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Globalization and the Transition to Adulthood in a Maya Community in Mexico: Communication Technologies, Social Networks, and Views on Gender

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Abstract

The present article examines continuity and change in views on gender in a Maya community before and after a communication tower was installed in 2010. Interview data were collected in 2009 when participants were adolescents (n = 80) and then again in 2015 when they were young adults (n = 68). Values and beliefs for gender were measured using vignettes that were created through previous fieldwork (Manago, 2014). Young adults were also asked about their use of mobile phones and social media, and completed a social network mapping activity (Antonucci, 1986). Results showed continuities across time in self-expression values for gender roles and relations, which was predicted by high school attendance during adolescence. Young adult men and those who had been to high school were more likely to use the internet and Facebook. Internet use did not predict values beyond the effects of schooling; however, it predicted greater proportions of nonkin in participants' social network maps, which predicted greater self-expression values for gender relations. Qualitative analyses of participants' emic perspectives of the affordances of communication technologies illustrate how education and cultural values shape perceptions of the opportunities and risks of media use. © 2019 Wiley Periodicals, Inc.

In this article, we refer to Information Communication Technologies (ICTs) as any kind of commercial product involved in the electronic transmission of information and we conceptualize them as cultural tools in the Vygotskian sense that human cognition is mediated by cultural artifacts transmitted across generations and now, across the world through processes of globalization. Vygotsky (1978) theorized that children come to regulate their mental activities in culturally particular ways through the use of material and symbolic tools such as language or counting systems. Tools come with affordances, possibilities for action, that support and extend human behavior and thinking (Gibson, 1979; Hutchby, 2001). Mobile devices, the internet, and Facebook are all cultural tools borne from Western civilization, and as they spread around the world, they carry new affordances for social life and psychological development.

Here we examine ICT usage among young adults in a Maya community called Zinacantán and explore potential consequences for their worldviews, particularly with regard to gender. The overarching question we ask is whether there is evidence that ICTs disrupt investment in patriarchal values and beliefs for gender by extending young people's capacities to form and maintain relationships outside the family. We begin by situating this issue within a historical context of gender and patriarchal formations in Zinacantán. Then, after summarizing previous research on education and gender views in this community, we describe current research on the development of gender views across the transition to adulthood, and the significance of a new communication tower, introduced in 2010.

Gender in Zinacantán, a Maya Community in Chiapas, Mexico

Zinacantán is a Tzotzil speaking Maya municipality in the highlands of southern Mexico. In the 1950s and 1960s, it was a subsistence agriculture community having very little contact with Mexican society (Vogt, 1969). Adolescents' social lives at that time were organized around patrilineal and patrilocal domestic groups living in extended households that shared land for growing corn. Identities were defined in relation to permanent family ties that were ascribed with rights and obligations; elaborate kinship systems were organized in gender and age hierarchies that were acknowledged consistently in daily practices and rituals. By adolescence, girls and boys occupied separate spheres; men cultivated the land and women made tortillas and weaved clothes for the family. Marriage was arranged through alliances between families and involved elaborate year-long rituals that included service to the bride's family. If we define classic patriarchy as a precapitalist social formation that privileges men and seniors through patrilineal and patrilocal customs and discrete, interdependent gender roles in the family (Kandiyoti, 1988), then Zinacantán was at this time a classic patriarchal socialization environment.

Starting in the 1970s and especially in the 1980s, Zinacantán became more outwardly connected to broader Mexican society and a global market economy (Cancian, 1994). By the time the first author, Manago, arrived in 2007, the center of the municipality known in Tzotzil as “Jteklum” had become a densely populated spiritual, commercial, and government center with a new Mexican high school established just a few years prior. Manago was introduced to this fieldwork as a student of Patricia Greenfield, who began her research on cultural change and child development in Zinacantán in 1969 (e.g., Greenfield, Maynard, & Childs, 2003). By 2007, many Zinacantec women were transforming traditional weavings for the family into commercial products to sell to tourists while men engaged in wage work and commercial-agricultural activities (primarily selling flowers and vegetables). Commercialization created new opportunities to acquire wealth outside traditional kinship structures and elopements increased (Flood, 1994), meaning that young people bypassed patriarchal customs such as formal requests for elder approval.

Change in Zinacantán exemplifies some of the trends Inglehart and Norris (2003) identified when studying worldwide transitions from subsistence agriculture to participation in a global market economy. Drawing from longitudinal survey data collected across almost seventy countries, Inglehart and Norris argue that with industrialization and post-industrialization, women begin to gain access to education and higher status economic and political roles, and values for tradition and security give way to growing secular-rational and self-expression values. Inglehart and Norris contend that value shifts and new economic roles contribute to growing beliefs that women and men are equal and should have access to the same opportunities. Yet, these ideological transitions are not smooth or linear. Scholars in indigenous Chiapas have documented how urbanization and integration into a Mexican market economy have disrupted gender roles in complex ways, creating new possibilities for women but also new tensions, and new forms of abuse, due to the tenacity of patriarchal beliefs and values clashing with new inequalities introduced through globalization and capitalism (Eber, 1999; Rosenbaum, 1993). Research on female education in the Global South also demonstrates that gender inequities persist in educational institutions, limiting its transformational capacities (Chisamya, DeJaeghere, Kendall, & Khan, 2012). Nevertheless, formal schooling environments in Zinacantán depart from previous patriarchal customs of separate gender spheres, and may therefore initiate adolescents’ social constructions of alternative values and beliefs for gender.

Gender and Education in Zinacantán

To understand the significance of high school on values and beliefs for gender in Zinacantán, Manago first volunteered at the school teaching English and participating in school activities such as the *Fiestas Patrias* parade.

From her ethnographic experiences living in the community, she crafted eight vignettes, short stories about a conflict that were used to measure values. In each vignette, one character prioritizes self-expression while another prioritizes traditional family obligations. Interview participants are asked who they agree with (values) and why (beliefs). After piloting and consulting with local informants, the vignettes were used in structured interviews with eighty adolescents split by gender ($M = 17$ years), eighteen mothers, and eighteen grandmothers (Manago, 2014). The grandmothers, mothers, and half the adolescents had elementary education or less (which was still common at the time, especially for women). Compared to non-high school adolescents, mothers, and grandmothers, adolescents in high school were more likely to prioritize self-expression in response to the vignettes overall. Older women and non-high school adolescents tended to focus on the importance of adhering to traditions and reasoned about the vignettes in terms of danger and loss of elder wisdom and protection. In contrast, high school adolescents often emphasized individuals following their own internal desires in their careers, family roles, and relationships, and often reasoned that individuals deserve the right to make their own decisions.

High school adolescents may have responded differently to the vignettes because of their social experiences in mixed-sex public school during a sensitive period of identity development (Manago, 2014). Adolescents negotiating peer relationships at school may have nurtured values for self-expression and individuality compared to adolescents who were following more traditionally ascribed family roles into adulthood. In addition, Manago observed that Western pedagogy in the Mexican high school in Zinacantán explicitly and implicitly promoted values for self-expression in the daily curriculum and classroom activities, which adolescents could have learned and applied to the vignettes. High school provided young women in particular with an avenue for using their voices and participating in public institutions through which they could access alternative possibilities for self-definition outside domestic spheres.

There were no gender differences in value priorities; however, in a more detailed analysis of two vignettes that focused on gender roles and mixed-sex relations, Manago (2015) found that beliefs about benefits and risks of various aspects of gender egalitarianism did differ by gender. Girls more often described benefits of self-expression in gender roles, but risks in terms of mixed sex relations. Boys were the opposite. Thus, increasing values for self-expression do not necessarily translate evenly into beliefs about gender across circumstances. Gender ideologies are a function of both exposure and interests; people will be drawn to gender egalitarianism if they perceive it as conducive to their goals (Bolzendahl & Myers, 2004). Women and men may continue to develop their views on gender during the transition to adult roles and responsibilities, depending on factors that shape their exposure and interests in gender egalitarianism.

Continuity and Change in Gender Views in Transition to Adulthood

In the transition from adolescence to adulthood, views on gender undergo both change and continuity, depending on interests and life experiences, personality, and whether there are opportunities to explore alternative possibilities for balancing career and family roles. In the United States, data from the National Longitudinal Survey of Youth indicate that, although adolescents' views on gender are associated with characteristics of their family of origin, by the early twenties, experiences during young adulthood become more influential (Davis, 2007). Repeated surveys collected across the 1990s and early 2000s from ages 14 to 25 showed that gender ideology, defined as endorsement of a gender division of labor in paid work and family responsibilities, increased over transition to adulthood among those marrying younger (by age 21) but decreased among those pursuing advanced education. Gender ideology was higher among male versus female adolescents but this gap decreased into the early twenties, with men becoming more egalitarian over time.

To examine change and continuity in views on gender from adolescence to early adulthood in Zinacantán, Manago returned to the community in 2015. She interviewed thirty-seven women and thirty-one men who were among the eighty adolescents in the original 2009 sample and re-administered two of the vignettes, one focusing on adult gender roles in the family, the other focusing on mixed-sex relations among adolescents. In 2015, the sample was on average 23 years old and participants who could not be located were most likely to be men who did not attend high school. In addition, four men and two women in the 2009 non-high school group later attended at least one year of high school and were reclassified into the high school group. A slight majority of the sample were unmarried (57%) and this did not differ significantly by gender nor high school attendance. The two authors coded participants' value responses to the vignettes in Spanish using a 1–3 scale (1 = endorsement of traditional family obligation, 2 = mix endorsement, 3 = endorsement of self-expression; $\alpha = .94$) that had been used with the original 2009 sample. Disagreements were discussed until consensus was established.

Neither gender nor marital status was associated with value responses in 2015. However, compared to young adults with no high school education, young adults who had been to high school continued to prioritize self-expression in response to the gender role vignette ($M_{HS} = 2.30 (.80)$ vs $M_{NoHS} = 1.48 (.71)$, $t(66) = 4.24$, $p = .001$) and mixed-sex relations vignette ($M_{HS} = 2.49 (.67)$ vs $M_{NoHS} = 1.84 (.94)$, $t(38.18) = 3.02$, $p = .004$). Participants' value responses in 2009 and 2015 were significantly correlated for the gender role vignette ($r = .25$, $p = .040$) and the mixed-sex relations vignette ($r = .33$, $p = .007$) suggesting continuity in values endorsed in adolescence.

To examine factors associated with change or continuity across the two time points, we computed change scores (2015–2009). Change scores for the gender role and mixed-sex relations vignettes did not differ by gender, marital status, nor high school attendance. However, educational attainment (from 1 = elementary only to 6 = enrolled in university) was correlated with men's change scores for the mixed-sex relations vignette only, in the direction of increasing values for self-expression, ($r = .40, p = .026$). A change in views on mixed-sex relations is illustrated by the following two quotes from a young man who discontinued his education in 2009 but then returned and graduated from high school.

“Miguel” in 2009: ... in the old days, the elders returned directly to their houses if they went to visit someone... Things are worse now because the girls don't choose well. For example, they sometimes talk to someone they don't know very well, there have been times when they only talk for a month, and then they look for another. This is bad.

“Miguel” in 2015: In years past, they thought bad things about a couple that went off together in the dark, but today, no, well in fact, it does still look bad, but less so, the customs have changed. It is not considered bad for a young boy and young girl to be having a conversation. People see it as normal, they see it in a positive way because they aren't doing anything bad.

We also noted an interaction between gender and high school attendance in change scores for the gender role vignette. Regardless of high school attendance, about half of men remained consistent with their adolescent responses, a third moved toward self-expression, and a fifth moved toward traditional family obligation. For women, the majority of those who did not attend high school remained consistent with their adolescent responses (69%) whereas only a third of young adult women who attended high school remained consistent. About a third of women who had attended high school moved toward family obligation and another third moved toward self-expression.

U.S. psychologists have described how, given societal changes related to the gender division of labor, women have been more likely to engage in a more complex back and forth of questioning, compromise, and accommodation in their gender identity development during the transition to adulthood (Archer, 1985; Stewart & Healy, 1989). Indeed, some women who attended high school in Zinacantán grew more conservative or realistic in their beliefs and attitudes related to gender roles. One female participant's responses to the gender role vignette across the two time points provides an illustration. In the gender role vignette, a couple is arguing because the wife wants to take an offer to work for relatives in the nearby city; her husband objects because working means she will not be present in the mornings to fulfill her traditional duties of making fresh tortillas.

“Juana” in 2009: *Maria is right, he (her husband) should let her go to work, you can’t force her to make the tortillas, nowadays you can buy them. I think men are bad when they prohibit us, treat us like prisoners or slaves who must do what the man wants. It is good if the woman leaves to look for money to help, the man should respect that, I feel he is the bad one, she wants to help her husband.*

“Juana” in 2015: *Well, I am torn between both. On the one hand, Maria wants to go to work in her relatives’ house, I say this would be good because she needs to brighten her day, do other things, to me it seems very good that she wants to do other things and earn a little money for her little things that her husband doesn’t buy. I’m also in favor of what Juan says because they have children, who is going to take care of their three kids? Like Juan says, men in Zinacantán work a lot and it is the women who stay at home to raise their children so if Maria leaves who is going to educate the children? My opinion is that Juan is right to want his wife to stay at home, to watch the children, and make the tortillas.*

Discontinuities in Juana’s views show potential tensions that are created when possibilities raised in high school contradict family expectations or are unattainable given one’s resources. At another point in the interview, Juana spoke about pursuing a university education but dropping out because of a lack of money and family investment in her advanced education. She was also engaged to be married. Juana may have become more amenable to dichotomous, interdependent gender roles in the psychological process of releasing academic/career goals and accommodating to her imminent wife and mother roles.

Our data overall suggest that schooling during adolescence has lasting influences on gender views into adulthood, and that education during the transition to adulthood increases men’s values for self-expression in mixed-sex relations. High school seems to make women’s values and beliefs about gender roles more complex as they negotiate tensions between family and education/career roles in the transition into adult responsibilities. Another potential influence in the development of gender views is the new communication technologies introduced in Zinacantán over the span of this cohort’s transition to adulthood.

ICTs and Social Networks

When Manago collected the first wave of interview data with adolescents in 2009, most families in Zinacantán were using radios and televisions; however, there was no internet nor cell phone signal until a communication tower was installed in 2010. By 2015, 79% of the young adults in the sample owned a cell phone; 63% used the internet, 44% used Facebook, and 21% used Whatsapp. Participants primarily accessed the internet at internet cafes (only one male participant had wifi at home) and it was young men and those with a high school education who were especially likely to

be integrating ICTs into their social lives. That is, a greater percentage of men compared to women owned a mobile device (94% vs 68%) and used Facebook (58% vs 32%). Those who had been to high school compared to those with only elementary education were more likely to own a mobile device (88% vs 64%), use the internet (86% vs 24%), and use Facebook (56% vs 24%).

These digital divides are not surprising given the inequalities that existed before the communication tower arrived. Young women made up only 35% of students enrolled in high school in 2009 and social class (family involvement in commerce) predicted high school attendance for boys (Manago, 2014). Young men with family resources were more likely to pursue their education, an experience that likely initiated exposure to and self-efficacy with ICTs.

ICT use could also factor into views on gender during the transition to adulthood by facilitating new kinds of relationships. Linguistic anthropologist Lourdes de León-Pasquel (2018) has vividly described how digitally connected adolescents in Zinacantán are participating in new forms of romantic self-expressions outside the protection and surveillance of elders. Based on physical and virtual field research in 2013–2015, de León-Pasquel found that youth were engaging in far more tech-mediated than face-to-face interactions with romantic partners and experimenting with new forms of sexual intimacy via textual flirtations in Spanish that are not present in traditional Tzotzil phrases (which are plain and direct in requesting partnership). According to de León-Pasquel (2018), Zinacantec adolescents are participating in a new kind of affective bonding through the technological affordances for intimate self-expression at a distance, and in the process, co-constructing new moralities for gender roles and relations.

ICTs are useful in general for building more flexible and loose relationships based on personal expression. According to Rainie and Wellman (2012), ICTs contribute to worldwide societal shifts away from tight-knit permanent communities sharing common physical space toward individuals networked within expansive webs of close and weak social ties. The strength of weak social ties is in their ability to generate “bridging” social capital, such as access to new information and alternative options and a sense of belonging in heterogeneous communities (Granovetter, 1983). ICT use in Zinacantán could increase access to wider social spheres beyond the family, thereby generating alternative possibilities, perspectives, and resources for moving into adult roles, and facilitating greater personal expression and values for individual choice.

To first examine whether young adults using ICTs in Zinacantán had greater social connections outside the family, interviews in 2015 included a social network mapping activity (Antonucci, 1986). Participants are asked to use a set of concentric circles on a piece of notebook paper to represent significant people in their lives. The word “YOU” is written in the middle and participants are asked to write in the next inner circle “the names of

all the people with whom they feel so close to that it is hard to imagine life without them;" in the second circle, they are instructed to write "the names of people with whom they may not feel quite that close but who are still very important to them;" in the third outermost circle, they write "the names of the people who are important enough in their lives that they should be included in their personal social network." After participants finish writing, they are asked about each person in the circles.

On average, participants named nineteen people in all the circles and although the total size of their networks did not differ, proportions of nonkin named in the network maps varied significantly by ICT use. Proportions of nonkin in the outer circle were higher in the network maps of cell phone users versus nonusers (47% vs 24%), internet users versus nonusers (56% vs 18%), and Facebook users versus nonusers (54% vs 33%). To see whether ICT use predicted network composition after accounting for gender and education, we ran a multivariate regression including gender, educational attainment, and all three dichotomous ICT use variables predicting proportions of nonkin in the outer circle. Internet use ($B = .36, p = .011$) and gender ($B = -.30, p = .012$) emerged as the only unique contributors to the variance in proportions of nonkin $F(5, 62) = 4.92, p = .001$.

Proportions of nonkin in participants' social network maps, in turn, contributed to variations in views on gender in young adulthood, however only on the topic of mixed-sex relations. Proportion of nonkin in the outer circle ($B = .27, p = .028$) predicted values for personal choice in the mixed-sex relations vignette, above and beyond educational attainment ($B = .26, p = .036$), $F(2, 65) = 7.18, p = .002$. Those with greater proportions of nonkin in their networks may have been more likely to have used ICTs to engage in romantic flirtations as described by de León-Pasquel (2018), and more likely to articulate beliefs and values to justify self-expression in mixed-sex relations. It may also be the case that those with more positive attitudes toward adolescents engaging in mixed-sex relations seek out contacts beyond the family; relatively more heterogeneous social networks might then expose youth to diversity of relationships and alternative perspectives that perhaps heighten the salience of self-expression in social relationships in general.

In sum, our data illustrate that ICTs can enhance self-expression values for gender but their significance is uneven depending on the particular gender issue at hand. ICTs are also contingent upon additional factors, such as opportunities to build relationships outside the family. Importantly, we found no evidence that ICT use by itself is associated with values for gender beyond the effects of high school. In a multivariate model for the mixed-sex relations vignette, neither internet use ($B = .099, p = .50$) nor Facebook use ($B = .076, p = .54$) was predictive of values once high school ($B = .29, p = .053$) was taken into account $F(3, 64) = 3.91, p = .012$. The effects of ICTs depend on how they are taken up into social life and thus are critically tied to local meanings that explain why and how people use ICTs in the first

place. In our final analysis, we turn to the ways Zinacantec young adults think about the affordances of ICTs.

Zinacantec Perspectives on Affordances of ICTs

In the last section of the interviews in 2015, Manago asked young adult participants open-ended questions about their observations of changes in social life since the communication tower was introduced in their community. The questions (e.g., “Do you think romantic relationships have worsened or improved?”) evoked positively and negatively valenced observations of ICTs, which were transcribed and qualitatively analyzed. Analyses began with both authors, Manago and Pacheco, reading the transcripts in an exploratory fashion, focusing on participants’ emic perspectives regarding ICT use and social life. Open-ended explorations of the data helped ensure that we worked toward illuminating local meanings, ideals, and concerns about ICTs in Zinacantán. As a U.S. born Mexican, it was also important for Pacheco to consider the disparity between her understanding of Mexican culture and Zinacantán indigenous culture. When analyzing interviews and discussing themes, both authors reflected on their assumptions and biases about ICTs and focused on centering participants’ perspectives.

Once the authors read the transcripts multiple times they met in regular meetings to discuss emerging themes in the interviews. In these discussions, we generated ideas about common perceptions of risks, such as concerns about deception and addiction, and common perceptions of beneficial opportunities, such as increased knowledge. We then each drafted a codebook, a list of categories to comprehensively capture the variety of possible benefits and risks articulated by participants. Categories were discussed until consensus was reached on eighteen codes, which became the first working draft of a codebook. We coded half the transcripts with this initial coding scheme (tagging each response in the interviews with either the presence or absence of the eighteen codes) and then met to discuss disagreements and low reliability in our application of the codes. Through a series of iterations of this process, applying the coding scheme and then going back to adjust the codes when they were not working, we enriched and fine-tuned the codebook. The final codebook included thirteen codes listed in Table 2.1 (six benefits and seven risks). Using this coding scheme, we established reliability on 20% of the interviews (average percent agreement = 87%) and then the second author coded the remainder of the entire corpus of data. Interviews were identified as either including or not including the code, and then total percentages were calculated to gauge how common the codes were across interviews.

The benefits and risks in Table 2.1 can be thought of as a culturally shared hopes and fears of ICTs, some more widespread than others. They can also be understood in terms of values, goals, and ideals (*family, stimulation, achievement, romance, self-expression, security*) and also as threats

Table 2.1. Themes Reflecting Benefits and Risks of ICT use in Zinacantán

Percentage (%) of Interviews	Benefits	Percentage (%) of Interviews	Risks
Family 74%	ICTs enable easy, frequent family communication, and family closeness	Distrust 82%	ICTs enable anonymity and deception—that is, romantic cheating, kidnapping
Stimulation 71%	ICTs enable access to social stimulation, exploration of curiosities, new horizons	Distract 62%	ICTs enable addictions and distractions from one's surroundings and duties
Achievement 60%	ICTs enable greater achievement in school, work	Weak Family 40%	ICTs enable attention away from the family
Romance 53%	ICTs enable easy, frequent romantic communication, and romantic intimacy	Rebellious 40%	ICTs enable antisocial behavior such as swearing, pornography, disrespecting elders
Self-Expression 46%	ICTs enable sharing of thoughts, feelings, images, and social understanding	Cheap Romance 37%	ICTs enable shallow forms of romantic connection that undermine the family
Security 40%	ICTs enable immediate contact with family in emergencies	Weapon Against Women 15%	ICTs enable attacks on women's sexuality via online public shaming, electronic harassment
		Culture Loss 13%	ICTs enable loss of traditional language, dress, rituals, music, food, etc.

imbued with moral language about right and wrong action (*distrust, distract, weak family, rebellious, cheap romance, weapon against women, culture loss*). Values (Rokeach, 1973) and risks (Douglas & Wildavsky, 1983) have long been identified as important aspects of human symbolic culture, and they may lend insights into how and why Zinacantec youth use ICTs in the first place. Values are assumptions about ideal end states and cultural drivers of human motivation, thus they are likely to influence the purpose of ICT use. Cultural constructions of risk can serve to psychically regulate use of ICTs through threat, anxiety, and fear. In addition, some of the commentary in codes such as *rebellious, culture loss, weak family, achievement* reflected participants' concerns about the next generation of youth who are growing up with ICTs in their lives. Thus, participants' perceptions of benefits and

risks of ICTs may also influence their constructions of parental ethnotheories about how to manage children's ICT use.

The most common benefit described by young adults was *family*. The majority of young adults continue to prioritize family relationships and perceived that ICTs bring families closer together through ease of communication. Participants who emphasized new opportunities for *family* and also *security* demonstrate how ICTs can be integrated into development in ways that promote traditional goals and priorities.

Of course, the introduction of secondary education in the community created value differences in this cohort, a phenomenon that was reflected in their perceptions of affordances of ICTs. Educational attainment was higher among participants who talked about *stimulation*, $t(66) = 2.51, p = .015$ and among those who talked about *self-expression*, $t(66) = 4.42, p = .0001$. The following quotes, both from young adults who had been to high school, show value constructions in terms of *stimulation* and *self-expression*, respectively.

“Mario:” *There is a phrase, I'm not sure where I heard it, but it mentions that social networks or social communication is a good tool to grow but if you use it adequately to investigate, ask questions on pages that are positive. In my perspective, it has changed because I know many websites where I can gain a lot of information to study, read, and that opens up my perspective of the world. Now I can explore and see what United States is like and Spain online.*

“Margarita:” *With my sister in law, Elena, we communicate better through cell phones but in person, I don't know why we don't understand each other well but we do understand each other through cell phone communication. Interviewer: Do you feel that you can express yourself fully? Yes completely, I think we don't show ourselves fully when we speak with someone in person and through the cell phone we are able to bring our full selves easily. It makes you more connected.*

Perceptions of opportunities for *stimulation* and *self-expression* point to synergistic influences of education and ICTs on values. Education likely scaffolds youth into using ICTs to search out new information. In addition, values for learning, questioning, investigating acquired in school likely inform perceptions of possibilities and goals of ICT use. Adolescents and young adults with greater educational attainment may be more likely to explore new horizons online, and thus more likely to encounter information, norms, and relationships outside the traditional structures of Zinacantán. Schooling also promotes greater expression of personal thoughts and ideas through writing, which likely prepared high school adolescents to see possibilities for intimate bonding through exchanges of socioemotional self-expressions.

Perceptions of risks in ICT use were also associated with schooling. Educational attainment was higher among young adults whose interviews

included the themes *weak family*, $t(48.69) = 2.62, p = .012$, *cheap romance*, $t(66) = 3.18, p = .002$, and *weapon against women*, $t(66) = 2.17, p = .033$. Given the associations between schooling, *stimulation*, and *self-expression*, those with more education may have personally experienced the ways their own ICT use distracted from family bonding, which they continued to value. Educated young adults may be more aware of the risks to family closeness and may seek to regulate ICT use accordingly. The reasons for educated young adults' greater articulation of *cheap romance* is less clear but perhaps is a reflection of greater values and concerns for romantic self-expression.

The risk that ICTs can be turned into a *weapon against women* was not common overall but it is a reminder of ways that cultural constructions of women's vulnerabilities can serve to reinforce gender hierarchies. *Weapon against women* was a code that identified commentary describing how ICTs are used to support beliefs, values, and behaviors related to heterosexual scripts (men's sexuality is voracious and intractable; women's sexuality should be confined to motherhood). For example:

"Gloriana:" *"It has its good parts and its bad parts, there are boys that download pornography, it's not good, well mostly with the youth. They have a different mentality, they criticize women, they use bad words and are learning vulgar language."*

"Maria-Elena:" *Yes, when a woman does something bad, men publicize it on their profile, for example if a woman has many boyfriends, they publicize it and harass the woman. Interviewer: Do the women publicize bad things that men do? No, I've never heard of that.*

Educated women were most likely to describe these kinds of risks perhaps because they had more experience in virtual and nonvirtual publics, where certain heterosexual scripts inform and regulate sexual expression. As patriarchal structures controlling youth sexuality (i.e., separate social spheres) decline, scripts might emerge that regulate sexuality in new ways. Educated young women participating in public institutions and virtual landscapes in Zinacantán likely encountered vivid messages about how women should behave, which clearly contrast men's freedoms. Comments such as the ones above illustrate how ICTs can introduce a new scale into the regulation of gendered sexual codes of conduct.

Conclusions

As cultural tools, ICTs are designed with certain outcomes in mind, outcomes of particular value and meaning in largely Western cultural contexts. Therefore, as ICTs spread around the world through globalization, they communicate the values with which they were designed, values for individual expression and stimulating experiences (Hansen, Postmes, Tovote, & Bos, 2014). The research described in the current article shows how ICT use

may indeed cultivate values for self-expression, but the influence of technological affordances builds on other factors present during the transition to adulthood, particularly access to formal schooling, social capital outside the family, and options for balancing adult work and family roles. Moreover, gender egalitarian worldviews are more than a function of values; they also depend on perceptions of benefits and risks of gender ideologies, as well as resources and opportunities for fulfilling those ideals in the pathway to adulthood.

Importantly, the affordances of ICTs are not universal. Values shape how youth perceive opportunities for action in ICTs and therefore how ICTs are taken into development. In fact, our data in Zinacantán showed that ICTs are most likely to be used to promote goals for family closeness and security. Hampton (2016) has also argued that ICTs afford not only *persistent contact* but also *pervasive awareness* which reinstate opportunities and constraints of preindustrial small scale communities. Our qualitative analyses also illustrated how ICTs can be used to recreate conditions of community surveillance, particularly for young women. Persistent contact and pervasive awareness are counterforces to mobility, loose ties, and freedom from social constraints that are embedded in the notion of networked individualism. Our data highlight both counterforces at work in adolescents' lives in the Global South.

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