



Technology in families and the clinical encounter: results of a cross-national survey

Gonzalo Bacigalupe,^a Maria Camara^b and
Laura E. Buffardi^b

Information communication technologies (ICT) are an integral part of contemporary family life, though the existing research about its impact is scarce, less than definitive, and individually based, as well as failing to attend to cross-cultural and cross-national dimensions. This study investigates how family clinicians construe the impact of ICT in the clinical context. A survey directed at family clinicians ($N = 258$) in four countries (Canada, Mexico, Spain and the USA) was designed to gather data on their beliefs about the impact of the emerging ICT on families and on their own clinical practice. The study found differences in the use of ICT across countries and correlation analyses showed there were more positive attitudes about the impact of emerging ICT on family dynamics among the clinicians whose use them the most.

Practitioner points

- A constructive attitude towards emerging technology may enhance the effective use of technology in family therapy.
- The use of technology for personal and professional purposes by therapists may elicit appreciative conversations with families about its impact on family processes.
- Emerging digital technologies may enable clinicians to involve family members in virtual exercises and participation.

Keywords: families and information technologies; clinicians and information technologies.

Introduction

Families are connected. Technologies that enable virtualization – e-mail, social networks, videogames, and mobile phones – are increasingly becoming the medium by which families ‘interact, develop and

^a Professor, Family Therapy Program, Department of Counseling and School Psychology, College of Education and Human Development, University of Massachusetts, Boston; Ikerbasque Research Professor, University of Deusto Bilbao e-mail: bacigalupe@gmail.com

^b Postdoctoral researcher, University of Deusto, Bilbao

adapt' (Bryant and Bryant, 2006, p. 307). If families are changing and technology is part of that change, family clinicians may be challenged by the adoption of emerging technologies. Family studies of the adoption by families of the new technologies are, however, scarce and rarely conceive of their systemic consequences (Bryant and Bryant, 2006; Jennings and Wartella 2004).

The family life cycle stage and the kind of technology used are significant variables in defining both the adoption of new technologies and its effect on families (Gora, 2009). For example, adolescents may view technology use as a way of achieving independence from their parents and connecting with the outside world, and they may experience their parents' regulation of their use of these technologies as restrictive. Moreover, Mesch (2006) found that adolescents' use of the Internet for leisure purposes contributed to intergenerational conflict with parents, but not when it was used for learning purposes. Similarly, in a mixed methods study, Lanigan *et al.* (2009) found variability in the adoption of information communication technology (ICT), depending on the families' levels of cohesion and adaptability. Families classified as disengaged, rigid or extreme (Olson, 2000) were more likely to perceive computers as hindering the interaction of family members, whereas those classified as flexible were more likely to consider computers as positive additions to the family.

Studies of family time, an important factor in family cohesion, are not conclusive. According to Nie *et al.* (2002), time spent on the Internet comes at the expense of time used for social and relationship building. But Lanigan *et al.* (2009) found that family time was restricted by the use of computers among only 11 per cent of their respondents; though their definition of technology excluded such uses as mobile phones and gaming. Much of the existing literature however has focused on examining technologies' effects, both negative and positive, on individuals (children and adults) rather than on family interaction.

A significant amount of research has focused on the negative impact of emerging technologies, with children's safety comprising the core (for a review see Biegler and boyd, 2010). Delmonico and Griffin (2008) described the significant role of the Internet in adolescents' sexual development and its implications within the family. For instance, some concerns relate to the easy access children and adolescents have to inappropriate content, such as pornography (Subrahmanyam and Šmahel, 2011; Ybarra and Mitchell, 2005) or the risks of becoming victims of sexual abuse (for a multisite study see

Palfrey *et al.*, 2010). Lenhart (2009) reported that 4 per cent of adolescents who own a mobile phone had sent sexually suggestive, nude or nearly nude images of themselves, and 15 per cent had received them, but sexting is not a normal behaviour among young people (Mitchell *et al.*, 2012). The prevalence of cyberbullying, another widespread concern, varies greatly. A meta-analytic review (Mitchell *et al.*, 2012) concluded that between 20 and 50 per cent of students aged 10 to 17 years were victims of cyberbullying.

Studies on adults addressing problematic behaviour related to the introduction of technology tend to focus on different subjects from those of children and teenagers. The twin topics of dependence upon and addiction to the Internet have been the object of study for their implications in mental health (see meta-analyses by Douglas *et al.*, 2008; Ruffini *et al.*, 2009), in terms of the existing diagnostic criteria for an Internet addiction disorder (Tao *et al.*, 2010). Moreover, scales have been developed to measure problematic online game use (Kim and Kim, 2010). Virtual infidelity has also been identified as a form of problematic behaviour resulting from the adoption of emerging technologies. The features of ICT seem to enable online romantic and sexual encounters (Hertlein and Piercy, 2006; Whitty and Quigley, 2008). The client's gender, the therapist's age, gender and religious background, as well as the therapist's personal experience with infidelity, have been found to influence the way that couples and family therapists assess and intervene in cases of such infidelity (Hertlein and Piercy, 2008). The blurring of work and family life as a result of ICT has also been the subject of analysis. Adults working from home may experience a reduction in their family interaction and they may find themselves coordinating family affairs during working hours (Chesley, 2005; Othman *et al.*, 2009).

In sum, there is a wealth of scholarly and clinical evidence underpinning alarmist and threatening public discourse on the effects of ICT and the deleterious impact of technology on families (David-Ferdon and Hertz, 2007; O'Keeffe and Clarke-Pearson, 2011; Punamäki *et al.*, 2009) and a dearth of inquiries that investigate its potential to strengthen families.

A resilience approach

A strength-based approach accentuates the power of the new communication media to support family relationships. The confluence of an ambient intelligence, an environment of advanced technology capable

of responding intelligently to human needs (Riva, 2005) a connected presence (Licoppe, 2004) and the continuous awareness of others through wireless tools, is fostering a new way for families to relate. Indeed, for many members of a family, especially the younger members, what is real has become illusory because the boundary between the real and the virtual is rapidly disintegrating. Social networks and the use of social networking tools have been found to be crucial in maintaining long-distance relationships. Among immigrant and transnational families and couples, virtual intimacy provides a tool for family members to overcome, or at least better negotiate distances of time and geography (Alonso and Oiarzabal, 2010; Bacigalupe and Lambe, 2011; Horst, 2006; Hwang, 2011; Petrič *et al.*, 2011; Wilding, 2006).

Institutions and companies are also implementing technologies as a resource for working effectively and to measure users' satisfaction. For example, working parents are employing telework and other forms of virtualization as an alternative to commuting (Chesley, 2005). Associations have been found between well-being and effective teleworking, which provides greater flexibility for choosing when, where and how a person works (Kossek *et al.*, 2009).

Cross-national differences

The speed, type, and specific use of adoption and adaptation of emerging technologies differ across countries. About 79 per cent of Canadian (Internet World Stats, 2010a) and 77 per cent of American households (Internet World Stats, 2010b) have an Internet connection, while the average household connectivity in Europe is 71 per cent (Seybert and Löff, 2010). With 54 per cent of households with an Internet connection (Eurostat, 2012), Spain's connectivity is lower than the European average. In Mexico, however, a mere one in ten households has Internet access (Everis/IESS, 2011). The proportion of individuals with mobile phones also varies across countries.

Examining how people use ICT might provide clues to better understanding cultural differences themselves. The use of technology is influenced and shaped by cultural values; some experiences may be common across countries but in other cases national variation is the norm (Haddon, 2004). Doctors in Spain appear to rate the usefulness of healthcare information technology higher than in seven other countries, including the USA and Canada (Accenture, 2011). Other cross-national differences are related to how technologies are

conceived. For instance, in a qualitative study comparing American and Dutch attitudes towards mobile phones, US participants were found relatively receptive to being constantly reachable by others and especially letting work enter into their private life, unlike the Dutch. Cross-national differences are, however, often related to a country's regulations and policies rather than intrinsic cultural values. Ito (2010) reported that stringent regulations on using mobile phones to talk to others in schools explains why Japanese youngsters have a higher use of mobile e-mail and instant messaging than other nationalities. In the case of doctors, the Spanish national adoption of healthcare technology in primary care may explain the relatively higher rate of satisfaction for healthcare providers and patients than in other countries where similar efforts have not been driven by consistent long-term policies.

Clinicians' views

Healthcare ICT has become a commonplace in health administrative systems; however clinicians have not fully embraced them as potential resources to strengthen their practice (Bacigalupe, 2011). The technology acceptance model (TAM) assesses health professionals' attitudes towards ICT (see reviews by Holden and Karsh, 2010; Yarbrough and Smith, 2007). This model was developed to explain why some personnel might contest the use of technologies available to them. The TAM includes four variables that may predict the actual use of technology including adoption, behavioural intention, perceived ease of use and perceived usefulness (Schaper and Pervan, 2007). Although the TAM has gone through a number of changes, two main determinants of general attitudes towards technology remain: perceived usefulness (the perception that using a technology will increase job performance), and perceived ease of use (the perception that using a technology will be free from effort). Moreover, behavioural intention, an individual's willingness to perform that particular behaviour, has shown to be the best predictor of the actual use (Chau and Hu, 2002; Dwivedi *et al.*, 2011; Holden and Karsh, 2010). The link between perceived usefulness and perceived ease of use in the use of different kinds of technology in various work situations has been demonstrated (King and He, 2006). In the field of mental health, very few studies have focused on technology adoption by clinicians (for exceptions see Gibson *et al.*, 2009; May *et al.*, 2001; Wangberg *et al.*, 2007). A Norwegian study examining psychologists'

attitudes towards the use of e-media in clinical practice found that e-therapy was generally widely accepted (only 3 per cent considered it unacceptable), especially when it involved the use of e-mails and short message services (Wangberg *et al.*, 2007). On the other hand, among the various reasons that therapists may be reluctant to incorporate technologies into their practices is the difficulty of establishing a therapeutic alliance (May *et al.*, 2001) and technical issues that could compromise safety and interfere with communication flow (Gibson *et al.*, 2009). Our review of the literature did not produce studies that explore clinicians' views on the impact technologies have on family processes.

Objectives

The lack of research literature focusing on ICT in family clinical work suggests there is a need to explore the views of family clinicians themselves. The present study aimed at exploring their use of technologies and the impact of this use in the clinical context, ultimately adding a cross-national perspective. We developed an instrument for measuring, firstly, the extent to which clinicians use technologies, and secondly, how they perceive the influence of ICT upon the families with whom they work. The following hypotheses were proposed: (i) Clinicians from English-speaking countries will demonstrate a higher use of technologies (defined by time spent with and number of technologies employed) and more positive attitudes towards ICT than clinicians from Spanish-speaking countries. (ii) Clinicians' higher use of technologies (time and number of technologies) will be associated with more perceived usefulness and perceived ease of use of the technologies, and a higher behavioural intention to use them in the future. (iii) Clinicians' higher use of technologies (time and number of technologies) will be associated with more positive attitudes towards the role technologies play in the families they work with. (iv) Clinicians reporting more doubts about the value of the technologies in family life will be more likely to hold negative perceptions of emerging technologies.

Method

Participants

A convenience sample comprised 258 self-identified family clinicians (127 English-speaking and 131 Spanish-speaking) who accepted an

invitation to take part in our survey. The English-speaking clinicians resided in the USA and Canada, whereas the Spanish-speaking clinicians resided in Spain and Mexico. The distribution of sex and age is detailed in the results section.

Procedure

A family therapist survey was designed to measure demographic data, the therapists' own ICT adoption patterns and their experience of the impact of ICT on families. The bilingual research team and collaborators completed the translations (Herrera *et al.*, 1993). A pilot study with faculty and college students in Spain and the USA was completed to assess the methodology's functionality and to ensure that completing the questionnaire required less than 5 minutes.

Participants either received an e-mail invitation through one of several professional and publicly available listserves or a direct invitation at family therapy professional conferences that team members attended during the recruitment period. To encourage their contribution, participants were offered entry into a raffle for an iPod Touch. The survey was available online and in printed format; the Internet survey was located at the institution server. The University of Deusto Ethics Committee approved the research proposal, including the data collection and storage procedures. Descriptive analyses and *t*-tests to make cross-national comparisons were employed. Correlation analyses were conducted to evaluate the support or lack of support for the study hypothesis, including the exploration of cross-national differences.

Instrument

A survey instrument was developed (online and printed forms) in English and in Spanish and entitled: emerging technologies and families survey (SEFT/ETEF vers. 1). After consulting with Internet research survey experts and running a pilot study, we launched our questionnaire and made it available for a period of 5 months. The following information was collected:

Demographics. Sex, age, educational level and country of residence. In order to run the cross-national comparisons, two groups were created: the English-speaking group, consisting of participants residing in Canada and the USA, and the Spanish-speaking group using participants residing in Mexico and Spain.

Number of ICTs used by clinicians. This section included a list of the technologies most often used by the general population. The measure for the total number of ICT was obtained by summing the different items that clinicians reported using.

Time. The time clinicians spent on the Internet for professional and personal purposes the previous day.

The family technology adoption impact scale (FTAIS) was developed to assess how clinicians perceive families in the clinical context. The FTAIS is based on an integrated family systems framework that includes boundary making, communication, family cohesion, family togetherness, intergenerational links, intimacy, privacy and resilience. The scale comprises 10 items and a five-point Likert response scale (1 = strongly agree to 5 = strongly disagree). The alpha for this scale was .78.

Clinical family problems associated with the use of ICT in the therapeutic context. After reviewing the central foci of most literature on families and ICT we developed a list of problematic situations families encounter when using various technologies. Participants were given the option to check 'yes' if the problem listed was a familiar one. Summing all the items to which participants responded yes generated a final score.

The *clinical technology attitudes (CTA)* scale comprised three items, based on the TAM (Dillman and Groves, 2011) which measures perceived usefulness, perceived ease of use, and behavioral intention to use the technology in the clinical context. Participants responded using a five-point Likert scale (1 = strongly agree to 5 = strongly disagree). The alpha for this scale was .64.

Results

Description of sample

Gender. In the English-speaking sample ($n = 127$) 70 per cent were women. In the Spanish-speaking sample ($n = 131$) 76 per cent were women. There were no significant differences in the gender breakdown between samples, $\chi^2(2, N = 256) = 1.10$, n.s.

Age. The Spanish-speaking sample, on average, was significantly younger than the English sample, $t(250) = 5.00$, $P < 0.001$. For instance, 33 per cent of the Spanish-speaking participants reported being aged between 31 and 40 years, compared with only 20 per cent of the English-speaking participants.

Education. There were significantly more English-speaking participants with academic degrees than among the Spanish speakers, $t(253) = 9.76, P < 0.001$. Of the English speakers 45 per cent had a doctorate compared with only 12 per cent of Spanish speakers.

Country of residence. In the English-speaking sample 110 participants resided in the USA and 17 in Canada and in the Spanish-speaking sample 90 participants resided in Spain and 41 in Mexico.

Description of technologies used

English-speaking clinicians reported using significantly more ICT than did the Spanish-speaking ones, $t(253) = 2.79, P < 0.05$, as proposed in hypothesis 1. Table 1 shows the percentages, divided in two sub-samples, and the total sample of clinicians who reported using each ICT.

The English-speaking participants ($M = 2.23, SD = 1.14$) reported investing less time in ICT use for professional purposes than did Spanish-speaking participants ($M = 2.61, SD = 1.18$), $t(255) = -2.63, P < 0.05$. The difference remained significant when controlled for age, $\beta = .13, t(248) = 2.03, P < 0.05$. Family clinicians from both samples spent an equivalent amount of time using ICT for personal purposes, $t(255) = 1.28, n.s.$

TABLE 1 Percentages of information technologies being used by family clinicians, by type

	English	Spanish	Total
Internet	99	99	99
e-mail	98	98	98
Mobile phone	87	95	91
Laptop or netbook	92	91	91
Landline telephone	74	93	84
Desktop computer	71	72	71
Social networks (Facebook, etc.)	75	65	69
Video conference (Skype or other)	66	51	58
Smart phone	64	42	52
Electronic clinical records	37	30	33
Your own website or blog	41	25	33
e-books	28	23	25
Twitter	21	13	17
Tablets (e.g. iPad)	20	9	14

Description of clinical context scales

FTAIS. A 10-item scale was developed to measure therapists' attitudes towards the influence of ICT on family processes. The items shows strong internal reliability, $\alpha = .78$. English-speaking clinicians ($M = 3.05$, $SD = .58$) reported more positive attitudes than did Spanish-speaking clinicians ($M = 2.91$, $SD = .50$), $t(254) = 2.16$, $P < 0.05$; confirming hypothesis 1.

Clinical family issues (Appendix 1, question 4). Table 2 shows the percentages of therapists who reported encountering various clinical family problems in their consultation rooms. The total number of problematic situations did not differ between samples, $t(252) = .94$, n.s.

CTA. A three-item scale was developed to measure general clinician attitudes towards ICT. The internal consistency was moderate, $\alpha = .64$. Spanish-speaking clinicians ($M = 4.01$, $SD = .58$) reported more positive attitudes towards ICT than the English-speaking ones ($M = 3.70$, $SD = .79$), $t(253) = -3.27$, $P < 0.001$, partially disconfirming hypothesis 1. The difference remained significant when controlled for age, $\beta = .14$, $t(241) = 2.16$, $P < 0.05$.

Correlations

Table 3 shows the overall sample correlations for the variables of the study. Some significant low or moderate correlations coefficients were identified. The number of technologies used correlated positively with the general CTA ($r = .26$, $P < 0.001$) as stated in hypothesis 2, and the attitudes towards the role ICT played in families (FTAIS) ($r = .20$, $P < 0.01$) as stated in hypothesis 3.

TABLE 2 *Percentages of clinical situations encountered*

	English	Spanish	Total
Children being isolated in their rooms	82	89	86
Arguments about time spent using ICT	84	86	84
Addiction to Internet, videogames and others	74	73	73
Minor's access to inappropriate content	71	70	70
Blurring of work and family life	67	63	65
Online infidelity	71	55	63
Minors being abused through the internet	49	37	42
Physical health issues due to ICT use	45	24	34

ICT, information and communications technology

TABLE 3 Correlations for gender, age, degree, time spent on professional purposes, time spent for personal purposes, total time, no. of technologies, clinical family issues, family technology adoption impact scale (FTAIS) and clinical technology attitudes (CTA) (N = 258)

	1	2	3	4	5	6	7	8	9	10
Gender	1									
Age	-.11	1								
University degree	-.07	.28***	1							
Professional purposes	-.14*	-.13*	.02	1						
Personal purposes	-.04	-.06	.07	.28***	1					
Total time	-.11	-.12	.05	.82***	.78***	1				
No. of technologies	-.08	.06	.10	.31***	.23***	.34***	1			
Clinical family issues	-.07	.23***	.02	.04	-.13*	-.05	.18**	1		
FTAIS	-.08	.07	.04	.06	.13*	.12	.20**	-.20**	1	
CTA	-.05	-.20**	-.06	.26***	.15*	.26***	.26***	.06	.16*	1

*** $P \leq 0.001$; ** $P \leq 0.01$; * $P \leq 0.05$

On the other hand, the total time therapists spent on the Internet was positively associated with CTA ($r = .26, P < 0.001$) confirming hypothesis 2, but not related to the attitudes towards technologies in family life, partially disconfirming hypothesis 3.

Hypothesis 4 was partially confirmed as a negative association was found between therapists' perception of technologies in families (FTAIS) and the number of clinical issues they found in their practice ($r = -.20, P < 0.001$), while it was unrelated to the general CTA.

Further multiple regression analysis were conducted in order to test the potential role of a moderator that belonging to the English-speaking versus the Spanish-speaking group could have. However, the models were not significant.

Discussion

This cross-national study was designed to assess family clinicians' attitudes towards technology adoption by families, the extent to which these attitudes influence family assessment and the therapists' own use of technology. To evaluate cross-national differences, the study included a comparison among family clinicians located in Mexico, Spain, Canada, and the USA. Designing a scale to effectively measure the clinician's perceptions of the impact of technology adoption on families was another aim of this study. Family clinicians from English-speaking countries were found to have a higher rate of technology use – the amount of hardware, software and devices – in comparison to those residing in Spanish-speaking countries. Overall, the most frequently used technologies were the Internet, e-mail, mobile phones and portable computers. Therefore, the first hypothesis was partially confirmed, as cross-national differences were not significant for the total time of reported use of the Internet. The amount of Internet use as part of clinicians' professional role was, however, significant in cross-national differences. Spanish-speaking clinicians reported investing more time navigating the Internet for professional purposes than did their English-speaking counterparts. However, no significant differences were found when the motive was personal. This outcome could reflect the systematic integration of information technology throughout the public healthcare system in Spain. Generally, age has been found to be a confounding variable in explaining technology adoption; in our study, age did not explain these results as it was controlled. Other contextual, cultural, relational and

technology-related factors need to be explored in future research for the development of a definitive explanation.

English-speaking clinicians were more positive in their assessment of technology's impact on families, as hypothesis 1 stated. They may perceive technology to be a factor that strengthens families' resilience rather than a risk that jeopardizes families. In the clinical context, however, Spanish-speaking clinicians demonstrated higher levels of behavioural intention to use technology in the future than did their counterparts. Like most workers in the USA who use the Internet and e-mail at their work place, family clinicians may already widely utilize technology as part of their professional role. Reporting less intent to use technology may indicate that adopting technology at work necessitates a number of unwelcome adaptations that themselves discourage their further adoption and positive perception at work.

Both groups of clinicians showed a great deal of concern about the time during which children and adolescents' spent isolated from their families as a result of the technology activities that sometimes confine them to their rooms. Conflicts surrounding time spent engaging with technology were a generalized preoccupation among the clinicians. These findings are particularly compelling since these clinicians prioritized families' common relational patterns rather than echoing the alarmist tone of popular media in this regard. The results of this study suggest that what is of most concern to families is not their children's safety but common relational challenges related to family boundaries, intergenerational conflicts, and the like.

Clinicians' views

Several of our initial hypotheses on the relationship between family clinicians' own use of technologies and their perception of its impact on families were confirmed. The total number of technologies clinicians utilize is positively associated with their general technology attitudes (H2) and the role ICT plays in families (H3). Clinicians using more technologies are likely to view them as beneficial for families, considering them as tools used to enhance communication, improve family cohesion, facilitate intergenerational links and assist in life transitions. In brief, the clinicians may prize these technologies for their ability to strengthen resilience. Similarly, the time the study participants spend on the Internet for professional and personal purposes is positively associated with their perception of its ease of use, its usefulness and their intention to use the technologies in a clinical

context (H2). These results show that clinicians' personal experience with technologies is related to their clinical perceptions of them. As in the survey by Hertlein and Piercy (2008) on Internet infidelity, couple and family therapists are influenced by their personal experience. The findings of our study may suggest the need for family therapists to become more knowledgeable about ICT, personally and professionally. Emerging technology shapes and is shaped by families; being curious about this dynamic is a new requirement in our education.

Another expected result (H4) was that the more positive attitudes clinicians have about technology's role in their clients' lives, the less prone they are to identify related problematic issues, such as Internet addiction and online infidelity. Clinicians' use of and attitudes towards technologies determine, to a certain degree, how they incorporate technology into their clinical practice. These results have implications for the ways in which therapists choose to treat technology-related issues when they arise in the consultation room. Moreover, the results raise critical questions concerning how therapists utilize and embrace technology-related resources to improve their clinical work. For example, using technology to engage family members who cannot physically attend a therapy session may represent a valuable resource. Family therapists should carefully consider their assumptions of how some powerful family dynamics are played out in virtual environments rather than in real life. Therefore, in systemic assessment and intervention, a curious exploration of the role that technology plays in the development and maintenance of problematic and healthy relationships is necessary. Families, in this respect, seem to have taken advantage of technology much more quickly than clinicians.

The rapid and evolving adoption of technologies may be fulfilling a deep cultural need to maintain and solidify family intimacy and community bonds, sustain social networks and increase social capital. The opportunities for virtual communication that families have discovered could also be extended into the clinical setting. Technology adoption by families, therefore, provides further prospects, beyond the face-to-face encounter, of bringing into the clinical setting those who are often unavailable. In sum, emerging technologies enable relational therapists to not only think systems but to work with systems.

The SEFT/ETEF was found to be valid for evaluating clinicians' attitudes about the impact technologies have on families. The scale can be refined for use in future studies and adapted to survey other populations.

The study presents several limitations. The size of the sample is relatively small, with insufficient data for making conclusive cross-national comparisons. Secondly, the criterion for the cross-national comparisons was the country of residence; culture and ethnicity, could not be included in the analysis (i.e., clustering Mexico and Spain in the same subgroup). Thirdly, the use of self-report questionnaires cannot guarantee highly reliable feedback. Without completing more sophisticated statistical analysis, confounding variables could explain the results. Lastly, using an Internet survey to investigate attitudes towards technologies might introduce sample bias (by including only respondents with a more positive view of technology).

Future research should include interviews with professionals and families in order to obtain a more complete and nuanced perspective. An initial assessment of the attitudes towards and adoption of technology should be followed by efficacy studies of clinicians who integrate technology in work with families. Secondly, further enquiries would require studying the impact that specific attitudes and technology adoption by families and family therapists have on family assessment. For example, to what extent does the use of texting by family members improve or challenge family relationships?

References

- Accenture (2011) *Eight-country survey of doctors shows agreement on top healthcare information technology benefits, but a generational divide exists*. Retrieved 21 March 2014 from http://www.accenture.com/SiteCollectionDocuments/PDF/Accenture_Physician_Survey_Connected_Health.pdf#zoom=50.
- Alonso, A. and Oiarzabal, P. J. (2010) *Diasporas in the New Media Age: Identity, Politics, and Community*. Reno: University of Nevada Press.
- Bacigalupe, G. (2011) Is there a role for social technologies in collaborative healthcare? *Family, Systems, & Health*, **29**: 1–14.
- Bacigalupe, G. and Lambe, S. (2011) Virtualizing intimacy: information communication technologies and transnational families in therapy. *Family Process*, **50**: 12–26.
- Biegler, S. and boyd, D. (2010) *Risky behaviors and online safety: A literature review (draft)*. Cambridge, MA: Harvard Berkman Center. Retrieved 14 March 2014 from <http://www.zephoria.org/thoughts/archives/2010/06/24/risky-behaviors-and-online-safety-a-2010-literature-review.html>.
- Bryant, J. A. and Bryant, J. (2006) Implications of living in a wired family. In L. Turner and R. West (eds) *Family Communication Sourcebook* (pp. 297–315). Thousand Oaks, CA: Sage.
- Chau, P. Y. K. and Hu, P. J. (2002) Examining a model of information technology acceptance by individual professionals: an exploratory study. *Journal of Management Information Systems*, **18**: 191–229.

- Chesley, N. (2005) Blurring boundaries? Linking technology use, spillover, individual distress, and family satisfaction. *Journal of Marriage and Family*, **67**: 1237–1248.
- David-Ferdon, C. and Hertz, M. F. (2007) Electronic media, violence, and adolescents: an emerging public health problem. *Journal of Adolescent Health*, **41**: S1–5.
- Delmonico, D. L. and Griffin, E. J. (2008) Cybersex and the e-teen: what marriage and family therapists should know. *Journal of Marital and Family Therapy*, **34**: 431–444.
- Dillman, D. and Groves, B. (2011) *Internet, mail and Mixed-Mode Surveys: The Tailored Design Method*. 3rd edn. Hoboken, NJ: John Wiley.
- Douglas, A. C., Mills, J. E., Niang, M., Stepchenkova, S., Byun, S., Ruffini, C. et al. (2008) Internet addiction: meta-synthesis of qualitative research for the decade 1996–2006. *Computers in Human Behavior*, **24**: 3027–3044.
- Dwivedi, Y., Rana, N., Chen, H. and Williams, M. (2011) A meta-analysis of the unified theory of acceptance and use of technology (UTAUT). In Nüttgens, M., Gadatsch, A., Kautz, K., Schirmer, I., Blinn, N. (eds) *Governance and Sustainability in Information Systems. Managing the Transfer and Diffusion of IT. Proceedings Series: IFIP Advances in Information and Communication Technology, Vol. 366*. IFIP WG 8.6 International Working Conference: Hamburg. 22–24 September.
- Eurostat (2012). *Information society statistics*. Brussels, Belgium: European Commission. Retrieved 21 March 2014 from http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Information_society_statistics
- Everis/IESS (2011) *Information Society Indicator (ISI): Status of Information Technology in Latin America, EU and US*. Madrid: Everis.
- Gibson, K., Simms, D., O'Donnell, S. and Molyneaux, H. (2009) *Clinicians' attitudes toward the use of information and communication technologies for mental health services in remote and rural areas*. Paper presented at the Canadian Society of Telehealth Conference (CST 2009), Vancouver. Retrieved 14 March 2014 from <http://nparc.cisti-icist.nrc-cnrc.gc.ca/npsi/ctrl?action=rtdoc&an=15073198&lang=en>.
- Gora, Y. (2009) *Information and communication technologies (ICT) and effects on 'togetherness' in family households*. Paper presented at the Communications, Policy, and Research Forum, University of Technology, Sydney. Retrieved 14 March 2014 from http://www.networkinsight.org/verve/_resources/Gora.pdf.
- Haddon, L. (2004) *Cultural differences in communication: examining patterns of daily life*. Paper presented at the Conference on Mobile Communication and Social Change, Seoul, 17–18 October.
- Herrera, R. S., DelCampo, R. L. and Ames, M. H. (1993) A serial approach for translating family science instrumentation. *Family Relations*, **42**: 357–360.
- Hertlein, K. M. and Piercy, F. P. (2006) Internet infidelity: a critical review of the literature. *Family Journal*, **14**: 366–371.
- Hertlein, K. M. and Piercy, F. P. (2008) Therapists' assessment and treatment of Internet infidelity cases. *Journal of Marital and Family Therapy*, **34**: 481–497.
- Holden, R. J. and Karsh, B. T. (2010) The technology acceptance model: its past and its future in health care. *Journal of Biomedical Informatics*, **43**: 159–172.
- Horst, H. A. (2006) The blessings and burdens of communication: cell phones in Jamaican transnational social fields. *Global Networks*, **6**: 143–159.

- Hwang, Y. (2011) Is communication competence still good for interpersonal media?: mobile phone and instant messenger. *Computers in Human Behavior*, **27**: 924–934.
- Internet World Stats (2010a) *Canada: Internet usage, broadband and telecommunications report*. Retrieved 15 September 2011 from <http://www.internetworldstats.com/am/ca.htm>.
- Internet World Stats (2010b) *United States of America: Internet usage, broadband usage report*. Retrieved 15 September 2011 from <http://www.internetworldstats.com/am/us.htm>.
- Ito, M. (2010) *Broadcasting in Japan: Case-Studies on Broadcasting Systems*. Abingdon: Routledge.
- Jennings, N. and Wartella, E. (2004) Technology and the family. In A. L. Vangelisti (ed.) *Handbook of Family Communication* (pp. 593–608). Mahwah, NJ: Lawrence Erlbaum.
- Kim, M. G. and Kim, J. (2010) Cross-validation of reliability, convergent and discriminant validity for the problematic online game use scale. *Computers in Human Behavior*, **26**: 389–398.
- King, W. R. and He, J. (2006) A meta-analysis of the technology acceptance model. *Information and Management*, **43**: 740–755.
- Kossek, E. E., Lautsch, B. A. and Eaton, S. C. (2009) ‘Good teleworking’: under what conditions does teleworking enhance employees’ well-being? In S. Yair Amichai-Hamburger (ed.) *Technology and Psychological Well-being* (pp. 148–173). Cambridge: Cambridge University Press.
- Lanigan, J. D., Bold, M. and Chenoweth, L. (2009) Computers in the family context: perceived impact on family time and relationships. *Family Science Review*, **14**: 16–32.
- Lenhart, A. (2009) Teens and sexting. A Pew Internet and American Life Project Report. Retrieved 4 July, 2010 from http://mdlbeta.oakland.k12.mi.us/os/pluginfile.php/33415/mod_resource/content/0/Resources_for_parents/Teens-and-Sexting.pdf
- Licoppe, C. (2004) ‘Connected’ presence: the emergence of a new repertoire for managing social relationships in a changing communication technoscape. *Environment & Planning D: Society and Space*, **22**: 135–156.
- May, C., Gask, L., Atkinson, T., Ellis, N., Mair, F. and Esmail, A. (2001) Resisting and promoting new technologies in clinical practice: the case of telepsychiatry. *Social Science & Medicine*, **52**: 1889–1901.
- Mesch, G. S. (2006) Family characteristics and intergenerational conflicts over the Internet. *Information, Communication & Society*, **9**: 473–495.
- Mitchell, K. J., Finkelhor, D., Jones, L. M. and Wolak, J. (2012) Prevalence and characteristics of youth sexting: a national study. *Pediatrics*, **129**: 13–20.
- Nie, N. H., Hillygus, D. S. and Erbring, L. (2002) Internet use, interpersonal relations, and sociability: a time diary study. In B. Wellman and C. Haythornthwaite (eds) *The Internet in Everyday Life* (pp. 213–243). Oxford: Blackwell.
- O’Keeffe, G. S. and Clarke-Pearson, K. (2011) The impact of social media on children, adolescents, and families. *Pediatrics*, **127**: 800.
- Olson, D. H. (2000) Circumplex model of marital and family systems. *Journal of Family Therapy*, **22**: 144–167.

- Othman, N., Yusof, S. A. M. and Osman, W. R. S. (2009) A conflict between professional vs. domestic life? understanding the use of ICT in teleworking for balance in work and family units. *Computer and Information Science*, **2**: 3–15.
- Palfrey, J., boyd, D. and Sacco, D. (2010) *Enhancing Child Safety and Online Technologies: Final Report of the Internet Safety Technical Task Force*. Durham, NC: Carolina Academic Press.
- Petrič, G., Petrovčič, A. and Vehovar, V. (2011) Social uses of interpersonal communication technologies in a complex media environment. *European Journal of Communication*, **26**: 116–132.
- Punamäki, R. L., Wallenius, M., Hölttö, H., Nygård, C. H. and Rimpelä, A. (2009) The associations between information and communication technology (ICT) and peer and parent relations in early adolescence. *International Journal of Behavioral Development*, **33**: 556–564.
- Riva, G. (2005) The psychology of ambient Intelligence: activity, situation and presence. In G. Riva, F. Valataro, D. Davide and M. Alcaniz (eds) *Ambient Intelligence: the Evolution of Technology, Communication and Cognition Towards the Future of Human-Computer Interaction* (pp. 17–34). Amsterdam: IOS Press.
- Ruffini, C., Mills, J. E., Douglas, A. C., Niang, M., Stepchenkova, S., Lee, S. K. et al. (2009) Internet addiction: metasynthesis of 1996–2006 quantitative research. *CyberPsychology & Behavior*, **12**: 203–207.
- Schaper, L. K. and Pervan, G. P. (2007) ICT and OTs: a model of information and communication technology acceptance and utilisation by occupational therapists. *International Journal of Medical Informatics*, **76**: S212–221.
- Seybert, H. and Lööf, A. (2010) *Internet usage in 2010: Households and Individuals*. Luxembourg: Eurostat, European Commission.
- Subrahmanyam, K. and Šmahel, D. (2011) Internet use and well-being: physical and psychological effects. In Subrahmanyam, K. and Šmahel, D. *Digital Youth*, (pp. 123–142) New York: Springer.
- Tao, R., Huang, X., Wang, J., Zhang, H., Zhang, Y. and Li, M. (2010) Proposed diagnostic criteria for internet addiction. *Addiction*, **105**: 556–564.
- Wangberg, S. C., Gammon, D. and Spitznogle, K. (2007) In the eyes of the beholder: exploring psychologists' attitudes towards and use of e-therapy in Norway. *CyberPsychology & Behavior*, **10**: 418–423.
- Whitty, M. T. and Quigley, L.-L. (2008) Emotional and sexual infidelity offline and in cyberspace. *Journal of Marital and Family Therapy*, **34**: 461–468.
- Wilding, R. (2006) 'Virtual' intimacies? Families communicating across transnational contexts. *Global Networks*, **6**: 125–142.
- Yarbrough, A. K. and Smith, T. B. (2007) Technology acceptance among physicians. *Medical Care Research and Review*, **64**: 650–672.
- Ybarra, M. L. and Mitchell, K. J. (2005) Exposure to Internet pornography among children and adolescents: a national survey. *CyberPsychology & Behavior*, **8**: 473–486.

Appendix 1: Emerging technologies & families survey (SETF)®

Sex _____ Age _____

What race/ethnicity do you identify with?

- White
- Black
- Latino
- Asian
- Prefer not to answer

Highest degree obtained

- Bachelor
- Masters
- Doctoral
- Other

Country of residence

- Canada
- Mexico
- Spain
- United States
- Others _____

Do you use . . . ?

- | | |
|--|---|
| <input type="checkbox"/> Landline telephone | <input type="checkbox"/> Internet |
| <input type="checkbox"/> Mobile telephone | <input type="checkbox"/> Email |
| <input type="checkbox"/> Smart phone (Blackberry, Android, iPhone) | <input type="checkbox"/> Social networks (Facebook, Tuenti, others) |
| <input type="checkbox"/> Desktop computer | <input type="checkbox"/> Twitter |
| <input type="checkbox"/> Laptop and/or netbook | <input type="checkbox"/> Video-conference (Skype or other) |
| <input type="checkbox"/> Tablets (e.g., iPad) | <input type="checkbox"/> Your own website or blog |
| <input type="checkbox"/> Ebooks | <input type="checkbox"/> Electronic clinical records |

Think about the use of these devices YESTERDAY. How many HOURS did you spend on the INTERNET?

0–30 min 30–60 min 1–3 hours 3–6 hours + 6 hours

Professional purposes
Personal purposes

Information and communication technologies (ICT)

Strongly agree Agree Neutral Disagree Strongly disagree

- Reduce family time
- Enhance healthy communication
- Interfere with family norms
- Improve family cohesion
- Endanger family privacy
- Facilitate intergenerational links
- Interfere with family intimacy
- Assist in life cycle transitions
- Make the family more vulnerable
- Strengthen resilience

What issues related to ICT have emerged in your clinical work with couples and/or families?

- Arguments about time spent using ICT
- Minors access inappropriate content (pornography, violence, etc.)
- Minors being abused through the internet (cyberbullying, sexual abuse, etc.)
- Children being isolated in their rooms
- ICT facilitating connections with family members afar
- Blurring of work and family life
- Online infidelity
- Use of ICT to deal with conflicts that are difficult to address face to face
- Addiction to internet, videogames and others
- Daily family management via ICT (i.e., scheduling, travelling)
- Physical health issues due to ICT use (strains, eye problems, obesity, other)

I think ICT ...	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Are easy to use					
Have improved my clinical effectiveness					
Are a distraction					
Will be essential in my practice					

Would you like to be included in the iPodTouch raffle?

- YES
- NO

Would you be willing to participate in a personal interview in the future?

- YES
- NO

If yes include your email address _____