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The social technographics of gay men and other men who have sex with men (MSM) in Canada: Implications for HIV research, outreach and prevention

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Dan Allman, Ted Myers,Kunyong Xu, Sarah Jane Steele

Abstract

Current research characterises differential patterns of the use of social media as social technographics. Social technographics suggests new media users can be classified on multi-point hierarchies. This paper considers this concept within the context of HIV research, prevention and outreach in Canada. It explores four diverse data sets in order to demonstrate how understanding patterns of social media use can inform this work. Analyses were conducted on Forrester's North American Technographics® Benchmark Survey (2008), the Canadian Internet Use Survey (2007), the M-Track Ontario [Lambda] Survey (2007) and the Ontario Men's Survey (2002). Data analysis software was used to explore the associations of men's age with social media use for sexual and non-sexual purposes. Analysis of these datasets suggests that in Canada, the age-related social technographics of gay men and other men who have sex with men (MSM) are clearly structured. Younger men are more likely to use and spend time on the Internet, to chat, blog or instant message, and to seek sex. Interpreting these findings in relation to current literature describing the social web, the younger the age categories of men considered in these analyses, the more likely men in those age categories were to be creators, innovators or active consumers of social content. Conversely, the older the age categories of men, the more likely men in those age categories were to be spectators only or inactive consumers. We argue that HIV research, prevention and outreach that employ social media have a better likelihood of impact when targeted to younger men in Canada; whereas activities aimed at older men will have a greater likelihood of impact when utilising more traditional forms of communication. Our analyses highlight the ways that gay men and other MSM's patterns of social media use for social and sexual purposes will continue to evolve as different and more varied social media communication applications become available. HIV research, prevention and outreach will need to continue to monitor these developments in order that they may shift accordingly.

Keywords: gay men, MSM, outreach, HIV prevention, research, social technographics, Web 2.0

Introduction

This paper demonstrates how men of different ages and characteristics in Canada use the Internet. It explores how they engage with the Internet, how they inhabit social spaces created or facilitated by the Internet, and how these technologies, networks and spaces are utilised for seeking and meeting sexual partners. It explores the datasets of four distinct studies to understand what social or structural factors may enable such activities. It engages with theoretical perspectives to help contextualise such activities, and it reflects on the implications such work has for HIV research, prevention and outreach targeting gay men and other men who have sex with men (MSM).

Here we focus on "Web 2.0 sociable technologies" (Boulos & Wheeler, 2007) and how they enable men's interactions and communications. These sociable technologies include:

> social networking services, collaborative filtering, social bookmarking, folksonomies, social search engines, file sharing and tagging, mashups, instant messaging, and online multi-player games…wikis, blogs and podcasts…[that] quite revolutionary way of managing and repurposing/remixing online information and knowledge repositories. (Boulos & Wheeler, p. 2)

We argue that researchers need to " 'catch up' and exploit these same media for health promotion purposes" (Freeman & Chapman, 2008, p.781). Additionally, we argue that an understanding of "Web Science", its architectures and its future trajectory requires "a research agenda that targets the Web as a primary focus of attention" (Hall, de Roure & Shadbolt, 2009, p. 992).

Social Technographics

Descriptions of social technographics and their implications for understanding consumer behaviour originate within the commercial marketing literature (Li et al., 2007; Li & Bernoff, 2008, 2009). As described by this literature, a social technographic approach to understanding classifies consumers into overlapping levels of social technology participation. This paper applies these technographic concepts in the analysis of multiple datasets from Canada in order to better understand the utility of a social technographic framework for HIV research, prevention and outreach for gay men and other men who have sex with men (MSM) in Canada. Based on these analyses, the paper uncovers how social participation varies among gay men and other MSM in Canada and uses the data to consider how HIV research, prevention and outreach can incorporate this information into targeted strategies. We employ technographics to get a high-level snapshot of the social technology behaviors of gay men and other MSM because it reflects the interactive elements of Web 2.0 technologies. For the purposes of this paper, social technographics refers to men's use of which communication mediums, for what purpose, with what investment, and to what end. Applied to social computing, social technographics extends the "analysis of consumers' approach to technology — to the Social Computing world" (Li et al., 2007, p. 4).

Derived from psychographics, or the grouping of individuals based on psychological profiles, social technographics can be understood to exist on two main axes (Eaton, 1997, p. 8). The first axis is an individual's degree of involvement with technology; the second is the type of technology used. A third axis, and one which is important to this paper, would be the kind of demographic profile that may be associated, both with particular mediums, and with degree of involvement (Figure 1). These technographic considerations are valuable for HIV research, prevention and outreach among populations of gay men and other MSM because they consider how vested individuals are in their online words, and the technologies individuals use to enter and exit their online worlds. Additionally technographics is useful for HIV work because it signals whether there are particular types of individuals who may be more or less likely to use particular types of social computing technologies and as such display differing paths of participation that may then be targeted (Li et al., 2007).

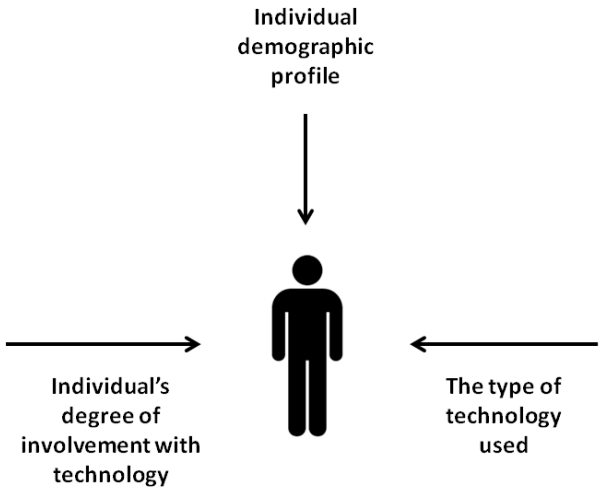

Figure 1. Technographic influences to consider for HIV research, outreach and prevention with gay men and other MSM.

The Technographic Groundswell

Social technographics classify people according to how they use Web 2.0 social content technologies. Relative to one-dimensional Internet use patterns, multidimensional technographic patterns can be envisioned as a continuum or a ladder, as shown in Figure 2 below.

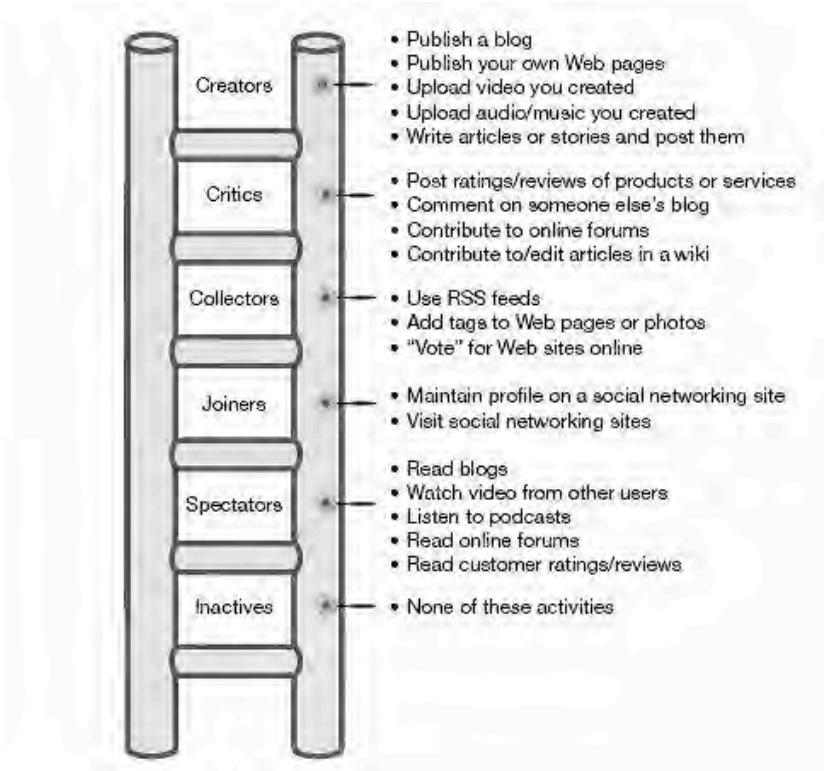

Figure 2. A ladder of social technographics[1].

In such a depiction, Creators make social content. They write blogs or create and upload video, music, or text. Creators drive Web 2.0 social content. Critics respond to content from others. They post reviews, comment on blogs, participate in forums, and edit wiki articles. Critics respond to social content from others. Collectors organise content for themselves or others using RSS feeds, tags, and voting sites. Joiners connect in social networks like Google+, Facebook, Twitter and MySpace. Spectators consume social content including blogs, online video, podcasts, forums, and reviews. Unlike other types, Inactives create or consume social content much less, preferring more traditional outlets for news, information, content, and presumably sex and sex seeking behaviours.

The ladder can be applied to existing datasets in order to understand how gay men and other MSM are stratified by Web 2.0 social technologies, as well as potential and useful avenues for HIV research, prevention and outreach that these different layers of stratification might offer.

Gay men, other men who have sex with men and the Internet

In this paper we use technographic analysis to illustrate ways that gay men and other MSM report using the social web to communicate and interact. We contribute to an emerging discourse that seeks to understand how evolutions in communication and intimacy as reflected in men's use of these technologies mirror and reify their lives (Adam, Murphy & de Wit, 2011). It has been suggested that the Internet is an arena in which individuals can explore and express aspects of sexuality without fear of the same kind of repercussions that they might experience elsewhere (McKenna & Bargh, 1998; McKenna, Green & Smith, 2001). Given that people who use the Internet to search for sexual partners have been shown to also use the Internet as a starting place for offline relationships, the Internet can be a potentially notable high risk environment for Sexually Transmitted Infections (STIs) and Diseases (STDs) (Carvalheira & Gomes, 2003). This is further corroborated by authors who suggest that people with the motivation and initiative for making new sexual connections through anonymous or semi-anonymous virtual means are risk takers, or sexual adventurers (Toomey & Rothenberg, 2000; McFarlane, Bull & Reitmeijer, 2000; Tashima et al., 2003; Tewksbury, 2003). This is also supported by the idea that risk taking in virtual social lives may be accompanied by risk taking in actual sexual lives (Adam et al., 2011). However, while the Internet has become an efficient facilitator of a range of risky behaviours and practices implicated in epidemics like HIV, it is important to not lose sight that the Internet is a vehicle or a path for behaviours at risk for HIV infection and transmission, rather than an HIV risk behaviour itself.

In much of the pre-Web 2.0 literature from the 1990s and early 2000s, gay men and other MSM who reported using the Internet to seek sexual partners were believed to be less open and public with regard to their sexual preferences, and presumably less comfortable using or being associated with gay-identified venues or services (Ogilvie, 2008; Döring, 2009). Gay men and other MSM who reported meeting sexual partners online have been shown to be younger and more likely to report recent sex with casual partners as well as recent sex with HIV-positive partners, compared with men who did not use the Internet to seek sexual partners (Kim et al., 2001). Men meeting partners via the Internet have also been shown to report higher rates of sexual risk behaviours including unprotected intercourse. (Benotsch, Kalichman & Cage, 2002),

As use of the Internet increases, the proportion of men using other venues to seek sex (pubs, bars, saunas, washrooms and other public sex environments) has decreased (Weatherburn, Hickson & Reid, 2003; Weatherburn et al., 2005). Mirroring trends identified in North America, in the United Kingdom, the Internet has been found to be

among the most popular setting for meeting sexual partners, after pubs and clubs. Further, among men recruited for study from virtual sources, the Internet was the most commonly reported venue for meeting new sexual partners (Weatherburn et al, 2003). From the perspective of research, men recruited for study from the Internet have been shown to have less contact with gay organisations, yet greater contact with public sex environments such as saunas, video clubs, and erotic movie houses (Ross et al., 2000; Daneback et al., 2011).

Since its popularisation in the mid-1990s, men have been the dominant users of the Internet, and the dominant users of the Internet for online sexual activity (Cooper et al., 2002; Daneback et al., 2011). Research suggests that individuals who use the Internet to search for sex, have been more likely to be male and homosexual; to report higher rates of previous STIs; greater number of sexual partners, higher rates of anal sex, and more sexual interaction with partners known to be HIV positive (Toomey & Rothenberg, 2000; McFarlane, Bull & Reitmeijer, 2000; and Tashima et al., 2003).

With the advent of Web 2.0 technologies, HIV research, outreach and prevention have to reconsider how the relative anonymity of contemporary web communication and interaction contributes to less individual inhibition, in part because the contexts of these communications can create powerful, even accelerated senses of trust and intimacy (Adam et al., 2011).

Methods

To illustrate how a social technographic approach for gay men and other MSM can inform HIV research, outreach and prevention, we explore analyses from Forrester's North American Technographics® Benchmark Survey (2008), the Canadian Internet Use Survey (2007), the M-Track Ontario [Lambda] Survey (2007), and the Ontario Men's Survey (2002). Together these datasets allow us to reflect on the ways in which men in North America and Canada apply themselves to the Internet and to the social web. The data sets were explored for associations between age and men's greater and lesser Internet use; as well as how gay men and other MSM are using the Internet for *technosexual motives*. That is, how men are using these technologies to seek partners, gather and disseminate information on sex and activities, avail themselves to education and prevention information, and participate in research.

North American Technographics® Benchmark Survey

The first of the four datasets derives from Forrester's 2008 North American Technographics® Benchmark Survey. Forrester Research is a publicly traded technology and market research company that provides pragmatic advice to global leaders in business and technology. Using a mail survey, it polls its North American Technographics Benchmark Panel quarterly. This paper relies on analysis of Forrester's 1st quarter Technographics Benchmark survey of individuals ages 18 and older from 5,314 US and Canadian households. The dataset as provided by Forrester weighs individual respondent data by age, gender, household income, household size and composition, education level, employment status, region, and market size (combined statistical area). The survey sample size, when weighted, was 5,310 North American respondents at the individual level. The sample was drawn from members of an existing panel, and respondents were motivated by a sweepstakes drawing.

Canadian Internet Use Survey

The second data set was the Canadian Internet Use Survey, a telephone survey produced by Statistics Canada and administered in October and November 2007 to a subsample of the dwellings recruited for the Labour Force Survey. The sample was drawn from the civilian, non-institutionalised population 15 years of age or older in Canada's 10 provinces. Specifically excluded from the survey's coverage are residents of the Yukon, Northwest Territories and Nunavut, persons living on Indian Reserves, full-time members of the Canadian Armed Forces and people who reside in institutions. The survey was administered to one randomly selected individual per household. The random selection was carried out at the time of the interview. In total, 35,023 persons were eligible for the survey and the interview was completed for 26,588 of these persons for a response rate of 75.9%.

M-Track Ontario [Lambda] Survey

The third data set was from the Ontario component of M-Track, an ongoing second generation surveillance system conducted at sentinel sites across Canada. The Ontario component of M-Track, known as The Lambda study recruited 2,536 men (2,020 in Toronto and 516 in Ottawa). It was a venue-based cross-sectional survey that consisted of a questionnaire and collection of biologic samples (dried blood spots) to measure HIV, HCV and syphilis prevalence. It recruited men who have sex with men between March and August 2007. Men aged 16 years or older were recruited in bars, bathhouses, community organisations and social events. A standardised self-administered questionnaire was used to collect the data, which included demographic information and frequency of use of the Internet to seek sexual partners. Lambda also sought to collect information about risk behaviours associated with HIV/STI infection and general issues relevant to sexual health and sexual behaviour among gay men and other MSM(Myers et al., 2010).

Ontario Men's Survey

The fourth dataset draws on a sample of 5,080 men from the 2002 Ontario Men's Survey. This was an anonymous, cross-sectional, venue-based study of socio-behavioural issues and sexual health in a community sample of self-identified gay and bisexual men. Men over age 15 were recruited through gay bars, bathhouses, and community groups from 13 cities or regions in the province of Ontario, Canada. A purposive sampling strategy was utilised to ensure the diversity of gay and bisexual men in the sample. As with the Lambda study, this study consisted of a questionnaire and collection of biologic samples (in this instance, saliva) to measure HIV, HCV and syphilis prevalence. Among its questions were those that looked at men's use of the Internet to look for sex (Allman et al., 2009, Myers et al., 2009).

For the present paper, all data analyses are descriptive. Standardised age categories are used to explore simple across-group trends in patterns of Internet use. Owing to the different sources of the data sets, different software packages were used to conduct the analyses. Forrester's data were analysed through an in-house analytic tool available through the company's website. Statistics Canada data were analysed through an in-house analytic tool accessed through the University of Toronto Data Library. SPSS™ was used to analyse the M-Track and the Ontario Men's Survey data (Table 1). Across all four datasets differences in the use of the Internet for sexual and non-sexual purposes were investigated by age, standardised across ten-year age groups.

Data set	Analytic tool
North American Technographics® Benchmark Survey (2008)	In-house analytic tool available through Forrester's research
Canadian Internet Use Survey (2007)	In-house analytic tool accessed through the University of Toronto Data Library
M-Track Ontario [Lambda] Survey (2007)	SPSS™
Ontario Men's Survey (2002)	SPSS™

Table 1. Data sets and analytic tools used to analyse them.

Results

Men in the Canadian Internet Use Survey of 2007 reflect a pattern repeated elsewhere in these analyses. The older the respondent, the less technographically-inclined he appears. As an example, examining the responses of males to the Internet Use Survey reflects a clear trend for younger men to report using the Internet more often (Figure 3). This trend is also evident in the reported number of hours spent on the Internet from home (Figure 4).

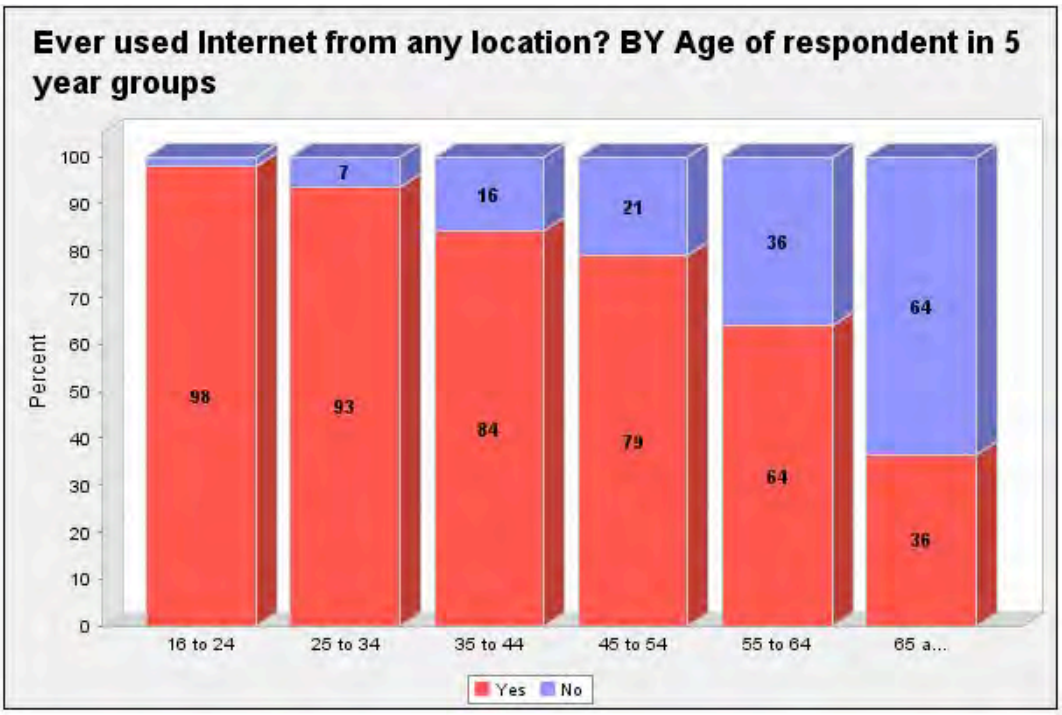

Figure 3. Men in Canada's Internet use, ever, by age[2].

Further, in this national Canadian sample, younger men reported that they were more likely to chat or blog on the Internet (Figure 5) and instant message (Figure 6) than older men. Conversely, the older the respondent, the less likely he was to use the Internet, spend hours on the Internet from home, or use the Internet to chat, blog or instant message.

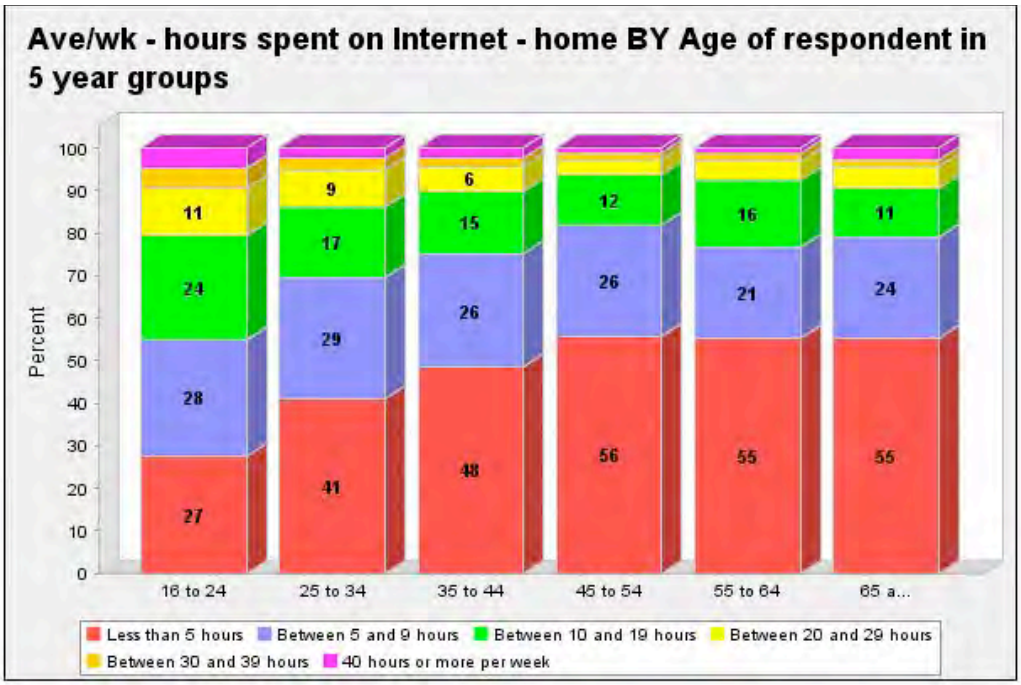

Figure 4. Men in Canada's home Internet usage, by age[3].

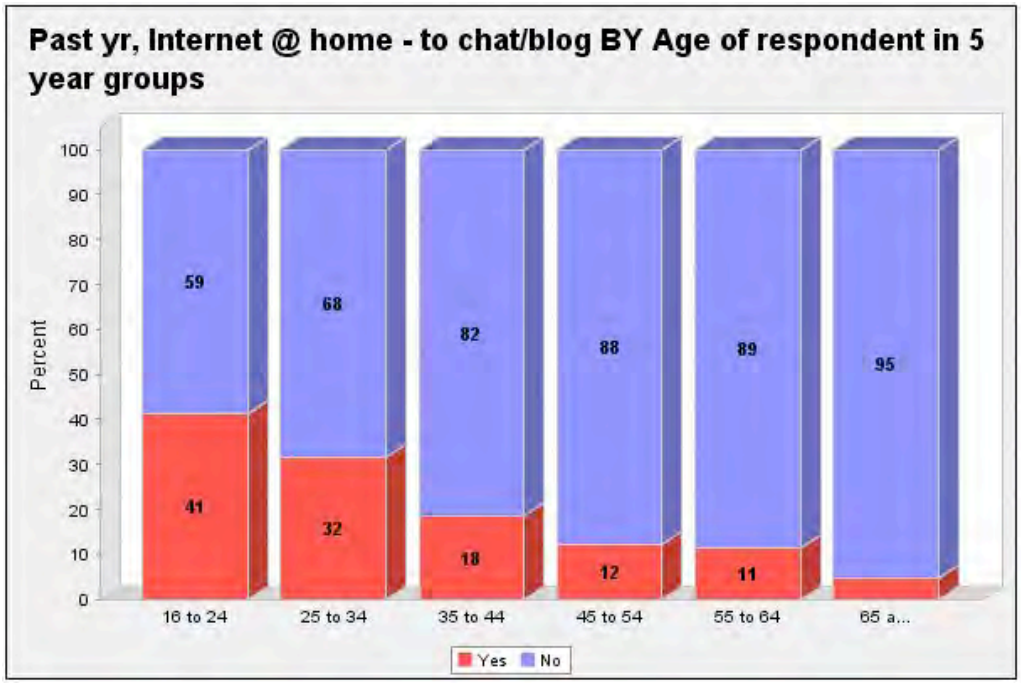

Figure 5. Men in Canada's home use of Internet to chat/blog, by age[4].

Similar national data are not available specifically for gay men and other MSM in Canada, however, data to reflect trends among gay men and other MSM in Ontario were available. In 2002, the Ontario Men's Survey recruited 5,080 men from 13 communities. Among the questions posed was whether men had used the Internet to seek sex in the previous six months. Descriptive analysis suggests that there is a clear stepwise trend by age (Figure 7) with younger men more likely to report Internet use to seek sexual partners than older men.

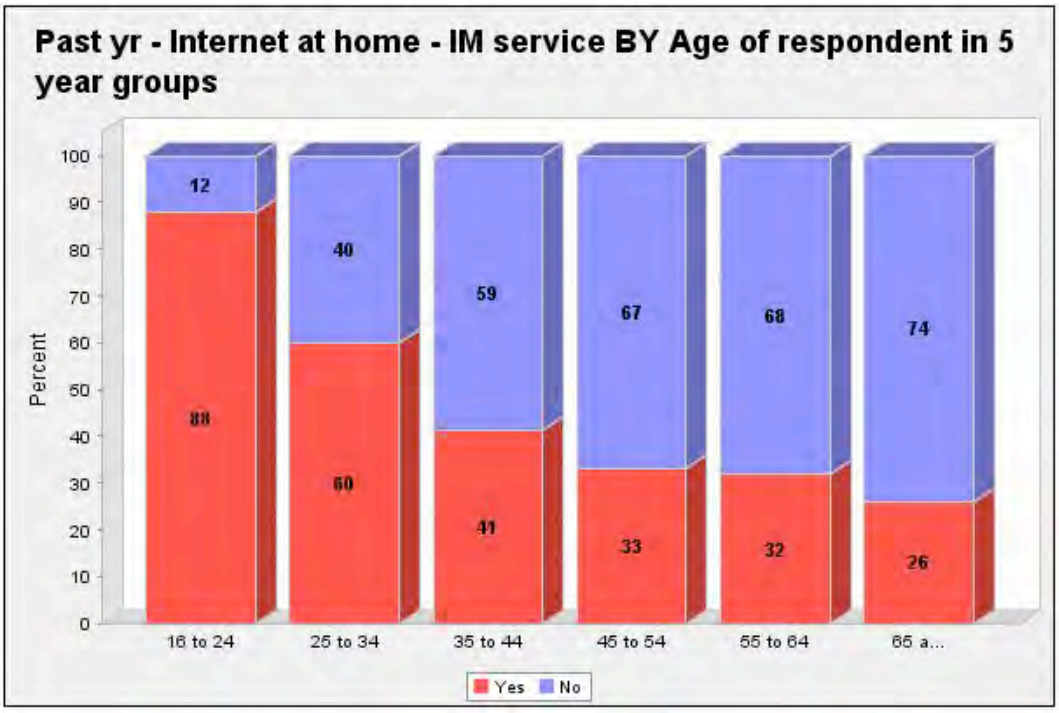

Figure 6. Men's home use of instant messaging, by age[5].

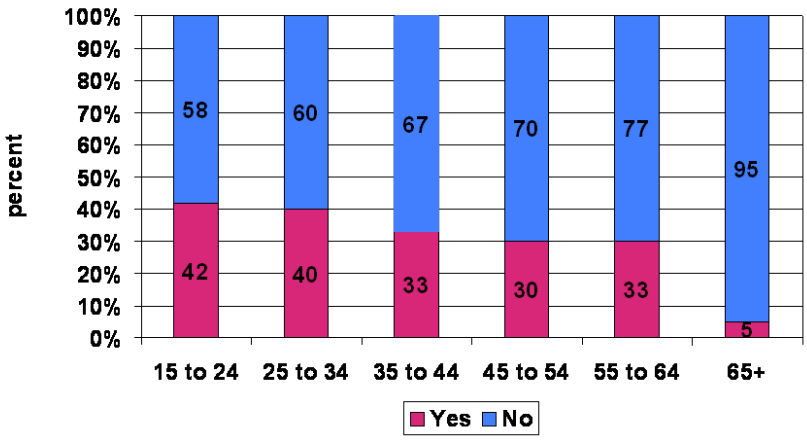

Figure 7. Proportion of men in 13 Ontario communities who looked for sex with men on the Internet in the past 6 months, by age[6].

Five years later, a similar question was asked of the M-Track Ontario [Lambda] sample of self-identified men who have sex with men from the province of Ontario. This study used similar recruitment methods as the Ontario Men's Survey. In the 2007 Lambda study, younger men were also more likely than older men to report using the Internet to look for sex (Figure 8). Interestingly, as illustrated in Figure 9, there was a near-consistent trend for more men in all age groups to report using the Internet to seek sex in 2007 than in 2002.

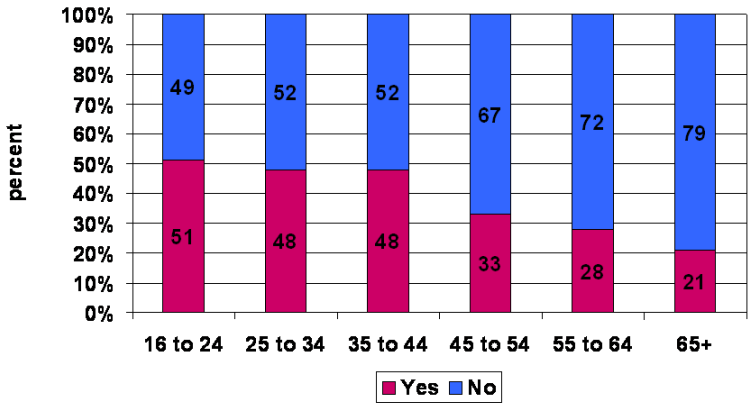

Figure 8. Proportion of men who looked for sex with men on the Internet, past 12 months, by age[7].

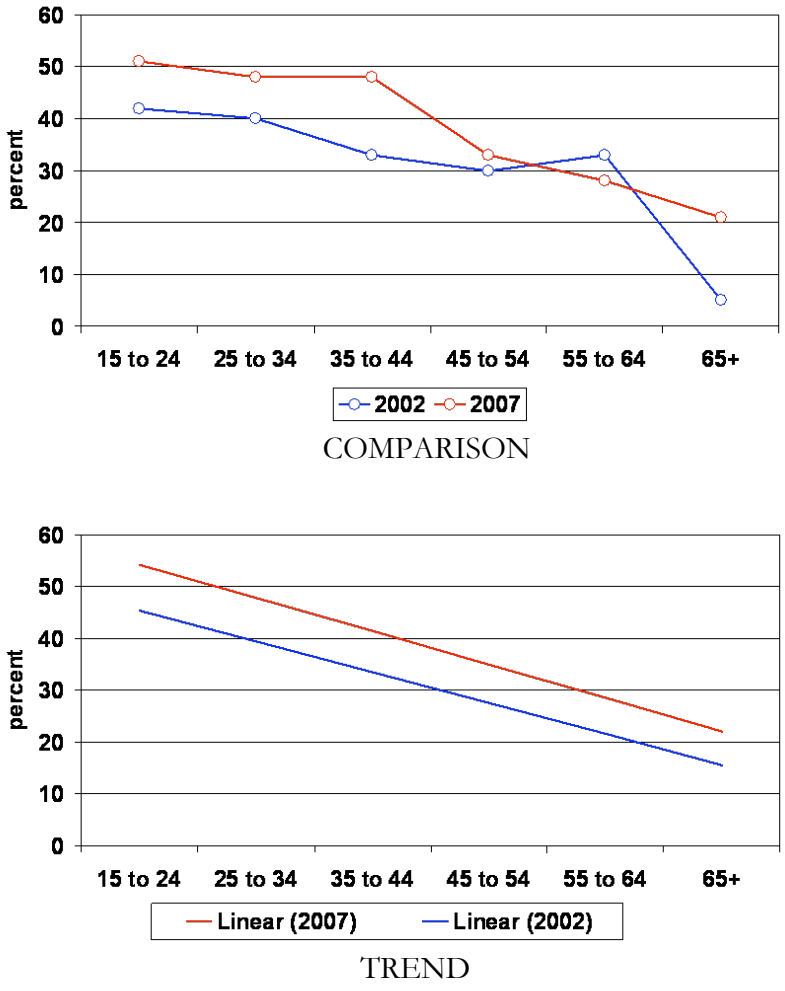

Figure 9. Comparison and trend lines for men in Ontario's reported use of the Internet to look for sex in 2002 and 2007, by age[8].

The analyses of the first three data sets support our argument about how in Canada, men of varying age groups, including gay men and other MSM, use the Internet in different ways. Analysis of Forrester's 2008 North American Technographics Benchmark Survey build on this by illustrating that in a sample of North American men,

associations between age and Internet use can be similarly sorted along the rungs of the ladder of social technographics (Figure 10).

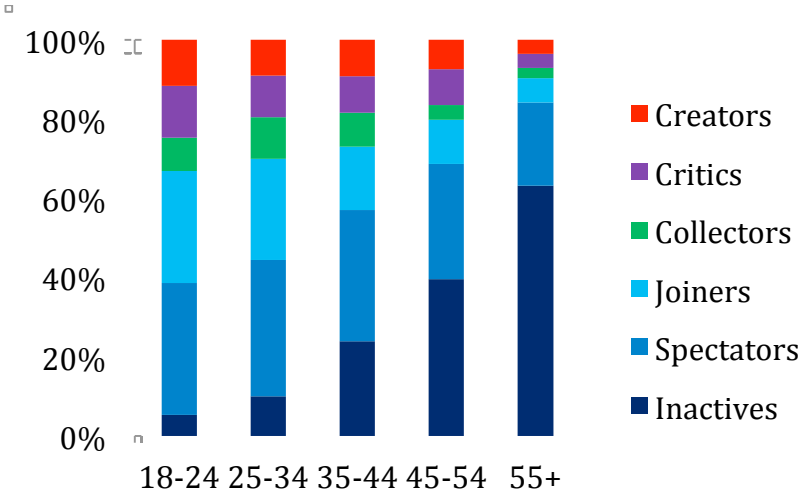

Figure 10. The social technographics of men in Canada and the United States[9].

As the figure shows, the trend was for younger men to report more participatory social web activity and greater content creation. For example, 11.6% of respondents 18 to 24 years of age and 9% of those 25 to 34 years of age were able to be classified as Creators while only 7.5% of those 45 to 54 years of age and 3.5% of those 55 years of age or older were similarly classified. In contrast, 84.2 % of those 55 years of age or older were able to be classified as Spectators or Inactives, and 68.7% of those 45 to 54 years of age compared to 44.5% of those 25 to 34 years of age and 38.6% of those respondents 24 years of age or younger.

Discussion

This paper has conducted a series of trend analyses to illustrate generational differences among men in different parts of Canada, and their use of the Internet and the social web. It has focused on gay men and other MSM and their reported use of the Internet to seek sex. While the datasets are marked by differences, including variation in study objectives, populations, recruitment strategies and final samples, together their analyses inform a narrative of the socially technographic male. The data examined suggest that the technographics of men in Canada including gay men and other MSM are structured by age. Concurrently, analysis has shown that the younger the man, the more likely he is to be a Creator and Critic, in addition to being a consumer of social content; whereas, the older the man, the more likely he will be either a Spectator or Inactive as a consumer of social content.

As a story about how different kinds of men use the social web, the results from these analyses reflect on the degree of men's "Web 2.0-ness" (Chiang, Huang & Huang, 2009). That is, that younger men have more Web 2.0-ness, or are more *Web 2.0 inclined*– both in their increased likelihood of using the web to engage with and create social content, and in their likelihood to use the web to seek sex.

Yet, this study has not considered an array of other demographics, including gender, geography, education and socioeconomic status. Following Kippax (S. Kippax, personal communication, June 12, 2011) and Mahajan et al., 2008, we argue that these determinants or structural drivers act as additional social *(re)producers* that mitigate how

individuals access the Internet. In particular, both geographical and socioeconomic differences can play a role in structuring men's ability to interact with the Internet, and the degree of participation with which they interact.

Implications for HIV Research, Prevention and Outreach

A social technographic approach holds that contemporary marketing and consumer engagement perspectives require consideration of how a target audience will come to be engaged, what will be offered to engage them, and specific to the web, the ways that different kinds of content, features, activities and interfaces can create paths for participation(Li et al., 2007). Incorporating a social technographics perspective into HIV research, outreach and prevention activities would begin by understanding the social technographic profiles of the target audience(s) and to develop understandings of the social computing technologies these audiences both favour and tend to use. It would also do this to develop and make available different opportunities for participation that match or are attractive to the distinct ways these technographic groupings tend to approach and utilise the social web. This could include simple, non-threatening ways for first-time Creators to contribute, as well as prevention and outreach activities sufficiently flexible to be able to adapt to changes in utilisation, for those contexts where people's technographics evolve across the life course (Boehmer et al, 2012). An example is when those active as Spectators evolve to become Collectors, or when Collectors advance to become Creators (Li et al., 2007) as in Figure 11 below.

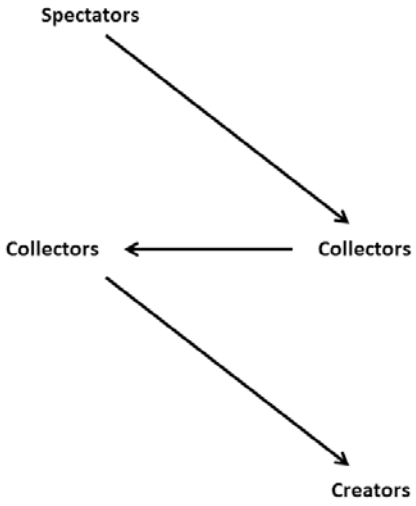

Figure 11. Potential technographic evolution across the life course.

At the same time, a technographically-informed approach would have us remain attentive to the ways that developments within the social web can occur at a rate that may challenge research and outreach. Thus, efforts may be required to rapidly develop equally as responsive strategies to implement contact, outreach and recruitment while preventing attrition (Bennet & Glasgow, 2008).

For researchers, the preponderance of Web 2.0 applications may speak to Bauman's (2007) and Beer's (2008) descriptions of "confessional society". That is the kind of society where people purposefully and actively participate in publicly revealing many different kinds of information about themselves. Certainly the utility of user-generated

confessions as a data source for the content analysis of social artefacts are numerous (Brown & Bobkowski, 2011; Hum et al., 2011; Small, 2011; Denecke & Nejdl, 2009; Hinduja & Patchin, 2008), as are the opportunities to reach a broad, diverse base. At the same time however, the research enterprise needs to contend with the fact that it and the researchers:

> …are not the intended audience towards which these confessionals are aimed. Web 2.0 users are not generating and organising the content of Web 2.0 with us in mind or with the intention of helping us to find answers to our research questions. Their agenda, in this case the user of Web 2.0, is somewhat different to our agenda as researchers. (Beer, 2008, p. 627-28)

We argue that HIV research, outreach and prevention can better learn from the wired confessions of gay men and other MSM, by attending to the sociotechnographic profiles of the men in question. In reflecting on the divergent datasets explored here, on the overlapping trends identified, and on reflections in the literature that validate these findings, we argue that research, education and outreach across these wired venues will need to consider how to modify or complement existing approaches that utilise the social web. This is because while research and other activities that incorporate social content may be well-suited to being observed, responded to, organised and disseminated to others by younger men, similar activities aimed at older men in Canada also should consider concurrently tailoring more traditional forms of outreach and interaction.

Conclusion

To consider the social technographics of gay men and other MSM in Canada, we used trend analysis to highlight technographic patterns between subgroups. We argue that the Internet alone is not sufficient to reflect and shape social and sexual lives. Rather, consideration of the power of the Internet to modify social and sexual lives needs to account for how social producers such as age, geography and accessibility act to moderate lived experience. As Wellman and Hogan (2004) explain:

> The Internet plugs in to existing social structures: reproducing class, race, and gender inequalities; bringing new cultural forms; and intersecting with everyday life in both unconventional and conventional ways. (p. 390)

We agree that the early Internet was an arena in which individuals could explore and express aspects of sexuality free of the kinds of fear-based structures experienced elsewhere. However, we would add that understandings of the ways people interact with virtual environments as Web 1.0 users, as described by Hall et al. (2009), may benefit from new thinking. This is because what differentiates the use of Web 1.0 from the more social practices of Web 2.0 is that some of the social producers influencing the content consumption of Web 1.0 will likely differ from the participatory practices of 2.0's social web. An example of this would be older, more technologically-inactive men who may not find it quite so easy to fluidly incorporate new forms of social structures into their social lives. It might be also that the divide between life lived on and off the Internet, may be reflective of forms of risk and harm minimisation compartmentalised not only by risk environment, demographic or determinant, but by technographic as well.

This paper has not considered risk relative to social technographics. It has considered the seeking of sexual partners via the Internet and its relationship with age, yet not whether seeking sex in itself is inherently risky. While some have suggested that those who use the Internet to seek sexual partners may be greater risk takers, this paper cannot contribute to this debate other than to inform a nascent body of literature which reflects on the technographics of those that use the social web. At the same time, the web and patterns of web use, in a country like Canada, have proved far from static. Because of this,

> …the story would not stop here. Just as Web 1.0 resulted from how we used the read-only Web (eCommerce, search engines, etc.), and Web 2.0 has resulted from the applications that have been built based on the interactive Web (blogs, wikis, social networks, etc.), so Web 3.0 will be the result of applications that are built based on the Semantic Web and a Web of linked data. (Hall, de Roure & Shadbolt, 2009, p. 1000)

Technology and the kind of technological determinism suggested by Ellul (1964) and others is not the sole source of gratification driving Internet use, regardless of how the technographic trends for that use might be stratified. For those who do use the social web to create or access opportunities for sex, gratification can appear in multiple forms. Some of these forms may be purely voyeuristic, while others intimately interpersonal. Forms of collaboration, content sharing and culture construction may be shared with other, more proximally-intimate activities to become "remixed, redistributed and reconsumed" (Harrison & Barthel, 2009, p. 157), and in doing so may gratify users by providing them a continuum of active, generative roles.

How then, in an evolving era of transformative virtual intimacies, might HIV work itself evolve in response? One approach in an age when many of the socio-cultural traditions and interpretations we seek to understand are being abandoned or reconfigured (Barraket & Henry-Waring, 2008), would be to seek to interpret the social world through lenses that lend themselves to the kinds of theoretical frameworks that allow our understandings of intimacies in the global era to be detached from traditional interpretations. For example, to subscribe, as Gross (2005) has suggested, to Bauman's (2003) argument that virtually-contingent intimacies reflect a "liquid love" which itself is built upon a kind of undulating "liquid modernity", where virtuality acts to privilege desire over any intimacy sought. Utilising the social web for sexual purposes does allow "participants with the opportunity to collect new sexual experiences and engage in sexual activities with a diverse range of partners in a relatively safe and playful setting" as well as to contribute to forms of sexual empowerment (Whitty, 2008 cited in Döring, 2009, p. 1095). Perhaps Web 2.0 allows those who access it even more sexual empowerment through its liquefaction of both desire *and* intimacy, all from the relatively removed position of a confessional interweb.

Successfully interacting within the Internet's confessional society requires an element of willingness on the part of the actor to cooperate with the norms and rules governing our increasingly public demonstrations of what have traditionally been private worlds. For to be unable or unwilling "to fulfil this obligation to confess" is to be "left behind, excluded, derided, pushed into a variegated and heterogeneous 'underclass' of 'failed consumers'" (Beer, 2008, p. 624 referencing Bauman, 2007).

The lessons such considerations offer to those who are seeking to capitalise on the social web for purposes related to HIV research, prevention and outreach are multiple.

One lesson for interventions that intend to harness the utility of the Internet would be to consider how the liquidity of the virtual environment varies by type of user, and how this may be patterned by the array of determining factors suggested by Wellman and colleagues (Wellman & Haythornthwaite, 2002; Wellman & Hogan, 2004). As we have argued here, the role of age relative to Internet use would be one of the factors to consider.

Another lesson for HIV research, prevention and outreach would be to recognise that even when considered through the lens of socially producing or structuring categories, users may not necessarily be homogeneous. Further, that it is almost certain that use and investment in the Internet will ebb and flow across the course of any given man's life course, as he ages, as technology evolves, as his use evolves with it, and as mechanisms come into play that both facilitate but potentially also obstruct an individual's degree of Web *.*-ness—where the MS-DOS-like wildcard *.* represents 1.0, 2.0, 3.0 or beyond.

We would argue that an additional point of consideration and of caution would be for HIV research, prevention and outreach practitioners and the policies that guide and inform them to guard against tendencies to focus work only on the seemingly ever-expanding frontier that is the World Wide Web. We argue that to place all efforts completely in virtual environments, or even in computer technology-based environments (Noar, 2011; Noar, Black, & Pierce, 2009; 2010) risks negating that while the Internet may play a facilitative role in HIV infection, HIV cannot be transmitted via the electronic currents that drive these virtual environments. Rather HIV is transmitted by human physical relations. As such our attentions to the porousness of the HIVe should be complemented also by our attention to the harder and fleshier physical world.

Throughout this paper we have argued that HIV research, prevention and outreach that employ social media have a better likelihood of successful impact when targeted to younger age categories of men in Canada. Additionally we argue research, prevention and outreach activities aimed at older age categories of men will have a greater likelihood of impact when utilising more traditional forms of communication. This is not to imply that older men should be excluded from HIV work that seeks to engage them with social media, but rather, that our findings suggest that many older men are less engaged with social media because they tend to direct their energies towards more traditional forms of social interaction. We would contend that these differential forms of engagement result in part from kinship practices, as well as the habits and identities employed by older men as they navigate spaces where men meet or interact with other men for sex.

Our argument has built on analyses that highlight the ways that the patterns of gay men and other MSMuse of new mediums for social and sexual purposes may continue to evolve as different and more varied social media communication applications become available. Also, and importantly, how, as a result, HIV research, prevention and outreach interventions will need to continue to monitor these developments in order that they may shift accordingly. Such activities would be encouraged to consider stratifying research recruitment, information delivery and outreach educational activities based on the kinds of social technographics reflected in this paper, so as not discriminate or otherwise negate late or non-adopters of the kinds of liquidities promoted by the social web. This is a profound challenge for public health and for community development to improve the impact of liquid HIV prevention in a Web *.* world.

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