

# **"Nothing about us, without us": an investigation into the justification for Indigenous peoples to be involved in every step of Indigenous digital product design**

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# “Nothing about us, without us”

## An Investigation into the Justification for Indigenous Peoples to be Involved in Every Step of Indigenous Digital Product Design

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### ABSTRACT

This paper focuses on the experiences of built coalitions between the authors, students and the Indigenous peoples involved in a study of digital design. Ontario Tech University has been working with the Indigenous communities of the First Nations in Ontario, Canada. The report begins with a brief overview of the issues faced by the Indigenous communities in Canada. For example, retaining their traditional language, knowledge, and culture on their traditional lands. The paper then outlines the study’s design and methods to understand how technology may help the Indigenous community address these issues. To do this, the authors set up a course project for 21 graduate students in Computer Science at Ontario Tech University in Winter 2021. The students were formed into nine groups. Each group was assigned the design and development an interactive design product prototype that would address some of the Indigenous community’s social issues considering user experience and co-design from the outset. Lastly, the report shares the findings of the study and discusses the success of ‘Nothing about us, without us’ and how the prototypes may ameliorate the issues faced by the Indigenous peoples. The takeaway that we aim for is an understanding that no matter how honourable it may seem to create something on their behalf, it is essential to involve the primary culture/language speakers. We also intend to create a model for this mutual collaboration which then can be pursued to enable mutually respectful relationships. Following the old adage, “give a man an app, and he will use it for one day, teach a man to design an app and he will share it with the world.”

### CCS CONCEPTS

• **Human-centered computing** → Collaborative and social computing; Collaborative and social computing theory, concepts and paradigms; Collaborative content creation.

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### KEYWORDS

Two-Eyed Seeing, Indigenous peoples, Technology, Digital Design, Co-Design

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## 1 INTRODUCTION

“The university acknowledges the lands and people of the Mississaugas of Scugog Island First Nation which is covered under the Williams Treaties. We are situated on the Traditional Territory of the Mississaugas, a branch of the greater Anishinaabeg Nation which includes Algonquin, Ojibway, Odawa and Pottawatomi.”  
– Ontario Tech University

We must further preface this article with an acknowledgement of the invaluable help and sage advice that we received from the Elder Maurice Switzer, Jill Thompson, and Elizabeth LaPensée. Furthermore, the graduate students involved in this activity devoted a considerable amount of effort and innovation to the project. Without their input, this paper would not have been able to be written with the academic integrity intended. The fundamental question that was ever-present in our minds was, “Why aren’t Indigenous peoples included more in the design process for digital products designed with them in mind? Surely it would be easy to ask and involve the end-users in the design process?” The answer is not as straightforward as we had assumed. Words that have resonated strongly throughout the project and impacted our wider field of research are those of The Elder Maurice Switzer “Nothing about us, without us.” Meaning do not just assume and design solutions to problems that you feel the Indigenous communities need; talk to, engage with Indigenous peoples, and co-design real solutions that address the issues with their unique insight and informed point of view.

## 2 THEORETICAL UNDERPINNING

### 2.1 Two-Eyed Seeing

There are many different names given to the process of integrating Indigenous and colonial pedagogies into curricula and society as

a whole. These range from decolonisation to Indigenisation, both of which may be problematic from an Indigenous point of view [1]. After discussion with both the Elder Maurice Switzer and Jill Thompson, the Indigenous culture advisor at Ontario Tech University, they introduced the term Two-Eyed Seeing. A phrase coined by the Mi'kmaw Elder Albert Marshall. 'Etuaptmunk', in his native language, is the harmonious blending of the positive aspects from both Indigenous and Eurocentric beliefs and pedagogies. Without one being held as more important than the other. Marshall has described Two-Eyed Seeing as: "To see from one eye with the strengths of Indigenous ways of knowing, and to see from the other eye with the strengths of Western ways of knowing, and to use both of these eyes together" [2].

Throughout this research, one thing that has become apparent is that Indigenous knowledge holders are not consulted enough when it comes to an outsider creating solutions for Indigenous-based issues [3]. Especially, within the design of video games and/or gamification that aim to represent Indigenous culture and heritage, there is often extremely limited discourse between the designers and Indigenous peoples [4]. As both an Indigenous scholar and Indigenous games designer, Elizabeth LaPensée gives an authentic voice to Indigenous games development. She has created many games that reflect her people's sovereignty of their own stories. Games like 'Thunderbird Strike' and 'When Rivers Were Trails' not only share heritage but also act as powerful tools to show the devastating effect of colonisation [5–8].

## 2.2 Pedagogical Theories of Indigenous Learning

A factor that is often overlooked and can also cause interference with a simple inclusionary approach to education is that the teaching and learning styles and pedagogies of Indigenous and non-Indigenous learners and instructors are not the same [9]. Through conversations with the Elder Maurice Switzer and Jill Thompson, as well as access to the teaching of Elizabeth LaPensée it became apparent that there should not be a one size fits all approach to education, instruction, and problem-solving. Indigenous education has more of a reciprocal feel to it; where the knowledge passes from the teacher to the students, but also passes back to the teacher from the students. To enable a lack of hierarchy within a classroom setting it is very important for the tables to be arranged in a circle so that everybody can clearly see each other, and no one stands in front of the leader [10]. The circular layout also allows for much freer conversation and question-asking. The teacher will ask questions to the students and the students are encouraged to ask questions back [3].

Furthermore, many Indigenous learners benefit from a more hands-on or kinesthetic and visual pedagogy. This mirrors the traditional ways of learning, which come from seeing then doing [10]. A methodology that is often replicated in the way digital media is accessed and used. This pedagogy was backed up through a personal conversation with Carl Peterson [11], a Lakota Sioux games designer and creator of Tipi Kaga. A game which shows how to construct and build traditional Lakota Sioux tipi. Tipi Kaga is based on the principle of watching and learning, and the user watches the process required to construct a tipi whilst listening to

traditional Lakota Sioux singing in the background. As each step is completed, the user then copies the actions in order to complete that step successfully. This much more kinaesthetic pedagogy means that the knowledge is not only restricted to those who can either speak or read the language but becomes open to anyone.

## 2.3 Co-Design and the role of technological solutions

Indigenous groups have used digital technologies to improve communication and respond to social change [12]. Here, we explore if digital tools can help address social problems identified by Indigenous groups. To address such societal issues, it is recognised that users need to be involved in the design and conduct of research so that the solution reflects their needs, values, and interests.

Technology, in the form of mobile apps and social robots, has been used to good effect in helping individuals manage their mental health and wellbeing such as mobile apps such as Headspace, Calm and social robots [13]. The psychology of engagement with digital interfaces driving social robots and mobile devices must be considered [14]. The most engaging mobile apps draw heavily from game design to foster engagement and often have elements of motivation, feedback, and mastery as part of their framework.

## 3 STUDY DESIGN

The Indigenous communities in Canada face several issues, for example, retaining their traditional language, knowledge, and culture on their traditional lands [15, 16]. Most of these issues were directly caused by the colonisation of their lands. Through this process, many children were taken from their parents and put into residential schools, a practice that lasted from 1831 to 1996. During this era, language, heritage, and culture were stripped from them, often under great duress in termed 'cultural genocide' [17]. Furthermore, traditional ceremonies such as 'The Sun Dance' and 'The Pot Latch' as well as the use of traditional healing methods could result in prison sentences [18]. The knock-on result of this is that many Indigenous peoples cannot access the traditional language, stories, knowledge, and ceremonies that are their rights and heritage. One of the benefits of new media such as digital technology is that they can be efficiently utilised to preserve cultural practices such as traditional ceremonies. They can provide a perfect marriage between heritage and tradition which may be seen by the youth as old-fashioned or outdated with high technology that is readily accessible via mobile phones or computers. This brings language, stories, traditions and heritage back into the hands of an age group that previously may not have been so engaged. Furthermore, they allow for the preservation of such activities, creating a permanent record that can be easily shared between the communities they represent. It is important to note that the students were informed to be mindful of cultural appropriation and the use of traditional symbols and phrases that belong to the knowledge holders without express permission.

Referring to the United Nations Declaration on the Rights of Indigenous Peoples, this paper aims to support the recognition, preservation, and revitalization of Indigenous languages of Canada. Ontario Tech University has had the honour of working with and developing close relations with the Indigenous communities of

**Table 1: Group Projects**

Group Number	Project Topic	Research Area
1	Indigenous language Revitalization using Mobile Game Application	Computer Game
2	A Quiz Game for Helping Indigenous Community to Preserve and Promote their Cultural Heritages	Computer Game
3	Gamification Techniques for Indigenous Students	Computer Game
4	Knowledge Base Application for Indigenous Communities	Knowledge Management
5	The Mental Well-being of Indigenous Peoples of Canada	Digital Healthcare
6	A Web-based Cultural Handicrafts Trading Platform for Indigenous Peoples	Electronic Commerce
7	An Application to Promote Breastfeeding with the Anishinaabe Peoples	Digital Healthcare
8	The Sofos Wisdom Management System	Knowledge Management
9	Designing a Health Application-Diabetes and Heart Disease	Digital Healthcare

the First Nations within Ontario. The study was designed to help understand how Information Technology (IT) may help the Indigenous community address the aforementioned issues. To do this, the authors set up a course project for Computer Science in Winter 2021. The students were formed into nine groups. Each group was assigned to design and develop an interactive design prototype that would address some of the Indigenous community’s social issues as requirements to enhance the design’s user experience. The prototypes focused on Indigenous cultural revitalization through mixing emerging information technologies such as 2D/3D animation, gamification, and robotics. The focus was on how emerging technologies can revitalize Indigenous cultural ideas.

This report aims to compare what the students on the module have designed and made with what the Indigenous community feels would be more useful or beneficial. This was done through a focus group made up of members from the Indigenous community. During the group session, they were asked to assess the products created, offer notes on improvement, and provide suggestions for what they feel might be more useful.

### 3.1 Participants

The participants were 21 graduate students who had opted to take the CSCI 5020G: Collaborative Design & Research module provided by Ontario Tech University in the Winter semester of 2020.

### 3.2 Stakeholders

The stakeholders in this study are the Indigenous peoples, represented by The Elder Maurice Switzer and Jill Thompson. They provided thoughtful and considered feedback to the student’s projects. They had also made themselves available as knowledge holders throughout the design process. However, they were not consulted as often as would have been desired.

### 3.3 Procedures

This group project (2-3 persons) integrated concepts related to collaborative design, research, and interactive experiences. The objective was to propose and design a user-centred application for Indigenous Education and Cultural Services at Ontario Tech University, which would address a social issue faced by the Indigenous community. The students were required to identify an application

articulated as a green sustainable technology worth investigating, addressing, and designing an interactive experience. In order to decide upon societal issues to create a digital solution for the students were required to carry out in-depth research. The aim of the class, and the focus to, is that the students should not just do Internet searches but utilise the Ontario Tech University’s Indigenous adviser, Jill Thompson, to get first-hand knowledge. There are also encouraged to look further afield and reach out to Indigenous communities around them. It was hoped that the digital solutions created would be as a result of true co-design and therefore of the greatest benefit to the end-users.

The research-based digital solutions created (Table 1) ranged from apps to encourage and inform breastfeeding for Indigenous Women, apps focused on mental and physical health and offer support for societal issues faced by the Indigenous communities. Websites to encourage the sharing of traditional Indigenous knowledge and websites that act as portals for learning Indigenous language were also developed.

## 4 RESULTS

Data was triangulated by comparing the stated efficacies of the apps from the perspective of the course tutor, whose main goal is that the students understand and complete the task set for them, the students, whose main goal was to create a useful design that could help with social issues and the Indigenous community themselves who naturally have the best understanding of what is helpful for them and are the desired end-users and therefore can offer essential user experience feedback. The aim was to create a higher level of justification for Indigenous Peoples to be involved in every step of the design process instead of just assuming the best way to solve the issues they face. Overall, the questionnaire (Figure 1) responses demonstrated that all stakeholders felt that the programme had gone fairly well but that there was definite room for improvement. From the perspective of the Indigenous knowledge keepers, they felt that more involvement with the Indigenous community should have been carried out. By doing this, the products created would be more in line with what the community actually needed as opposed to what the students thought they might need. The students themselves, expressed reticence to engage with the Indigenous community as they felt like outsiders and that perhaps their ideas

**Evaluation of Ontario Tech student projects for the Indigenous communities.**

Evaluation of the student projects from an Indigenous perspective.

1. Overall, how well do you feel the projects addressed social issues faced by the Indigenous communities in Canada?

Extremely well  
 Somewhat well  
 Neutral  
 Somewhat not well  
 Extremely not well

2. What was the reason for your answer to question 1?

Enter your answer

**Student Digital Solutions.**

All of the following questions are focused on your opinion of all of the student presentations of their digital solutions to some of the issues faced by the Indigenous communities. Feel free to answer as generically or as specifically as you wish.

3. What were the positive points of the digital solutions?

Enter your answer

4. What negative points did you find with the digital solutions?

Enter your answer

5. What could have been done better?

Enter your answer

6. Going forward how would you like to see the relationship between Ontario Tech student projects and Indigenous cooperation develop?

Enter your answer

Figure 1: Screenshot of the table given to participants

might not be as well received. All student respondents expressed a shyness to communicate due to a lack of knowledge. The course tutors, whilst being overall satisfied with the program as a pilot also recognise that further iterations are required in order to create a truly successful programme.

#### 4.1 Ratings

All of the products were well received, whilst comments were not negative, they were not entirely positive either. Overall, the project was seen to be satisfactory by all stakeholders and produced acceptable outcomes. The students showed a great deal of innovation and out-of-the-box thinking when dealing with societal issues of the Indigenous communities. The caveat, however, is that the products could have been so much better had real integration and co-design been adopted.

#### 4.2 Positive aspects

Many of the student projects had great potential for being a real benefit to the Indigenous communities. For example, one group designed an app to help with breastfeeding. Another group had designed an app to help monitor blood pressure and blood sugar for those within the community who suffer from high blood pressure and/or diabetes, both of which have higher occurrences within the Indigenous community. Furthermore, another student group had chosen to create a website including social media functions which aimed to provide support for Indigenous peoples suffering from depression and/or suicidal feelings. All of the aforementioned digital products could be positive tools for the Indigenous communities. Further interaction and feedback and inclusion of the Indigenous peoples were all thought to be worth pursuing and developing further as co-designed products.

#### 4.3 Negative Aspects

It can be seen from the results of the questionnaires from all three stakeholders within this research that the placement of responsibility for inclusionary measures was mixed. The opportunity to interact with and gain essential feedback from the Indigenous knowledge holders was given to the students at the beginning of the project. In fact, the course was opened with a talk by the Elder Maurice Switzer, where he finished by welcoming the students to contact him and Jill Thompson in order to gain the essential input from the Indigenous end-users in order to create digital products that would truly be useful. However, the students felt that perhaps the tutors should have pushed more for interaction with the Indigenous knowledge holders and that maybe the Indigenous communities themselves should have been more involved. One factor that came up several times in the student's feedback was that they felt nervous about contacting the Indigenous communities, as they felt very far removed from them and worried about causing offence.

#### 4.4 Development of Future Cooperation

The course started as a pilot partnership between Ontario Tech and the Indigenous community. By evaluating the reactions and responses to both the course management and the students' digital products, we intend to improve the program for future students. But more importantly, we intend to improve the connections between the Indigenous communities and the University, working together to adopt a two-eyed seeing pedagogy that is inclusive and beneficial for all parties involved. Furthermore, this study will be used to inform a more extensive research currently being undertaken by one of the authors.

## 5 DISCUSSION

### 5.1 What actions are the various stakeholders taking toward improving content/pedagogical knowledge, organizational capacity, and available resources?

This pilot study identified a number of key steps that can be implemented by the various stakeholders. Firstly, the tutors and course designers will take the feedback from both the students and the Indigenous knowledge keepers on board and adjust the course content to reflect the need for increased consultation and research within the Indigenous community. Building in more background research into the societal issues faced by the Indigenous community as well as providing a deeper level of ethnographic research that will become an implicit part of the course content.

Secondly, the students will be encouraged from the outset to have a greater level of interaction with them the Indigenous community. There will also be encouraged to playtest and discuss the digital solutions that they are creating with the Indigenous community as soon as possible and as often as possible. Breaking down the communication barrier felt by the students towards the Indigenous communities is of paramount importance as well, to that end we envision the development of stronger ties to the community as well as the potential for group mentorship by members of the Indigenous community.

Thirdly, by implementing the former two steps we may go some way to ameliorate the potential communication barriers. By involving the Indigenous community within every step of the design of these digital products creating a co-design environment we hope that our course can have a lasting positive impact on all of the stakeholders involved.

### 5.2 What organizational barriers or accelerators hinder or promote inclusive instructional practice adoption?

We hold the firm belief that the only organisational barriers are the innovational aspects of the course. As a program like this has not been developed before we are breaking new ground. Relationships and cooperations need to be developed in a respectful and considerate manner and we are fully aware that trust and perceived value needs to be built up slowly over time. However, by developing this cooperation and co-design sensibility we aim to demonstrate explicit value to the University, the students and the Indigenous community.

## 6 CONCLUSION

The conclusions that can be drawn are clear. Firstly, the end-user must be instrumental in the design of any digital product that is made with the intention of solving a problem specific to their community. It is only the people themselves that know what they need what will work for their particular situation. In the words of the Elder Maurice Switzer and Jill Thompson, something is done with an honest intention and an open heart, and it will not offend.

It is worth paying attention to this sentiment when considering co-design.

Secondly, through applying the principles of two-eyed seeing, the best of both world pedagogies can be implemented. Instead of creating a situation where the designer is guessing what the end-user needs and how the product would work in their world. However, it must be noted that the first step must be consultation and co-design with the community themselves. The end digital products created by this cohort of students were well-received, if not necessarily as fit for purpose as they could have been if the Indigenous community had been involved from the beginning and throughout the design process.

Going forward, the course tutors will be able to implement this program model to develop and improve the course content. With the intention of strengthening cooperative ties with the indigenous community and building trust through codesign and ultimately the creation of a program that is beneficial to the students, and the indigenous community as the end-users.

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