Shifting Business Women's Perspective of Information and Communication Technologies: To further their own representation in business

By

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ABSTRACT

Women are underrepresented in business on a global scale. Governments and multinational organizations recognize this problem and have developed, and continue to design, public policies and action plans as possible solutions. However, these 'solutions' are ineffective, as gender inequality is still a problem within business. Information and communication technologies (ICTs) have empowered women by providing them with economic opportunities, political participation, skill building, and access to better healthcare and nutrition. Business women have the capacity to use ICTs as tools to further their own representation in business, as it is already integrated it into their lives. However, business women do not understand that ICTs have the ability to support not only their immediate needs, but also their more complex struggle with gender equality. In what way can ICTs help business women be their own 'agents of change' to realize gender equality in business? The purpose of this study is to shift business women's perspectives of information and communication technologies (ICTs) potential, so they realize it can be a tool that enables women toward gender equality. By using a mixed-method structure the research was able to analyze both quantitative and qualitative datasets to develop a holistic representation of business women's perspective of ICTs, as it allowed for both statistical and contextual data to be analyzed. The findings suggests that business women have the capacity to use ICTs; however, they do not understand its potential. By teaching business women about the influence ICTs have, and how to optimize that ability, they will be able to use technology as a resource to further their own representation in business.

KEYWORDS: Information and communication technologies (ICTs), business women, policies, gender equality, self-empowerment, innovation

ACKNOWLEDGEMENTS

To my family, without you I would not be here today. 'Thank you' is not strong enough to encompass the love and gratitude I have for you all.

To the incredible women in my life: Mom, Aunt Carla, Brynlyn and friends, thank you for continually reminding me the strength and wisdom women possess.

To my support systems, you know who you are, thank you for being on this journey with me and encouraging me throughout this whole process.

DEDICATION

To my Dad, I miss you and I hope I've made you proud

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INTRODUCTION

Women are underrepresented in business on a global scale (Thebaud, 2015; Marlow &

Swail, 2014; Medland, 2016). Governments and multinational organizations recognize this

problem and have developed, and continue to design public policies and action plans as

possible solutions (Prugl & True, 2014; *Ten years on from Norway's quota for women on*

corporate boards, 2018). However, these 'solutions' are inefficient, as gender equality is not

always the main focus of these initiatives; and as statistics will illustrate gender equality has still

not been achieved within business (Hawkes, Buse & Kapilashrami, 2017; Calkin, 2016; *Ten*

years on from Norway's quota for women on corporate boards, 2018). Information and

communication technologies (ICTs) have empowered women by providing them with economic

opportunities, political participation, skill building, and access to better healthcare and nutrition

(Cardoso & Sorenson, 2017). With proper access ICTs can help women feel self-empowered,

as it mitigates their challenges and supports their needs (Cardoso & Sorenson, 2017). In what

way can ICTs help business women be their own 'agents of change' to realize gender equality

in business?

Business women have the capacity to use ICTs as tools to further their own

representation in business, as it is already integrated in their lives (Liu & Guo, 2017; *The*

Internet and Digital Technology, 2016). However, business women do not *understand* that ICTs

have the ability to solve not only their immediate needs, but also their more complex struggle

with gender equality. By making business women aware of ICTs potential, more business

women can take advantage of its offerings, which will result in more women starting their own

businesses or getting promoted within organizations. The purpose of this study is to shift

business women's perspectives of information and communication technologies (ICTs)

potential, so they realize it can be a tool that enables gender equality.

Business woman is a broad term, as there are many different types of business and many different ways women are involved in business. This study focuses on female entrepreneurs and senior business members, as they hold position of 'authority' and are considered 'leaders', as they are accountable for and advise those around them. For the purpose of this study, female entrepreneurs refers to women that start or own a business; while senior business member refers to women on boards of directors and female executive-officers, vice presidents, and managers. These business women have the ability to significantly influence other women in business, due to their respected positions. These business women also have the potential to mentor and empower the next generation of women, which furthers their ability to encourage and achieve gender equality in business. However, even these powerful business women are unaware that ICTs can enable gender equality, as they have not been exposed to its full potential.

Governments and multinational corporations also do not recognize ICTs as an enabler of gender equality, which is exemplified through their continued development of public policies and action plans. Public policies are "declared State objectives relating to the health, morals, and well being of the citizenry" (*Public policy*, 2018). Governments develop policies to influence the behaviour of its citizens, such as: sanctions, regulations, taxes and subsidies (*Changing behaviour: A public policy perspective*, 2015). Policies are considered 'solutions' to social issues as they have and continue to successfully modify citizen behaviour. For example, a number of policies surrounding domestic violence have been successful, as the number of police-reported rates of family violence are generally decreasing (*Section 1: Overview of family violence*, 2015). Many other social issues have been improved due to public policy implementation, such as: broadcasting policies that regulate television programing, trade policies that control the import and export of goods, defence policies that monitor and maintain national security, and many more (*Policies, regulations and laws by department or agency*, 2018). However, the growing number of complex political problems is limiting the effectiveness

of policies, as without the support of additional tools and engaged citizens behavioural policies will continue to lose their purpose (*Changing behaviour: A public policy perspective*, 2015). With regard to gender equality, citizens are engaged, which is exemplified through the Women's March. For the last couple of years women have been marching all over the world to advocate for their rights through the Women's March, which is a day when women gather together to protest their right to equality (*#ThisIsGlobal*, 2018). This display of unity represents women's engagement with regard to achieving gender equality; therefore, governments are not lacking engaged citizens, but a 'tool' to support their gender quotas and policies.

Since the effectiveness of government policies is limited, action plans are being, and continue to be, developed through public-private partnerships (PPPs) (*What are Public Private Partnerships?*, 2018). PPPs are "long-term contracts between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility" (*What are Public Private Partnerships?*, 2018). PPPs are considered effective alternatives to public policies in 'solving' social issues, as "increased inefficiency in public service provision, fiscal constraints and public demands have led to a growing number of associations between public and private sectors for service provision" (Shi, Chong, Liu, et al., 2016). For example: The World Bank's partnership with the Nike Foundation for 'The Girl Effect' campaign, which was launched in 2008 (Calkin, 2016). The purpose of this campaign was to "raise awareness of the 'unique potential of adolescent girls to end poverty themselves, their families, their communities, their countries, and the world'" (Calkin, 2016). Many other social issues are resolved through PPPs, such as: water and wastewater management, affordable housing, sustainable infrastructures and many more (Hobbs, 2016). However, research suggests that some private sector partners in PPPs are not interested in achieving social change, as they are only interested in enhancing their moral image and increasing their corporate profits (Calkin, 2016).

Recognizing the inefficiencies of these public policies and action plans is the first step in developing an alternative solution or tool, however, this requires some reflection to determine how the policies and plans went wrong. Research suggests that there is little to no reflection on "who is being excluded from these efforts and what issues are being silenced" (Prugl & True, 2014), with regard to women empowerment principles. Therefore, it can be inferred that perhaps governments and multinational corporations are not morally invested in achieving gender equality, as they are not committed to implementing their policies or plans. Instead of developing a tool to support public policies and action plans, women can re-examine an existing resource which they themselves can use to realize gender equality.

ICTs refers to information technologies and communication technologies, as separate entities, encompassing a variety of technological softwares and devices (Giles, 2017). Examples of ICTs include: "the internet, mobile phone systems, broadcast radio and TV systems", and many more (*ICTs in everyday life*, 2018). ICTs have impacted and continue to greatly influence society, as it has "helped reduce poverty, increased domestic productivity, improved governance, strengthened public service delivery, and boosted economic growth" (Cardoso & Sorenson, 2017). Considering the positive impact ICTs have made regarding other complex social issues, perhaps it's also able to positively influence gender equality. ICTs have affected women's empowerment through the education, presentation, and discussion of alternative attitudes and understandings of gender equality (Cardoso & Sorenson, 2017). For example, providing women in India with access to television systems has led to "an increase in women's share of household decision-making, a decrease in fertility and son preference, and a substantial and long-lasting reduction in the acceptance of wife beating" (Cardoso & Sorenson, 2017). These successes are a results of new information and exposure to alternative ways of living, which therefore, alters women's current values and norms (Cardoso & Sorenson, 2017). However, unlike women in India, North American women tend to already have access to ICTs, as 76% of Canadians and 77% of Americans own smartphones (*The Internet and Digital*

Technology, 2016; Smith, 2017). Therefore, it is not necessarily the accessibility of the ICTs that will empower women to achieve equality in business; it is the awareness and intentional application of ICTs capabilities that will make the difference. Women must have access to and intentionally use the ICTs, as they cannot optimize its capacities without focusing on recognizing gender equality.

This exploratory study focuses on business women; therefore, 47 female entrepreneurs and senior business members, from Canada and the United States, were invited to participate. The women's age ranges between 20 to 65 years old, which represents the traditional working years for Canadian and American women. Although limiting participants to a single gender could lead to some biases, it is essential to this study as business women and their perspective on technology are the primary focus. This study acknowledges the importance of men in overcoming gender inequality, and by no means is this study making any attempt to 'avoid' male involvement with this issue (Teixeira, & Bomfim, 2016). However, this study does focus on women, therefore, they represent the whole sample group. To avoid complicating this study, as it is more of an exploratory initiative, sexual orientation, gender identity, or race were not discussed or recognized. Refraining from considering these identifications could impact the results of the study and potentially make some readers feel neglected. However, that is not the intention of this study. This research study is very broad, in the sense that it focused on women in general no matter their gender identity, sexual orientation, class or race, which are all areas that can be included in future research.

This study uses a mixed method approach, as research suggests a blend of quantitative and qualitative data leads to more robust insights and understandings (Creswell, 2006). An online email survey was sent to all participants, which 21 participants completed the 28 multiple choice and short answer questions that was calculated to take approximately 20 to 25 minutes to complete. Only four participants were interviewed, they were selected based on their survey responses, to provide more context to the study which took between 15 and 30 minutes. This

study utilized primary research from a survey and interviews because it provides the most recent insights and findings (Driscoll & Brizee, 2017). Although, most researchers analyze readily available survey data from many different databases when examining female empowerment and women in business, as it contains a greater quantity of information (Thebaud, 2015; Filculescu, 2016; Cardoso & Sorenson, 2017). However, this exploratory study wanted the most recent insights, as it would more accurate illustrate the shift in perspective; even with a smaller number of participants the most recent opinion was attained.

This study aims to shift business women's perspective of ICTs capabilities, as it can help solve not only their immediate challenges but also their struggle with gender equality, as business women need to become aware and learn how to intentionally use ICTs to achieve equal representation in business. Women use ICTs to their most efficient state, but knowing and using the full capacities of ICTs makes the scope of gender equality easier to manage.

RELATED LITERATURE

Business Women

Female entrepreneurs and senior business members are underrepresented globally (Thebaud, 2015; Marlow & Swail, 2014; Medland, 2016). There are societal, governmental, internal and external business structural barriers, which hinder women's abilities to become entrepreneurs or advance in seniority within organizations (Johns, 2013). One of the main struggles all business women face is balancing their time between their personal and professional lives: 'work-life' balance (Teixeira, & Bomfim, 2016). However, business women have made some strides to increase their representation since the acknowledgement of the 'glass-ceiling', through organizational programs, education, and work-family conflict policies (Ng & Sears, 2017). Although, these policies and programs have not resulted in gender equality, as women are still underrepresented. Research suggests that women's participation in business is associated with higher levels of economic development, stronger communities, and more competitive business ecosystems (Terjesen, Bosma & Stam, 2016). Research rationalizes that these social benefits are a result of women's innovative abilities, as they are "prone to introduce innovative products and services to the market" (Dezsö & Ross, 2012; Filculescu, 2016; Terjesen, Bosma & Stam, 2016). It is important to examine possible ways to increase women's representation in business as research suggests it has a direct impact on society's interpretation of the gender divide (Sobering, Thomas & Williams, 2014).

Unfortunately the realm of entrepreneurship is still widely recognized as a male dominated field, which further exemplifies the lack of female representation (Marlow & Swail, 2014). To illustrate that claim, here are a few statistics relating to female entrepreneurship: In the late 2000s, in the United States, women only represented 28% of all privately owned firms (Thebaud, 2015). In 2014, in Canada, majority female-owned small and medium enterprises (SMEs) accounted for 15.7% of all Canadian SMEs (Rosa & Sylla, 2016). Globally, in 2016, "an

estimated 163 million women were starting or running new businesses in 74 economies around the world. In addition, an estimated 111 million were running established businesses" (Kelley et al., 2017). Women also represent one third of all new entrepreneurs and one fourth of business owners; however, this does vary by country (Teixeira & Bomfim, 2016). The number of female entrepreneurs is slowly increasing; however, they remain underrepresented (Kelley et al., 2017).

Similarly to female entrepreneurs, senior female business members are also underrepresented. Globally, only 24% of senior business roles are held by women (Medland, 2016). Approximately 33% of all firms globally have no women in senior management positions (Medland, 2016). Even in the G7 countries, women are underrepresented, as only 22% of senior business roles are held by women (Medland, 2016). Approximately 39% of all firms in the G7 countries have no women in senior management positions (Medland, 2016). In this instance, it is shocking to realize that less women are in senior business position in G7 nations than globally (Medland, 2016). With regard to women on boards, globally in 2015, only 15% of boards had women (Orsagh, 2016). Countries with the highest female representation on boards were Norway at 40.1%, Sweden with 33.7%, and France with 33.5%, (Orsagh, 2016). Again, although the number of women in senior business position is slowly increasing, equality has not been achieved.

Female entrepreneurs and senior female business members encounter a few different barriers. Female entrepreneurs struggle with "financing, owning and growing business, including access to capital and technology, lack of networks and knowledge resources, limited market linkages, challenging social and cultural norms, as well as legal, regulatory and policy obstacles to business ownership and development" (*Women Entrepreneurs Finance Initiative Governance Framework*, 2017). While the barriers that senior female business members encounter are a little more abstract, such as: Structural issues within society and corporately, perceptions of gender and leadership, prejudices and discrimination (Schwanke, 2013). However, the one barrier that all business women struggle with is 'work-life' balance, as women have difficulty

distributing their time between work and family, which leads to emotional and physical distress (Teixeira, & Bomfim, 2016). A 'work-life' imbalance is cause for major life dissatisfaction and withdrawn behaviour, such as: "impact stress, employee withdrawal, burnout, and other ills" (Phipps & Prieto, 2014). For example, The United States is one of the only developed nations that "does not have a national paid-leave policy for mothers and fathers after a baby is born" (Phipps & Prieto, 2014). To overcome this struggle, companies can develop explicit or implicit policies to help alleviate this issue, such as: codes of ethics, incentives systems, or flexible corporate culture (Phipps & Prieto, 2014). However, these are not always effective, and therefore, business women need a tool that will support their organizations policies to help further alleviate work-life imbalance as it is still a concern (Phipps & Prieto, 2014).

There are many benefits to gender diverse business environments, such as: better talent recruitment, improved customer bonds, greater employee satisfaction, increased innovation and decision-making, and stronger company image (Hunt, Layton & Prince, 2015). Gender diverse organizations have better talent selections as they have "access to more sources of talent, gain a competitive recruitment advantage, and improve its global relevance" (Hunt, Layton & Prince, 2015). Companies align their organizational beliefs alongside their customers to establish and secure a bond, this tactic influences their profits by developing stronger customer relationships (Hunt, Layton & Prince, 2015). Diverse organizations "boosts individuals' confidence and self-esteem, while breaking prejudices" (Hunt, Layton & Prince, 2015), which results in greater employee satisfaction and retention (Hunt, Layton & Prince, 2015). Innovation and decision-making are increased within diverse organizations, as different perspectives lead to better discussions and solutions (Hunt, Layton & Prince, 2015). Furthermore, company image is increasingly important, especially their social responsibilities, which directly affects customer opinions, and therefore, profits (Hunt, Layton & Prince, 2015). It should also be noted that companies that prioritized gender diversity were 15% "more likely to have financial returns that were above their national industry median" (Hunt, Layton & Prince, 2015). A focus on gender

directly influences organizations personnel and profits and society's understanding of equality; therefore, the continued pursuit of equality is essential in business to increase society's awareness and support of gender diversity.

In summary, business women are underrepresented all around the world. There are many reasons women have difficulty increasing their presence within business, however, the primary factor is their struggle to responsibly balance their time between work and family. A focus on mitigating the challenges that hold women back is important, as it affects company's bottom lines and society's interpretation of gender.

Public Policies & Action Plans

Public policies and action plans are governments and multinational corporations attempt to resolve gender inequality in business (Prugl & True, 2014;*Ten years on from Norway's quota for women on corporate boards*, 2018). Globally, legislative policies have and are being developed to further the number of women on boards, working within organizations, and female-led businesses (*Ten years on from Norway's quota for women on corporate boards*, 2018). Action plans are also being developed through PPPs which focus on empowerment and gender equality (Calkin, 2016). However, these initiatives have yet to be successful, as public policies are not being enacted upon by governments and corporations have ulterior motives (*Ten years on from Norway's quota for women on corporate boards*, 2018; Calkin, 2016). It is important to recognize the limitations of these policies and plans so that alternative solutions, such as furthering women's awareness of ICTs capabilities, can receive the necessary resources for successful enlightenment.

European governments are really focusing on gender equality in business, as many of them have designed public policies that require a certain percentage of women to be on public boards (*Ten years on from Norway's quota for women on corporate boards*, 2018). In 2008, Norway passed a policy that required companies to reserve 40% of their "director seats for

women on pain of dissolution" (*Ten years on from Norway's quota for women on corporate boards*, 2018). Between 2008 and 2013 many other European countries followed Norway's example and set quotas between 30% and 40% (*Ten years on from Norway's quota for women on corporate boards*, 2018). In Germany, Spain, and the Netherlands, these quotas are considered 'soft-laws' and no 'punishments' are handed if the quotas are not obtained (*Ten years on from Norway's quota for women on corporate boards*, 2018). However, in Belgium, France and Italy, existing directors are not paid if their organizations fail to maintain the quotas (*Ten years on from Norway's quota for women on corporate boards*, 2018). These quotas are referred to as the '30% Club,' and unfortunately its successes are limited, as corporations have still not met these quotas, and nor have they helped women lower down in organizations (*Ten years on from Norway's quota for women on corporate boards*, 2018). Women are still underrepresented in business, as these policies no longer influence citizens the way they once did; therefore, governments need to revise and redesign how they support social change through their policies if they are to have a meaningful impact.

In Canada, the government has developed policies focused on supporting women in business, as they have committed millions of dollars to female-led businesses (*Budget 2018's Gender Results Framework*, 2018). For example, the government has developed gender budgeting policies through their Gender-based Analysis Plus, which allows them to design evidence-based policies to further women's representation in the workforce (*Budget 2018's Gender Results Framework*, 2018), such as: Committing $1.4 billion to financing female entrepreneurs through the Business Development Bank of Canada, and committing $880,000 to 20 female-led technology companies through their Fierce Founders Accelerator (*Budget 2018's Gender Results Framework*, 2018). Although it is admirable that the Canadian government has developed budget policies to support female entrepreneurs financially through specific programs, fiscal policies are not always effective as they often stimulate conflict and are decidedly inflexible (Green, 2018). Fiscal policies usually arouse conflict, as the aim is to

increase economic growth, however, reserving such a large portion of the government budget to a single purpose (i.e. female entrepreneurs) reduces other investment opportunities, which can slow the economy (Green, 2018). Fiscal policies can also be limited due to their inflexiblity, as there are usually delays in getting money to the applicants due to strict legislative processes (Green, 2018). With regard to smaller fiscal investment policies with smaller budgets, such as the $880,000 to 20 female-led technology companies, there is the concern whether the investment is even enough money to actually help these female business initiatives. The $880,000 is drastically less than the $1.4 billion the government's providing to female entrepreneurs, as the discrepancies between the two policies is unequal in itself. Therefore, although Canada has developed financial policies to support female entrepreneurs, these policies are limited with regard to furthering women's representation in business, as they are restrained by dollar amounts and often trigger conflicts.

Research suggests that PPPs action plans are more effective than government public policy at affecting citizen behaviour because corporations are becoming more influential than legislations due to globalization (Prugl & True, 2014). The technocratic and private sector organizations are behaving more like 'states,' which furthers their influence over society, as they illustrate their "value to society, [through] causes such as poverty eradication, labour standards, environmental sustainability, gender equality, and delivering welfare services" (Prugl & True, 2014). Alternatively, governments are acting like traditional corporations, which is lessening the impact of their policies, as they are trying to brand themselves and build an 'identity' through policy development rather than influence citizen behaviour (Prugl & True, 2014). Governments are currently "using business-speak, downsizing and privatizing" (Prugl & True, 2014), which is preventing citizens from connecting with their policies, as they do not understand the language or agree with the transformation. However, corporations have increased their focus on improving societal issues through social responsibility plans, which has captivated society's interest and commitment (Prugl & True, 2014). Although, when it comes to PPPs that focus on

female empowerment and gender equality, the morality of the private-sector partner should be questioned (Calkin, 2016).

In 2008 the World Bank partnered with "21 of 'the world's leading private sector companies' including Goldman Sachs, Boeing, Nike, Hindustan Unilever, and others" (Calkin, 2016) to develop The Global Private Sector Leaders Forum. The goal of the forum was to expand "economic opportunities for women worldwide" (Calkin, 2016). However, the 'leading private sector companies' that are members in this forum are not developing opportunities or programs for women because they are not commited or held accountable to produce (Calkin, 2016). Instead, the members of this forum are raising their corporate profiles by seeming to be socially responsible; however, they are not regulated or audited so they do not produce actual programs or initiatives to empower women (Calkin, 2016). Therefore, instead of empowering women, The Global Private Sector Leaders Forum is actually only increasing the profits of its members (Calkin, 2016). This is not to say that all PPPs are morally corrupt; however, the lack of regulation surrounding organizations social responsibility activities should be of concern, as it limits the impact PPPs have on influencing society.

However, the limitations of PPPs can also be analyzed from a broader perspective, such as the action plans developed for health. The Global Public Private Partnership for Health (GPPPH) is a powerful "component of the global health architecture, [as they] are seen as having significantly increased the resources available for global health" (Hawkes, Buse & Kapilashrami, 2017). There is no definition of GPPPH, however, it is recognized as "relatively institutionalized initiatives, established to address global health problems, in which public and for-profit private sector organizations have a voice in collective decision-making" (Hawkes, Buse & Kapilashrami, 2017). Researchers conducted a gender analysis of 18 GPPPH institutions and unfortunately identified that even the GPPPH is limited in terms of recognizing gender within its policies. The researchers found that half of the partnerships' action plans made no mention of "gender in their overall institutional strategy and only three partnerships had a specific gender

strategy" (Hawkes, Buse & Kapilashrami, 2017). The researchers also found that 15

partnerships had more men than women on their governing bodies, and "very few partnerships

reported sex-disaggregated data in their annual reports or coverage/impact results" (Hawkes,

Buse & Kapilashrami, 2017). Therefore, this research is just another example of the limitations

of public-private partnership initiatives in recognizing and achieving gender equality.

In summary, governments use public policies to influence citizen behaviour, such as

quotas to increase female representation on public boards and fiscal investments into female

entrepreneurs. However, these policies are limited, as governments cannot manage all the

complex political problems they are being thrown through policy design and development

(*Changing behaviour: A public policy perspective*, 2015). PPP action plans are an alternative

influencers to public policies, as corporations are influencing citizen behaviour more than

governments today (Prugl & True, 2014). However, PPP action plans are also limited in their

ability to influence gender equality change, because the private-sector partners are not always

held accountable, they are usually interested in 'seeming' to be socially responsible so their

profits will increase, and they sometimes simply do not focus enough on gender (Hawkes, Buse

& Kapilashrami, 2017; Calkin, 2016). Therefore, instead of relying on faulty policies and plans,

business women must become aware that they, themselves, have an alternative resources at

their fingertips which they can intentionally use to achieve gender equality in business.

Information and Communication Technologies (ICTs)

ICTs are information and communication systems that represent a variety of

technological softwares and devices (Giles, 2017). ICTs have transformed society and, more

specifically, empowered women (Cardoso & Sorenson, 2017). Business women must have

access and control over their devices for them to properly integrate into their lives, as "access to

new information and exposure to other ways of life, might alter values and norms" (Cardoso &

Sorenson, 2017; Liu & Guo, 2017). Business women must take advantage of the opportunities

ICTs provide them, as the internet is an enabler that provides lots of technical support (*3 reasons why ICT matters for gender equality*, 2017). Currently, technology is only supporting business women's immediate needs, such as designing and running marketing campaigns, as these are the only benefits they are aware of (Nord, Achituv & Paliszkiewicz, 2017). ICTs influence society's functionality, and business women have the capacity and opportunity to access, however, they are not optimizing its capabilities.

ICTs have and continue to influence social change, by reducing poverty, enabling learning, supporting global development, and much more (*The Value of Information and Communication Technologies (ICT) in Education*, 2012; Cardoso & Sorenson, 2017). With regard to women, ICTs have empowered women through learning, as its "been able to build self-confidence, increase their economic power and independence and make better-informed decisions" (Cummings & O'Neil, 2015). ICTs further the aspects of female empowered, such as building self-confidence, by providing them with the opportunity to "critically reflect...on their role in a global society," which increases their self-power (Cummings & O'Neil, 2015). ICTs have also "enable women to communicate with peers online, to exchange information and build solidarity" (Cummings & O'Neil, 2015). This form of engagement makes networking easier for women, which can lead to increases in their social capital and the development of women's movements (Cummings & O'Neil, 2015). Research also notes that women's use of ICTs has influenced and challenged "gender-based power relations" (Cummings & O'Neil, 2015), as it enables new information which furthers their exploration of the public sphere (Cummings & O'Neil, 2015). However, for ICTs to empower women and further their social growth, they must have access to and be able to control their technology.

Not all women have equal access to ICTs which "is a form of 'capability deprivation'", as these women do not experience the new set of skills or thinking that ICTs enable (Cummings & O'Neil, 2015). However, in Canada and the United States, women do have access to ICTs, as more than 75% of both populations own smartphones, which is just one specific ICT device

(*The Internet and Digital Technology*, 2016; Smith, 2017). With regard to other ICT devices, in Canada, 71% of people own laptops, 54% own tablets, 50% own desktop computer, 48% own digital cameras (other than smartphone cameras), 41% own GPS devices, 39% own 'smart' televisions, and 16% own 'non-smart' cellular phones (*The Internet and Digital Technology*, 2016). These figures suggest that most Canadians have access to one or more ICT devices. Therefore, although Canadian and American business women have access to ICTs, they are still underrepresented in business, which suggests that they are not taking advantage of the opportunities ICTs provide.

People's use of technology is influenced by many factors, including "socioeconomic variable, demographic variables, and educational" (Liu & Guo, 2016). However, women's use of technology is further influenced by perceived "ease of use and subjective norms" (Liu & Guo, 2016). Research also suggests that women are less likely to try new tech products than men, as they are more anxious while using technology (Liu & Guo, 2016). However, women have better control over their technological usage, as they are more self-regulating than men (Liu & Guo, 2016). This research suggests that with proper access ICTs can enable women if the devices or softwares are easy to use, others are using them, are reasonably priced, and provides some sort of social benefit (Liu & Guo, 2016). However, women are not using ICTs to further gender equality in business, as they are unaware that it has that potential. Currently, the perceived functionality of ICTs is to further communication with other people, save time, help decision making, and increase creativity (*The Internet and Digital Technology*, 2016). For business women, they are currently only using ICTs to: increase their communication, better customer experiences, gain exposure, recruit new customers to increase revenue, for marketing campaigns, building networks, and recruiting talent (Nord, Achituv & Paliszkiewicz, 2017). Although these usgages further women's performance in business, they do not directly influence gender equality, as women are not intentionally applying ICT capabilities toward empowering women to increase their representation in business. This suggests that business women do not

realize that ICTs have the potential to influence gender equality, as they are unaware of the other social issues its previously affected, like reducing poverty (Cardoso & Sorenson, 2017).

The benefits of ICTs are more easily recognized in Table 1: Benefits of ICTs, as it illustrates the overall social benefits of ICTs in impacting complex social issues, benefits of empowering women and how it does so, its perceived functionality and benefits, and the current benefits business women are optimizing.

Social Changes	Empower Women	Perceived Functionality	Business Women's Current Usage
▫ Increase domestic productivity ▫ Enable learning ▫ Boost economic growth	▫ Build self-confidence ▫ Increase economic power and independence ▫ Help decision making ▫ Build networks ▫ Challenge gender-based power relations	▫ Increase communication ▫ Save time ▫ Help decision making ▫ Increase creativity	▫ Increase communication ▫ Better customer experiences ▫ Gain exposure ▫ Establish marketing campaigns ▫ Recruit talent

(Table 1: Benefits of ICTs - Table reflecting the current benefits and usage of ICTs from four different perspectives)

In summary, ICTs are information and communication technologies that have and continue to transform society (Cardoso & Sorenson, 2017). With proper access, ICTs have empowered women with regard to their emotional development and physical perceptions (Cummings & O'Neil, 2015). Canadian and American business women have access to ICTs, however, because they are unaware that ICTs have affected social change, they are not applying it towards realizing gender equality (*The Internet and Digital Technology*, 2016; Smith, 2017). However, Canadian and American business women have the opportunity to use ICTs towards achieving gender equality in business, as they use such devices to fulfill their immediate needs (Nord, Achituv & Paliszkiewicz, 2017). Therefore, this research study aims to explore how ICTs can support Canadian and American business women's pursuit of gender equality in business.

METHODOLOGY

Participants & Procedures

As mentioned before, 47 Canadian and American business women, between the ages of 20 and 65, were invited to participate in this study. The primary research was gathered using a mixed-methods approach, to obtain quantitative and qualitative insights, as this structure has been known to produce more comprehensive findings (Creswell, 2006). All participants were asked to complete a 28 question survey which was available for one month; the response rate ended up being 44%. Eight women were invited to be interviewed, after the surveys were completed, there were four business owners and four senior members; however, only four women were actually interviewed to provide the findings from the survey with more context, as some of the short-answers were too short for their meanings to be properly understood. Five of the invitees had very short answers, sometimes even answering short-answer survey questions with one word; therefore, much more context was needed to understand the correct implication of the word. The three others were chosen because they represented the youngest participants, as most participants were over 51 year old, it was important to provide them with another opportunity to express their insights and opinions, so that the participants ages did not affect the findings too drastically. For example, one participants was invited to be interviewed because she was a very young 'business owner', between 20 and 25 years of age, so her perspective was extremely beneficial to this study as the majority business owner were over 51 years old. Therefore, although there were only four interviews conducted, eight women were invited to equally represent the insights of entrepreneur and senior member, all women invited to participate in the interview were chosen for their individual perspectives to provide the study with the most context. It would have been beneficial for this study if all 21 participants were interviewed so that more context could have been appropriated; however, due to the limited

length of this study and the time of year it was difficult scheduling interviews with these busy business women.

This research study relied primarily on secondary scholarly resources, however, an effective research study seamlessly integrates secondary sources with primary research to derive the most recent insight and thought provoking findings (Driscoll & Brizee, 2017). The primary research study combined qualitative and quantitative methods, as the complexity of the research question needed both datasets to gain a holistic understanding of business women's perspectives in relation to technology and gender equality. The statistical quantitative data was obtained from the online email survey for the purpose of comparing the different types of business women: entrepreneurs versus senior business members (Creswell, 2016). However, statistical data does not illustrate context, as it does not record interpretations; therefore, qualitative short answer questions were also included in the online email survey (Creswell, 2016). Although some qualitative data was collected from the online survey, the background and personal interpretations were not always clear, therefore, a few semi-structured interviews were conducted for clarification and enlightenment purposes (Creswell, 2016). The purpose of mixing datasets is to gain "a better understanding of the problem than if either dataset had been used alone" (Creswell, 2006). By combining the online email survey with the semi-structured interviews this study was able to confidently interpret the data. The context from the interviews and short answer questions made the statistical data more meaningful, which lead to a thorough analysis that resulted in a few comprehensible findings.

The term 'survey' "relates to a method of systematic data collection, where [researchers] ask people questions by using standardized questionnaires for the purpose of quantitatively analysing some target population" (Callegaro, Manfreda & Vehovar, 2015). Prior to the web, surveys were conducted face-to-face or over the telephone by an administrator that recorded interviewees responses on paper (Callegaro, Manfreda & Vehovar, 2015). ICTs actually altered the traditional survey process as answers, were "recorded electronically and computers enabled

numerous other improvements" (Callegaro, Manfreda & Vehovar, 2015). Due to the

enhancements of ICT, web surveys are more widespread, low cost, and faster which is

expanding its popularity and use (Callegaro, Manfreda & Vehovar, 2015). Web surveys are

mainly used for "website research, academia, and practitioners from mainstream disciplines

such as marketing" (Ilieva, Baron & Healey, 2002). This study used LimeSurvey to host the

online email questionnaire, as it is a recognized platform that the Research Ethics Board deems

reliable. A couple weeks after the invitations were sent out, and the participants consented to be

apart of this study, they were sent an email with a link to the survey. Participants were given a

month to complete the survey. Once the survey was closed, LimeSurvey organized the raw data

and assembled it for analysis.

It has been recognized that "email and web-based surveys provide more complete

information [than other methods]...by research conducted independently by different authors"

(Ilieva, Baron & Healey, 2002). The data from both web and email surveys is arguably more

valuable to researchers as it provided them with more robust insights; which could explain this

method's increased popularity (Callegaro, Manfreda & Vehovar, 2015). The researcher was

always able to return to the raw data that Lime Survey's organized, which was a huge benefit as

it allowed the analysis process to be iterative, as insights and findings were developed not just

during the analysis period but throughout the study. Upon reflection, this is the value of

analyzing online survey responses, the constant and instantaneous availability of the raw data.

This study chose to conduct an online email surveys due to time limitations and for reliable data

collection (Ilieva, Baron & Healey, 2002). The researcher wanted a method that was timely, as

this study had to be completed in a few months. Therefore, quick, organized, and reliable data

allowed for a longer and more comprehensive analysis. Although, the small sample size of this

study limits the robustness of the findings, the short-answer questions in the survey provided

the questionnaire with the 'complete' set of information required to derive thought provoking

findings from the raw data of the survey --- this limitation and more will be discussed in more

detail later in the report. The online survey fueled most of the findings; however, the semi-structured interviews provided the results with much needed context and clarification.

Interviews are 'conversations with a purpose'; however, "a good in-depth interview will appear naturalistic, [but] it will bear little resemblance to an everyday conversation" (Turner, 2017). They are essentially formal discussions between the interviewer and responder(s) that engage in a 'guided' series of questions, developed by the interviewer, which focus on the topics that needed to be covered (*Semi-structured Interviews*, 2008). Semi-structured interviews vary slightly from the traditional interview method, as the conversation is free to diverge from the guided questions and "is likely to change substantially between participants" (Fylan, 2005). Semi-structured interviews also vary from unstructured interviews, as the questions are not developed before the interview commences (Fylan, 2005). Unstructured interviews, although they have a research question or topic, have no order and can be considered 'exploratory' (Fylan, 2005). Semi-structured interviews do not follow a set format, they do have some structure, and the level of planning is based on the complexity of the research questions (Fylan, 2005). Semi-structured interviews are conducted on three occasions: 1) When constrained answers are not required and new ideas can be presented; 2) When some structure is required to explore a specific topic and ensure data collection; 3) When more than one person is conducting the interview (Mastroeni, 2016).

This study relied on semi-structured interviews to clarify some of the information derived from the online email survey, as it allowed new ideas to be discussed, but there was specific questions relating to the research topic that needed to be asked. This research relied on semi-structured interviews to uncover the 'Why,' rather than the 'How many' or the 'How much', as open-ended conversations provided a steady opportunity to probe into the complex areas of this research study (Fylan, 2005). For example: the online email survey asked participants how many hours they worked a week and how they felt about that time distribution. The answers were so opposing that the researcher wanted to know 'why' some participants felt so ashamed

of their time distribution, while others felt 'fine'.This research study also used semi-structured interviews as it was a "more appropriate format for discussing sensitive topics" (Fylan, 2005). Semi-structured interviews are more subjective than a structured interview or questionnaire survey, which allowed the research to probe into the 'why' without being insensitive (Turner, 2017). For example: this study wanted to understand if women thought technology could influence gender equality. This is a complex question, that could not easily be answered on a survey. This question is also very subjective, as participants have different relationships and feelings about technology and gender equality. Therefore, because the interviews were for clarification purposes, the researcher chose to conduct semi-structured interviews due to the informal format that allowed for probing questions, the discussion of new ideas, and for sensitivity purposes.

In summary, the 47 female participants of this study were asked to complete a 28 question survey; and post survey completion, four women were interviewed. This study opted to conduct an online email survey as time was limited, and reliable and accessible raw data was needed. This study then chose to conduct semi-structured interviews for a few participants, because some clarity was needed, from the survey responses, which could only be obtained through a discussion. Semi-structured interviews allowed for the discussion of new ideas to be informal and lead to newer findings that were unexpected in a sensitive way. Overall, the mixed-method format worked for this research study, as the blend of quantitative and qualitative insights led to more comprehensive findings, than if just one of the methods were used.

Data Analysis

The data from the online email survey and semi-structured interviews was analyzed following Jane Ritchie and Jane Lewis's 'The Analytic Hierarchy'. Ritchie and Lewis identified that data analysis "requires a mix of creativity and systemic searching, a blend of inspiration and diligent detection" (Ritchie & Lewis, 2003). Therefore, the researcher examined the raw data

and processed it through a five stage analysis to develop the results of this study. The first step was to manage the data, which consists of: 1) "Identifying initial themes or concepts" (Ritchie & Lewis, 2003); 2) Categorizing all data into the themes or concepts; 3) Conduct a 'cross-sectional analysis' to identify the overlapping of themes/concepts (Ritchie & Lewis, 2003). The second step consisted of articulating the data, specifically providing it with "descriptive accounts" (Ritchie & Lewis, 2003). This consisted of summarizing and refining the data to produce thought provoking patterns. The final step was the "Exploratory Accounts" (Ritchie & Lewis, 2003), which is developing explanations and seeking further insights (Ritchie & Lewis, 2003). The insights derived from this process produced three main themes, which helped identify that ICTs have the potential the support business women's self-empowerment, in their effort to gain equality in business.

Limitations

This study had three major limitations. First, the sample group was extremely small, as most research regarding business, gender, and technology have many more participants and higher response rates (Cardoso & Sorenson, 2017; Liu & Guo, 2017). For example, one study relating to women's use of mobile phones had approximately 300 participants; while another study examining ICTs influence on domestic violence had 133,843 participants (Cardoso & Sorenson, 2017; Liu & Guo, 2017). These studies were much larger in scope than this one, as they had more time and likely more resources. This study definitely needed more participants, and a higher survey response rate, for the findings to really shift peoples perspectives regarding ICTs potential to realize gender equality. However, this study was able to access business women's most recent opinion with regard to technology, as these previous studies are already a year old. Technologies change quickly, as its constantly developing in a consumer-centric way to retain its influence over society (Liu & Guo, 2017). Therefore, research must be conducted

constantly to access women's most recent opinion, which is the benefit of this study even though the sample group was smaller than usual.

Secondly, most of the participants were over 51 years-old which effects the findings, as younger business women were not properly represented, and arguably the older generation has a different perception of technology. Approximately, 63% of participants were older than 51 years-old, which means only 37% of participants were between the ages of 20 and 50. The ages of the participants should have been monitored closer, so that all business women across all age groups were equally represented. However, the purpose of examining female entrepreneurs and senior business members was because of their respected status and ability to influence other women; older business women can be more influential than younger ones as they have more experience and larger networks to persuade. With regard to the older generation's perception of technology compared to the younger generation, the researcher did not find this to affect the findings as the responses regarding use and feeling towards technology were mostly positive. This suggests that even when the majority of participants are older, ICTs are still a viable alternative 'tool' to enable equal representation of women in business as they are interested in using technology even though they happen to be older. The researcher was very conscious of the age limitation throughout the analysis process, as it was a major concern; therefore, it should be recognized that all results acknowledged age within the findings to some degree. Therefore, although the participants in this study were older, this does not negatively impact the findings, as it actually represents the opinion of the most influential business women.

Finally, the study was conducted in December, which reduced participants availability and access due to the busy time of year and the poor weather conditions. Canadian and American business women have limited availability in December, as significant holidays are during that month and end-of-year budgets and projects have to be finalized. Accessing these women is also very difficult in December, as extreme and unpredictable weather systems make

getting around outside very difficult. However, the online email survey was available to participants for a month, which gave participants lots of time to complete the survey within their busy schedules. Therefore, because the researcher was aware of the hectic time of year, the survey was designed to take a limited amount of time and was available for a longer period of time. These limitations provide the opportunity for further research, as a larger sample group, equally represented by all business women, conducted in the Spring months might result in different findings. However, these limitations were mitigated during the designing of this study, so the results would not be overly influenced by these factors.

RESULTS

This research study wanted to investigate how ICTs can help business women realize gender equality; however, throughout the research process it became clear that ICTs are already empowering women (Cardoso & Sorenson, 2017). Therefore, the research question evolved to consider how to shift business women's perspectives of ICTs potential, so they can achieve gender equality utilizing a tool that is already at their disposal. This study found three main themes, relating to shifting business women's understandings of ICTs.

The first theme confirms previous research, as business women have the *capacity* to use ICTs as a tool to further their own representation in business because they can properly access it, which is reflected in their comfortable daily use of technology. The second theme identifies business women's lack of awareness with regard to ICTs ability to positively influence social change, as they only recognize its impact and innovative potential that relates directly to their immediate needs. Finally, the third theme discusses how to develop business women's awareness of ICTs potential, as teaching women and developing internal policies to support women's ICT usage will further their awareness and shift their perspectives. By teaching business women that ICTs have positively influenced social change, they can use it as a tool to support their pursuit of gender equality in business, as they are aware of its capabilities. This allows business women to use ICTs beyond its basic functions, which is all business women recognize and utilize currently.

Capacity

Although not all women have access to ICTs, most women in developed nations have access to and use ICTs (*The Internet and Digital Technology*, 2016). Proper access to ICTs helps provide women with new information and exposure to other alternative perspectives (Cardoso & Sorenson, 2017). In this study, participants were asked to reflect on their access to

ICTs, specifically their feeling toward it and their time using it, as their answers would reflect their interest in using ICTs as tools for self-empowerment. This study found that Canadian and American business women have proper access to ICTs, as they feel comfortable using them on a daily basis; even though a few women feel frustrated sometimes while using technology. These findings suggest that ICTs have the ability to empower business women due to its continued usage and availability.

Participants were asked how many hours a day they used technology, as it would prove whether business women do use technology, and how often they use it. This is important, as although previous research identified that Canadians and Americans use technology, it did not discuss usage by gender. Figure 1 illustrates that, this study found that 33% of participants use technology up to five hours a day, while 37% of participants used it up to ten hours a day. The findings also uncovered that business women do not use technology more than 20 hours in one day. These findings are significant as they illustrate that business women are using technology for most of their day.
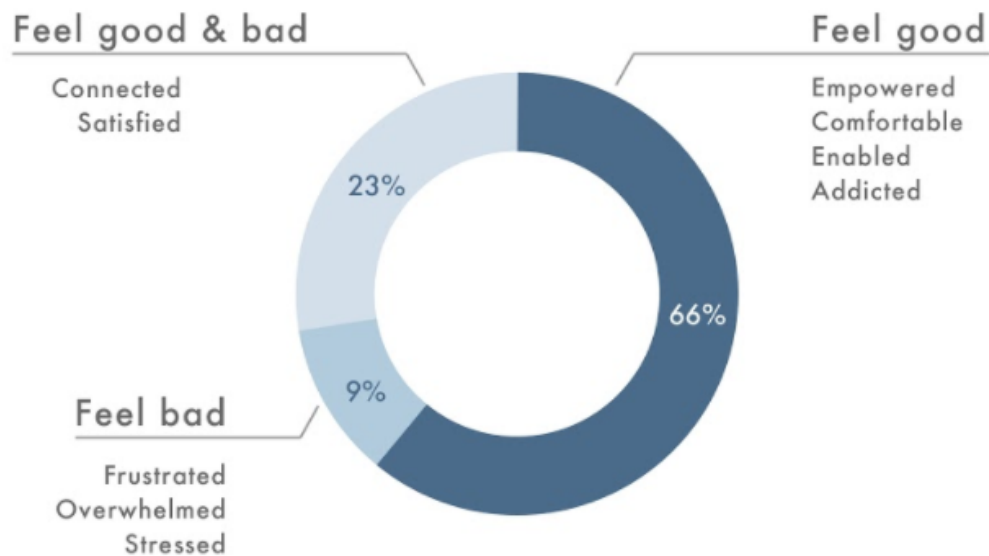
TIME USING TECHNOLOGY
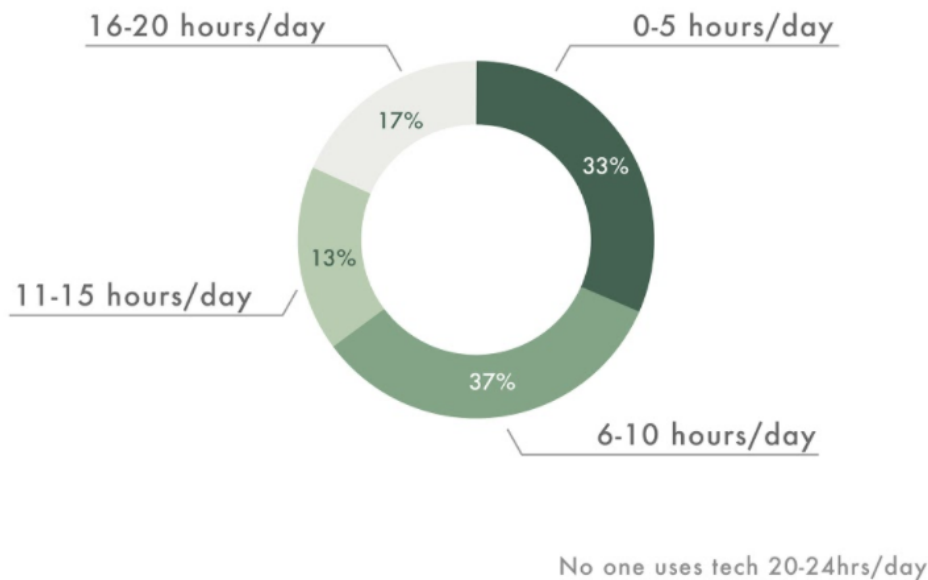
(Figure 1: Business Women's Time Using Technology - Image reflecting the amount of time participants use technology a day)

These findings also suggest that business women use technology for more than just business, as approximately half of the participants use technology between six and 15 hours a day, which is more than the traditional eight hour work day. This realization suggests that women recognize technologies capabilities beyond business; however, it also proves that they are not intentionally using it to achieve gender equality or they would arguably have made more strides themselves in achieving it, as when they intentionally use ICTs to realize equality noticeable actions are displayed. For example, the Women's March used the internet to inform women when and where to march in protest of gender inequality (*#ThisIsGlobal*, 2018). The planners of the Women's March recognized the power of the internet and successfully used it to inform the world about gender inequalities, and got thousands of women around the world to display their dissatisfaction by marching together (*#ThisIsGlobal*, 2018). The organizers of the Women's March probably use technology for the same amount of time that business women do,

as they are running an organization. However, the difference is that the Women's March organizers used technological for the purpose of protesting gender inequality, as they realized and optimized ICTs potential to stimulate social change. Therefore, the findings from this study suggest that although business women use technology, they are unaware that ICTs can be used to realize gender equality in their offices or businesses. Business women's daily time commitment to technology suggests that they definitely have access to ICTs, however, because their usages are focused on achieving different personal or professional tasks they are not intentionally applying technologies capabilities to increasing the number of and empowering women in business. Therefore, should business women want to focus their efforts on gender equality in business they have access to ICTs which will help them; however, it must also be determined if women 'want' to use ICTs as an alternative 'tool' to realize gender equality.

This study asked participants to describe how they felt while using technology, as previous research suggests women are comfortable but fairly anxious while using it (Liu & Guo, 2016). The purpose of this question was to see how many participants felt good or bad while using technology, but also the extent of the emotions they were feeling. By getting participants to describe how they were feeling, the researcher was able to identify some specific emotions that women had, rather than having them select a good or bad option in a multiple choice. Figure 2 illustrates that, this study found that the majority of business women feel 'good' while using technology, while very few felt 'bad'. The emotions were extremes, whether good or bad, as the participants that felt 'good' described the feeling as empowered, addicted, enabled, and comfortable; while the participants that felt 'bad' felt frustrated, overwhelmed, and stressed.

FEELINGS USING TECHNOLOGY

Feel good & bad
Connected
Satisfied

23%

Feel good
Empowered
Comfortable
Enabled
Addicted

66%

9%

Feel bad
Frustrated
Overwhelmed
Stressed

(Figure 2: Business Women's Feelings Using Technology - Image reflecting women's feelings while using technology)

These findings are similar to previous research, however, they suggest that business women are slightly more comfortable or feel better than other women while using technology. Very few business women felt uncomfortable while using technology, and none of them felt 'anxious' so much as they were simply frustrated. It is encouraging to realize that business women feel 'empowered' while using technology, and that they recognize technology as an enabler. These findings prove that business women not only use technology, they want to use technology, as it makes them feel in control and confident, which previous research suggests is exactly how ICTs empower women (Cummings & O'Neil, 2015). These findings confirm that business women have the full capacity to use ICTs as tools to support their efforts of gender equality in business, as they feel comfortable, even empowered, using them on a daily basis. However, if business women have the capacity to use ICTs, why are they not already using them to further their representation within business?

Opportunity

Research acknowledges that ICTs have been an essential resource in reducing poverty, decreasing domestic violences, empowering women and girls, and furthering economic growth (Cardoso & Sorenson, 2017). However, although business women have the capacity to use ICTs, they are not currently intentionally using it to realize gender equality in business. This is potentially due to the different social and economic situations between the participants in this study and those examined in other research initiatives, as the participants in this study would not have to change their attitudes with regard to women's rights and the role of women in society as drastically as those in developing nations (Cardoso & Sorenson, 2017). Therefore, business women's lack of intention with regard to applying ICTs capabilities to achieve gender equality in business, could be due to the fact that Canadian and American business women's perception of gender and gender roles do not shift as much as those with no access to ICTs. Therefore, Canadian and American business women have the luxury of focusing their ICT usage to achieving other tasks, desires, or goals; while women without continual proper access are receiving new information and are being exposed to other ways of life through ICTs, which has an immediate impact and therefore, faster more intentional results. To examine how business women have been affected by ICTs, this study asked participants to reflect on how technology has changed their lives in the past five years; unfortunately, most business women reported it only affected their personal and professional lives --- not recognizing the larger societal impacts. This study also asked business women to imagine technologies that would 'better' their lives; unfortunately, they all reported self-satisfying inventions, rather than recognizing the scale their invention could have on society. Due to business women's limited recognition of ICTs abilities and potential, they are not using it as a 'tool' to further their pursuit of gender equality in business, as they only recognize its capacities to affect their personal needs.

Participants were asked to describe how technology has changed their lives in the last five years, utilizing 'retrieving information' and 'communicating with others' as prompts; however, this question was a short-answer, and therefore, there was lots of room to elaborate on responses --- it was these elaborations were the real findings were uncovered. The prompt in the question was to make it easier for participants to think of examples, however the explanation was authentically the participants. The purpose of this questions was to uncover how business women have been affected by technology and if they recognize technologies impact on society. This was a very important question to the study, as it illustrates business women current understanding of ICTs capabilities. Research has been conducted to prove that ICTs empower women, and how ICTs further female development, but it is limited in business women's perceptions and acknowledgement of that change. As shown in Figure 3, this study found that almost all participants have been impacted by technology in the last five years, as they described changes in how they accomplish tasks, increase in their capabilities, and mostly with regard to increasing their communication. Unfortunately, none of the participants discussed how technology affected their lives from a broader social perspective, as all women detailed the impact on their personal functionalities, rather than the social implication. The prompt examples could have affected their responses; however, their explanation of their impacts were personal examples, instead of discussing the larger social impact of that change. Therefore, although participants mentioned they noticed changes that could have also impacted society on a larger scale, such as increased communication, the explanation of that change was limited to their personal lives which exemplifies business women's lack of awareness with regard to ICTs ability to influence social change.
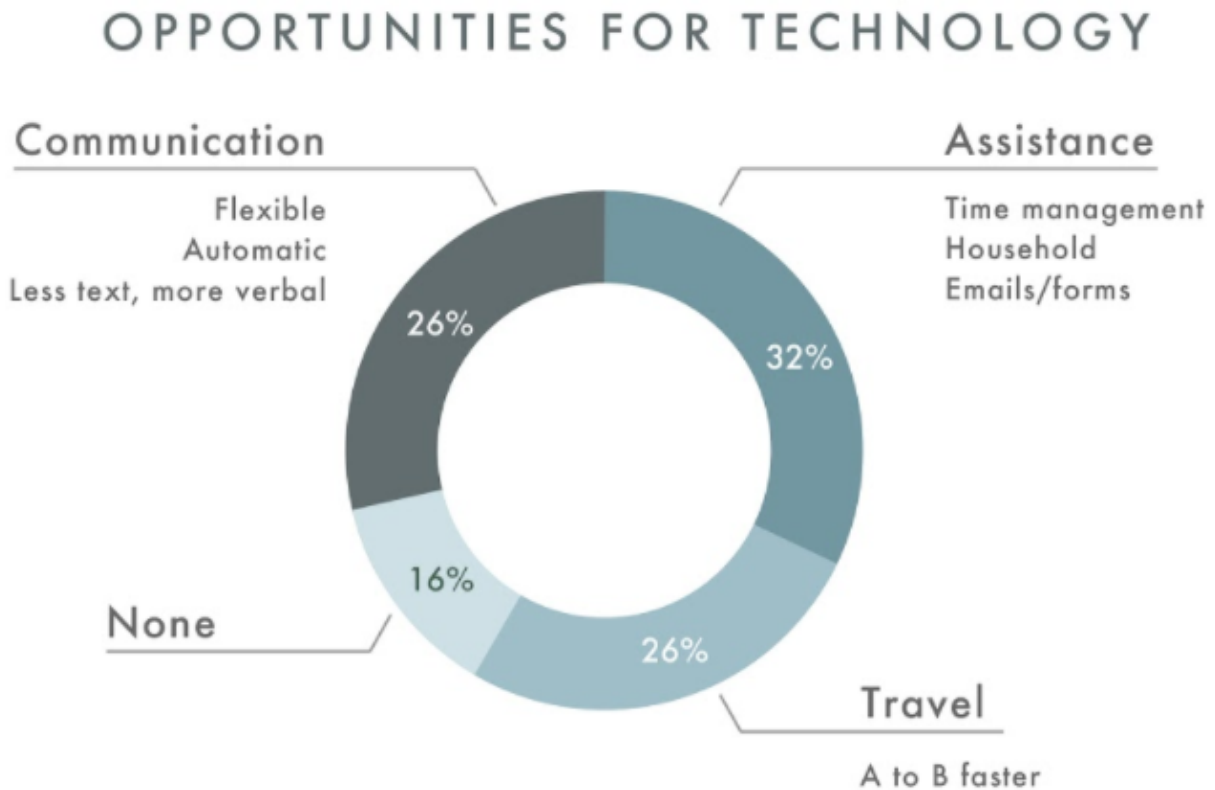
IMPACTED BY TECHNOLOGY
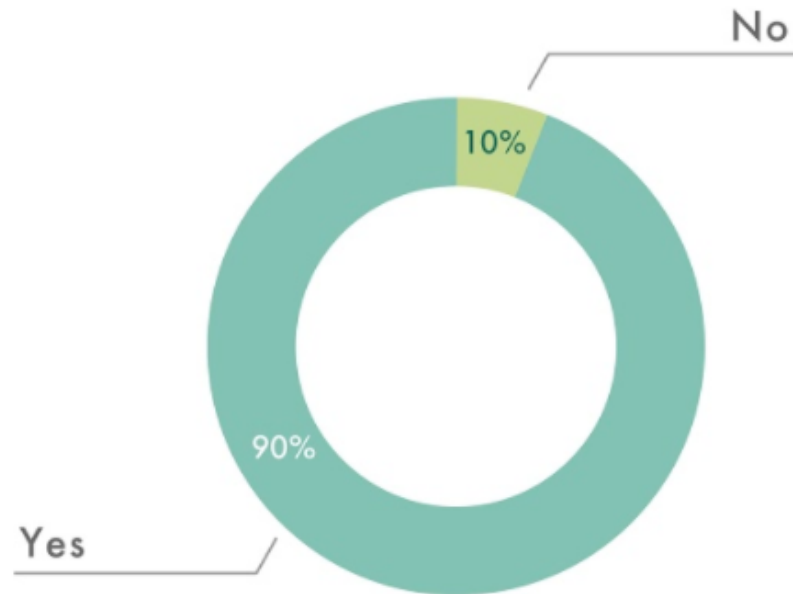
(Figure 3: Business Women Impacted by Technology - Image reflecting business women's acknowledgement of technologies impact)

These findings suggest that although business women recognize technology has impacted their lives, they do not recognize the scope of that impact. They acknowledge the changes that ICTs have influenced, such as the way people communicate, but they did not relate that change to the 'big picture' or the ripple that change caused. For example: One participant acknowledge that technology has "made me almost virtual to my clients - almost there which means I can work anywhere anytime." Although this participant recognized she could work out of office, or 'any where,' she related that to meeting with her clients, not to the fact that it has helped her achieve better 'work-life' balance. 'Work-life' balance, as research confirms, is a barrier for women in business, as "when a husband and wife both are employed full-time, the mother does 40 percent more child care and about 30 percent more housework than the father" (Sandberg & Scovell, 2013), which leads to women feeling physical and

emotional distressed (Teixeira, & Bomfim, 2016). Unfortunately, this participant only recognized technologies impact on one of her most immediate concerns --- her client; she did not acknowledge its ability to affect other working women or social changes.This finding illustrates that although women have the capacity to use ICTs, they are unaware of the social impact it's had and continues to have. Furthermore, this study also identified that women want more technology that helps them achieve basic tasks, rather than imagining a technology that fulfills their struggles within society or getting involved in business.

Participants were asked to describe a technology they would invent to better their lives, as researcher wanted to investigate what technologies business women thought they needed. This would allow researchers to examine if business women understood the capacities of technologies already available and what issues business women need technological support. As shown in Figure 4, this study found that there were four types of technology business women would invent: communication, assistance, travel, and some would not invent any. With regard to communication, business women wanted to invent technologies that would make communication more flexible, automatic, and more verbal. Business women also wanted to invent assistive technologies, such as: household assistance, time management assistance, and form or email completion assistance. With regard to travel, business women simply wanted to invent technology that would allow them to go places faster. Finally, a few participants reported they did not want to invent technologies.

OPPORTUNITIES FOR TECHNOLOGY

Communication

Flexible
Automatic
Less text, more verbal

26%

None

16%

Assistance

Time management
Household
Emails/forms

32%

26%

Travel

A to B faster

(Figure 4: Business Women's Imagined Opportunities For Technology - Image reflecting the different types of technology business women would invent)

These finding suggest that business women do not understand the innovative potential of ICTs, as although they were able to identify areas they needed technical support, they were unable to recognize the larger scope of technologies capacities to derive social change. This exemplifies the lack of awareness business women currently have with regard to ICTs potential, as they could not articulate its innovative possibilities to better their lives through social change. For examples: One participants reported that she would invent a "technology that would allow one to get from A to B faster when in a big/crowded City ie Mumbai. Technology would transport individuals above ground/self driving/safe/fast/economical and environmentally friendly." This participant wanted to invent a travel related ICT that would allow her to transport herself more efficiently. This technology is already being designed and produced, which unfortunately further proves the limited awareness business women have regarding ICTs (Crosbie, 2017). This

participant was unaware that the type of ICT she needs is already being develop, therefore, she was unable to recognize another possibility as she already believed she was 'inventing' a new concept. Furthermore, this participant did not recognize the scope of her travel technology, as she did not discuss the social benefits of her 'invention'. For example: For women, being a mother is "the most important and difficult work of all, women who take time out of the workforce [to have or take care of their children] pay a big career penalty" (Sandberg & Scovell, 2013), as their working time is still very inflexible (Sandberg & Scovell, 2013). Self-driving cars would allow women to have a car pick their child up from school or other activity, while they finish their work, without them having to leave, be distracted or otherwise absent from work which could potentially cause them emotional and physical distress, and negatively impact their careers. ICTs, or specifically self-driving cars, allow women to achieve more in the same amount of time to achieve a healthy 'work-life' balance; unlike organizations that do not support working mothers the way they should with their inflexibility and limited access to childcare programs (Sandberg & Scovell, 2013). Therefore, self-driving cars would allow more working mothers to return to work after having a child, stay in business, and be successful at work as they can focus on work knowing their child is delivered safe and sound to his or her destination. Providing with the information required to access these technologies is essential as it provides them with a 'tool' to better balance their personal and professional lives, which empowers them to succeed in live and at work. Therefore, this finding suggests that women are unaware of ICTs potential, as they do not recognize the technology that is currently being designed and developed, and they do not recognize the social impact of these innovations. These findings are not an attempt to discredit the participants point-of-view, as she accurately articulated the technological support she currently is lacking; however, it is this limiting assessment of technology that is restricting business women's awareness and usage of ICTs to eradicate gender inequality. Had this participant recognized that self-driving cars can allow more women to enter, stay, start and grow a business, than she could have informed other business women to harness this 'tool' to

empower them to better balance their time so that women's representation in business grows to eventually become equal. Understanding ICTs potential is the first step in harnessing it as a 'tool,' and unfortunately, business women today analyze ICTs from a very limited perspectives, which is exemplified throughout this study.

In summary, business women are unaware of ICTs potential to influence social change, which identifies why business women are not already using technology to support their pursuit of gender equality. Business women do not recognize ICTs potential as they do not understand the impact technology has had beyond their individual realms. Business women also do not recognize the social impact innovative ICTs can have on society, as they can only imagine its potential relating their own needs. However, by teaching business women the impact ICTs have already had on society, and its future potential, they will be more likely to use technology as a resource to solve more than just their problems, but social issues which affect them.

Teaching Awareness

This study identified that business women are unaware of ICT's potential, which explains why they have not used it as a resource to realize gender equality thus far, even though they have the capacity to do so. Unfortunately, bringing attention to business women's lack of awareness does not establish how they can use ICTs for realize gender equality. However, by teaching business women, and establishing organizational workshops and policies, their awareness will increase, which will result in more women joining and remaining in business which will increase their representation. This study suggests that instead of developing government policies, develop internal policies that support business women's needs; however, it is not enough to simply design these initiatives as women need to know to use them. This study suggest that by developing internal workshops relating to organization policies and technology, informing women about these workshops, and providing them with the space to optimize these

policies and technologies women will realize that ICTs can help them entre and stay in business now and in future.

There are many policies that support business women that do not involve technology, such as: "flexible work schedules, compressed work weeks, job sharing...child and dependent care options (including subsidies and time), leave options (including maternity and paternity leaves), and stress management workshops" (Phipps & Prieto, 2014). Developing similar policies relating to technology would increase business women's awareness of the 'tools' they have access to so they can use them to mitigate the barriers that are preventing them from entering or furthering their careers. For example: Developing an ICT workshop policy that focused on teaching women how to use their devices and softwares would be hugely beneficial for them, as they would realize technologies capacities. The workshops could focus on specific applications, devices, or usages that would reap the most benefits to attendants, as without these opportunities women's usage of the devices or softwares is limited to what they themselves discover. The policies relating to these workshops could be a quota, such as: Employees must attend a certain number of workshops relating to technology a year. This would force business women to expand their perceptions of technology and learn how to use it beyond their basic application. Ideally, they would then go share this knowledge with other women so they can take advantage of the opportunities; however, it is not just enough to teach women how to optimize the technology, as they must be able to apply these capabilities.

Workshops can also be developed to teach business women how to take advantage of organizational policies using ICTs; therefore, instead of learning about technology, business women would learn more about their organization. For example: ICTs allow women to work from home, which helps alleviate their struggle with 'work-life' balance, which is the "maintenance of a balance between responsibilities at work and at home" (Phipps & Prieto, 2014). However, not all business women are optimizing that opportunity because they do not know it is an option, which results in women not starting their own business, not entering the workforce, or not

applying for that promotion. Providing women with the technological tool and teaching them how to use it will empower them, as it will increase their self-confidence with regard to doing better at work, and it will help them become better decision makers as they have access to more information. Teaching women how to optimize ICTs will not only further their empowerment, but also allow them to intentionally use ICTs to further their own representation in business. There will be more confident and decisive business women if they are taught how to optimize ICTs, as the technology empowers them while also mitigates their barriers, which allows business women to function at their highest potential. Empowered business women then make other empowered business, as they share their insights and practices, which increases the number of women in business.

The specific policies or workshops can be identified through further research, as this specific study did not examine all the challenges business women encounter, nor did it explore specific devices or softwares. By identifying the major challenges business women encounter, distinct policies can be designed to optimize ICTs potential for business women to take advantage of. However, as an example of a technical policy that could potentially have many benefits for women and their workplace, would be allowing business women to bring and use their own devices at work (*Setting Technology Usage Policies in the Workplace*, 2016). In the past, personal devices were seen as a distraction, specifically mobile phones as people would be checking their last text message instead of working (*Setting Technology Usage Policies in the Workplace*, 2016). However, personal devices at work also have some benefits: "Research a topic on the internet to find an answer to a customer's question, or as a collaboration tool with vendors and coworkers to resolve the latest problem" (*Setting Technology Usage Policies in the Workplace*, 2016). The security risk is also an issue with personal devices in the workplace, as they can bring viruses like Trojan horses that get behind the organization's firewall and "divulge company secrets" (*Setting Technology Usage Policies in the Workplace*, 2016). However, if organization's want to save money and increase employee satisfaction and productivity, then

personal devices should be used at work (*Setting Technology Usage Policies in the Workplace*, 2016). However, there must be policies and workshops relating to the personal devices so that business members use them correctly. The policies would revolve around etiquette, as what is and is not appropriate to have on the personal devices, as some applications should not be in the office (*Setting Technology Usage Policies in the Workplace*, 2016). While the workshops would involve setting up the proper security features on the personal device, to keep the company safe from viruses, and what applications would be useful for that specific employee based on their individual tasks. However, this is just one of many internal policies that could be designed and developed within organizations to improve business women's satisfaction and productivity at work, while also benefiting the company --- instead of governmental quotas that do not directly benefit the company or the women being put into those positions.

CONCLUSIONS

In conclusion, this study found that business women are unaware of ICTs potential to influence social change, which explains why they have not used it as a resource to support their pursuit of gender equality. Teaching business women about the influence ICTs have on society, and how to harness and optimize these resources, will provide them with a new perspective on ICTs abilities and personalized support. By optimizing ICTs capabilities more women will have the opportunity to start their own businesses, enter the business world, remain in business, and become leaders and mentors for the next generation of business women, as they will have technological support to mitigates their barriers to success and equal representation.

This study used both an online email survey and a few semi-structured interviews to conclude that business women are unaware of ICTs potential. Utilizing both quantitative and qualitative methods allowed the research to build a comprehensive analysis, as it provided the researcher with both statistical data, contextual insights, and a variety of perspectives in a timely and reliable format. Unfortunately, only 44% of business women invited to participate in this study actually completed the online email survey. This limited the findings, as most participants ended up being older than 51 years old, which does not equally represent the opinions of younger business women. However, the study was able to present a holistic understanding of business women's relationship with technology, and rationalize the need to shift their perspectives with regard to ICTs potential.

ICTs have and continue to influence social change, as it has empowered women, reduced poverty, and altered society's functionalities (Cardoso & Sorenson, 2017). Unfortunately, public policies and PPPs have been unsuccessful in influencing gender equality in business, as women are still underrepresented; therefore, an alternative solution needed to be examined (; Calkin, 2016; Medland, 2016; *Ten years on from Norway's quota for women on corporate boards*, 2018). ICTs have the potential to increase women's representation in

business, as it can mitigate their current challenges; however, most business women do not know how to use their technologies to further their social interests. To develop business women's awareness, they must be taught how ICTs can support their needs, and the full potential of ICTs influence, so they can optimize that support to achieve gender equality.

It is important to analyze gender from a business perspective, as it has a direct correlation with society interpresentation of gender (Sobering, Thomas & Williams, 2014). Research identified that the workplace is the environment that society emulates with regard to gender equality, therefore, if the number of women in business increases their social status will also become more equal (Sobering, Thomas & Williams, 2014). This study focuses on business women, as they have the capacity to influence the most change with regard to gender equality due to their respected statuses; and if they can further their own representation instead of relying on policies and action plans, they will achieve equality that much faster, as it will be a result of their own effort.

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