Pi for Empowerment:

Using Raspberry Pi Technology to Disseminate Mental Health Information Amongst

Nunavummiut Girls and Women

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Contents

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been made possible.

Abstract:

The goal of this project was "Using information supported by evidence, you, a secondary school student, will explain how access to new technologies could contribute to the empowerment of indigenous girls and women in a particular region of Canada." (Savary, n.d). We chose to research the main issues affecting girls and women in Nunavut. This project will, therefore, examine how these issues are preventing the empowerment of these Nunavummiut girls and women, and what new technologies can be used to aid these issues. The qualitative research we gathered, which includes an interview with Trina Qaqqaq, many news articles and statistics, all which reveal that a large problem that is facing the population is lack of awareness about mental health. This lack of awareness feeds into other issues such as high suicide rates, many cases of domestic abuse, substance abuse, and problems related to sexual health. Nunavut has the highest suicide rates in Canada and attached to suicide are a plethora of other issues, such as the high rates of abuse. There is extremely limited access to internet and technologies in the area, making it hard to distribute information. Such difficulties retrieving information and the magnitude of mental health issues prevent Inuit girls and women from being fully empowered. The research reveals the existence of the Raspberry Pi, an inexpensive technology that can function despite the many limitations that the area of Nunavut experiences such as limited internet. Our research demonstrates that using the Raspberry Pie to educate Nunavummiut girls and women on the mental health issues they are facing, along with the causes of those issue, the girls and women will be able to better handle the situations they are facing in relation to mental health and thus be empowered to take control of the realities they face.

Research Question:

"The emergence of new communication technologies has transformed lifestyles, work organization, learning methods, and skills needed to acquire and to apply knowledge. Using

information supported by evidence, you, a secondary school student, will explain how access to new technologies could contribute to the empowerment of indigenous girls and women in a particular region of Canada." According to the information we acquired through personal research and interviews, we hypothesize that using the "Raspberry Pi", to disseminate information about mental health by implementing it in the Nunavimmiut school curriculum, is an effective and viable option (O'Flaherty, 2013). By doing so, the population will know how to confront the issues they face surrounding mental health. Creating a platform which is user-friendly and accessible, even to those not in school, to acquire information and immediate assistance, will empower girls and women in Nunavut. Our essay will, therefore, outline how educating women on domestic abuse, substance abuse, suicide and sexuality will empower women and girls. Furthermore, how such issues hinder the empowerment of Nunavummiut girls and women will be addressed. The Raspberry Pi can help them surmount the obstacles in Nunavut that block them from their full potential.

<u>Methods:</u>

Our research was qualitative in nature done mainly using the internet and online forums, especially news articles and websites created by Inuit organizations as well as studies conducted about the Inuit population of Nunavut in order to understand the severity of the issues they are facing ("Women's Empowerment Principles", n.d., paragraph 2) (Christie, 2013) (The Canadian Press, 2013) (n.a, 2007) (Samarakoona and Parinduri, 2015) (Zerehi, 2016) (Inuit Women of Canada, 2017) (Davies, n.d.) (Global Partnership for Education, 2018, paragraph 1) (O'Flaherty, 2013) (Clay, 2013) (Kunst, 2017) (Dobby, 2016). An interview was conducted with Trina Qaqqaq, an Inuit woman from Nunavut who participated in the Daughter of the Vote event, graciously told us her story and her experiences as a Nunavummiut woman, which allowed us to acquire a first-hand account of the situation faced by girls and women in Nunavut. As well as Qaqqaq, we interviewed Rocky Mancini, a man

who taught in Nunavik, we also interviewed a heart surgeon of Inuit descent who is currently living in Ottawa. There is no better way to understand the real issues then hearing them from a women who experience them.

Literature Review:

When faced with the question of how to empower a particular group, one must define empowerment, and then find the tools needed to work towards it. According to Merriam Webster, empowerment is "the act or action of empowering someone or something: the granting of the power, right, or authority to perform various acts or duties" (Merriam Webster, n.d, paragraph 1). As women, we see empowerment as much more than something that can be given; it is the feeling that we are able to attain any goal we set our minds to, since we have been supplied enough courage and gumption to do so. It is something that needs to be taken into our own hands and then exercised. Using technology, we have created a way to encourage Indigenous girls and women in Canada to have the power and authority over themselves to perform any acts such as continuing schooling. This can be done by eliminating the obstacles they face, through an independent approach to education. When women are empowered and educated, something wonderful occurs: "The Girl Effect". This describes a positive change in a country or region's economic status by changing the role of women in society (Kristof & WuDunn, 2009).

"The Girl Effect" is only one of many positive outcomes that result from empowering women, but how does one empower women? The UN Women, in partnership with the United Nations Global Compact, has created certain principles to help empower women in the workplace, marketplace, and community. These principles include:

1. "Establish high-level corporate leadership for gender equality

2. Treat all women and men fairly at work—respect and support human rights and nondiscrimination

3. Ensure the health, safety and well-being of all women and men workers

4. Promote education, training and professional development for women

5. Implement enterprise development, supply chain and marketing practices that empower women

6. Promote equality through community initiatives and advocacy

7. Measure and publicly report on progress to achieve gender equality" ("Women's Empowerment Principles", n.d., paragraph 2)

These principles, when followed, allow for The Girl Effect to take place. The "Girl Effect" works as follows: By giving girls access to an education as good as that of a boy's, they are then able to make their own money and contribute to the economy (Kristof & WuDunn, 2009). By having jobs, women are more independent, consequently, they get married later in life and, thus, have less children (Kristof & WuDunn, 2009). A declining birth rate allows for growth in the economy. Women were also able to finance the education of their younger siblings and save money, which increases the national savings rate (Kristof & WuDunn, 2009).

Although the idea of "The Girl Effect" is simple, there are several factors that prevent it from occurring in Nunavut. Domestic abuse, lack of knowledge on sex and sexuality, depression, substance abuse, and suicide are all elements that affect the population of Nunavut. These issues can all be linked back to mental health, and hinder the empowerment of Nunavummiut girls and women, as they prevent them from feeling fulfilled in their lives. Therefore, by educating Nunavummiut girls and women on mental health, and by doing so in a manner that respects maintaining the aforementioned principles, we can help empower the

population, especially girls and women ("Women's Empowerment Principles", n.d., paragraph 2).

Our team was fortunate enough to get an interview with Trina Qaqqaq, a Inuk woman from Baker Lake, Nunavut. She has done a lot for her community with regards to telling their story, and is well known for speaking openly about the issues that Nunavut faces. When asked what the largest problem Nunavut and its population was facing, she answered immediately, with a single word: "suicide". Suicide impacted her and the people of her community greatly, "everyone in the community is affected by it." She revealed that she knows of four people who have committed suicide in her community since August. This number does not include the many people she said had attempted suicide. The threat of suicide is constantly looming over the population, making their situation feel hopeless.

Nunavut is currently facing what is being referred to as a "suicide crisis" (Christie, 2013). With the suicide rate in the territory being 10 times that of the Canadian average, it is one of the most serious and urgent concerns for the government of Nunavut and its population (Christie, 2013). Although it is statistically more likely for men to commit suicide, the number of women taking their lives is rising (The Canadian Press, 2013).

Research conducted in 2013 studied 120 cases of suicides in Nunavut. It revealed that those who took their lives were often diagnosed with severe depression (Christie, 2013). Approximately 24% of those who committed suicide had been diagnosed with severe depression, three times higher than the national average, making the researchers question the availability of mental health aid in the northern regions of Quebec. It was found that 17% of people who committed suicide in Nunavut had been hospitalized for mental health problems, and approximately 24% of those had been treated with some form of medication (Christie, 2013). Not only did these efforts fail to prevent people from committing suicide, but only a small percentage of people had access to some form of aid (Christie, 2013). These statistics

are made more powerful by demonstrating that even those individuals wanting help are not getting effective aid.

Sadly, many obstacles are present when trying to empower girls and women in Nunavut. Abuse greatly increases chances of having suicidal tendencies in victims (Christie, 2013). According to data released by statistics Canada in 2014, 2 491/ 100 000 people reported domestic abuse in Nunavut. That is over 10 times higher than the Canadian average, as well as the highest rate out of all the Canadian Territories (Zerehi, 2016).

Abuse, whether sexual, physical, or emotional, plays a large role in increasing the chances of self-injury such as bodily self harm and suicide. Over half of those who took their lives in the study that looked at 120 Inuit suicides, had been victims of some sort of abuse during their childhood (Christie, 2013). This is double the national average (Christie, 2013). Abuse is more prevalent in northern regions, affecting the rates of self-harm (Christie, 2013). The combination of high rates of abuse, and minimal access to effective resources, put Nunavut in its current state of suicide crisis.

Closely related to the lack of awareness and treatment available for mental health is Nunavut's growing problem of substance abuse, specifically alcohol (n.a, 2007). It is reported that 30% of those 12 and up who drink, binge drink; drinking 5 or more alcoholic beverages at a time over 12 times in the course of a year (n.a, 2007). This is 10% above that of the rest of Canada. About 40% of the women in Nunavut who drink heavily will give birth to babies whose development was affected by the mother's consumption of alcohol (n.a, 2007).

By interviewing Rocky Mancini, a former teacher in a primarily Inuit region of Nunavik, we realized how little attention was being paid to mental health in the region. One of the common problems that Mancini noticed, was that many children were often alone late at night, because so many parents are under the influence of alcohol and being inside might be dangerous for the children,. Community centers are closed this early in the morning,

leaving these kids have nowhere to go. Social workers are not always present in Indigenous regions of Canada, being able to have conversations with professionals over video chat would be helpful. Although the possibility of speaking to a social worker over the phone exists, Mancini points out how much more information a social worker can gather from seeing the facial expressions of a patient, and can, thus, diagnose and assist the patient more effectively. Similar issues may occur in Nunavut, as the region's demographic is similar and face similar problems.

While interviewing Trina Qaqqaq, she referred to substances such as alcohol and drugs, as a form of "antidepressant". Through our interview, Trina insinuated that many engage in such activities to avoid dealing with the issues that they are facing.

Similar to the lack of information available on substance abuse, there is a great lack of attention on sex in Nunavut. Sex impacts every part of our being, as it is not simply a physical action, but plays a role in our self-image. It is no secret that Inuit communities, particularly in Nunavut, have much higher rates of Sexually- Transmitted and Bloodborne Infections (STBBIs) than the rest of Canada (Inuit Women of Canada, 2017). In fact, the rates of Chlamydia in Inuit communities are 14 times the national average (Inuit Women of Canada, 2017). Lack of sexual education does not only affect one physically, but its consequences can manifest themselves in other ways. Child sexual abuse, shame, taboos related to sexual health issues, sexual violence, lack of consent, jealousy and coercion in relationships, unplanned and teen pregnancy, and sexual harassment, are all subjects which there is limited information available in Nunavut, but are all extremely prominent issues (Inuit Women of Canada, 2017).

The high rates of Sexually Transmitted Infections (STIs) can easily be attributed to the lack of knowledge on the subject. Those affected by STIs often find themselves feeling isolated in their communities due to the stereotypes and taboos surrounding the issue (Davies,

9

n.d). The feelings of otherness can have negative impacts on someone's self- image and self-esteem. Depression and high levels of stress are often experienced by those diagnosed with an STI, most probably because of the stigma against it (Davies, n.d). Many people in Nunavut are experiencing this because of the rampant rates of people developing STIs (Inuit Women of Canada, 2017). This could be avoided if people were more knowledgeable on sexual health.

The lack of awareness on sexual health can cause issues, such as Nunavut's high teenage pregnancy rate. The rate of teen pregnancies is over 11 times the national rate, and increased 14 percent between 2009 and 2013 (Inuit Women of Canada, 2017). Teen moms have an increased chance of developing depression and postpartum depression (Nall, 2017). This makes it difficult for them to bond with their child (Nall, 2017). The mothers are also more likely to suffer from health complications during the pregnancy such as: preeclampsia, anemia, contracting STDs, premature delivery and delivering at low birth weight (Nall, 2017). Babies born to teen moms are more likely to suffer from some sort of abuse, dropout of high school, and get arrested. This could be avoided if women were more knowledgeable on sexual health. (Nall, 2017).

Sex is supposed to be a healthy natural experience that can also contribute to a person's identity, sadly this is often not the case in Nunavut. Stigmas surrounding chosen sexual identity and sexual orientation are apparent everywhere, but, because of the traditional Inuit lifestyles, and the taboos surrounding the subject, those who are not cisgender or straight, are at an increased risk to feel isolated in their communities (Inuit Women of Canada, 2017).

Sex, comes in many forms, pregnancy, disease, and sexuality. Sex affects every part of us, including our mental health. We must educate women on sexual health in order to prevent the consequences that the lack of knowledge has on their mental health.

As long as the mental health issues are not faced, girls and women in Nunavut will continue to fight an uphill battle towards empowerment. With such high rates of suicide, domestic abuse, substance abuse, and issues regarding their sexual experiences, it is no wonder why people have not yet had the chance to deal with mental health when they are already tackling these large and pressing issues. In reality, they are all intertwined by a common aspect: mental health. The only way to solve all these issues is by educating girls and women on the subject of mental health. It is through education that we can solve these issue for the people they are affecting most.

Education is a powerful tool that can help people and the societies they live in to empower themselves with regards to mental health. Studies show that "Girls and boys who learn to read, write and count will provide a better future for their families and countries. With improved education, so many other areas are positively affected" (Global Partnership for Education, 2018, paragraph 1). Through our research we have come to understand that education will help societies complete the duty of the empowerment of girls and women in Indigenous regions. It can overwhelmingly be understood that education will help societies, because of the previously mentioned "Girl Effect" (Kristof & WuDunn, 2009). It has been proven that through education we can empower women, reduce the number of unplanned births, increase the use of contraception and encourage positive reproductive health habits (Samarakoona and Parinduri, 2015)That is why we propose using education through easily accessible technology to tackle the empowerment of women in Indigenous regions.

If we educate girls and women on the issues that affect them directly, we give them the tools to take control of their lives, and help prevent issues such as mental health disorders, substance abuse, domestic abuse and issues regarding sex. We must fix these problems from their roots which are a lack of awareness and lack of knowledge, due to limited accessibility to new technologies. Once you educate a population, you will have permanently changed the

stigma around mental health in that society. It is by passing down knowledge that will allow the continuing building a healthier and better society, which is exactly why we must start by educating women on mental health.

Proposed Solution Based Upon Finding

Education is the true solution, and when educating the masses, it is vital that the tools and technology we use are accessible to everyone from different socioeconomic backgrounds and that the content delivered is culturally sensitive. In doing so, we must take into account people who do not have internet access or cannot afford mainstream computers. We must also be conscious of people's capabilities with technology.

The Raspberry Pi, which costs about 50$, is a device that functions like a miniature computer, using an SD card as a hard drive. It has two USB ports, Ethernet and audio as well a 1080p HDMI (O'Flaherty, 2013). Although it is able to function without internet, the Raspberry Pi has the ability to connect to the internet (O'Flaherty, 2013). The Raspberry Pi makes it possible to provide interactive lessons and calls with mental and physical health professionals become more accessible to areas where such opportunities are currently not available (O'Flaherty, 2013).

There are many advantages to this technology that others simply cannot provide. The Raspberry Pi draws about five to seven watts of electricity, about one tenth of what a comparable full-size computer can use (Clay, 2013). Since computers are often used for many hours per day, the electrical savings can be extremely large. The device is quite small, versatile, and uses an SD card for storage, which makes it efficient, and extremely user-friendly (Clay, 2014).

We envision using the Raspberry Pi as a platform to host lessons about mental health on the subject of healthy relationships, substance abuse, sexual education and suicide. This could become a mandatory part of the curriculum for schools or simply be made available for

free for those interested. This would be affordable for the government to implement and could also be accessible to young women and girls who have dropped out of school. This platform would also allow interactive quizzes, videos as well as live skype calls to talk to professors who could lecture multiple classrooms at the same time. Having a population that is educated on the core issues makes empowering women becomes easier.

The Raspberry Pi platform would provide access to women's mental health information and would possibly be set up as follows: a general overview of what a state of well being is, followed by tabs consisting of information and resources on suicide and depression, sexual health, substance abuse, and domestic abuse. These resources would include phone numbers to corresponding helplines and information on how to approach the problem.

According to The World Health Organization, mental health is defined as "a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community" (World Health Organization, 2018, paragraph 1). One must outline the standards for a person's mental wellbeing before being able to divulge in the potential issues they are facing, and how those may affect their well-being. The goal with this overview is to demonstrate what women should be feeling and doing if they are in a good mental state. Signs of a good mental state are things such as contributions to the community, a desire to be involved in others lives, vitality, patients, and a general feeling of being at peace with one's self (Kunst, 2017). If we educate women on how a person with a strong mental wellness would be feeling, they will be able to identify when what they are feeling is unhealthy, and ask themselves what is the cause for these emotions.

The following tabs inform women on the possible causes of their state of ill-being. They will be able to access information about why they may not be feeling as well as they

could be, based on the issues most prominent in their area, those being issues with sexual health, suicide, substance abuse and domestic abuse. If, while a girl or woman is reading the overview outlining the standard for a person's well-being, and realizes they do not identify with it, they are able to understand why. While reading into the other tabs, they may realize that the reason they cannot identify with this state of well-being is because of their issues with substance abuse, or the other issues listed, have begun to overtake them. They not only have been able to identify the issue, which will give them peace of mind, but are given helpful reassures to reach out to.

The ultimate goal is to give women a resource that they are able to use anywhere, which the Raspberry Pie provides. Despite the lack of internet access in the territory of Nunavut, this tool is able to surpass such limitations and will be able to deliver information to the population (Dobby, 2016).

<u>Conclusion:</u>

By giving the Indigenous girls and women of Nunavut access to information about mental health through the Raspberry Pi technology, is an accessible, safe, and effective means of empowering and educating them.

By analyzing how girls and women can be empowered, the mental health issues affecting the population, the sexual health issues caused by mental health issues (and vice versa), the importance of education, and the role of the Raspberry Pi in surmounting all of the obstacles that have made addressing these aforementioned issues impossible, we have proven that technology can empower Nunavummiut girls and women in a way that attacks the root causes of the difficulty they face.

Our research has demonstrated that implementing mental health in Nunavut's curriculum is necessary, and that giving Nunavummiut girls and women unlimited access to mental health information and resources - even in situations when formal education or

healthcare are no longer realities - are the best ways to empower them in all areas of life empower.

The versatility and accessibility of the Raspberry Pie is the future of female empowerment for Aboriginal communities! This future would consist of creating the entire curriculum and incorporating it into Nunavummiut schools, as well as creating the platform on Raspberry Pi, and it being accessible for all people to use. Ideally, these measures will, one day, be implemented throughout all Indigenous communities of Canada, since many seem to face similar issues. This technology will allow "The Girl Effect" to occur, and, therefore, the ideal state of empowerment to be reached (Kristof & WuDunn, 2009).

Mental health is arguably the most important thing to take care of and educate people about, as it impacts us all greatly; after all, our brains control us, and impact those around us. Our mental health is who we are. It is our essence. We must ensure Indigenous girls and women are well taken care of and well educated, for an educated woman who knows herself and her surroundings, is one that can change the world. "Everyone is worthy of opportunity to do what they want to do, to do what they love to do and equal opportunity to be alive"- Trina Qaqqaq.

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