Case Study: Can Interpersonal-Cultural Communication Sustain Another Innovation?

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Abstract

This research seeks to understand the digital native culture and how the natives interact with "Smart" technologies. The research questions youths' understanding, usage, and meanings associated with mobile-technologies and applications using a mixed-methodology. The survey provided insight as to how students in a university setting understand Digital Natives utilization of innovative technology, such as mobile-technologies like Smartphones that are widely accessible and prolific, to breach communication barriers.

Keywords: digital natives, mobile technology, Smartphone, applications, communication, digital culture

1. INTRODUCTION

It is common to see youth using mobile phone in conversation with one another including when they are in the same room (Turkle, 2011). In today's ultra-fast culture, Smartphone innovations and application technologies have changed the manner and medium in which we communicate. Face to face interactions and telephone calls in the United States have gone the way side of 50's sock hops and 80's middle school dances.

Purpose Statement
This paper explores how today's (2015) digital native culture utilizes innovations and technologies to communicate. Specifically, the research focus is on gaining knowledge about the functionality of the mobile "Smart" devices in the culture. Additionally, the paper discusses how participants have changed, breached, or circumnavigated communication and cultural communication barriers through technology innovations or software applications. Finally, this paper concludes with recommended methods for future study to fill gaps in the literature.

Methodology
An online survey of 40 higher education students at California University of Pennsylvania was conducted in April 2015. Participants averaged 11 minutes to take the survey from QuestionPro, an online administered document. Only fully completed surveys were utilized in the findings

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and overall data collection process. Over 100 participants started the survey, but dropped out, which indicates survey fatigue. Because of this large dropout rate, only completed surveys were utilized to understand and give meaning to the captured data. The survey was open for a total of 14 days.

Participants were invited to give qualitative data for each survey question after providing a Likert Scale modeling quantitative response (All the Time, Sometimes, Don't know, Moderate in use, Not at all; or Yes, No, Don't know; Very effective, Moderately effective, Don't know, Little effective, not at all). Additionally, all of the participants acknowledged using technology to communicate culturally and globally.

Literature Review

Technological innovations which involved the mobile phone began as early as the 1940's but the boon for the technology did not occur until the 1990's (Taylor & Vincent, 2005). The idea of associating cellular phones solely with mobility has been changed by young people who have transformed the definition of mobility (Breese-Vitelli, Kim, & Jenkins, 2014; Breese-Vitelli & Borkovich, 2013).

Turkle, (2011) sounded the alarm about cultural decay in communications. Turkle's reflection may end up being a culture conditioning, and not so much a sinister destroyer of communication. Culture, as Spradley (1980) calls it, is acquired knowledge people use to interpret and generate behavior. Geertz (1973) defined culture is a system of meanings embodied in symbols providing people with a frame of reference to understand reality and behavior. Culture fills the gap between biological givens and those things we need to function in a complex, interdependent and changing world. The earlier cultural definitions support Turkle in the area of the Smartphone addiction and conversation decay changing communication in society.

Spangler (2015) found digital natives living in a world of silence. This finding was similar to Turkle's (2011) views expressed as distant online friendships and often anonymous relationships. The ethnographic observation–which followed Spradley's (1980) 12-steps of ethnographic observation and frames the analysis through Goffman's (1986) theatrical stage descriptions–of some 400 students in five higher education classrooms and two social domains concluded that digital native students, coined "Snapchatters," by a parlance of literature are accelerated technology and Smartphone application users. Spangler's (2015) ethnography verified the findings through an in-member checking system of voluntary focus group members that explained their need for instantaneous gratifications was measured in nano seconds and no longer minutes. The youth utilized mobile applications particularly to establish a social network and methodology to self-medicate depression issues.

Spangler's (2015) research stated the youth purposefully utilize applications like SnapChat to post "selfies" about their emotional well-being. This finding contrasted Boyd's (2014) research that found middle school aged digital natives were using technology to create circles of socially segregated communities of practice and meanings. Boyd's (2014) bleak projection of the culture agreed with Turkle (2011) and Spangler's (2015) assessments about the growth of additional interpersonal communication barriers. Previous literature stressed cultural communication and global communication growth from digital native technology utilizations. Most profoundly, Tapscott (2009) and Prensky (2012) both promoted social change and cultural enrichment from the technology investments in the culture.

Interestingly, Spangler (2015) agreed with Rodi, Spangler, Delorenzo and Kohun's (2014) assessment on the culture. Rodi et al. (2014) discussed how digital natives are lacking abilities and understandings about how to actually use the technology and innovations they own correctly. In both Rodi (et al.) and Spangler's (2015) ethnography, digital natives abandonedresearch tools, keywords, and library science tools to simple Google streaming sentences and paragraphs in hopes of finding scholarly or worthy information. The research also pointed out Bauerlein's (2009) ethnographic observation that the youth are naïve in nature and lacking rudimentary computer and technology skill sets. In later works, Bauerlein (2011) discusses the technology gap and its possibility of still controlling computer literacy and ignorance in the culture. This research contrasts the original findings by Tapscott and later Prensky who believed the natives were sophisticated in technological utilities and utilization. Although, Spangler (2014) and Boyd's (2014) research both question the merits of this gap in their furthering research statements, as technology today is inexpensive

and openly disseminated in low-income areas through government programs and outreach.

Many scholars in the literature questioned how the digital natives used technology over the past 20 years. Some pointed out extravagant social media forums and global connectivity that foreshadowed socio-economic changes for the culture and the stoppage of repression in child labor, rape, gender and race equality (Cortesi, Haduong, Gasser, & Beaton, 2013; Gautschi & Manafy, 2011; Hull, 2011; Palfrey & Gasser, 2010; Thomas & Brown, 2011). Ohler (2010) discussed "digital citizenship" as the engagement of youth in the technological dissemination of information regularly and effectively. This meaningful break in the literature exposed hopefulness in the culture that was witnessed later in the efforts in Egypt, Turkey and Iraq whereby digital natives utilized social media and applications to launch insurrections against oppressive governmental leadership reigns.

Mobile Technology Literature

The Pew Research Center report on Internet Science and Technology found as teens in the United States embrace smartphones, they have a variety of methods for communication and sharing. Texting is a chiefly important mode of communication among them. The study found that 88% of teens either own or have access to cellular or smartphones and 90% of those teens exchange texts. A typical teen sends and receives 30 texts per day. Teens are not simply sending messages through the texting system, as 73% have access to smartphones and messaging apps like Kik or WhatsApp (Lenhart, 2015). The Pew study further found teens from more affluent households are somewhat more likely than those from the least affluent homes to say they visit Snapchat most often while lower income students preferred Facebook (Lenhart, 2015). Shirky (2008) stated that it is not enough to have the tools, but tools are simply channeling motivation and people are motivated by incentives. The incentives provided by mobile usage are social tools matching our social capabilities and making it easier assemble groups requiring formal management (Shirky, 2008). Chipchase and Steinhardt (2013) further point out that when laggards are being coerced into mobile phone adoption the social norm indicates that the technology is not only standard, but expected.

Findings

Our research evidenced that Digital Natives have shifted significantly from computer based desktops and laptops to mobile devices in the last year. Smartphones lead the technology race to information and communication in the culture. The Smartphone was demonstrated to be the primary utility in the culture at 68%. Participants stated they primarily utilize the technology to communicate through texts to their peers, and interestingly, also to parents or authority figures.

Laptops or desktop computers demonstrated a consumption rate of 23%. Participants stated their primary focus in using the innovations was for production based needs (personal productivity software) and emails. Participants stated the ease of communicating through emails is still greater with computers over mobile technology because of application constraints. Although, participants additionally detailed facts stating newer large sized Smartphones (Androids) and iPhones now have adapted and circumnavigated some functionality issues. Participants also stated a mainstay in utilizing the equipment was to engage in social media and instant message peers. Facebook was noted as a primary tool of engagement. A small amount of participants noted making comments through mobile devices to applications like Snapchat and photography based collaborative software. Figure 1 provides a percentage breakdown of digital natives' technology use and media types. Nearly half of the participants stated they utilize technologies like Smartphones to communicate to friends or people around the world. Emails and instant messaging services were found to be the highest methods of communicating with international friends. Some participants (17%) stated they use technology and innovations to ask questions during gaming and other events. Past literature such as Turkle (1997) expressed a deeper concentration of connectivity in the gaming realm; however, this research saw a decrease in popularity among participants. Figure 2 provides a percentage breakdown of digital natives' technology communications utilization.

The majority of the participants (62%) stated they utilize their mobile devices such as Smartphones to access information. Participants stated they use the Smartphone applications and search devices to find answers during interpersonal debates. One participant remarked, "The Smartphone has resolved many

arguments and saved me several times." Another participant clarified his or her allocation utilization times on mobile devices stating:

Whenever I am not at a computer and need to look up information, I will look up any information I can find on my smartphone. If I cannot find the information on my smartphone, I will make a note to search on a computer later if needed. Most of the time however, I find the information on my smartphone when I search for it.

Although some participants did state they primarily use the mobile devices for "emergencies only" and only when a computer was not "available." Additionally, some respondents (7%) stated they use mobile technologies to answer questions and search for answers to other's questions in social situations. Figure 3 provides a percentage breakdown of digital natives' technology utilization.

Social media played an important part of mobile device utilization in the digital native culture. Fifty-seven percent of respondents said they use their mobile devices to surf social media sites and post on social media sites such as Twitter and Facebook. Figure 4 provides a percentage breakdown of digital natives' technology use of social media. The participants added qualitative statements that demonstrated a declining interest in social media applications in the culture. Participants stated, "I rarely get onto social media sites," to "I recently purchased a new phone," and "I'm not putting any social media apps on it." Another stated, "don't use social media that often. Maybe once every couple of weeks, but it is usually done on my phone." While another participant said, "Avoid social media, it is for the most part a huge waste of time."

Sixty-seven percent of the participants stated that they have and use banking applications on their mobile phones. This fact guides the researchers to believe digital natives are trusting of the media and consider it cyber safe. Most of the qualitative data declared the application use for quick measures or last minute payments on purchases and billing options. One participant explained, "I have an app for my car loan that if I realize I am late I can make a payment immediately. Doesn't happen very often but I almost hit my due date once (a day or three before) and thought I should take care of this now before I forget." Figure 5 provides a percentage breakdown of digital natives' technology use for banking and other business.

Digital natives sophisticated and mature aptitude for mobile technology is in the decline. This declining nature may have direct correlation to the user-friendly easiness of technologies' Smartphone applications and decline in computer science background needs to operate innovations. Recent literature (Spangler, 2015; Rodi, et al., 2014) – observed a decline in knowledge. Specifically, Spangler's (2015) observations witnessed digital natives constructing communications in classrooms through mobile devices. Particularly participants stated in focus groups that they had used the devices to gain information, data and answers to academic situations. This research question was based on the findings and demonstrated a 73% participant conformation of the data. Participants elaborated in qualitative discussion stating,

"I never use a Smartphone or mobile device to answer a question on a test, but after completing the test and handing it in, I will look up the answers afterwards to see if I got it correct."

This sentiment was echoed throughout the qualitative analysis. Others stated they used the mobile devices, but never directly during tests, only prior and right after exams in fear of getting caught cheating. Other participants explained that they did use the mobile devices and applications during tests "Only when external resources allowed." Figure 6 provides a percentage breakdown of digital natives' technology use for cheating.

2. FURTHERING RESEARCH & CONCLUSION

The participant level and geography of this survey limit the generalizability of this data. Therefore, furthering the research through a cross-examination of the survey in more diversely populated areas is planned.

This research demonstrates differences from past literature addressing new directions and gaps in the current literature. Mobile technology and Smartphones are still relatively new in innovation. The technology, however, is opening doors in the digital native culture to learning and communicating. It is also bridging the technology gap because of its cheap and affordable functionality. Anderson's (2015) Pew Research determined there is a rise in mobile technology use across the race and gender gaps.

Specifically, Anderson's research pointed out that the Smartphone's low-cost and affordability is a main reflection or cause for the shift to the medias. Anderson (2015) states:

> Although whites, blacks and Hispanics have similar rates of smartphone ownership, minorities tend to rely more heavily on their phone for internet access, according to Pew Research recent report on cell phone adoption. Some 13% of Hispanics and 12% of blacks are smartphone-dependent, meaning they don't have a broadband connection at home and have few options for going online other than their cellphone. In comparison, only 4% of white smartphone owners rely heavily on their cell-phone for online access. Blacks and Hispanics reach for their phones more often than whites when it comes to looking up information about health conditions, jobs or educational content.

This innovation questions how the culture communicates, and if interpersonal communication is actually in a downward spiral. Past literature blamed cultural decay on innovations such as the printing press, books, the personal computer and the Internet. Researchers should invest time to understand exactly how mobile technologies or Smartphones are decaying interpersonal communication; or, are they simply changing cultural societal norms?

This study supports and complements prior research (Borkovich & Breese-Vitelli, 2014; Boyd, 2014) that suggests a change in the culture where mobile functionality has surpassed the traditional laptop and desktop computers. Furthermore, the culture will negotiate for sustaining innovations that are independent from hard-wired facilities. This idea or complex sustaining nature seems to be a method for chief information officers, employers and universities to adjust their strategic plans or investments. Workforces or student bodies in the future will depend less on large platform hardware and have a deep functionality in cheaper or less expensive mobile technologies. As technology continues to decrease in size and increase in functionality (i.e. tablets, eyeglasses, watches, biotechnologies, etc.), organizations and universities should consider making changes or investments towards smaller more operable technologies in their strategic information technology plans. According to Shirky (2008), "newly capable groups are assembling, and they are working without the managerial imperative and outside the previous structures that bounded effectiveness (p.24)." Further cultural studies will continually advance our understanding of why and how Digital Natives prefer virtual relationships to traditional kinship relationships through the use of mobile technology devices.

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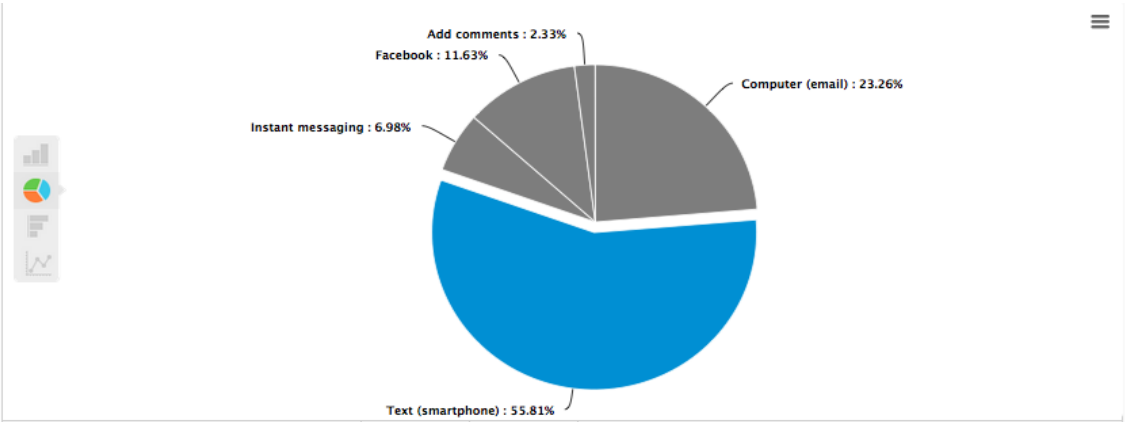
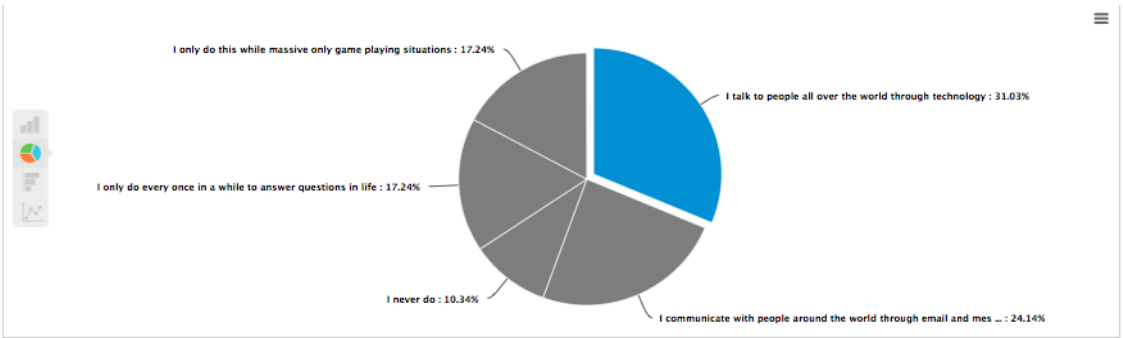
Appendix



Answer	Count	Percent	20%	40%	60%	80%	100%
1. Computer (email)	10	23.26%					
2. Text (smartphone)	24	55.81%					
3. Instant messaging	3	6.98%					
4. Facebook	5	11.63%					
5. Add comments	1	2.33%					
Total	43	100%					

Mean: 2.140 | Confidence Interval @ 95%: [1.844 – 2.435] | Standard Deviation: 0.990 | Standard Error: 0.151

Figure 1. Analysis of digital natives technology use and usage performance.



Answer	Count	Percent	20%	40%	60%	80%	100%
1. I talk to people all over the world through technology	9	31.03%					
2. I communicate with people around the world through email and messaging	7	24.14%					
3. I never do	3	10.34%					
4. I only do every once in a while to answer questions in life	5	17.24%					
5. I only do this while massive only game playing situations	5	17.24%					
6. Add Comments about how and to whom you communicate with out of your comfort zone.	0	0.00%					
Total	29	100%					

Mean: 2.655 | Confidence Interval @ 95%: [2.103 – 3.208] | Standard Deviation: 1.518 | Standard Error: 0.282

Figure 2. Analysis of digital natives technology communications utilization.

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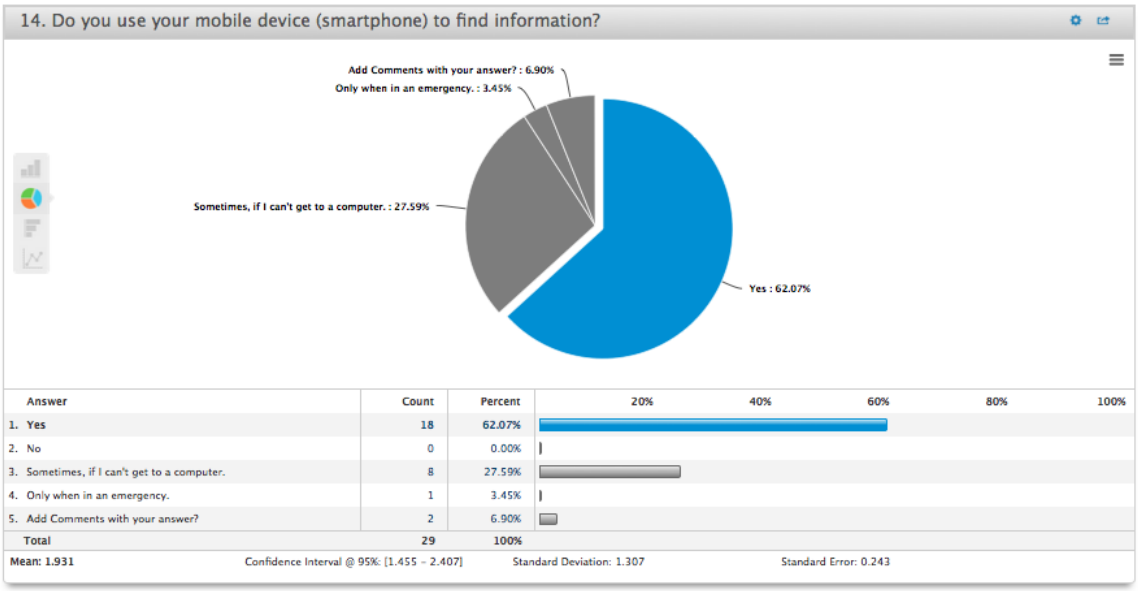
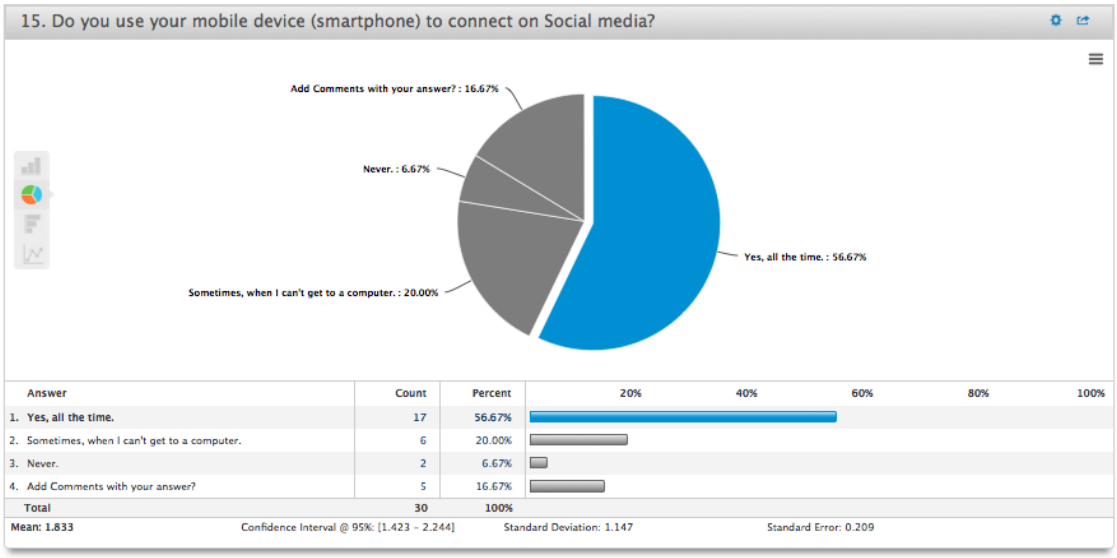


Answer	Count	Percent
1. Yes	18	62.07%
2. No	0	0.00%
3. Sometimes, if I can't get to a computer.	8	27.59%
4. Only when in an emergency.	1	3.45%
5. Add Comments with your answer?	2	6.90%
Total	29	100%

Mean: 1.931 Confidence Interval @ 95%: [1.455 - 2.407] Standard Deviation: 1.307 Standard Error: 0.243

Figure 3. Analysis of digital natives mobile technology utilization.



Answer	Count	Percent
1. Yes, all the time.	17	56.67%
2. Sometimes, when I can't get to a computer.	6	20.00%
3. Never.	2	6.67%
4. Add Comments with your answer?	5	16.67%
Total	30	100%

Mean: 1.833 Confidence Interval @ 95%: [1.423 - 2.244] Standard Deviation: 1.147 Standard Error: 0.209

Figure 4. Analysis of digital natives mobile technology and social media.

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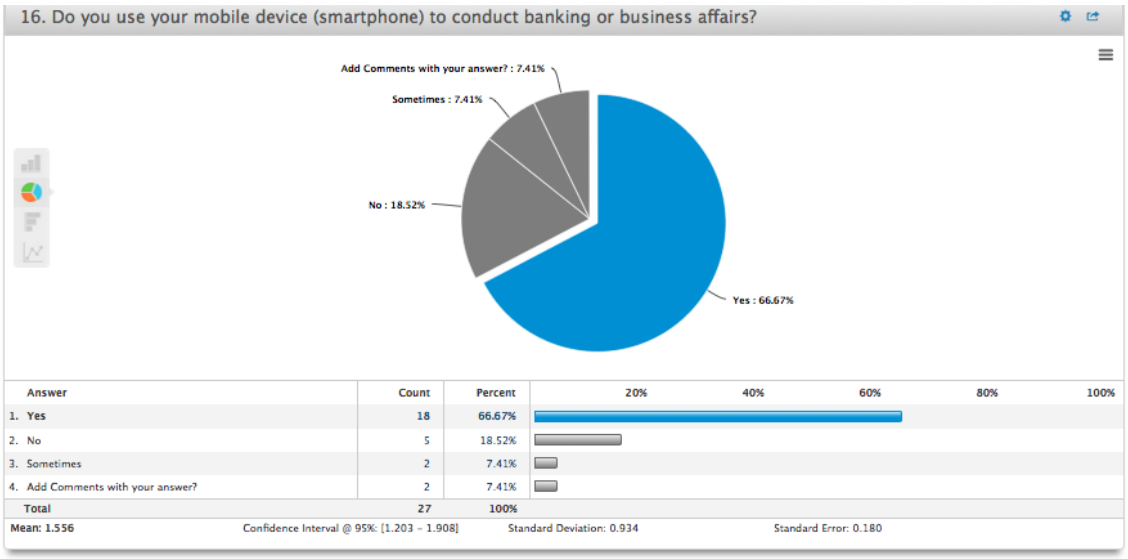

Figure 5. Analysis of digital natives mobile technology applications and banking.

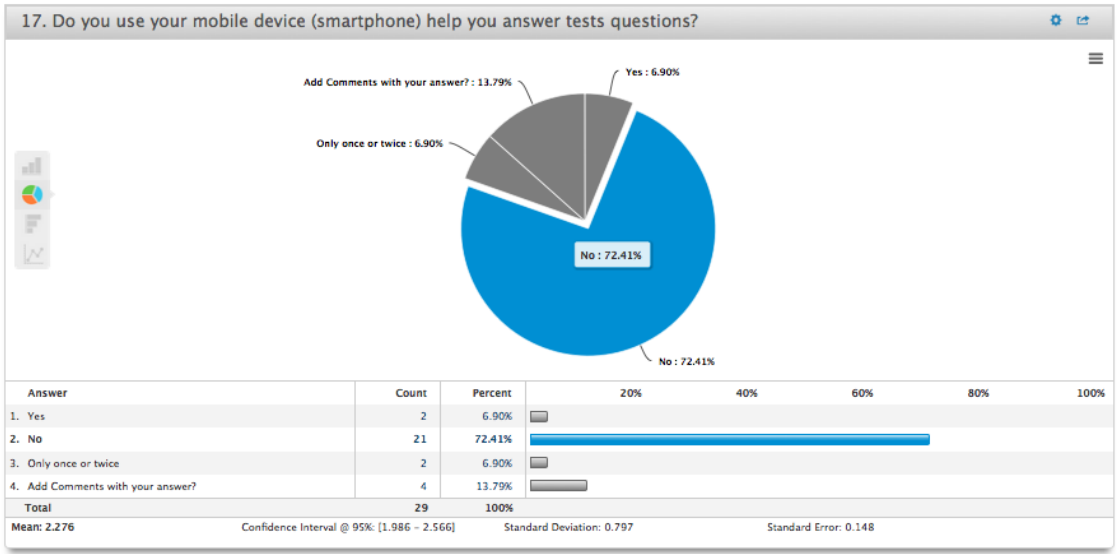

Figure 6. Analysis of digital natives mobile technology applications cheating.

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