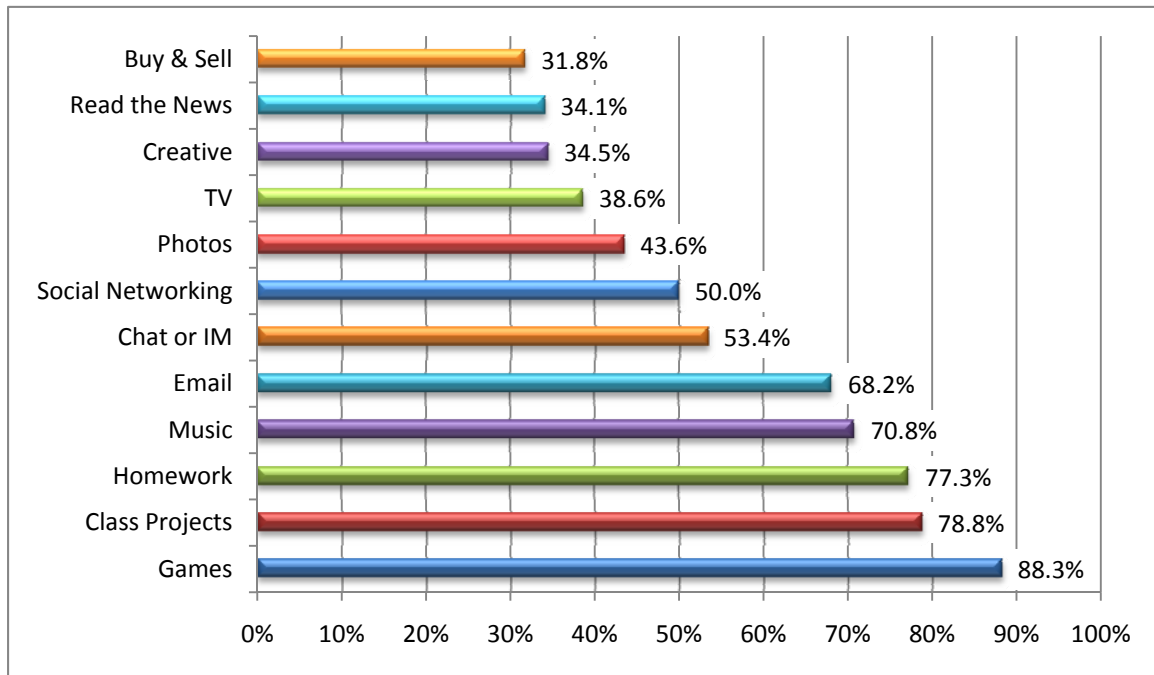
Homework and class projects were selected by 77 and 79 percent of respondents respectively while 71 and 68 percent of respondents indicated they shared music and conducted email correspondence. Half of the respondents included social networking sites in their online activities. Contrarily, more than 30 percent of respondents indicated using the internet for each of the following activities: reading the news, buying and selling and doing creative activities (such as building web pages or manipulating digital photos).

Given the high response rate to online class projects, we asked respondents to rank their experience with online collaborative activities on a Likert-type scale, from "terrible" to "wonderful." Their best experience was with sharing information, for which 63 percent of respondents indicated having good to wonderful experience (Figure 7). Their worst experience was with connecting with their collaborators. Despite this, their average ranking of good-to-wonderful experience ranged from 62 percent to 84 percent in all cases. This positive experience is confirmed with 81 percent of respondents saying they will work with others people online again in the future while 86 percent of those who have never collaborated online said they are willing to do so.

Figure 7: Subjective Ranking of Experience with Online Collaboration
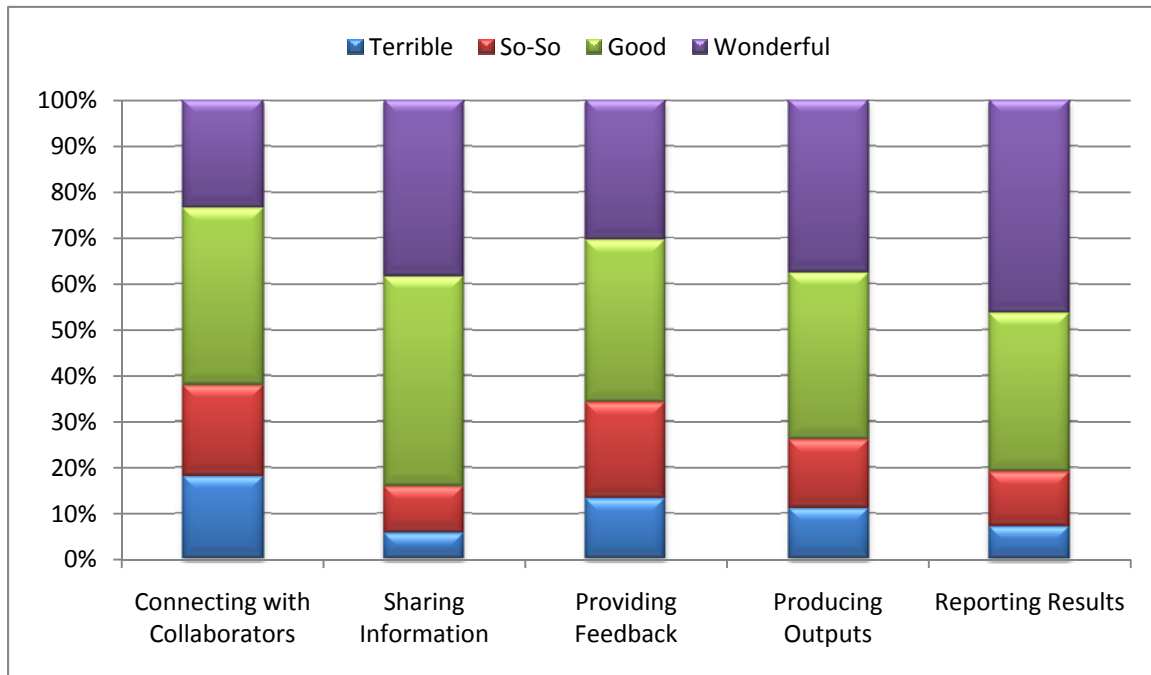
The reasons of the 19 percent of respondents indicating no interest in future internet collaboration were:

- Work better in person   27%
- Internet is slow   20%
- Inconvenient   19%
- Friend's internet is slow   13%
- Friends don't have internet   6%
- Friends don't have computers   6%
- No internet access   5%
- No computer at home   5%

When it comes to online communication (email, IM, chat), the following shows the distribution of our respondents by the people they communicate with:

- Friends/Relatives   44%
- People who live in Kansas   23%
- Live outside KS but in US   14%
- Live outside the US   6%
- People they have never met before   5%

- Don't know where they live   5%

We wanted to know how the young people envisioned the importance of the internet in their lives as they grew up. Only 4 percent of respondents indicated that the internet will become slightly to a lot less important to them in the future compared to 81 percent that said it will be important to very important. Thirteen percent of the respondents did not see any change in the importance of the internet in the future.

Thus, the majority of the young people responding to the survey expect internet technology to become more important in their lives. How do we prepare them to take advantage of this and other emerging information and communication technologies?

Summary, Conclusion and Next Steps

The research sought to find out about awareness of, access to and use of information and communication technologies among Kansas youth. The analysis was based on 266 useful completed questionnaires from young people aged between nine and 19 residing in at least 30 Kansas counties. The results show that Kansas youth are very aware of available information and communication technologies and use most of them intensely. For example, more than 56 percent of the respondents use cell phones for more than one hour every day while 54 percent of them use the internet for at least one hour per day. Cell phone use exceeds computer use among our survey respondents. Only a small proportion (12.6 percent) of respondents use dial-up for their internet access while the majority has high speed access.

While young people use their ICTs mostly to play games, they are also using them to do homework and collaborate on class projects. Their experience with online collaboration for class projects was highly positive. For those who had negative experience and indicated not collaborating online again in the future, their concerns were mainly about access. To this end, it is important for all communities in Kansas to treat access to and affordability of online technologies as necessary infrastructure in much the same way as water, heating, roads and security are. If this becomes a major policy initiative, then it will become much easier to secure the technology dividend for future generations of Kansans by developing programs that support their purposeful by young people across the state.

Despite the recognition of the importance of ICT resources for education and knowledge development, only 15 percent of guardians indicated being comfortable with their wards participating in online communities (USC Annenberg School Center for the Digital Future, 2008). This concern will remain a challenge to any effort to increase young people's use of ICT tools for collaboration and learning. It means that development of any programs to help young people increase their purposeful use of technology should be in tandem with addressing parents' security and risk minimization concerns. Instead of these risks and concerns preventing these efforts from being pursued, they should engender an urgency to discover and develop comprehensive and effective solutions that protect young people from potential abuse and other risks while offering them exciting experiences in learning through collaboration intermediated with technology.

A business model that combines the social networking environment of MySpace (www.myspace.com) and Facebook (www.facebook.com) with purposeful project-driven, outcome-oriented focus of the gaming sites could enhance the development of civic, social, political and leadership qualities of young people. We see an opportunity to leverage the tools currently available in these environments and combining with the content-guided training and guidance of organizations such as 4-H, Boys and Girls Clubs, Junior Achievement, and Scouts to create new social and educational development opportunities for young people.

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