Educating Students about Mental Illness: Ethnic Students' Perspective of the Effectiveness of a Web-Based Educational Tool

By

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ABSTRACT

Rationale: Mental health (MH) issues are increasing on post-secondary campuses particularly with ethnic students. This study aimed to establish the effectiveness of web-based MH education.

Methods: A three-phase design was used with non-random sampling. An interest questionnaire addressed students' (n=42) interest/preferred method of MH education in the first phase. In the second phase, a pre/post knowledge test/attitude scale assessed Mindsight's (a web-based tool for MH education) effectiveness with ethnic students from the initial sample (n=13). In the final phase, ethnic students provided feedback on Mindsight's effectiveness during focus groups/telephone interviews.

Results: Most students considered MH education important and would use web-based tools. All students showed an increase in MH knowledge and most showed a decrease in stigmatizing attitudes. Mindsight was considered easy to use and interactive, however lacked in ethnic sensitivity.

Conclusion: Web-based MH education has potential; however, ethnic sensitivity needs to be addressed.

Key Words: mental health, web-based, ethnicity

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1.0 INTRODUCTION

This study explored post-secondary students' perspectives about mental health (MH) education and whether web-based MH education is an effective tool with ethnic post-secondary students.

This chapter introduces background information on mental health issues (MHI), the problem statement, the purpose of this study, the central research questions, the specific sub-questions for this case study, and the importance of this study. The chapter concludes with an outline of each chapter in this thesis.

1.1 Background

The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) (American Psychiatric Association [APA], 2000) defines mental illnesses as disorders of the mind caused by genetic, environmental, biological, and psychological factors (World Health Organization [WHO], 2008). Individuals with MHI are often met with fear and rejection due to stigma (Canadian Mental Health Association [CMHA], n.d.a) which is a negative label that people attach to one another due to physical, behavioural, and social differences (Canadian Mental Health Association [CMHA], n.d.b). Those living with mental illnesses often claim that the stigma they experience is worse than the illness itself (Mental Health Commission of Canada [MHCC], 2009).

Research indicates that ethnic groups face the stigma of MHI at higher rates than non-ethnic populations due to ethnic specific beliefs and perceptions of MHI, and they also face more barriers to services due to economic and social disadvantages, isolation, racism, and discrimination (CMHA, n.d.b). As Canada is a multi-ethnic society, it is

argued that a one size fits all approach to MH promotion is both ineffective and does not support equity (Center for Addictions and Mental Health [CAMH], 2009).

It wasn't until May 2006 that the Standing Committee on Social Affairs acknowledged that Canada was the only G8 country without a national MH strategy and released the first national report on MH, *Out of the Shadows at Last* (Canada, Standing Senate Committee on Social Affairs, 2006). In 2007, the creation of the Mental Health Commission of Canada was announced to address the growing concern about MHI.

1.1.1 Statistics on Mental Illness

Seventy percent of MHI have an onset during childhood or adolesence (CAMH, 2009). The incidents of MHI are a growing concern on post-secondary campuses (Zivin, Eisenberg, Gollust et al., 2009), particularly with ethnic students (Sasnett, Royal, & Ross, 2010). The Canadian Medical Association (CMA) conducted a national telephone survey of 1002 Canadians between June 10th and 12th, 2008. The results indicated that due to a lack of education, 33% of Canadians believed that MHI in general are rare and 49% of Canadians would not socialize with individuals who have serious MHI. Forty-six percent of Canadians think people use the term MHI as an excuse for bad behaviour and 49% of Canadians experiencing MHI have never accessed services due to stigma and discrimination (CMA, 2008). Ethnic minorities are the largest group to underutilize services (Mood Disorders Society of Canada [MDSC], 2009). It has been suggested that MH education is the first step in reducing stigma and barriers to MHI and is a key to promoting help-seeking behaviour (Public Health Agency of Canada [PHAC], 2005).

1.2 Statement of the Problem

Even though it is widely accepted that there are benefits to educating the public about MHI, public knowledge about mental illnesses remains low (Kurihara, Kato, Reverger et al., 2006). Mental health education has been difficult to implement because the perceptions and norms about MHI vary across ethnicities (Corrigan, 2005). Services that are available (such as community resources, lectures, and books) are viewed with a lack of trust (Farrell, Mahone, & Guilbaud, 2004), there are waitlists, and it can be costly (Graff, Gerhards, Evers et al., 2008).

One method to address the issue of effective MH education is through the use of self-help resources, whereby individuals work through the material independently at little to no cost (Oh, Jorm, & Wright, 2009). More individuals are turning to self-help tools because it counteracts stigma and provides the essential basic information about MHI (Standing Committee on Social Affairs, 2006). One form of self-help that has emerged in the literature is the use of web-based technology, which is effective with post-secondary students (Gega, Norman, & Marks, 2007). As many post-secondary campuses have a diverse ethnic population there is a need for more ethnically sensitive health promotion (Sasnett et al., 2010) which can be addressed with web-based technology (Gega et al., 2007).

1.3 Purpose of the Study

The purpose of this study was to explore post-secondary students' perceptions about MH education and whether web-based MH education is an effective tool with ethnic post-secondary students. This purpose was approached using a three-phase case study design with post-secondary students at the University of Ontario Institute of

Technology (UOIT). Mindsight, a web-based MH educational tool developed by UOIT faculty, was piloted for this study.

1.4 Research Questions

The central research questions guiding this case study were:

1. What are post-secondary students' views about acquiring MH knowledge?
2. What is their preferred method of MH education?
3. Are web-based MH educational tools effective with ethnic post-secondary students?

The researcher hypothesized:

1. Students do believe MH education is important because of the prevalence of MHI on post-secondary campuses.
2. Students would use web-based MH education because computer technology is a trusted source of information for this group.
3. Web-based MH education is effective for increasing knowledge and decreasing stigmatising attitudes among ethnic students because web-based tools have the potential to incorporate information from various ethnic origins, genders, and ages, and the information can be changed to reflect ethnic differences.

More specific sub-questions for this case study were addressed using a three-phase study design. In the first phase a questionnaire was used to answer sub-questions one and two:

1. Do UOIT students think there is a need for MH education?
2. Will UOIT students use web-based tools for MH education if they are available?

In the second phase a pre/post knowledge test and attitude scale were used to answer sub-questions three and four:

3. Is Mindsight an effective tool in educating UOIT self-identified ethnic students about MHI?
4. Will Mindsight help to change UOIT self-identified ethnic students' attitudes about MHI?

In the final stage, focus groups and telephone interviews provided additional data for sub-questions one to four and provided data to answer sub-questions five to seven:

5. How much knowledge do UOIT self-identified ethnic students have about MHI?
6. What are UOIT self-identified ethnic students' attitudes about MHI?
7. Do UOIT students from self-identified ethnic groups require additional/different information based on diverse ethnic beliefs in order to better understand MHI?

These research sub-questions framed the focus of the case study and provided insight to the central research questions.

1.5 Importance of this Study

This case study is expected to contribute to the literature on the use of web-based tools to educate post-secondary students, particularly ethnic students, about MHI. It is known that MHI often have an onset at an age when individuals are entering post-secondary education. Stigma is the biggest barrier to MHI and ethnic individuals hold the greatest stigma. This study's contribution is significant because education is considered the first step in reducing stigma and web-based tools have the potential to address the need for MH education with post-secondary students. The scope of the literature on the uses of web-based tools for MHI is limited to treatment for individuals with a diagnosis. This study may be the first to use a web-based tool to educate post-secondary ethnic students about MHI and will provide new direction for future research

in this area. It is anticipated that the lessons learned from this case study will provide valuable insight about the potential benefits of using web-based tools as an educational resource for MH education.

1.6 Outline of Thesis

Chapter one presented an overview of the research study. Chapter two provides a comprehensive literature review. It should be noted that the literature search did not yield any studies that discussed the use of web-based tools to educate post-secondary ethnic students about MHI. The literature search was therefore divided into the three broad themes: (1) MH education for post-secondary students, (2) web-based MH education, and (3) the importance of ethnicity in MH education. Chapter two also discusses three theoretical frameworks used in this thesis: (1) Pender's Health Promotion Model (PHPM), (2) Purnell Model for Cultural Competence (PMCC), and (3) Cognitive Flexibility Theory (CFT). The researcher was unable to find any pre-existing theoretical framework that addressed ethnicity alone so the concepts of culture from the PMCC were used to fill this gap. This chapter concludes with a proposal for a new health promotion model: the Cognitively Flexible Cultural Adaptive Model of Health Promotion (CFCAMHP). Chapter three describes the study's design, sampling, data collection and data analysis, and concludes with the strengths and limitations of the study design. Chapters four and five present the results and discussions for the quantitative and qualitative methods (respectively). Chapter six provides a summary of the mixed method findings. This chapter addresses each research sub-question and how the sub-questions were answered using the mixed methods design. Chapter seven discusses how this case study addressed the central research questions, provides a discussion of the implications

of the study, and suggestions for possible future research options. This chapter, and the thesis, is concluded with a reflection from the researcher.

2.0 LITERATURE REVIEW

This chapter presents a review of the literature relevant to this study. However, the literature search did not yield any studies that discussed the use of web-based tools for mental health (MH) education with ethnic post-secondary students. The search was therefore broadened to include three themes. The first theme was MH education with post-secondary students which provided insight about students' views and beliefs about MH education. The second theme addressed how web-based tools have been used for MH promotion. The last theme was the importance of ethnicity in MH education which addressed the beliefs and barriers about mental health issues (MHI) from an ethnic perspective.

Section 2.4 of this chapter addresses the three theoretical frameworks used in this study. Pender's Health Promotion Model (PHPM) was used because it is a holistic model of health that discusses the importance of health promotion for all individuals. The Purnell Model for Cultural Competence (PMCC) was used to incorporate the essential components of ethnicity that need to be addressed in health promotion. It should be noted that the researcher was unable to find any existing theoretical frameworks that addressed ethnicity alone; the PMCC discusses ethnicity as a component. The Cognitive Flexibility Theory (CFT) was included to determine the required components for web-based tools to provide optimal learning. These theoretical frameworks were combined to create a new model to guide the use of Mindsight and future web-based tools. The chapter concludes with a description of Mindsight and how Mindsight fits within the components of the three theoretical frameworks.

2.1 Mental Health Education for Post-secondary Students

Studies have shown that the onset of MHI often occurs during the age when individuals are entering post-secondary education (Zivin et al., 2009) and about 75% of mental disorders have an onset by the age of 24 (Eisenberg et al., 2009). More than a third of college/university students experience MHI and continue to experience the symptoms even after two years (Zivin et al., 2009). One in five young people experience a MHI before the age of 25 (Burns, Morey, Lagelee et al., 2007) and 50% of mental disorders develop by 18 years of age (Golberstein, Eisenberg, & Gollust, 2008). National surveys have found that MH problems in the college population are a growing concern (Zivin et al., 2009), as students enter post-secondary education more overwhelmed and with fewer social supports than in past years (Vogel, Michaels, & Gruss, 2009). Post-secondary education brings many challenges including the stress of being away from family, having to form new relationships (Adamle, Riley, & Carlson, 2009), and changes in the developmental processes (Eisenberg et al., 2009). As a result, an increasing number of students express loneliness, isolation, depression, and other interpersonal stressors during this time (Vogel et al., 2009).

Mental health problems early in life impact an individual's academics, social life, occupation, and health in general (Eisenberg et al., 2009), and assessing, preventing, and treating mental illness during young adulthood is one way to address the societal burden of MHI (Zivin et al., 2009). Students also require more outreach programs and education about mental illnesses (Zivin et al., 2009) given that untreated MHI early on may become more debilitating later in life (Tjia, Givens, & Shea, 2005). Colleges and universities provide a venue for understanding and educating students about MHI because of the

social networks and access to services available on campus (Eisenberg et al., 2009; Zivin et al., 2009).

2.1.1 Post-secondary Students' Beliefs and Attitudes

Young adults' beliefs and attitudes about MHI are largely influenced by family and friends (Vogel et al., 2009) and students are more vulnerable to peer and social influences (Ting & Hwang, 2009). Young adults are less likely to seek help if individuals from their support network are unsupportive of treatment (Vogel et al., 2009). Eisenberg et al. (2009) further established that personal attitudes about MHI are shaped by public attitudes about MHI. However, these beliefs about MHI are associated with other complex variables. Vogel et al. (2009) found that the quality of the parent child relationship is a factor in whether or not the young individual adopts the parents' or the public's attitudes about MHI.

It has been observed that a student's ethnicity also plays a big role in their attitudes and beliefs. Personal stigma is higher among international and more religious students (Eisenberg et al., 2009) and African American and Asian American students have been found to hold negative attitudes for MHI and help-seeking (Dominicus, Gilbert, & Romero, 2005; Ting & Hwang, 2009). Hsu & Alden (2008) found that Chinese students, who are more acculturated to the North American society, face greater barriers and express higher levels of social anxiety and impairment compared to their Chinese counterparts.

As a result of these negative attitudes and beliefs about MHI there is a persistent low level of service use and a low level of perceived need for treatment by students, even among those who are experiencing a MHI (Zivin et al., 2009). Younger students are less

likely to seek MH treatment compared to older students (Tjia et al., 2005) and are less likely to perceive a need for services if they also perceive stigma to be associated with treatment (Golberstein et al., 2008). Similarly, medical students are not using treatment despite having severe depression or suicidal ideation (Tjia et al., 2005). On the contrary, students who have previously been diagnosed with depression, have a family history of depression, or are over the age of 25 have a higher prevalence of seeking treatment (Tjia et al., 2005). There is also a greater likelihood that students will seek treatment if their family or friends are involved in the help-seeking process (Vogel et al., 2009).

Differences in treatment utilization are also documented based on ethnic factors. Younger Asian American students are less likely to seek help compared to older Asian American students (Ting & Hwang, 2009). African American students are less willing to utilize health services and are more likely to prematurely terminate treatment due to stigma (Dominicus et al., 2005). Chinese students are less likely to seek help for mild to moderate mental illnesses, although they are more likely to seek help for severe symptoms (Hsu & Alden, 2008).

It is important to understand the barriers to treatment and MH promotion faced by young adults (Vogel et al., 2009). Students indicate stigma as a barrier to treatment (Tjia et al., 2005) and stigma is found on a personal and public level. Perceived public stigma is higher compared to personal stigma, although it is possible that students are reluctant to identify that they have socially undesirable responses to treatment (Eisenberg et al., 2009). Students have reported that they fear MH treatment could negatively impact their academic record and future career plans (Tjia et al., 2005). However, this finding has been inconsistently reported in the literature. Brimstone, Thistlewaite, & Quirk, et al.

(2007) found that medical students and psychology students did not believe that professional treatment would impact their grades, education, and career opportunities. Similarly, Vogel et al. (2009) did not find any significant link between stigma and treatment seeking behaviour.

2.1.2 Gaps in Mental Health Education for Post-secondary Students

Students have indicated that they face barriers to MH treatment and education yet the specific ethnic processes that become a barrier have not been explored (Hsu & Alden, 2008) and it is not clear if lowering public stigma of MHI will also lower personal stigma over an extended period of time (Eisenberg et al., 2009). It should also be determined if students perceive a need for treatment and education following the onset of MHI (Golberstein et al., 2008) and if perceived need for treatment during post-secondary life predicts treatment seeking behaviours later on in life (Zafar, Syed, Tehseen, et al., 2008). Dominicus et al. (2005) suggested that the best way to determine the impact education and treatment has on students' attitudes is to directly ask students about their experience using campus MH services and Vogel et al. (2009) proposed that future studies should assess the actual use of services by students.

Adamle et al. (2009) suggested that in order to understand if students will benefit from treatment and educational models, it would be important to understand individuals' past experiences with treatment and the ethnic experience of seeking treatment. Determining students' attitudes about MH promotion and treatment seeking behaviours will allow service providers to implement appropriate and successful programs (Zivin et al., 2009), as more programs should be directed to provide education and training about MHI to young people (Tjia et al., 2005). It has been further proposed that the educational

material should focus on reducing perceived public stigma (Eisenberg et al., 2009) and normalizing self-disclosures and the use of treatment (Vogel et al., 2009).

Outreach programs might be more beneficial if they are tailored to individual needs based on age, gender, and ethnicity (Eisenberg et al., 2009) and the materials should be delivered using a variety of tools (Dominicus et al., 2005). Alternative treatment methods may be a good option for individuals who are experiencing stigma or discrimination as a result of seeking formal treatment (Adamle et al., 2009). Internet based programs as alternative methods work well for students because this population has a high level of internet use (Eisenberg et al., 2009).

2.2 Self-help Methods for Mental Health Education and Treatment

Few professionals are trained in therapies for various mental illness treatments (Gega et al., 2007) and in order to overcome this shortage, Macdonald, Mead, Bower et al. (2007) suggest the use of minimal psychological therapy, otherwise known as therapies dependant on “health technology”. This concept is supported by Christensen, Leach, Barney et al. (2006) who have shown that many people do not go to formal MH services and would prefer alternative treatment options.

Papworth (2006) noted that self-help has been documented in the field of social sciences for over half a century and is accepted as standardized psychological treatment that patients can work through independently (Straten, Cuijpers, & Smits, 2007). This type of intervention has been useful in reaching a greater portion of the population (Griffiths & Christensen, 2007), and possibly those from diverse ethnic backgrounds (Fravolden, Denisoff, Selby et al., 2005). Self-help therapy allows people to experience greater autonomy in their own treatment (Corrigan, 2005) and increased privacy (Spijker,

Straten, & Kerkhof, 2010), avoids labelling and stigmatisation (Papworth, 2006), and can be utilized in a range of problem areas (Bastelaar, Power, Cuijpers et al., 2008). Research has also shown that self-help interventions increase literacy resulting in a better understanding of depression and positive beliefs about help-seeking (Oh et al., 2009).

Earlier self-help interventions have commonly delivered material through books (bibliotherapy), the telephone, the library, and the media (Straten et al., 2007). In recent years, there is growing awareness that the use of computers may be a possible solution to promoting self-help interventions. As computers become widely available, an increasing number of individuals are resorting to web-based tools for health information (Oh et al., 2009). It has been suggested that web-based treatment may be more effective than past self-help methods because it is interactive, tailored to individual needs, and people can monitor their own progress (Fravolden et al., 2005).

2.2.1 Web-based Materials as a Form of Self-help

Web-based self-help material is a relatively new approach in the field of MH promotion. Cognitive Behavioural Therapy (CBT) has been the most extensively researched form of psychological treatment (Cuijpers, Straten, & Anderson, 2008). As a result, current web-based materials use a CBT approach and are considered Web-based Cognitive Behavioural Therapy (W-CBT) (Bastelaar et al., 2008) or Computerized Cognitive Behavioural Therapy (CCBT) (Graff, et al., 2008). A number of web-based applications for MH treatment such as MoodGYM (CBT through interactive modules) and BluePages (a MH educational site) have been developed and have improved literacy and helped to reduce mental illness symptoms (Oh et al., 2009). It has been suggested that personal contact with mentally ill patients reduces the stigma associated with MHI

(Chung, Chen, & Liu, 2001). However, direct interaction with persons experiencing a MHI may not always be feasible due to ethical issues and computer-aided programs can simulate live interactions through the use of different media (Finkelstein, Lapshin, & Wasserman, 2007).

It has been suggested that CCBT may be more effective than formal treatment in reducing symptoms of depression (Graff, et al., 2008), anxiety, drinking problems, and social phobia (Spijker et al., 2010). It has also been effective for eating disorders (Carrard, Rouget, Fernandez-Aranda et al., 2006), with individuals experiencing suicidal ideations (Spijker et al., 2010), and with people experiencing co-morbid, or multiple mental, physical and emotional illnesses (Bastelaar et al., 2008), such as rheumatic diseases, a condition that has an impact on physical health and MH (Francesco, 2009). Farrell et al. (2004) noted that clients who experience serious MHI interact very successfully with computers.

Christensen et al. (2006) found that resources such as MoodGYM and BluePages help significantly to reduce symptoms related to MHI even among those with a serious MHI (Straten et al., 2007) and are still effective six months following the intervention (Finkelstein et al., 2007). The use of web-based interventions has been effective in reducing binging and purging among patients with eating disorders and is effective in reducing other symptoms of eating disorders, including overall psychological health (Carrard et al., 2006). Other studies have found that web-based materials significantly help to reduce symptoms of panic attacks, both in frequency and severity.

The literature review also revealed that participants are more likely to seek professional help or use other methods of self-help after a web-based intervention.

Individuals who have been exposed to web-based self-help have reported that they would use the internet for self-help in the future (Farrell et al., 2004). Participants who have previously used MoodGYM report that they are more likely to seek complementary treatment (i.e. exercise and massage) or professional treatment (i.e. CBT) after receiving web-based interventions (Christensen et al., 2006). These participants also indicate that they are willing to educate and help others who experience MHI and Fravolden et al. (2005) found that 50% of the participants indicated they are going to share the results of their intervention with healthcare professionals. Oh et al. (2009) found that 70% of youth prefer to access MH information over the internet and Christensen et al. (2006) established that the participants continued to use web-based material even after six months, following web-based interventions.

Gega et al. (2007) noted that on-line services save time and are successful even when participants did not complete the on-line modules or when they did not visit the website regularly (Carrard et al., 2006). It was also found that automatic feedback from the on-line resource was helpful in providing continuous reinforcement towards therapy. Gega et al. (2007) found that participants gained as much MH knowledge using a web-based tool when compared to a lecture and were better skilled at identifying MHI. In addition, Gega et al. (2007) noted that the participants were from various ethnic origins, suggesting that on-line MH educational tools could be developed as international standards in MH education.

2.2.2 Gaps in Current Web-based Studies

Studies should research the efficacy of the different web-based programs (Graff, et al., 2008), while keeping in mind that the structure and content of the material presented will have to be carefully planned to assure lower drop-out rates (Carrard et al., 2006). It will be equally important to determine if web-based resources will be cost-effective in promoting the material and creating new databases (Fravolden et al., 2005). Longer follow-up studies need to be conducted to determine if the treatment and educational gains are effective over longer periods of time (Straten et al., 2007) especially because individuals' subjective views may change over time (Macdonald et al., 2007). Mental illness often exists with other problems/illnesses and further studies should determine the effectiveness of web-based material over a range of problems (Bastelaar et al., 2008).

Empirically, it is not clear if the community is willing to accept web-based training as an alternative to traditional treatment (Farrell et al., 2004) or if individuals would prefer this method as complementary to traditional methods (Oh et al., 2009). It is equally important to determine if this form of self-help and education can be promoted and accessible for people who would otherwise not receive formal treatment (Fravolden et al., 2005) and to recognize participants' expectations with respect to web-based therapy or educational material (Macdonald et al., 2007). Christensen et al. (2006) noted that future research will need to consider the type of influence web-based self-help has on individuals.

Future studies should also consider differences in the demographics of the participants. Oh et al. (2009) reported that males will benefit from on-line resources

because they are less likely to use face-to-face treatment methods and younger adults may not be as familiar or comfortable with traditional treatment methods. In theory it has been suggested that web-based material may be effective with ethnic individuals although this area of research requires further exploration (Griffiths & Christensen, 2007).

2.3 The Importance of Ethnicity in Mental Health Education

A review of the literature yielded a handful of empirical studies that addressed ethnic communities' beliefs and attitudes about seeking help for MHI. The research suggests that ethnic groups are at a greater risk of developing MHI because they encounter difficulties adapting to their new environment (Reitmanova & Gustafon, 2009), are faced with low income, poor health, and multiple role strains (Ward, Clark, & Heidrich, 2009), and they experience the effects of acculturation (Donnelly, 2005). Furthermore, the rate of MHI among ethnic groups may be underestimated because ethnically diverse groups may give different descriptions of mental illness symptoms (Tabassum, Macaskill, & Ahmad, 2000) and often are not able to accurately recognize a MHI based on Western standards (Jorm, Nakane, Christensen et al., 2005).

Studies have shown how demographics, psychological variables, attitudes, and beliefs influence help-seeking behaviour, yet little research has been done to empirically demonstrate how ethno-racial communities view MHI and treatment methods (Al-Krenawi, Graham, Al-Bedah et al., 2009). Few studies have examined the effectiveness of treatment within ethnic groups (Anglin, Alberti, Link et al., 2008) and ethnic individuals' beliefs and attitudes about MH treatment (Ward et al., 2009). Much of the research on ethnic beliefs about MHI appears to be from the 1980s-1990s (Ward et al., 2009). These studies discussed the complexities of MH from an ethnic perspective

(Shim, Compton, Rust et al., 2009) including the fact that ethnic minorities often experience double stigma, from having a MHI and from racial discrimination (Ward et al., 2009).

Evidenced-based healthcare for MHI has not been widely accepted by ethnic communities, as current Western-based treatment/self-help models may ignore ethnic values (Al-Krenawi et al., 2009). There have been limited opportunities to create ethnic specific treatment, self-help, and outreach for ethnic communities (Ward et al., 2009). Ethnic differences in conceptions about mental illness are complex and there have been calls for further analyses (Anglin et al., 2008) to address the socio-cultural meaning of attitudes about MHI and help-seeking behaviour (Chung et al., 2001).

2.3.1 Attitudes and Beliefs of Ethnic Individuals

Ethnic minorities' beliefs about MHI originate from families, social networks, and religious views (Bogner, Dobransky, & Wittink, 2008; Shim et al., 2009). Overall, the majority of people from different ethnic backgrounds hold negative or stigmatizing beliefs about MHI and display a lack of understanding with regards to the biomedical causes of mental illnesses (Al-Krenawi et al., 2009; Bogner et al., 2008; Donnelly, 2005; Jorm et al., 2005; Kurihara et al., 2006; Ward et al., 2009; Zafar et al., 2008). In developing countries, social factors are considered to be the leading cause of psychiatric disorders such as schizophrenia (Zafar, et al., 2008). In the Arab and Korean communities, women hold stigmatizing views because having MHI could potentially endanger future marital prospects (Al-Krenawi et al., 2009; Donnelly, 2005). Among Korean families, MHI are known as crazy or divine diseases treated using traditional methods (Donnelly, 2005). Latinos attach stigma to MHI both on an individual and

community level (Pincay & Guarnaccia, 2007) and in the Balinese community, it is believed that MHI are caused by invisible and abstract elements, and are not a medical disease (Kurihara et al., 2006). In places like India and Morocco, psychiatric disorders are attributed to supernatural phenomena, drug use, stressful life events, and personality deficiencies (Zafar, et al., 2008). In Indonesia, it is firmly believed, especially among the older, less educated population, that individuals have schizophrenia due to supernatural factors such as god's will or witchcraft (Kurihara et al., 2006). In Japan, mental illnesses are kept confidential due to stigma and if the services of a psychiatrist are used, the family pays in cash so as not to be identified (Jorm et al., 2005).

In Arab communities, there is a strong need to conform to traditional beliefs about mental illness for fear that individuals will be viewed as "weird" (Al-Krenawi et al., 2009) and this view is shared by Japanese, Pakistani, Indonesian and Korean families (Donnelly, 2005; Jorm et al., 2005; Kurihara et al., 2006; Zafar, et al., 2008). Although Palestinians and Israelis are more open to treatment, they also display higher levels of stigma than Egyptians and Kuwaitis, possibly because the decision to seek treatment may put the community's "honour" at risk (Al-Krenawi et al., 2009). The concept of honour is also seen in Korean families, where the cause of MHI is blamed on "Satan" in order to avoid the genetic or biological causes and spare their ancestors the dishonour (Donnelly, 2005).

Although it appears that the majority of ethnically diverse communities have similar beliefs about MHI, there is conflicting information in the literature about African-American's beliefs and attitudes. Shim et al. (2009) found that African-Americans are less likely to find it embarrassing to seek professional help for MHI, whereas Ward et al.

(2009) found that although African-American women had accurate information about MHI, they often deny that mental illnesses exist in their community.

Research has shown that treatment is often necessary for individuals to fully recover from a MHI (Amstadter, Broman-Fulks, Zinzow et al., 2009). Yet ethnic communities' negative beliefs and mistrust for Western treatment (Ward et al., 2009) are influential elements in a lack of treatment seeking behaviours (Ng, Jin, Ho et al., 2008). As such, ethnic minorities may not use MH services because of ethnic beliefs (Shim et al., 2009) and the stigma of being diagnosed with a MHI (Bogner et al., 2008; Reitmanova & Gustafon, 2009). Donnelly (2005) discussed language barriers and the difficulty identifying with Western treatment methods as another obstacle. For these reasons and because of a reluctance to discuss MH problems outside the family union, ethnic populations are less likely to seek professional help (Al-Krenawi et al., 2009).

In many ethnic communities, the family is the center of the social institution (Bogner et al., 2008; Donnelly, 2005) and the family's perception of mental illness may be a predictor in the individual's recovery and help-seeking behaviour (Bogner et al., 2008). Due to family and community beliefs that MHI are a result of supernatural factors, individuals in the Balinese community rarely receive medical treatment (Kurihara et al., 2006). Korean families believe that MHI are a result of a lack of balance, which is restored by prayer; although when traditional methods cannot alleviate symptoms, other treatment methods are used (Donnelly, 2005). The Japanese endorse seeking help from family and friends and although admission to a psychiatric unit is generally not preferred, in cases of chronic schizophrenia it is the accepted method of treatment (Jorm et al., 2005). The majority of Pakistanis undergo traditional treatment for mental disorders due

to family beliefs that MHI are caused by non-biomedical factors (Zafar, et al., 2008). In Singapore, healthcare is easily accessible and affordable, yet the determining factor for seeking help is not systems related; it is personal and social factors (Ng et al., 2008).

When ethnic minorities do seek professional help, they face inequality in treatment, have less access to MH services (Anglin et al., 2008) and often receive inadequate treatment (Bogner et al., 2008; Shim et al., 2009) possibly because of the biases held by health practitioners (Bogner et al., 2008).

2.3.2 Gaps in Current Mental Health and Ethnicity Studies

The research thus far has been limited in its suggestions about the strategies needed to sensitively and effectively educate ethnic individuals about MHI (Kurihara et al., 2006). Future studies need to determine the variations between ethnic minorities in terms of MH beliefs (Shim et al., 2009), gender differences, access to MH services (Ward et al., 2009), and the use of traditional healing methods, in order to integrate Western treatment techniques to provide optimal services (Al-Krenawi et al., 2009). Ethnic and linguistic barriers between patient and therapist also need to be addressed (Shim et al., 2009). These complex belief systems and personal factors could be further studied using qualitative research designs (Jorm et al., 2005; Ng et al., 2008). It would also be useful to replicate previous studies in different countries to establish some of the similarities and differences (Donnelly, 2005).

2.4 Theoretical Framework

The literature review established a need for educating young people, including ethnic individuals, about MHI, and it discussed the possible use of web-based tools to provide MH education. The literature did not discuss how MH education could be

delivered to ethnic students for optimal learning. In order to address this gap, Pender's Health Promotion Model, the Purnell Model for Cultural Competence, and the Cognitive Flexibility Theory were combined to provide a theoretical framework for assessing if web-based educational tools can meet the MH educational needs of ethnic students.

2.4.1 What is "Health Promotion"?

Health promotion (HP) is a concept that has not been fully explored in the realm of MH. In 1974, the Canadian Minister of National Health and Welfare, Marc Lalonde, released the report A New Perspective on the Health of Canadians. This report is considered the first working document to acknowledge that a healthcare system with a biomedical focus is ineffective and it helped to expand the concept of health to include genetics, lifestyle, environment, and the organization of health services (Lalonde, 1974). The two main themes that emerged from this document were a focus on the healthcare system and the promotion of good health (Lalonde, 1974). In January 1986, the WHO established a working group to discuss the "Concepts and Principles in Health Promotion" and established the first working definition of HP stating "health promotion is the process of enabling people to increase control over, and to improve, their health" (World Health Organization [WHO], 1986).

In May 1986, Jake Epp (Canadian Minister of National Health and Welfare) released, *Achieving health for all; a framework of health promotion* (also known as the Epp Report). This report discussed that in order to strengthen health services, inequities in services needed to be reduced and emphasis should be placed on the determinants of health by focusing on the three mechanisms of HP: (1) self care, (2) mutual aid, and (3) healthy environments (Epp, 1986). The first international conference on HP was held in

Ottawa on November 21st, 1986, which resulted in the Ottawa Charter for Health Promotion. The Charter expanded on the definition of HP and established the first working definition of HP which states:

> Health promotion is the process of enabling people to increase control over, and to improve, their health. To reach a state of complete physical, mental and social well-being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment. Health is, therefore, seen as a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities. Therefore, health promotion is not just the responsibility of the health sector, but goes beyond healthy life-styles to well-being (World Health Organization [WHO], 1986).

Since the first internationally recognized definition of HP, a number of different HP models have been developed, each outlining different perspectives and different ways of working to promote health. In addition to the definition proposed by the WHO (1986), the concept of HP is now considered to include the key principles for effective health: resiliency (the ability to positively cope/bounce-back from negative life events) and a sense of control gained by an individual's/group's participation in the decisions about one's own health (PHAC, 2005). Moreover, HP is not just about illness prevention, but rather it is a dynamic process, self-initiated by individuals to maintain or enhance their wellness (Hui, 2002). In this sense, mental HP is a means to reach the goal of psychological well-being and is applied to the whole population not only to at risk individuals or those experiencing a MHI, in an effort to reduce stigma and encourage

personal control, empowerment, self-determination, and resilience (Canadian Mental Health Association [CMHA], n.d.c). For the purpose of this study, the elements of HP needed to be addressed, which were found in Pender's Health Promotion Model.

2.4.1.1 Pender's Health Promotion Model

Pender's Health Promotion Model (PHPM), is a holistic predictive model of health promotion proposed by Nola J. Pender, which adapts the concepts of HP as illustrated in *Figure 1*, and further identifies the multidimensional nature of health promoting behaviours by an individual/group (Pender, 2011).

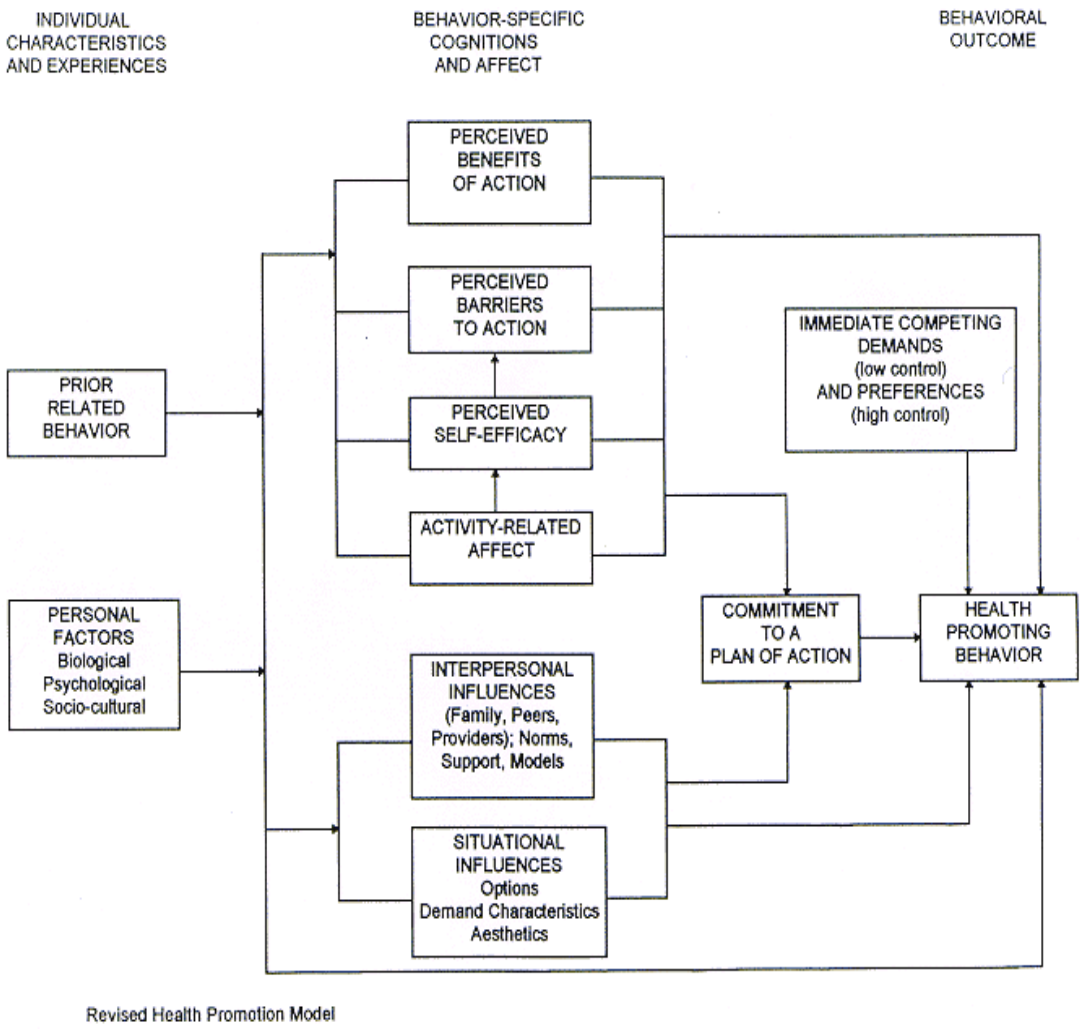

Figure 1: Pender's Health Promotion Model

Pender's Health Promotion Model is a holistic predictive model of health promotion describing how individual characteristics and experiences, and behaviour-specific cognitions and affect interact to establish behaviour outcomes. Reprinted from Pender, N. J. (1996). *Health promotion model-diagram*. Retrieved September 10, 2011, from http://deepblue.lib.umich.edu/handle/2027.42/85351

The model has four main assumptions: (1) individuals regulate their own behaviour, (2) they are transforming and are transformed by their environment, (3) health professionals can be influential in HP, and (4) behaviour change is effective when it is self-initiated (Pender, 2011).

The goal of PHPM is for individuals to engage in their own health promoting behaviours which results in improved health and better quality of life (Pender, 2011). To achieve this goal, Pender (2011) recognized that a person's interactions are complex and the pursuit of health is dependent on these complex interactions. The model provides three components which address the multidimensional nature of an individual's ability to promote their own well-being: (1) individual characteristics, (2) behaviour specific cognitions and affect, and (3) behaviour outcomes (Eschiti, 2008). The behaviour specific cognitions and affect that become barriers to health can be modified through education (Pender, 2011).

The model further elaborates on a number of theoretical assumptions of HP. Positive affect, positive emotions, perceived benefit (the positive outcome of engaging in healthy behaviour), and positive role modeling by significant others can increase commitment to health promoting actions, which in turn leads to maintenance of behaviour over time (Pender, 2011). However, perceived barriers (the imagined or real cost of action) can become an obstacle in changing behaviours and attitudes (Pender, 2011). Family, peers, therapists, situational factors, and the external environment can be influential in HP behaviour (Eschiti, 2008).

Pender's Health Promotion Model is essential to this study because it supports the concept that MH education should be provided to the general population, in this case the ethnic student population at UOIT, and it supports the fact that HP should be the primary concern in healthcare (Pender, 2011). The literature has indicated that students are at a greater risk of developing MHI due to the changes in their lives and the added social, economic, and mental stressors they experience as a result of these changes. As such,

PHPM outlines a basic framework for providing education to students about MHI. However, the focus of this study is primarily on students from self-identified ethnic backgrounds. Although PHPM discusses the importance of culture, family, and community in the process of HP, it does not elaborate on the complex nature of ethnicity. Therefore, the Purnell Model for Cultural Competence (PMCC) was also used to help inform the research and needed to be incorporated in this study to establish how different cultures/ethnicities view, understand, and treat MHI and what factors about one's culture/ethnicity are important to consider when educating ethnic individuals about MHI.

2.4.2 Ethnic Considerations

Culture, ethnicity, and race are complex variables, and no standardized definition exists when it comes to these terms, although anthropologists and sociologists have attempted to propose various definitions. Moreover, there is no clear distinction between ethnicity and culture, and these terms are often uses interchangeably. This posed a problem for the aim of this study. In an effort to understand the ethnic differences of MH promotion and for the purpose of this study, the researcher decided to use the more commonly used definitions of culture for the theoretical framework. In particular, the definition of culture proposed by Purnell & Paulanka (2003) was used which states:

> Culture is the totality of socially transmitted behavioural patterns, arts, beliefs, values, customs, life ways, and all other products of human work and thought characteristics of a population of people that guide their world view and decision making. These patterns may be explicit or implicit, are primarily learned and transmitted within the family, are shared by most members of the culture, and are emergent phenomena that change in response to global phenomena. Culture is

> learned first in the family, then in school, then in the community and other social organizations such as the church (p.3).

This definition alone does not fully explain how culture is tied to MH education and the National Alliance on Mental Illness [NAMI] (n.d.) states;

> A person's beliefs, norms, values, and language plays a key role in how people perceive and experience mental illness, whether or not they seek help, what type of help they seek, what coping styles and supports they have, what treatments might work, and more.

Furthermore, Purnell (2005) describes three areas of culture that are of particular interest in healthcare. Cultural awareness is an ability to gain knowledge in the material aspects of the culture. Cultural sensitivity is the ability for service providers to recognize their own beliefs and values and to ensure that they are not offensive to other beliefs and values by projecting their own beliefs. Finally, cultural competence is a holistic approach to knowledge and skills that incorporates both cultural awareness and cultural sensitivity (Purnell, 2005), which allows healthcare workers to work effectively within various cultural contexts (NAMI, n.d.). When trying to understand the cultural process, it is also important to understand stereotyping, that is, oversimplifying beliefs and conceptions about a group of people as if it were a common occurrence among all people within that group. Although generalizations about a cultural can help to provide cultural specific services, it is important to be aware of the stereotyping process (Purnell, 2005).

Culture has important implications in healthcare because it can have a powerful influence on an individual's health and wellness and is mostly an unconscious phenomenon (Purnell, 2005). Purnell (2000) reported a growing need for healthcare

providers to become culturally sensitive and culturally competent, which is the process of moving from unconscious incompetence to becoming unconsciously competent in providing culturally sensitive care (Purnell, 2002). In order to become culturally competent, healthcare provides must avoid ethnocentrism which is the belief that one's own values, thinking, and believing are the best/right way of life a (Purnell, 2005). The goal is for healthcare providers to understand differences in beliefs for effective HP and to understand that these beliefs are accepted as truths and cannot be changed, regardless of what the service providers think about them (Purnell, 2005).

It is evident that HP is essential and as Pender (2011) has discussed, health promoting behaviours are a result of many interacting factors and therefore HP can take many different forms. What is important to consider, is the fact that Canada is a multicultural society of diverse peoples who identify with different cultural beliefs and values. These diverse groups often face different barriers (such as language barriers, discrimination, mistrust of mainstream services, a general lack of knowledge of MHI, and lower participation in HP initiatives) to HP compared to the general population and may present with different MHI and higher rates of vulnerability to MHI due to pre-migration trauma or cultural pressures (Center for Addictions and Mental Health [CAMH], 2004). These facts make it imperative that HP initiatives address the particular needs and barriers of HP faced by ethnically diverse communities. Therefore, models for MH promotion need to incorporate a variety of strategies and approaches in order to accommodate and respect people of all origins (CMHA, n.d.c), a need that is addressed by the Purnell Model for Cultural Competence.

2.4.2.1 The Purnell Model for Cultural Competence

The Purnell Model for Cultural Competence (PMCC) was designed as an organizational framework to be used across various disciplines and the model's framework is based on multiple theories and disciplines (Purnell, 2005). The model was developed using both deductive and inductive reasoning and focuses on the emic (description of beliefs from persons within a culture) and etic (descriptions of behaviours by the observer) views of individuals, families, and communities (Purnell, 2000).

The Purnell Model for Cultural Competence suggests that culture is an inter-play of the global society, community, family, and individual, all of which interact with 12 cultural domains as outlined in *Figure 2* (Purnell, 2000).

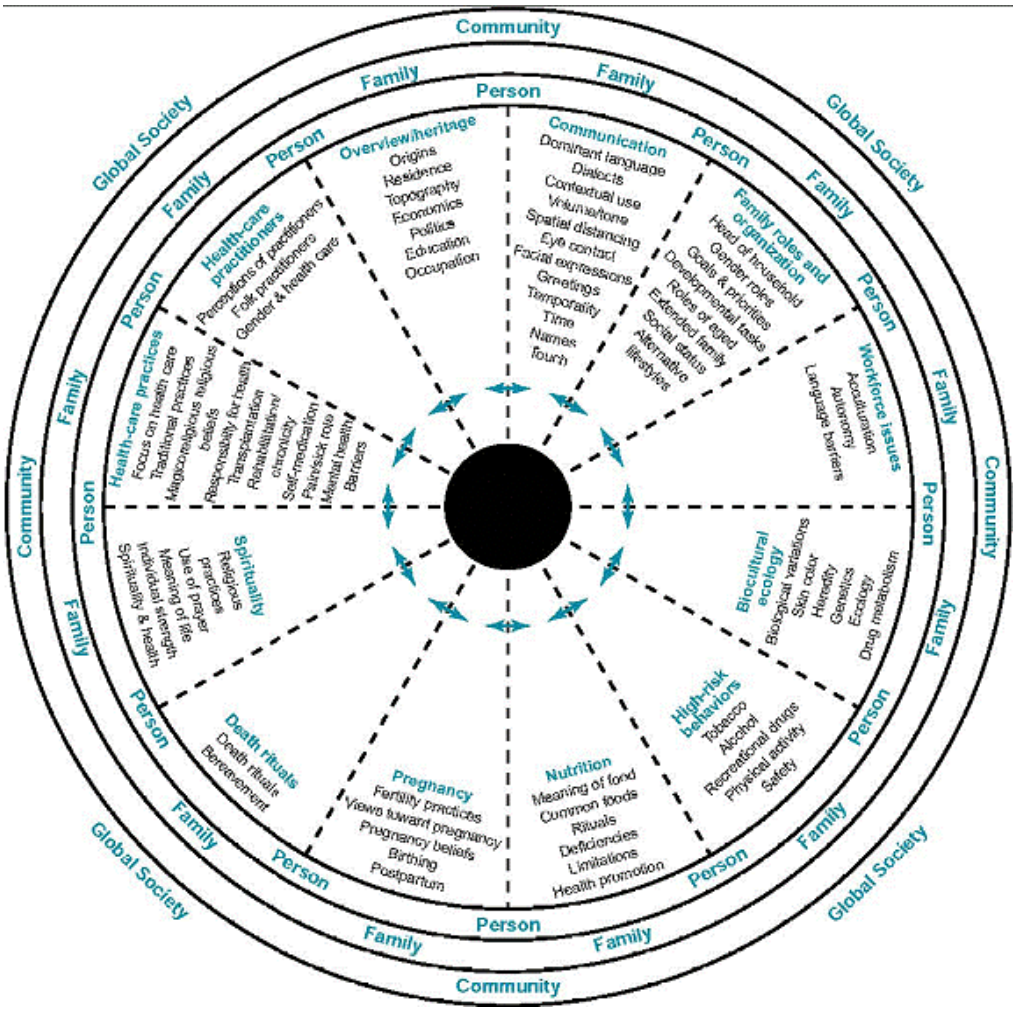

Figure 2: The Purnell Model for Cultural Competence

The Purnell Model for Cultural Competence illustrates the inter-play of the global society, community, family, and individual, all of which interact with 12 cultural domains. Reprinted from Purnell, L. (2005). *The Purnell model for cultural competence*. Retrieved September 10, 2011, from http://findarticles.com/p/articles/mi_qa3919/is_200507/ai_n14825638/pg_6/?tag=content;col1

The model is circular with the outer ring representing the global society, a second ring for community, a third for family, and the inner ring represents the person. The inside of the circle contains 12 cultural domains: overview/heritage, communication, family roles and organization, workforce issues, bio-cultural ecology, high risk behaviours, nutrition, pregnancy and childbearing practices, death rituals, spirituality, healthcare practices, and

healthcare practitioners (Purnell, 2000). The nonlinear nature of the model allows for the assessment to begin at any point of the 12 domains, to address what is priority for the individual (Purnell, 2000).

The 12 domains in the PMCC indicate how an individual's thoughts and beliefs are made up of their interactions with their families, communities, and the global society (Sasnett et al., 2010). Purnell identifies 19 assumptions such as: professionals need consistent information about cultural diversity, one culture is not better than another, all cultures share core similarities, culture can change over time, and individuals and families belong to a number of cultural groups (Purnell, 2002).

The Purnell Model for Cultural Competence can be useful for developing assessment tools and implementing individualized interventions, in staff development and in academic settings (Purnell, 2002). For this study, PMCC provided a comprehensive framework to critique Mindsight, the selected web-based application, in order to determine its effectiveness with ethnically diverse students.

Pender's Health Promotion Model and the PMCC are useful in establishing the importance of HP incorporating the complex nature of culture and ethnicity. However, these models do not show the process of learning that needs to be implemented in order to promote health education material which will result in an optimal learning experience. The web-based tool used in this study (Mindsight) integrated a variety of learning strategies to provide an optimum learning environment. Therefore, the Cognitive Flexibility Theory (CFT) was used to explain how non-traditional educational methods can be beneficial in providing MH education to self-identified ethnic students.

2.4.3 The Cognitive Flexibility Theory

The Cognitive Flexibility Theory (CFT) has been derived from constructivist theories (students should construct their own knowledge), subsumption theory (new and previously learned materials should be integrated), and genetic epistemology (students learn when they are able to adapt their learning to new situations) (McMinn, 2001). However, it differs from other constructivist theories because its emphasis is on ill-structured domains, case-based instructions which represent real life contexts, and it also provides a higher level of learning (Sprio, Feltovich, & Coulson, n.d.). An ill-structured domain is a knowledge area that varies across contexts (Heath, Higgs, & Amburso, 2008) and cognitively flexible methods of learning are useful when knowledge is applied to uncertain changing conditions (Lowrey & Kim, 2009), which represents most situations in real life (Sprio et al., n.d.). Ill-structured domains can be difficult to learn and therefore need multiple representations of the concepts for learning (McMinn, 2001), as opposed to traditional methods of learning which incorporate linear methods of learning through textbooks and lectures (Spiro & Jehng, 1990). Cognitive Flexibility Theory can therefore be used effectively in knowledge domains such as social sciences, when the information being delivered can vary from case to case (Lima, Koehler, & Spiro, 2004).

Cognive Flexibility Theory is a conceptional model that provides the framework for designing educational tools using the Cognitve Learning Theory (the explaination of human behaviour based on the thought process) (Sprio et al., n.d.). Cognitive Flexibility Theory is based on four principles: (1) material should be presented using multiple representations of content, (2) learning process should avoid oversimplifying content and should promote context-dependent knowledge, (3) material should be presented via case-

based scenarios for transmission of information to real life, and (4) sources of knowledge should be interconnected not compartmentalized (Spiro & Jehng, 1990).

Cognitive Flexibility Theory presents multiple perspectives of a complex problem using computer aided tools (Lima et al., 2004). Information presented via CFT is called cognitive flexibility hypertexts. Hypertexts are computer-based texts which are organized on multiple dimensions and participants can create their own path of understanding about ill-structured and complex contents (Sprio et al., n.d.). Hypertext can be presented in forms of videos, websites etc., in which words are linked by associations and the learner has the choice of how they want to learn the concept, allowing for rapid navigation of information (Gillham, 1998). Providing realistic schemes, concepts and perspectives through case-based methods can be useful in facilitating knowledge transfer to new situations (Lima et al., 2004).

The Cognitive Flexibility Theory supports web-based applications for education because it can provide multiple representations of context and context-dependent knowledge, instructions are case-based, and the knowledge source is interconnected (Sprio et al., n.d.). The aim of this theory is not only to educate individuals, but to transfer the knowledge and skills beyond the initial learning phase, which is known as cognitive flexibility (Boger-Mehall, 2010). Cognitive flexibility therefore refers to a person’s ability to adapt knowledge to different situations (Sprio et al., n.d.).

The self-controlled interactive environment of web-based materials allows users to look at a problem form different perspectives (Lima et al., 2004). This approach avoids coming to a conclusion based on single representations of the product or process, instead allowing for an expansive or flexible worldview (Wolsey, 2010). This is of

particular interest in the social sciences as it has been found that medical students often find it difficult to transfer their learned knowledge to clinical practice as a result of oversimplifying the complexity of the learned context (Heath et al., 2008). Cognitive Flexibility Theory has been used in the medical field to provide different clinical cases and the ability to use various sources of information to diagnose the case (Sprio et al., n.d.). The CFT was essential to this study to support the use of multiple representations of MH information through the use of Mindsight which is an interactive MH educational program.

2.4.4 Cognitively Flexible Culturally Adaptive Model of Health Promotion

The combined frameworks of PHPM, PMCC, and the CFT provide the basis of the theoretical framework for this study. A new model was created to address the research sub-questions of this thesis. This new model, The Cognitively Flexible Culturally Adaptive Model of Health Promotion (CFCAMHP) presented in *Figure 3*, uses the basic outline of PHPM but incorporates the PMCC and the CFT. The CFCAMHP includes the circular model of the 12 domains of culture from the PMCC. These domains are included as indicators of the personal/individual factors that play a role in health decisions.

This new model also introduces a new component called Education Intervention (as illustrated in *Figure 3*) which has been adapted from the CFT. This addition is used to establish the need for providing education in order to change previous barriers to health promoting behaviours. Three new concepts for the Education Intervention have been incorporated: (1) information needs to be presented using multiple representations of the content, (2) information provided should present case-based scenarios, and (3)

knowledge transfer to a new situation needs to be feasible. In this way, the CFCAMPH provides the theoretical framework for providing MH education to ethnic individuals via web-based material and provided a framework to assess Mindsight.

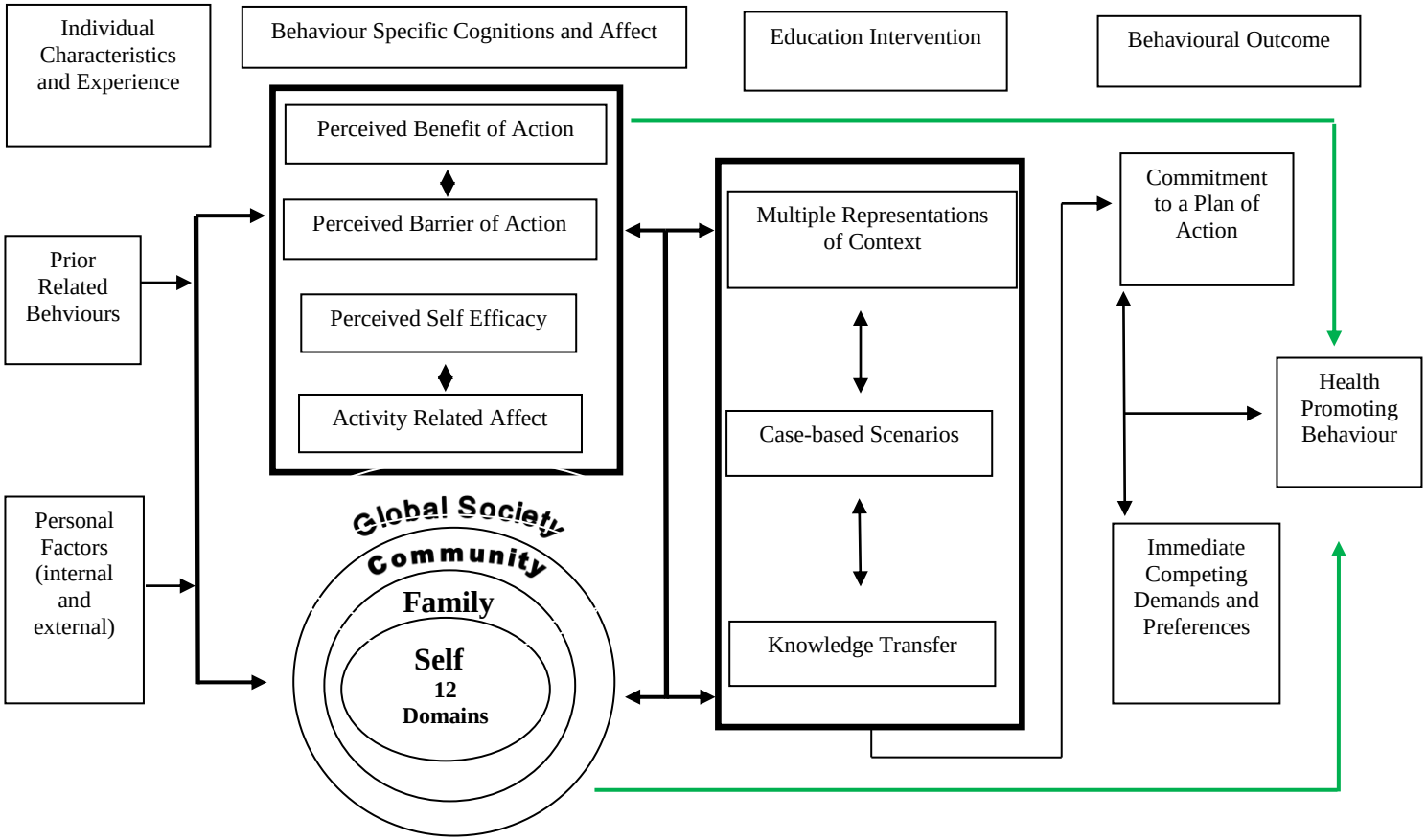

Figure 3: The Cognitively Flexible Culturally Adaptive Model of Health Promotion

A new model developed by the researcher for the purpose of this study, called the Cognitively Flexible Culturally Adaptive Model of Health Promotion (CFCAMHP) which uses the basic framework of PHPM and incorporates the 12 domains of culture and the need for education intervention in order to accomplish health promoting behaviours.

2.5 Description of Mindsight

Mindsight is an online educational resource that provides information about stigma and mental illness, as well as nine of the most common MHI (depression, anxiety, substance use, suicidal behaviour, self-harming behaviour, bipolar disorder, eating disorders, psychosis, and trauma). A definition of the particular mental illness, facts about the illness, and various supports and resources that are available in the community are included. This information is delivered using a variety of learning strategies including video clips, hyperlinks, static text, and quizzes. The total time to complete the modules is about two to three hours; however, individuals can review the material in private on their own time and at their own pace. They can also decide how they want to learn the material and if they choose to answer the quizzes, they can apply for a certificate of completion.

The new model CFCAMHP was designed for this study as a guide to assess Mindsight's effectiveness as a health promotion tool and to help future development of technology based health promotion resources. The following chart in *Figure 4* provides a summary of Mindsight from a theoretical perspective based on the CFCAMHP. The chart provides a description as to how Mindsight fits within the framework of each of the three theoretical models that were combined to create the CFCAMHP.

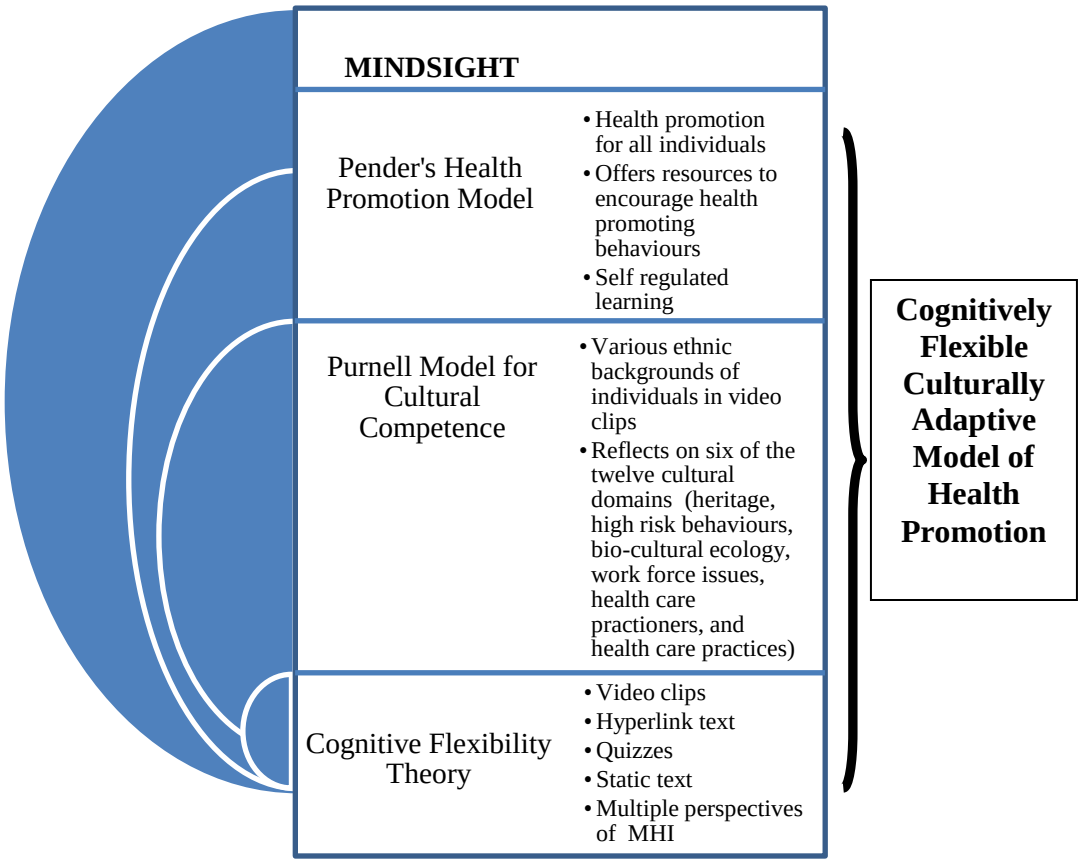

Figure 4: Mindsight from a Theoretical Perspective

This chart provides a summary of how Mindsight incorporates the major components of the PHPM, PMCC, and the CFT to form holistic health promotion tool. These models combined were the basis for the new CFCAMHP introduced in this study.

As a mental health promotion tool Mindsight is designed to reduce stigma by educating individuals about MHI and provides greater understanding of basic self-help strategies and resources for supporting individuals experiencing MHI. In terms of cultural competence, Mindsight contains video clips of individuals representing various ethnic backgrounds which correspond to the heritage component of the PMCC. Mindsight further takes into consideration five other domains of culture from the PMCC. High risk

behaviours are reflected in the discussion about the onset of MHI and behaviours that make it challenging to seek help. Mindsight provides an understanding on the bio-cultural ecology of MHI by providing information on how MHI are manifested based on biological differences. Statics present the impact of MHI on the workforce and Mindsight provides information on resources and health care practitioners' role with identified MHI. Most importantly, Mindsight provides strategies and suggestion on health care practices for optimal development of MH and coping strategies for MHI. By including several learning strategies, Mindsight offers various perspectives on MHI and provides real life situations. These concepts combined were the basis of the new CFCAMHP and provided an overall guide for Mindsight from a theoretical perspective.

2.6 Chapter Two Summary

The literature review for this study did not find any previous studies that discussed the use of web-based MH educational tools to educate ethnic students. However, studies have commented on the need to assess the effectiveness of web-based MH education with young people and with ethnic groups. This need is derived from the impact of stigmatizing attitudes and misconceptions about MHI that young people and ethnic individuals have. Furthermore, MHI are a growing concern on university/college campuses and ethnic students in particular face the biggest barriers to MH supports. The literature review provided support for future research on the uses of web-based MH for young adults because this population is increasingly tech savvy and trust computer technology for educational material. The literature review also discussed the potential benefits of using web-based material with ethnic individuals. The gaps in the literature

discussed in this chapter provide support for conducting research in this area and this study may be the first to explore web-based MH education with ethnic students.

The discussion of the three theoretical frameworks, PHPM, PMCC, and CFT, helped to establish a framework to assess Mindsight and web-based MH educational tools. Mindsight fit within the scope of PHPM because it is a tool that provides elementary MH education for all individuals, not only those challenged by a MHI. In terms of the PMCC, Mindsight uses different ages, genders, and ethnicities in the educational material presented. When Mindsight is assessed using the CFT, it is clear that Mindsight uses various interactive tools thereby allowing individuals to use the material in a flexible way. The new model for this study, CFCAMHP, was designed to assess the impact of web-based educational tools with ethnic individuals and Mindsight was examined in this study using the components of this new model. The next step in the process of assessing Mindsight was to decide on how this study would be conducted which is outlined in the methods chapter.

3.0 METHODOLOGY

The research-sub questions for this study were addressed in three phases. In the first phase a questionnaire was used to assess UOIT students' views of mental health (MH) education. This addressed two of the research sub-questions: (1) do UOIT students think there is a need for MH education, and (2) will UOIT students use web-based tools for MH education if they are available? In the second phase Mindsight was tested for its effectiveness using a knowledge test and attitude scale. This helped to address the following research sub-question: (3) is Mindsight an effective tool in educating UOIT self-identified ethnic students about MHI, and (4) will Mindsight help to change UOIT self-identified ethnic students' attitudes about MHI? In the final phase focus groups and telephone interviews provided additional data for research sub-questions one to four and also addressed the following research sub-questions: (5) how much knowledge do UOIT self-identified ethnic students have about MHI, (6) what are UOIT self-identified ethnic students' attitudes about MHI, and (7) do UOIT students from self-identified ethnic groups require additional/different information based on different ethnic beliefs in order to better understand MHI?

The study design, data collection method, and an overview of the data analysis are described in this chapter. A timeline of the data collection process and analysis is included in *Figure 5*.

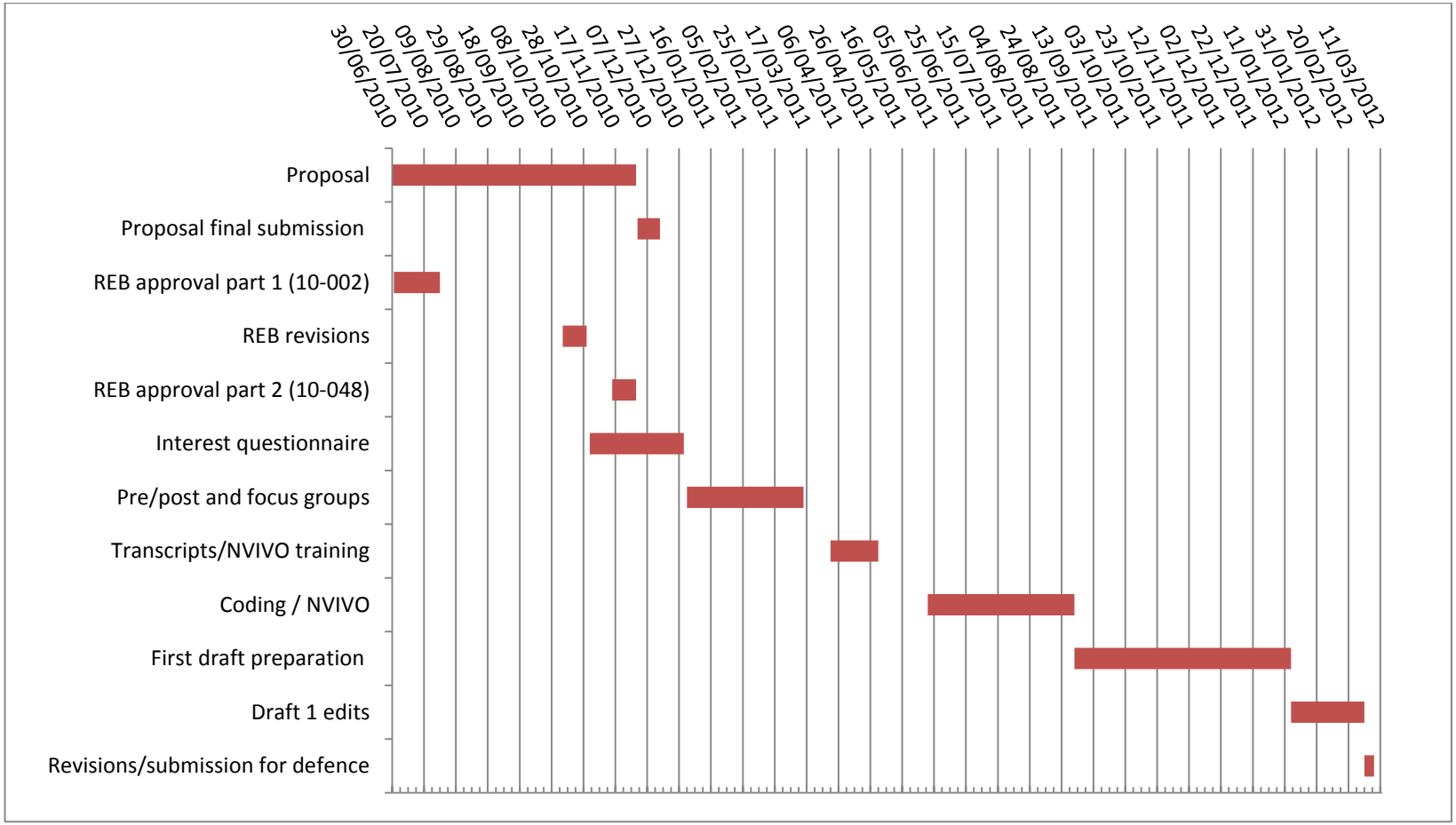

Figure 5: Study Timeline

A timeline of the proposal, REB process, data collection and data analysis, and writing of the manuscript.

3.1 Research Design: Mixed Method

This study was a mixed method case study design including both quantitative (interest questionnaire, knowledge test, and attitude scale) and qualitative data (focus groups and telephone interviews), a method which has been used in other studies related to health seeking behaviours and health program evaluations (Bowling & Ebrahim, 2005). Case studies are research strategies for empirical inquiry about a phenomenon within its real-life context using individuals or groups. Researcher Yin (1984) defines the case study research method as:

> An empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used (Yin, 1984, p. 23).

In this way case studies are useful for the exploration and description of phenomena. The case study approach was used in this study to explore the participants' real-life experiences of MHI and MH education.

Mixed methods are useful in providing a more comprehensive overall picture of the research questions compared to using only quantitative or qualitative data (Bowling & Ebrahim, 2005). In the following sections, the researcher explores the (1) mixed method approach, (2) the variant of the method, (3) the weight of the quantitative and qualitative data, (4) and how the quantitative and qualitative results were integrated (refer to *Figure* 6).

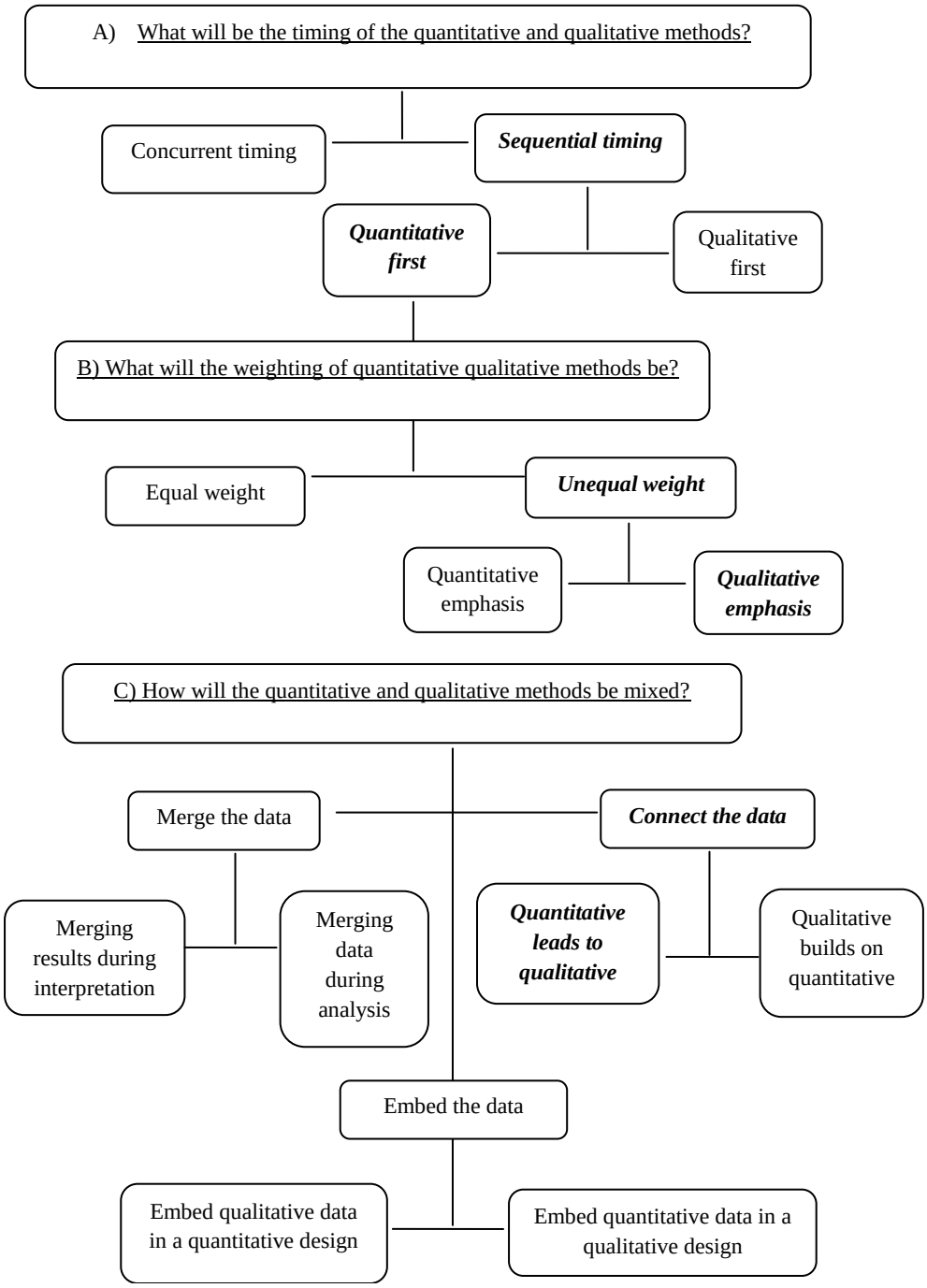

Figure 6: Mixed Method Decision Tree

A diagram of the mixed method design used in this thesis. The bolded items are the decisions made for this study. Adapted from Creswell & Plano-Clark (2007).

3.1.1 Mixed Method Approach

The data for this study was gathered using a sequential strategy (quantitative data first and then qualitative data in sequence) (Bowling & Ebrahim, 2005), a method often referred to as the Explanatory Sequential Design (Creswell & Plano-Clark, 2007). The overall purpose of the Explanatory Method is to use qualitative data to build on and explain the results of the quantitative data (Creswell & Plano-Clark, 2007).

The Explanatory Method was chosen for this study because it enabled the researcher to select the participants, collect the data, and analyze, and discuss the results of the quantitative and qualitative data separately, allowing the researcher to categorize three distinctly separate phases for the research (Creswell & Plano-Clark, 2007).

3.1.2 Variant Selection

The Explanatory Sequential Design: Participant Selection Model (refer to *Figure* **7***7)* uses purposive sampling to select participants from the first phase of the study with particular characteristics for the qualitative phase (Creswell & Plano-Clark, 2007).

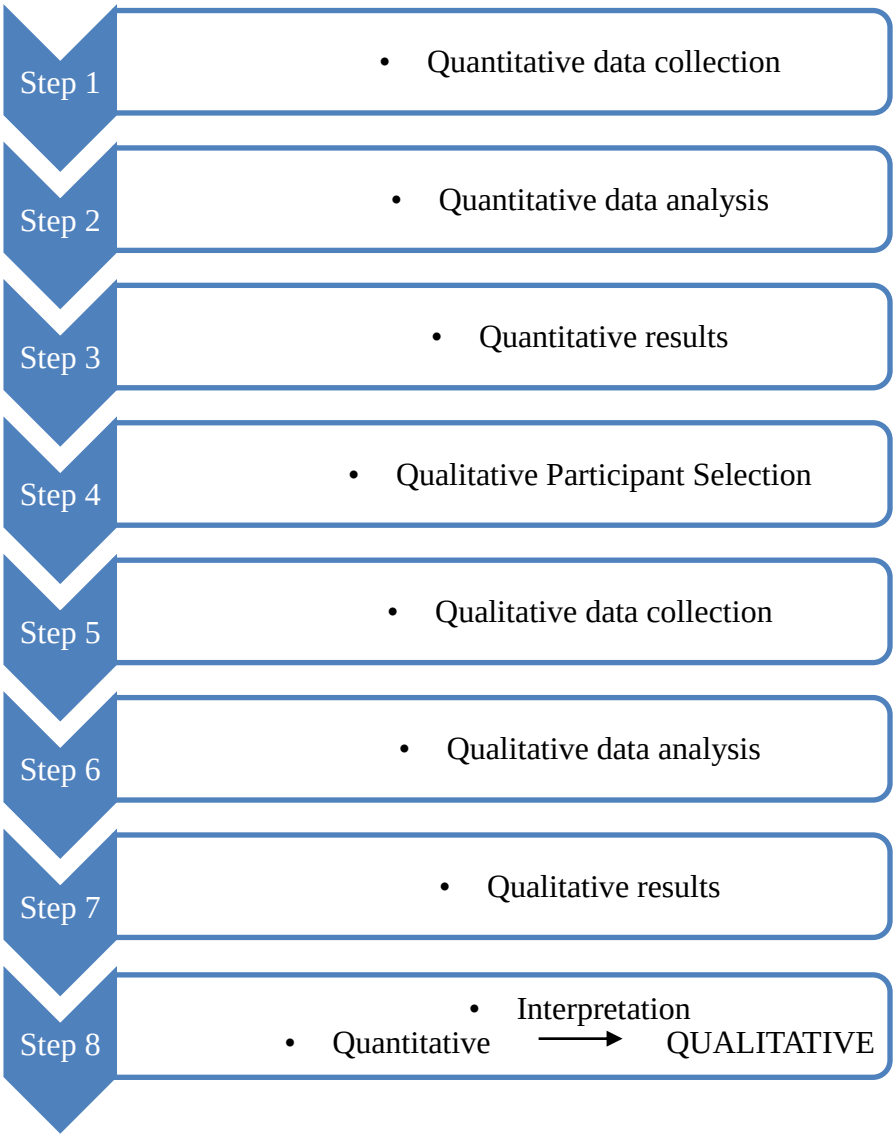

Figure 7: Explanatory Design Participant Selection Model

Process of data collection, data analysis and discussion of results for the three phases of the study. Adapted from: Creswell & Plano-Clark (2007).

In order to address the research-sub questions, the participant characteristics chosen for this study were students at UOIT who self-identified from an ethnic background (these participants identified their ethnic background on a questionnaire provided in this study). The advantage of using the Participant Selection Model was the researcher's ability to

choose a smaller, meaningful sample for the qualitative phase (Creswell & Plano-Clark, 2007).

3.1.3 Weight of Methods Selected

The results from the qualitative phase of this study were considered most important as the researcher attempted to gather new insight into ethnic students' perspective of MH education. The literature review in this study exposed the need for qualitative research, given the lack of empirical evidence about ethnic groups' beliefs related to MHI. The qualitative component of this study was also able to provide insight into all of the research sub-questions, whereas the quantitative components helped to answer sub-questions one to four only. For these reasons, the qualitative data held greater weight and was more essential to the findings of this study (Creswell & Plano-Clark, 2007).

3.1.4 Method of Mixing the Data

When using a mixed method approach consideration must be given to the way the quantitative and qualitative data will be discussed (Creswell & Plano-Clark, 2007). The researcher decided to connect the datasets from the three phases. Using this approach, the researcher analyzed and discussed the quantitative and qualitative results separately and then connected the discussions of these findings in the conclusion phase (Creswell & Plano-Clark, 2007). This method of connecting the data was appropriate for two main reasons. The participants from the last phase of the study (focus groups and telephone interviews) were recruited from the population of participants from the quantitative phase: i.e., the data was connected as a result of a subset of the sample from the first phase of the study being recruited for the second and third phase (Creswell &

Plano-Clark, 2007). Secondly, the research sub-questions were answered in sub-sets using the three phases of the study, and the data for each phase connected to the data from the previous phase (Bowling & Ebrahim, 2005). As suggested for this approach, the discussions were then tied together at the end of the study in the conclusion chapter for a greater overall interpretation of the findings, an iterative approach to summarizing the data (Creswell & Plano-Clark, 2007). In doing this the researcher employed triangulation to strengthen the results by using three separate sets of data. This allowed the researcher to facilitate the validation of the results through cross verification using the three stages of the research and employing a mix of quantitative and qualitative data (Bowling & Ebrahim, 2005).

3.1.5 Quantitative Methods

The quantitative portion of this study included a questionnaire design and a pre-test/post-test single group design.

3.1.5.1 The Questionnaire

The questionnaire design is used with a population of interest at a single point of time to gather information about health related issues (Bowling & Ebrahim, 2005) such as MHI among UOIT students. This method was helpful in determining their healthcare usage and preferred method of education (Bowling & Ebrahim, 2005), as well as the effectiveness and usability of Mindsight. From a mixed method standpoint, questionnaires are often used in the preliminary stage, to be followed up in the other phases of the research (Creswell & Plano-Clark, 2007).

The questionnaire enabled the researcher to look at a wide range of preliminary information including the ages, ethnicities, and social backgrounds of UOIT students

while still being an easy way to gather data (Creswell & Plano-Clark, 2007). The questionnaire design also allowed the researcher to gather data in a cost effective and timely manner (Bowling & Ebrahim, 2005).

This study used a descriptive questionnaire design, as opposed to an analytical design, because inferential analysis is not meaningful with a small sample size (Creswell & Plano-Clark, 2007) and the sample size of this study was small. Descriptive studies collect information from individuals and attempt to describe the characteristics of the population, which helps to establish baseline information and is used for health services planning (Bowling & Ebrahim, 2005).

3.1.5.2 Pre/Post-test Single Group Design

Once preliminary data is gathered using a questionnaire design, it is not uncommon to use another quantitative method for further analysis (Creswell, 2009). The researcher decided to introduce the pre-test/post-test design for the second phase. This allowed the researcher to gather preliminary data about Mindsight's effectiveness (Gravetter & Forzano, 2006) and also introduced Mindsight for the qualitative phase of the study. The researcher decided to use a single group design and approached the method as a non-experimental design, which is often used for pilot projects (Gravetter & Forzano, 2006). Without a control group, no comparison could be made between an equivalent non-treatment group, so the results of this study cannot be generalized (Bowling & Ebrahim, 2005). This method is considered a single group design because the same group of participants filled out questionnaires before and after the completion of Mindsight (Gravetter & Forzano, 2006).

The single group pre-test/post-test design can be a cost and time effective way to determine if further exploration is warranted (Gravetter & Forzano, 2006). This study was designed to gain an overall understanding of Mindsight's effectiveness as a web-based educational tool. A knowledge test and an attitude scale were used to determine self-identified ethnic students' level of knowledge and attitude related to MH, pre/post their completion of Mindsight.

3.1.6 Qualitative Method: The Focus Group

Qualitative research methods can be useful in understanding the complexities of MHI from an ethnic perspective (Jorm et al., 2005) and to gather student perceptions of MHI by directly asking them about their experiences (Dominicus et al., 2009; Vogel et al., 2009).

The focus group approach, a qualitative data collection method, is often used for research on relatively unexplored topics, such as MHI, where insight is required for further understanding (Bowling & Ebrahim, 2005). Focus groups have also been found to be helpful in determining group norms and ethnic values about the topic of interest and in discovering how attitudes and beliefs are formed and change over time (Bowling & Ebrahim, 2005). Using the focus group method, the researcher was able to discover new concepts, questions, and considerations about the researched topic (Krueger & Cassey, 2009). Moreover, in keeping within the framework of a mixed method design, focus groups have been used to complement questionnaire data (Bowling & Ebrahim, 2005), which fit well within the scope of this study.

Focus groups are a qualitative method of research, which uses humanistic interviews to gather verbal data (Redmond & Curtis, 2009) from more than one person

at a time in a safe and interactive group environment (Onwuegbuzie, Leech, & Collins, 2010) about topics that may be embarrassing to talk about, such as mental distress (Bowling & Ebrahim, 2005). Focus groups "provide a way to access information...from young people who are rarely asked about their opinions; to discuss difficult or sensitive topics and to produce rich data...in a way which may not be possible with other qualitative or quantitative research methods" (Bowling & Ebrahim, 2005, p. 220).

By facilitating interactions between individuals, the focus groups provided the possibility of establishing novel information (Krueger & Cassey, 2009). The researcher was able to stimulate memories, ideas, and experiences (Wyatt, Kraukopf & Davidson, 2008) about MH and the focus group process allowed participants to share their real life stories (Bowling & Ebrahim, 2005). The researcher was further able to identify participants' psychological attitude, self-perceptions, (Bowling & Ebrahim, 2005), feelings, and behaviours about MHI, which could not be obtained from the quantitative methods (Halcomb, Gholizadeh, DiGiacomo et al., 2006).

Focus groups are also considered useful for program development as participants can freely express their points of view without the need for consensus (Krueger & Cassey, 2009). The focus groups enabled the researcher to gather a range of ideas for future research projects about MH promotion from an ethnic perspective (Halcomb et al., 2006) and about program development for Mindsight.

3.2 Site Selection

This study was based only at UOIT because Mindsight was created by a UOIT faculty member and was concurrently being piloted with UOIT staff. Considering the time constraints for completing a Master's thesis, it was decided that only current UOIT

students would be invited to participate. UOIT, a university established in 2002, is situated in Ontario, Canada, and has a student population of about 8400 undergraduate and graduate students.

3.3 Questionnaires and Tools

Structured questionnaire tools can include fixed questions questionnaires, tests, and scales, which are given to all participants in the same way (Bowling & Ebrahim, 2005). All of the tools in this study used this method for the quantitative component of the research to facilitate the analysis of the quantitative results.

3.3.1 Interest Questionnaire

The interest questionnaire (see *Appendix A*) was used for the first phase of the study and was created in order to determine if students were interested in MH education and if they would use a web-based application if it was available; this addressed research sub-questions one and two. The literature review determined that it is not clear if students use health services on campus or if they believe these services are important (Vogel et al., 2009), and whether or not students believe web-based MH education is an acceptable method of education (Christensen et al., 2006). To address this gap, the interest questionnaire asked students about the importance of MH education and their preferred method of learning. The questionnaire also gathered simple demographics including level of education, age, gender, and ethnicity because it has been found that there are demographic differences in MH service usage and level of MH education.

Rating on some scale is a tried and tested form of question structure but it is important to make sure that the scale allows for extreme views (Creswell, 2009). The majority of the interest questionnaire in this study used a Likert scale, given that this

type of scale determines the degree and magnitude of opinions and attitudes (Bowling & Ebrahim, 2005), is easy to fill out, and allows for easy comparison of the quantitative data (Creswell, 2009).

3.3.1.1 Interest Questionnaire Items

The questionnaire was kept short (six questions in total plus demographic information) to minimize the potential for respondent fatigue and encourage participants to fill it out entirely (Bowling & Ebrahim, 2005). The questions were chosen to reflect the research sub-questions and to illicit information about the participants' MH service usage and their preferred methods of MH education. Each of the six questions was asked with a purpose for this study. Question one was: do you think MH education is important? This questions was asked to gain an understanding of the overall perception about MH education because students in general require more outreach about MH (Zivin et al., 2009), yet earlier studies have found there is a low level of perceived need for services by students (Golberstein, et al., 2008; Tjia et al., 2005; Zivin et al., 2009). Question two asked: as a student, do you think MH (mental illness) education is an important factor for your success at school? The statistics on MHI has indicated that there is a growing rate of MHI on campus, students worry about the impact MHI has on their academics (Tjia et al., 2005), and there is a need for MH services on campuses (Adamle et al., 2009; Vogel et al., 2009; Zivin et al., 2009). This question helped to assess if students in this study had a similar belief about the potential impact of MHI on their academic career. Question three asked: what method of MH education would you most likely use? An objective of this study was to determine if web-based MH education is an appropriate and accepted method of education (Farrell et al., 2004; Oh et

al., 2009) for UOIT students. Furthermore, research has shown that more studies need to focus on the preferred method of education from an ethnic perspective (Al-Krenawi et al., 2009; Kurihara et al., 2006; Shim et al., 2009). Most importantly, however, the researcher wanted to determine if UOIT students would prefer MH education via a web-based technology, namely Mindsight. Question four asked: do you wonder if you are experiencing a MH problem? As MHI are a growing concern on university and college campuses the researcher wanted to assess if this was the case with UOIT students. Question five asked participants: have you experienced, or thought you might be experiencing a MH problem in the past but no longer have this concern? This question is similar to question four in that it gathered data on participants' experience with MHI; the difference is that question five takes into account past experiences. Question six asked: have you accessed MH education services at any point in your life? Questions four and five related to the actual experience of MHI described by participants and question six was asked to get a sense of any discrepancies between their experience and service usage. Even though MHI on campuses are a growing concern, the literature has shown that there is low service usage and low perceived need for services by the student population (Zivin et al., 2009) even when a MHI has been diagnosed and is severe (Tjia et al., 2005).

3.3.2 Knowledge Test

According to the literature, general knowledge about MHI is low (Kurihara et al., 2006). In the second phase of the study, participants were asked questions about the most common mental illnesses. These questions were taken from the quiz component of Mindsight, which was developed to assess individuals' understanding of key MH

concepts, after they had completed Mindsight. These questions were therefore relevant to this study in order to assess students' knowledge of MHI and to assess Mindsight's effectiveness in increasing MH knowledge which addressed research sub-question three. Twenty of the 50 questions posted on Mindsight (two questions from each of the 10 sections) were selected for the purpose of this study (refer to *Appendix B*). The decision to use only 20 questions was based on the researcher's desire to increase the likelihood that participants would complete the entire test (Bowling & Ebrahim, 2005). The final version of the knowledge test was reviewed by the research supervisor and the research committee, as a part of the final proposal. The knowledge test was used as a pre-test/post-test measure to assess any changes in knowledge following the completion of Mindsight by participants in the second phase of the study.

3.3.3 The Attitude Scale

The literature has discussed a need to determine students' attitudes and beliefs about MHI in order to provide appropriate MH education (Tjia et al., 2005; Zivin et al., 2009). Furthermore, ethnic differences in attitudes about MHI are relatively unexplored (Anglin et al., 2008). The Community Attitudes toward Mental Illness (CAMI) scale has shown to be both a valid and reliable tool for measuring attitudes (Taylor & Dear, 1981). However, considering participants were being asked to participate in three separate phases of the study, there was concern that a lengthy questionnaire might result in participants dropping out. Therefore, the Attitudes toward Mental Illness Scale (AMIQ) (refer to *Appendix C*); a validated short form for the CAMI, (Luty, Fekadu, Umoh et al., 2006) was selected for the second phase of the study to answer research sub-question four about Mindsight's effectiveness in reducing stigmatizing attitudes

about MHI with ethnic students. Participants were asked to fill out the AMIQ pre/post their completion of Mindsight.

3.4 Ethics Approval

This study followed the Research Ethics Board (REB) requirements in order to meet the Tri-Council Policy, which included informed written consent forms to disclose the risks and benefits of the study (Bowling & Ebrahim, 2005). Participants were made aware of privacy and confidentiality, and the use of questionnaires, tests, and interviews. The research supervisor and the researcher were the only ones to access the information.

The REB approval for this study occurred in two parts. The first REB application (file #10-002, approval letter included in *Appendix D*) was submitted for approval to send UOIT students the interest questionnaire. Students were required to sign a consent form (refer to *Appendix E*). This part of this study later needed to be renewed (refer to *Appendix F*).

Once Mindsight received approval (file #10—025), an REB application was submitted for the second and third part of the study (file #10-048, approval letter included in *Appendix G*) and participants were required to sign two consent forms, one for the pre-test/post-test phase (refer to *Appendix H*) and one to participate in a focus group (refer to *Appendix I*).

A decision was made to include three separate consent forms because each phase of the study required participants to engage in different components of the research. In order to have participants take part in true informed consent, each of the consent forms outlined the risks and benefits of that phase of the study (Bowling & Ebrahim, 2005). For each phase, informed consent was obtained prior to participants engaging in the study (Wyatt et al., 2008). For the focus groups, participants were also informed about

the possibility of a breach of confidentiality and asked not to disclose personal information outside the group (Halcomb et al., 2006).

3.5 Data Collection Method

The data for this study was collected in three phases: (1) using an interest questionnaire, (2) a) pre/post knowledge test and b) attitude scale, and (3) using focus groups.

3.5.1 Phase 1: Self-administered Interest Questionnaire

Self-administered electronic questionnaires are the most common method of collecting quantitative data. They are useful in gathering data about sensitive topics because the participants administer their own questionnaire thereby maintaining anonymity, and they can also fill out the questionnaire at their convenience (Bowling & Ebrahim, 2005). The questionnaire in this study was administered to provide insight into the participants' psychological attitudes, self-perceptions, and behaviours related to MHI (Bowling & Ebrahim, 2005), which helped to address research sub-questions one and two.

Considering some participants might have found it embarrassing to verbally answer questions about MHI, the researcher hoped that a self-administered questionnaire would enable respondents to provide a more truthful and valid response to the questionnaire (Creswell, 2009). Also, because the researcher was not present at the time the questionnaire was being filled out, this eliminated any researcher bias (Bowling & Ebrahim, 2005). Furthermore, because the same questionnaire was delivered to each participant in the same manner, the researcher was able to maintain some level of standardization with the tool (Creswell, 2009).

Although questionnaires do not allow the researcher to make cause and effect connections, the researcher was able to make simple inferences and provide support for the other methods of data collection in this study (Creswell, 2009). In this sense, the questionnaire was used as a precursor to the pre-test/post-test phase of the research to gather initial data on MHI among the sample UOIT students.

3.5.1.1 Sampling

The population for this study was UOIT students. This population was selected because Mindsight was created by UOIT faculty and was simultaneously being piloted with UOIT staff. For the first phase of this study all current undergraduate and graduate UOIT students were contacted.

The participants were selected using non-random self-selected convenience sampling, a non-probability sampling method. Non-probability sampling is used when the researcher is willing to take whatever individuals happen to be easiest to access and willing to participate in the study (Bowling & Ebrahim, 2005). Generally, for quantitative questionnaires, probability sampling is recommended in order to make inferences about a population (Bowling & Ebrahim, 2005). However, for a pilot study of Mindsight, the convenience sample method was sufficient to gather basic data without the complexities of using a randomized sampling method and it was also fast and inexpensive for a master's level study (Creswell, 2009). The researcher had to keep in mind that with non-probability sampling, the results of the study cannot be generalized to the population (Bowling & Ebrahim, 2005).

3.5.1.1.1 Sample size.

As participants in this study were self-selected, the sample size was dependent on the number of individuals who volunteered to fill out the questionnaire. Measures were taken to maximize the sample size. The first measure was the promise of an incentive outlined in the invitation email for the study; two participants were randomly selected to receive two movie passes. The invitation email was also sent out a second time on November 11th, 2010 and again on December 8th 2010 to remind UOIT students about the study. Following all attempts to increase the response rate, the researcher received a total of 42 completed questionnaires, making this part of the study a small-scale survey questionnaire (Creswell, 2007).

3.5.1.2 Recruitment and Distribution of Questionnaire

Email is a useful method for distributing questionnaires because it is both economical and can gather a response from participants in a very short period of time (Creswell, 2009). Another advantage for this study was the fact that all UOIT students have a UOIT email account, a laptop, and access to the internet from the campus; therefore all UOIT students would have the opportunity to participate in the study.

The researcher was able to request that the university's IT department send all UOIT students a memo about the research on November 1st 2010. The IT department also posted a web-link on the MyCampus server in case students did not check their email regularly. As suggested, this memo provided a brief introduction to the study and the researcher, as well as information about how to return the questionnaires, and whom participants could contact with any questions (Creswell, 2009). Students who replied to the memo were sent an electronic version of the consent form and the interest questionnaire through their UOIT student email address. The participants were asked to

review the consent form and send an electronically signed copy with the completed questionnaire to the investigator's email. Each participant was also sent an individual thank you response by the principal investigator.

3.5.2 Phase 2: Pre/post Design

The single group pre-test/post-test method of data collection was used to determine if there was any change in participants' knowledge and attitudes as a result of completing Mindsight, which addresses research sub-questions three and four. With this data collection method, the researcher was able to obtain the results of the same group of participants once before they completed Mindsight and then again after they had completed Mindsight. Any changes observed were presumed to be a result of the participants having completed Mindsight; although the researcher was mindful of possible confounding variables and the inability to generalize the results due to a small sample size (Gravetter & Forzano, 2006).

3.5.2.1 Sampling and Recruitment

Participants from the first phase of the study who self-identified as a member of an ethnic minority, or indicated that they could provide information about an ethnic minority population as a result of their family background were recruited for the second phase of the study. By choosing participants based on a particular characteristic the researcher was selecting the participants using purposive sampling (Bowling & Ebrahim, 2005), a technique employed in the Explanatory Mixed Method: Participant Selection Model (Creswell, 2007). This was done because the researcher's focus and interest was in determining ethnic students' perspective on MHI.

Participants from the first phase were sent an email advising them of the next phase of the study (n= 24). Participants interested in continuing with the study (n=14) were sent an electronic copy of the second consent form through their UOIT student email account to be signed and returned to the researcher's email address.

3.5.2.2 Intervention: Mindsight

Participants who signed the consent form were sent an electronic copy of the knowledge test and attitude scale. Participants were asked to complete and send the two forms back to the researcher's email address. This process allowed the researcher to gather the pre-test results of the second phase. All 14 participants sent back a completed copy of both measures.

Once the pre-test results were received, the researcher sent the participants a link to Mindsight. Participants were given a week to complete the 10 sections of Mindsight and were then sent an email with the knowledge test and attitude scale a second time to gather the post-test results. One participant did not complete the post-test data. The results were therefore analyzed based on data from 13 participants. Participants were individually thanked via email for their participation and were informed that they would be contacted for the last phase of the study.

3.5.3 Phase 3: Focus Groups and Telephone Interviews

Focus groups were used to support research sub-questions one to four and additionally to answer sub-questions five to seven. The focus groups helped to assess students' level of MH knowledge and attitude about MHI, whether Mindsight changed their knowledge and attitude, and if Mindsight was considered culturally sensitive.

3.5.3.1 Focus Groups: Considerations

Prior to commencing the focus groups, the researcher needed to create a discussion guide and determine who the participants would be, how they would be recruited, the location and time of the group, who the moderator would be, and the materials required (Krueger & Cassey, 2009).

3.5.3.1.1 Questions and guide.

Creating a guide for the focus group allowed the researcher to be consistent in the data collected between groups, resulting in high quality data analysis (Halcomb, 2006). While developing the discussion guide, the researcher kept in mind the purpose of the research and how the questions would assist in gaining insight for the broader research project (Cote-Arsenault & Morrison-Beedy, 2005). The next step was to consider the structure of the interview guide and whether a structured or semi-structured approach would be used (Reitmanova & Gustafon, 2009). For a qualitative approach, a semi-structured format with open-ended questions was used (Cote-Arsenault & Morrison-Beedy, 2005). The guide was limited to four broad questions, to leave enough time for in-depth discussions within the group (Krueger & Cassey, 2009) (refer to *Appendix J* for the interview guide).

3.5.3.1.2 Sampling and group composition.

The size of the focus groups in this study was dependent on the number of individuals who participated in the second phase of the study and how many of these individuals were comfortable to share their point of view about MHI in a group setting (Redmond & Curtis, 2009). The participants from the second phase were sent an email for the third phase and all 14 participants agreed to participate in the focus groups; two

of these participants were unable to attend a focus group and instead participated in a telephone interview (refer to section on telephone interview).

In determining the make-up of the focus groups, the researcher took into consideration the participant variables including gender, age, ethnicity, and educational background to ensure that the group members would have common interests and backgrounds related to MHI and would be comfortable to freely express their opinions (Wyatt et al., 2008). Groups of four to six participants are effective when the topic of interest is sensitive (Halcomb, 2006); they are also considered easier to facilitate and they help to avoid duplicate responses (Wyatt et al., 2008). One of the groups was composed of four self-identified South Asian males. The researcher attempted to conduct another focus group with female participants who had certain characteristics in common, shared similar interests in relation to MHI, and had similar knowledge about the topic (Wyatt et al., 2008). However, due to an unforeseen circumstance (a lockdown at UOIT), only two participants came to the focus group session. The two participants who attended this session indicated that it would be difficult to reschedule for another day due to upcoming exams, so the focus group was not cancelled. After numerous attempts by the researcher, the remaining two groups could not be matched in this same manner due to conflicting schedules and midterm exams. The researcher also had to ensure the focus groups were all completed within a short period of time to control for as many variables as possible. The remainder of the participants were therefore divided into two additional focus groups based on the participants' availability and schedules (three in each group). Two participants could not attend a focus group and requested a telephone interview (refer to interview section).

The number of groups is another important factor that the researcher needed to keep in mind. Data saturation occurs when within each group and across groups saturation has occurred (Onwuegbuzie et al., 2010). Saturation is achieved when the information needed for the research has been gathered and no new insights or information are gained by conducting more focus groups (Krueger & Cassey, 2009). Generally three to six different focus groups are considered enough to reach data saturation (Onwuegbuzie et al., 2010). This study conducted a total of four focus groups and the researcher was able to establish common themes emerging from the groups.

3.5.3.1.3 Recruitment.

All of the participants who completed the second phase of the study were contacted via their UOIT email account for the last phase. They were asked to sign the third consent form and send an electronic copy to the investigator. Participants were also advised that they would be entered in a draw for two movie passes as an incentive to participate in the last phase of the study. Two participants from each focus group were randomly selected to receive the incentive.

3.5.3.1.4 Location and time.

The researcher gave consideration to the location of the focus groups (Wyatt et al., 2008) because convenience for the participants is the key to maintaining participation for focus group research (Halcomb et al., 2006). A good way to address the issue is to ask participants what would be most convenient for them and if there are barriers that might prevent them from attending (Cote-Arsenault & Morrison-Beedy, 2005). The researcher emailed each participant a number of weeks prior to the focus groups to help prepare them and to identify any specific needs. It was decided that all

the focus groups would be held at UOIT in a private room arranged by the UOIT Health Sciences Department and at a time convenient for the participants. The researcher was therefore able to control the venue of the focus groups as all the groups met in the same room at UOIT and the researcher arranged the chairs and the recorders in the same manner for each group. All of the focus groups were held between February 10th and March 10th, 2011. The researcher also attempted to control for the time of day the focus groups took place. Three of the groups were held between the hours of 5pm and 7pm, one focus group was held at 9am.

Generally a focus group should be concluded within one and half hours so that participants remain interested in the discussion and enough information is gathered (Wyatt et al., 2008). The focus groups in this study ranged from 45 to 70 minutes in length.

3.5.3.1.5 The role of the moderator.

Prior to the day of the focus group, the researcher: (1) bought the incentives, (2) prepared two recording devices to audio record the group process for in-depth analysis (Wyatt et al., 2008), and (3) obtained copies of the focus group guide and consent forms for participants to sign prior to beginning the focus group discussions.

The researcher emailed each of the participants a few days prior to the group to remind them about the room number and time of the focus group. The email also mentioned that if the participants were late they could still join the group. The researcher decided that the focus group would still go on as long as at least two participants showed up because rescheduling could prove difficult and could result in participants dropping out of the study (Krueger & Cassey, 2009).

On the day of the focus group the researcher arrived half an hour to forty-five minutes early to prepare for the group process (Krueger & Cassey, 2009). This included arranging the chairs in a circle, positioning the voice recorders in two separate places and testing to see if they were working, setting up Mindsight on the computer, and putting a note on the door indicating that a focus group was in process and only participants could enter the room. The researcher also had copies of the consent form and papers and pens available in case they were needed.

During the discussion, the researcher was sensitive to what the participants considered important and personal, made sure that the main topics were covered and that everyone had been able to respond (Redmond & Curtis, 2009). The researcher also made a conscious effort to create a comfortable environment by communicating clearly, encouraging discussion, providing verbal responses and praise, using humour, and being prepared to answer questions throughout the group process (Krueger & Cassey, 2009).

3.5.3.2 The Focus Group Process

Before the process began, the researcher thanked participants for their time and had them read the consent forms. During this time, the researcher did not have the participants engage in any discussion so that they could take their time going over the consent form. The researcher asked participants if they had any questions before they signed the consent form. Participants were advised that the discussion would be voice recorded for future analysis and that their names would be used during the focus group for ease of transcribing the data later. The researcher also mentioned that when the data was being transcribed the participants' names would be substituted with pseudonyms.

The researcher also took this opportunity to go over confidentiality to make sure participants understood that whatever was shared in the focus group session was not to be shared outside the group setting (Krueger & Cassey, 2009) and to advise participants that if they did not feel comfortable sharing information in the group they were not obliged in any way (Krueger & Cassey, 2009). General rules about discussions such as one person speaks at a time and respect for participants' opinions were also reviewed (Halcomb et al., 2006). All of the participants signed the consent forms.

During the discussion, the researcher used clarifying, paraphrasing, reflecting feelings, and summarizing in order to increase the accuracy of understanding (Redmond & Curtis, 2009), and the focus group questions to guide the discussion.

At the end of each focus group the researcher thanked the participants, briefly summarized the discussion (Wyatt et al., 2008), and asked if there was anything else they wanted to add (Redmond & Curtis, 2009). This encouraged the participants to reflect back on the discussion and provide any final thoughts (Krueger & Cassey, 2009). Finally, participants put their names on a piece of paper for the draw for the movie passes. One of the groups had only two participants therefore, both participants received the incentive.

3.5.3.3 Method of Conducting Telephone Interviews

Two participants were not able to attend a focus group session and indicated that they still wanted to be a part of the study. They were invited to participate in separate telephone interviews. This method was considered appropriate because "the stages of the focus group sessions are likely to echo those of the semi-structured interview with initial ground-setting introductions followed by topic-related predefined open questions"

(Bowling & Ebrahim, 2005, p.224). The focus group guide was used to gather data and the researcher attempted to follow the focus group process as much as possible during the telephone interviews. The telephone interviews were also voice recorded and participants were made aware of this.

3.6 Data Analysis

The data for the quantitative phase was analyzed using descriptive and analytical statistics. The qualitative data was analyzed using coding strategies to determine themes related to the research sub-questions.

3.6.1 Phase One: Interest Questionnaire

The purpose of using descriptive questionnaires is to collect information to describe the population, establish trends and make associations (Bowling & Ebrahim, 2005), which ultimately helped to answer research sub-questions one and two of this study: (1) do UOIT students think there is a need for MH education, and (2) will UOIT students use web-based tools for MH education if they are available? To analyze these results, frequency tables and percent distributions were used. This method was chosen because it is considered the best way to describe the data by exploring each variable one at a time (Creswell, 2009). The researcher was then able to discuss the pattern of response for each variable in the interest questionnaire. The researcher also used this method to describe the age, gender, ethnicity, level of education, and subject discipline for the participants.

3.6.2 Phase Two: Pre/Post-test Results

The pre-test/post-test phase of this study addressed research sub-questions three and four. The researcher hypnotized:

(a) There will be a significant increase in participants' level of knowledge after the Mindsight intervention.

(b) Following the Mindsight intervention, there will be a significant decrease in the negative attitudes participants may have had about MHI.

All hypotheses were simple directional hypotheses, since this type of hypothesis predicts the direction of relationship between two variables (Gravetter & Wallnau, 2009). In this case, statistical analyses were used to test if the independent variable, Mindsight, had a significant impact on the dependent variables, knowledge and attitude.

3.6.2.1 Knowledge Test

The knowledge test for this study was analyzed in two ways. First, the researcher decided to test the differences in responses for each question. The researcher decided to group the test questions based on the individual learning outcomes of Mindsight (refer to *Table 1* for the sub-categories); a total of 10 sub-categories were identified. This was done in order to determine if each of the 10 sections of Mindsight was effective in increasing knowledge.

To test knowledge based on the subcategories of the knowledge test the researcher looked at the average difference in the scores for each sub-category to determine if there was an increase in knowledge post Mindsight. Higher differences in the pre/post results indicated greater learning for each subcategory. The researcher could not use statistical

analysis for this part due to the small sample size; there were only two questions per category (Gravetter & Wallnau, 2009).

Table 1: Sub-categories for Knowledge Test

Knowledge Test Questions	**Sub-Category**
1. Anxiety disorders: 2. A self-help strategy for managing an anxiety disorder is:	Anxiety
3. Common signs and symptoms of depression include: 4. You can help someone who has depression by:	Depression
5. Individuals who engage in self-harming behaviours do so primarily to: 6. Self-harming behaviour is most often seen in:	Self-harm
7. Eating disorders are: 8. One of the main risk factors for developing an eating disorder is:	Eating disorder
9. A first psychotic episode is: 10. You can best help an individual who may be experiencing a psychotic episode by:	Psychosis
11. One of the most serious consequences of the stigma associated with mental illness is: 12. Negative attitudes and behaviours directed towards individuals are referred to as:	Stigma
13. The majority of Canadians who have an addiction are addicted to: 14. What can you do to help someone who may have a substance use disorder?	Addictions
15. An individual who attempts suicide: 16. What can you do to help someone who may be thinking of suicide?	Suicide
17. What determines whether an event is traumatic? 18. What can you do if you think you have been traumatized?	Trauma
19. An accurate description of bipolar disorder is: 20. A self-help strategy for someone living with bipolar disorder is:	Bipolar disorder

Note: The ten sub-categories in this table are reflective of the ten sections in Mindsight. The knowledge test included two questions for each sub-category for a total of 20 questions.

The second way the researcher analyzed the results of the knowledge test was by looking at the pre/post test results of each participant. The researcher used the Wilcoxon matched paired signed rank test, the non-parametric equivalent of the paired *t*-test for small sample sizes (Gravetter & Wallnau, 2009), on the overall mean difference in knowledge scores for each participant. The matched paired method was used because the samples for pre-test/post-test were from the same participants and subjects essentially serve as their own controls (Gravetter & Wallnau, 2009). The significance of $p<0.05$ was set, as is the standard, in order to determine if any significant difference was present between the two samples. If a significance difference was found the null hypothesis of no change was rejected for the alternative hypothesis that Mindsight was related to a change in the participants' level of knowledge of MHI.

3.6.2.2 Attitude Scale

For the attitude scale the Wilcoxon matched paired signed rank test was used because the answers for the attitude scale are based on a 5-point Likert scale ranked from -2 to 2, and this test is appropriate for ranked data (Gravetter & Wallnau, 2009). Blank questions, neutrals and don't knows are scored as 0 (refer to *Appendix C* for the rankings of each question); the ranking of the questions has been predetermined by the developers of the AMIQ (Luty et al., 2006). The scores of the five questions for each participant were added together for a total of -10 to +10; any item scored as 0 was not computed in the final score and was subtracted from the final *n* value (Gravetter & Wallnau, 2009). The mean ranked score was calculated for each question to determine the Z score and resulting *p* values (Gravetter & Wallnau, 2009). The *p* value of $p<0.05$ was set, as is the standard, in order to determine if any significant difference was present

between the two samples. A significant difference would allow the researcher to reject the null hypothesis in favour of the alternate research hypothesis as stated above.

3.6.3 Phase Three: Focus Groups and Interviews

The constructions of meaning in qualitative studies are dependent on the way the data is analyzed. Coding is the process of deriving meaning from the data (Bowling & Ebrahim, 2005). This study used a coding for the analysis of the focus group data, and is further explained below.

3.6.3.1 Transcribing

Before any level of analysis takes place, it is recommended that the researcher listen to the recorded data numerous times to become familiar with the content of the data (Bowling & Ebrahim, 2005), which was done by the researcher in this study. The next step in this process is to transcribe the conversations into written text for in-depth analysis (Bowling & Ebrahim, 2005). The conversations in this study were therefore transcribed verbatim for further analysis. The voice recordings were transcribed by a professional third party, a method being increasingly used in health sciences for increased accuracy in transcribing (Bowling & Ebrahim, 2005). The researcher additionally checked the transcribed data by listening to each of the focus group voice recordings and cross-referenced the material in the transcriptions.

3.6.3.2 Process of Qualitative Analysis

The researcher read the transcripts multiple times in order to discover categories, concepts, properties, and relationships that emerged from the data (Bowling & Ebrahim, 2005). The researcher used the three stages of coding to analyse the data, which is a necessary process in most qualitative analysis in order to divide the data into meaningful

parts (Boeije, 2010). The coding process enabled the researcher to describe the findings in a structured practical way (Boeije, 2010) and link the data back to the initial research sub-questions.

3.6.3.3 Coding Software

As an analytical technique, the researcher used "constant comparisons" to reduce the quantity of the data by using coding and labelling techniques (Bowling & Ebrahim, 2005, p.519). One method to analyze qualitative data is through the use of computer programs (Boeije, 2010). Coding for this study was done using NVivo 9, computer software designed to reduce large amounts of data into various codes to help generate themes. The researcher attended a two day workshop in March 2010 to learn how to use the software.

3.6.3.4 Coding

Once the data was transferred to NVivo 9, the researcher used the three coding techniques employed in qualitative research (Bowling & Ebrahim, 2005). It should be noted that a limitation to this study was the fact that the researcher alone did the coding and did not have another person use the coding criteria to compare the results with.

During the open coding phase, the researcher read through each transcript line by line to find similar phrases, important words, and quotes to group and aggregate into various categories (Boeije, 2010). By doing this the researcher was able to scrutinize the data to establish emerging concepts and themes and reduce the amount of data to start exploring and describing the phenomena (Bowling & Ebrahim, 2005). For the second phase, during axial coding, the researcher brought the initials codes together in new ways to explore emerging categories and develop subcategories by grouping the material

to create connections (Boeije, 2010). In this way the researcher was able to group categories based on themes.

During the selective coding phase, the researcher was able to determine the core categories which related back to the research sub-questions (Boeije, 2010). The researcher was then able to describe in "storytelling format" what the participants had to say (Boeije, 2010) about MH education and the use of Mindsight from an ethnic standpoint. The researcher was able to reach theoretical saturation when no new codes or themes could be identified (Bowling & Ebrahim, 2005).

3.7 Strengths and Limitations of the Study

3.7.1 Strengths

Mixed methods can prove to be beneficial, in particular, for areas where research is limited (Bowling & Ebrahim, 2005). The literature search for this study did not yield any articles on web-based MH education from ethnic students' perspective and this study may be the first to explore this topic. Most importantly, the Explanatory Design allowed the researcher to place greater emphasis on the qualitative results which provided new insight into ethnic students' perspective of MHI.

In terms of the quantitative method, the questionnaire is often used to gather data on health service needs (Bowling & Ebrahim, 2005). By using an email questionnaire the researcher was able to easily invite all UOIT students to participate in the study. The biggest advantage of the questionnaire was that it helped to gather preliminary data of the respondents who were selected for the remainder of the study.

One of the advantages of the pre-test/post-test single group design was the fact that the research did not need a control group as the participants acted as their own control

(Gravetter & Forzano, 2006). This method was useful in determining if participants experienced a change in their attitude and level of knowledge during the second phase of the study. By using a mixed method approach to gather the data in different ways, the researcher was able to support the results with two sets of data.

The main advantage of using focus groups was the value gained by understanding the lived individual experiences of the participants, which cannot be acquired through quantitative data collection (Bowling & Ebrahim, 2005). This method helped the researcher discover new material that previously has not been found in other studies. The focus group process encouraged dialogue about a potentially sensitive topic (Wyatt et al., 2008; Halcomb et al., 2006) and enabled the participants to share their thoughts about what was effective about Mindsight, as well as any limitations of Mindsight. These insights will be helpful in modifying Mindsight to meet the needs of the diverse individuals using the resource.

The focus groups were also an effective way of gathering insight from the student participants about health, wellness, and attitudes that impact health (Wyatt et al., 2008), which was the main focus of this study. Focus groups are becoming more common for studies with diverse groups of people in order to gather valuable information about ethnic norms and values (Halcomb et al., 2006).

3.7.2 Limitations

With the questionnaire design, there is no manipulation of variables, and therefore no way of statistically analyzing the results, or making causal inferences (Bowling & Ebrahim, 2005). Self-administered questionnaires are dependent on how participants want to answer the questions and the researcher has no control over who

actually answers the questions, whether the respondents understand the questions accurately, or if the respondents feel forced to provide a particular response because of the closed ended nature of the questions (Creswell, 2009). The questionnaire was also not piloted prior to being administered and it is possible that the questions were not clear for all participants.

There is also a possibility that this multi-phase research process contributed to the smaller sample size; participants may not have been willing to be part of a study that took so much time to complete. Because this study used a convenience sample, the sample is not representative of the population of UOIT students and therefore has a sampling bias (Bowling & Ebrahim, 2005) resulting in low external validity (Creswell, 2009). The participants were also self-selected which likely resulted in a self-selection bias (Creswell, 2009). This study did not include the valuable insights of students who potentially do not consider this topic important and therefore chose not to participate.

In addition, the researcher was not present when the participants completed the post knowledge test and there is a chance that participants referenced Mindsight when completing the test, which could have resulted in a skewed analysis of their knowledge gain.

It is also possible there is a bias in the interpretation of the qualitative results due to assumptions and judgments made by the researcher. In an attempt to avoid this bias the researcher maintained reflexivity, the constant reflection on all aspects of the research (Bowling & Ebrahim, 2005). Because of the small sample size and the inability to generalize the results (Bowling & Ebrahim, 2005), this study's findings can only be

used to provide insight into the topic (Bowling & Ebrahim, 2005) and help inform future research studies.

3.8 Chapter Three Summary and Method of Discussing the Mixed Method Results

This chapter presented how the data in this study was gathered and analyzed. This study used a mixed method approach and included quantitative data in the form of an interest questionnaire and a pre/post knowledge test and attitude scale. The qualitative component of this study included focus groups and telephone interviews which helped to support the results of the quantitative data. The quantitative data was analyzed using descriptive statistics and through the Wilcoxon matched paired signed rank test. The qualitative data was analyzed using NVivo in order to determine themes relating to the aims of this study. UOIT students were chosen to participate in this study, and self-identified ethnic students participated in phase two and three of this study to evaluate Mindsight.

The results from the quantitative and qualitative approaches to this study are analyzed and discussed separately. The quantitative results and discussions address the first four research sub-questions, which relate to UOIT students' views about the need for MH education, whether web-based education is a preferred method of learning, and Mindsight's effectiveness in delivering knowledge and reducing stigmatizing attitudes among ethnic UOIT students. These discussions are followed by the focus groups' results and discussions, which, in addition to addressing the first four research sub-questions, also answer the remaining three sub-questions that focus on the amount of knowledge and stigmatizing attitudes of the participants, the participants' opinions of Mindsight's effectiveness as an educational tool, and its ethnic sensitivity.

4.0 QUANTITATIVE DATA RESULTS AND DISCUSSION

University of Ontario Institute of Technology students were recruited for a three phase study to explore students' perspectives of MH (mental health) education and the use of web-based MH education with ethnic students. This chapter discusses the results from the two quantitative components of the study and is situated in the current literature where possible. The first section of this chapter discusses the results of the interest questionnaire (section 4.1) and the second section discusses the results of the pre/post knowledge test and attitude scale (section 4.2).

4.1 UOIT Student Interest in Mental Health Education

The first phase of this study used a MH education interest questionnaire to address two of the central research questions: (1) what are post-secondary students' views about acquiring MH knowledge and (2) what is their preferred method of MH education? The questionnaire was used to explore the central research question in more detail through research sub-questions one and two: (1) do UOIT students think there is a need for MH education and (2) will UOIT students use web-based tools for MH education if they are available? This section is divided in two parts, section 4.1.1 discusses the student demographics and section 4.1.2 explores the results of the questionnaire.

4.1.1 Student Demographics for Phase One

A total of 42 participants responded to the interest questionnaire and completed the questionnaire. It should be noted that with a small sample size the results of this study cannot be generalized and any discussion about the findings pertain to the results of this study.

Table 2 is a summary of the participants by gender. Ten participants (24%) were male and 32 (76%) were female.

Table 2: Participant's Gender

Gender	**n**	**%**
Male	10	24%
Female	32	76%

The smaller portion of male respondents in this study is consistent with the fact that male students generally do not seek supports for MHI (Oh et al., 2009). It would be beneficial for future studies to gauge male students' interest in web-based MH education compared to traditional methods of learning.

The number of years the students have been studying at UOIT ranged from 1 to 5. Nine participants (21%) were in first year, 9 (21%) were in second year, 10 (24%) were in third year, 10 (24%) were in fourth year, 1 (2%) was in fifth year, and 3 (7%) were in graduate studies. *Table 3* is a summary of participants' educational level.

Table 3: Participant's Number of Years in Education

Year	**n**	**%**
One	9	21%
Two	9	21%
Three	10	24%
Four	10	24%
Five	1	2%
Graduate	3	7%

Overall there was a relatively equal representation of students from year one to year four. Most programs at UOIT are four years and it is likely that only a small percentage of students complete a fifth year. The number of graduate programs is fewer

compared to the number of undergraduate programs and graduate programs accept fewer students compared to undergraduate programs. These differences are reflected in the small percentage of graduate and fifth year students in this study.

Five fields of study were reported by the participants. Twenty-one participants (50%) were in Life Sciences, 3 (7%) were in Education, 10 (24%) were in Social Sciences, 4 (10%) were in Engineering, and 4 (10%) were in Commerce; *Table 4* provides a summary.

Table 4: Participant's Field of Study

Field of Study	**n**	**%**
Life Sciences	21	50%
Education	3	7%
Social Sciences	10	24%
Engineering	4	10%
Commerce	4	10%

Generally, the fields of Life Sciences, Education, and Social Sciences have some component of MH studies as a part of the curriculum because each of these areas deals with the human experience. Keeping this in mind, it can be seen that 81% of the participants were from one of these fields. There is a possibility that the overrepresentation of participants from the Life and Social Sciences and Education was a result of their interest in MHI and desire to engage in this type of study (Brimstone et al. 2006; Eisenberg et al. 2009; Hsu & Alden, 2008; Roberts, Warner, Rogers et al., 2005). Although this cannot be confirmed, there is a possibility that the findings in support of MH education are skewed based on this selection bias.

The ages of participants were grouped as: 18 and under, 19-25, and over 25. Five participants were 18 and under (12%), 23 were 19-25 (55%), 10 were over 25 (24%), and 4 (10%) did not identify their age (Refer to *Table 5*).

Table 5: Participant's Age

Age	**n**	**%**
18 under	5	12%
19-25	23	55%
25 over	10	24%
Unidentified	4	10%

It appears that the majority of participants in this study were in the young adulthood category, ages 19-25. The literature has discussed that younger students are less likely to seek MH services (Tjia et al., 2005) and are less likely to perceive a need for services (Golberstein et al., 2008). This may explain the lower percentage of 18 and younger students, although it is equally likely that there are fewer 17 and 18 year olds attending university.

A total of nine ethnic categories were described (including Canadian) by the participants (refer to *Table 6*).

Table 6: Participant's Ethnicity

Ethnicity	**n**	**%**
East/South Indian/Pakistani	12	29%
Middle Eastern	1	2%
Chinese	1	2%
Jamaican	2	5%
Spanish/Portuguese	3	7%
Italian	2	5%
Polish	1	2%
Belgian	1	2%
Canadian	19	45%

It should be noted that East Indian, South Indian, and Pakistani participants were grouped together as they represent the same region of the world. The same theory applied to the grouping of Spanish and Portuguese participants. Twelve participants (29%) were East/South Indian/Pakistani, 1 (2%) was Middle Eastern, 1 (2%) was Chinese, 2 (5%) were Jamaican, 3 (7%) were Spanish/Portuguese, 1 (2%) was Polish, 1 (2%) was Belgian, and 19 (45%) did not specify an ethnic origin and were therefore considered Canadian. In total eight different ethnic backgrounds were reported (excluding the Canadian group).

Surprisingly, there was a high percentage of East/South Indian/Pakistani students in this study. The researcher attributed this to the fact that she herself is East Indian. Although the participants did not meet the researcher for the first phase of the study, it is likely that they recognized the origin of her name in the email that was sent out. Aside from this, it is not clear why there was a higher representation of this group in the study. The researcher did not find any support in the literature for East/South Indian/Pakistani communities being more willing to engage in MH studies compared to other ethnicities.

4.1.2 Results and Discussion from the Interest Questionnaire

The results from the questionnaire have been divided into three parts based on the aspect of the research the questions addressed. Questions one and two related to the importance of MH education, question three addressed the preferred method of MH education, and question four to six related to MH service usage. Each of the questions is also analyzed based on differences in response by participant's ethnic background. This was done in order to gain insight about ethnic similarities and differences related to

these topics. The questionnaire response is broken down into three components: (1) importance of MH education, (2) preferred method of education, and (3) mental health service usage by UOIT students.

4.1.2.1 Importance of Mental Health Education

The first two questions of the questionnaire were used to gather data about participants' opinions about MH education.

4.1.2.1.1 Question one.

Table 7 summarizes the results for question one: do you think MH education is important?

Table 7: Breakdown of Question One by Answer Options

Question One Response Options	**n**	**%**
a. Strongly agree	30	71%
b. Partially agree	10	24%
c. Not sure but agree	2	5%
d. Not sure but disagree	0	0%
e. Partially disagree	0	0%
f. Strongly disagree	0	0%

In response to this question, 30 participants (71%) responded strongly agreed, 10 (24%) participants partially agreed, 2 (5%) were not sure but agreed, and none of the participants responded not sure but disagree, partially disagree, or strongly disagree.

Overall, 95% of the participants either agreed or strongly agreed that MH education was important. Given these results the participants in this study do support MH education, which is in contrast to the findings of earlier studies on perceived needs for services. It is possible that a higher level of support for MH education in this study was a result of the selection bias discussed earlier. Even though there is the possibility

of a selection bias, 95% is a high number and follow-up research should assess if the majority of UOIT students share a similar belief and even more importantly, determine if students at other universities and colleges have similar beliefs. If other students are equally in support of MH education, gaining an understanding of students' perspective on what these services should include would be a next step (Dominicus et al., 2005; Hsu & Alden, 2008; Vogel et al., 2009).

Question one was also broken down and analyzed based on ethnicity and is summarized in *Table 8*.

Table 8: Breakdown of Question One by Ethnicity

Ethnicity	**a**	**b**	**c**	**d**	**e**	**f**	**n**	**%**
East/South Indian/Pakistani	8	4	0	0	0	0	12	29%
Middle Eastern	0	1	0	0	0	0	1	2%
Chinese	1	0	0	0	0	0	1	2%
Jamaican	2	0	0	0	0	0	2	5%
Spanish/Portuguese	3	0	0	0	0	0	3	7%
Italian	1	1	0	0	0	0	2	5%
Polish	0	1	0	0	0	0	1	2%
Belgian	1	0	0	0	0	0	1	2%
Canadian	14	3	2	0	0	0	19	45%
n	30	10	2	0	0	0	42	100%
%	71%	24%	5%	0%	0%	0%	100%	

The Chinese, Belgian, both Jamaican, and all 3 Spanish/Portuguese participants responded strongly agree to question one. The Middle Eastern and Polish participants responded partially agree. Eight of the East/South Indian/Pakistani group responded strongly agree and 4 of them partially agreed. One Italian participant strongly agreed and 1 partially agreed. Fourteen Canadians strongly agreed, 3 partially agreed, and 2 were not sure but agreed.

It is interesting that the only participants who chose the option not sure but agree were in the Canadian group. This is in contrast to the literature about Eastern ethnicities having more negative attitudes about MHI than Western ethnicities (Al-Krenawi et al., 2009; Tabassum et al., 2000; Ward et al., 2009). However, the negative attitudes about MHI found in these studies may have been related to the fact that Western MH methods do not take into consideration ethnic differences and ethnic individuals thus mistrust Western methods (Al-Krenawi et al., 2009; Tabassum et al., 2000).

In this study, the majority of ethnic individuals, 16 from a total of 23 (67%) strongly agreed that education is important. Given this percentage and the fact it is not clear why ethnic participants in this study showed favourable attitudes to MH education, future studies should address this question with a larger sample size. It is possible that the self-selection bias and the small sample size in this study resulted in favourable opinions about MH education. The literature supports the need for future studies to understand the needs of MH education from an ethnic student perspective (Adamle et al., 2009) and currently, research in this particular area is lacking (Hsu & Alden, 2008).

4.1.2.1.2 Question two.

Table 9 summarizes the results from question two: as a student, do you think MH (mental illness) education is an important factor for your success at school?

Table 9: Breakdown of Question Two by Answer Options

Question Two Response Options	**n**	**%**
a. Strongly agree	20	48%
b. Partially agree	13	31%
c. Not sure but agree	6	14%
d. Not sure but disagree	2	5%
e. Partially disagree	1	2%
f. Strongly disagree	0	0%

The findings from question two show that 20 participants (48%) strongly agreed that MH education is important for success at school, 13 (31%) partially agreed, 6 (14%) were not sure but agreed, 2 (5%) were not sure but disagreed, 1 (2%) partially disagreed, and none of the participants strongly disagreed.

The majority of participants (79%) either strongly agreed or partially agreed that MH education impacts their success at school. The literature about this is inconsistent. The study by Tjia et al. (2005) found that students believe MHI could impact their success at school which supports the findings in this study. However, Brimstone et al., (2007) found that medical students and psychology students did not share these beliefs. Further research would need to determine the factors that contribute to these differences especially because MHI are a growing concern on university/college campuses.

Table 10: Breakdown of Question Two by Ethnicity

Ethnicity	**a**	**b**	**c**	**d**	**e**	**f**	**n**	**%**
East/South Indian/ Pakistani	4	6	1	0	1	0	12	29%
Middle Eastern	0	0	1	0	0	0	1	2%
Chinese	1	0	0	0	0	0	1	2%
Jamaican	1	0	0	1	0	0	2	5%
Spanish/ Portuguese	3	0	0	0	0	0	3	7%
Italian	0	1	0	1	0	0	2	5%
Polish	0	0	1	0	0	0	1	2%
Belgian	1	0	0	0	0	0	1	2%
Canadian	10	6	3	0	0	0	19	45%
n	20	13	6	2	1	0	42	100%
%	48%	31%	14%	5%	2%	0%	100%	

Looking at the ethnic breakdown of this question, summarized in *Table 10*, the results indicate that the Chinese, Belgian and all 3 Spanish/Portuguese participants strongly agreed. The Italian participant partially agreed and the Middle Eastern and Polish participants were not sure but agreed. One Jamaican participant strongly agreed and 1 was not sure but disagreed. One Italian participant partially agreed and 1 was not sure but disagreed. Four of the East/South Asian participants strongly agreed, 6 partially agreed, 1 was not sure but agreed, and 1 partially disagreed. Ten of the Canadians strongly agreed, 6 partially agreed, and 3 were not sure but agreed.

There is considerable variation in the response to question two based on ethnicity, however, 17 (74%) of the ethnic participants responded strongly agree or partially agree. It seems that the majority of ethnic participants in this study believe that MH education will positively impact their academic career. This finding supports the importance of addressing the various ethnic factors about MHI and the barriers created as a result of ethnic beliefs (Adamle et al., 2009; Brimstone et al., 2007).

4.1.2.2 Preferred Method of Education

Question three of the questionnaire was included to gather information about the method of education UOIT students would use for MH education.

4.1.2.2.1 Question three.

This question asked: what method of MH education would you most likely use? The results for question three are summarized in *Table 11*.

Table 11: Breakdown of Question Three by Answer Options

Question Three Response Options	**n**	**%**
a. Web-based educational program	23	55%
b. Reading material from a book	10	24%
c. Going to a professional therapist	4	10%
d. Accessing information from a family doctor	2	5%
e. Other (please specify); community event	3	7%

Twenty-three participants (55%) preferred web-based education, 10 (24%) preferred reading from a book, 4 (10%) preferred seeing a therapist, 2 (5%) would access information from a family doctor, and 3 (7%) chose other and all 3 indicated a preference for accessing MH education through a community event.

The majority of participants (55%) would prefer web-based education; this finding supports the use of Mindsight to educate UOIT students about MHI. The literature also points to young people's preference for web-based material and trust in technology for health information (Oh et al., 2009), possibly because of higher technology usage by this population (Eisenberg et al., 2009). It is interesting that some of the participants in this study still prefer to use the traditional method of reading (24%). This may be because alternative methods of MH education are still being

discovered (Oh et al., 2009). As alternative methods such as Mindsight become more readily available, there may be a greater shift in favour of web-based education.

Three participants indicated they would prefer a community event. Students often seek health advice from family and friends (Bogner et al., 2008; Shim et al., 2009; Vogel et al., 2009) and their choice of services for MH problems is often based on family belief systems and social factors (Ng et al., 2008; Zafar et al., 2008). It would therefore be important to determine if students are willing to use web-based technology in place of/or complimentary to family and community supports. Overall, the question about which method of education is most appropriate may very well be the most important question in terms of promoting MH awareness because outreach programs are most beneficial when they take into account what individuals need and want (Eisenberg et al., 2009).

The breakdown of question three by ethnicity is presented in *Table 12*.

Table 12: Breakdown of Question Three by Ethnicity

Ethnicity	**a**	**b**	**c**	**d**	**e**	**n**	**%**
East/South Indian/ Pakistani	10	0	1	0	1	12	29%
Middle Eastern	0	1	0	0	0	1	2%
Chinese	0	0	0	0	1	1	2%
Jamaican	0	1	0	1	0	2	5%
Spanish/ Portuguese	1	1	1	0	0	3	7%
Italian	1	1	0	0	0	2	5%
Polish	1	0	0	0	0	1	2%
Belgian	0	1	0	0	0	1	2%
Canadian	9	5	3	1	1	19	45%
n	22	10	5	2	3	42	100%
%	52%	24%	12%	5%	7%	100%	

Ten East/South Indians selected web-based education, 1 preferred a professional therapist, and 1 chose other (community). The Middle Eastern participant and the Belgian participant both chose written material, the Chinese selected other (community), and the Polish participant chose web-based. One Jamaican selected written material and the other selected family doctor. One of the Spanish/Portuguese participants selected web-based, 1 selected written, and 1 selected therapist. Nine of the Canadians selected web-based, 5 selected written, 3 selected therapist, 1 chose family doctor, and 1 chose other (community).

Overall, 57% of the ethnic participants selected web-based as their preferred option for MH education. This provides support for the use of Mindsight as an educational tool for ethnic UOIT students. The literature has stated that web-based material has the potential to be a global standard in MH education (Gega et al., 2007) and further studies need to assess if ethnic communities are willing to accept web-based applications for MH services (Al-Krenawi et al., 2009; Oh et al., 2009).

4.1.2.3 Mental Health Service Usage by UOIT Students

Questions four, five, and six of the questionnaire all pertained to MH service usage; the first two questions gauged the MH experiences of participants and question six asked about the MH services used.

4.1.2.3.1 Question four.

Question four asked: do you wonder if you are experiencing a MH problem? As MHI are a growing concern on university and college campuses, the researcher wanted to assess if this was the case with UOIT students.

Table 13: Breakdown of Question Four by Answer Options

Question Four Response Options	**n**	**%**
a. Daily	5	12%
b. Three times a week	1	2%
c. Once a week	4	10%
d. Once a month	3	7%
e. Three times a year	12	29%
f. Never	17	40%

The results, summarized in *Table 13*, found that 5 participants (12%) thought about having MHI on a daily basis, 1 (2%) responded three times a week, 4 (10%) responded once a week, 3 (7%) selected once a month, 12 (29%) indicated three times a year, and 17 (40 %) indicated never.

The split between never wondering about MHI and thinking about it at some point within a year was 40% and 60% respectively. In general, one in five people (20%) will experience a MHI issue at some point in their lives (CAMH, 2009). Given this statistic, 60% is a relatively high number, and represents the majority of participants in this study. This finding is consistent with the concern about MHI on campuses and supports the need for services especially given the fact that 31% of the participants wondered on at least a monthly basis if they were experiencing a MHI. Mindsight may be helpful for these participants to understand if what they are experiencing is a mental disorder and help them find appropriate supports.

The results for question four based on ethnicity are summarized in *Table 14*.

Table 14: Breakdown of Question Four by Ethnicity

Ethnicity	**a**	**b**	**c**	**d**	**e**	**f**	**n**	**%**
East/South Indian/ Pakistani	0	1	0	2	4	5	12	29%
Middle Eastern	1	0	0	0	0	0	1	2%
Chinese	0	0	0	1	0	0	1	2%
Jamaican	0	0	0	0	0	2	2	5%
Spanish/ Portuguese	0	1	0	0	2	0	3	7%
Italian	1	0	0	0	1	0	2	5%
Polish	1	0	0	0	0	0	1	2%
Belgian	0	0	0	0	0	1	1	2%
Canadian	2	2	1	0	5	9	19	45%
n	5	4	1	3	12	17	42	100%
%	12%	10%	2%	7%	29%	40%	100%	

From the East/South Indian/Pakistani group, 1 participant selected once a week, 2 indicated once a month, 4 selected three times a year, and 5 responded never. The Middle Eastern and Polish participants selected daily, the Chinese participant chose once a month, and the Belgian participant selected never. Both Jamaican participants selected never, 2 Spanish/Portuguese and 1 Italian participant selected three times a year, 1 Spanish/Portuguese participant selected once a week, and 1 Italian participant selected daily. Two Canadians selected daily, 2 chose once a week, 1 selected three times a week, 5 chose three times a year, and 9 selected never.

Overall, 15 of the 23 ethnic participants (65%) indicated that they wondered about having a MHI at some point within a year. The researcher was unable to find any literature on how many ethnic people wonder about having MHI. This may be due to the barriers of stigma and the reluctance of ethnic individuals to discuss MHI outside the family/community environment (Bogner et al., 2008; Reitmanova & Gustafon, 2009;

Ward et al., 2009). Based on these barriers, it may be difficult to assess the true prevalence rates of MHI amongst ethnic populations and any statistic for this population may be underestimated (Jorm et al., 2005; Tabassum et al., 2000). Whatever the case may be, an educational tool such as Mindsight can be used privately by individuals and it is hoped that this tool will help those who are reluctant to discuss their problems with other individuals.

4.1.2.3.2 Question five.

This question asked participants: have you experienced, or thought you might be experiencing a MH problem in the past but no longer have this concern? The results are presented in *Table 15*.

Table 15: Breakdown of Question Five by Answer Options

Question Five Response Options	**n**	**%**
a. Yes, I had this concern but no longer do	16	38%
b. No, I never had this concern	16	38%
c. Continue to have this concern	10	24%

Based on this question, 16 participants (38%) responded yes they had this concern but no longer do, 16 (38%) indicated they never had this concern, and 10 (24%) advised that they continue to have this concern.

For question five, 62% of the participants either had a concern about experiencing MHI or continue to have a concern which is similar to the 65% of participants who indicated that they wondered about having MHI at some point within a year. By adding question five to the questionnaire, the results from question four are supported and it appears that the questionnaire was effective in determining the MH experience of participants for this study.

The breakdown for question five by ethnicity is presented in *Table 16*.

Table 16: Breakdown of Question Five by Ethnicity

Ethnicity	**a**	**b**	**c**	**n**	**%**
East/South Indian/ Pakistani	4	6	2	12	29%
Middle Eastern	0	0	1	1	2%
Chinese	1	0	0	1	2%
Jamaican	1	1	0	2	5%
Spanish/ Portuguese	2	0	1	3	7%
Italian	1	0	1	2	5%
Polish	0	0	1	1	2%
Belgian	1	0	0	1	2%
Canadian	6	9	4	19	45%
n	16	16	10	42	100%
%	38%	38%	24%	100%	

From the East/South Indian/Pakistani group, 4 selected they had this concern but no longer do, 6 selected they never had this concern, and 2 continue to have this concern. The Middle Eastern and Polish participants both indicated they continue to have this concern, both the Chinese and Belgian participants had this concern but no longer do, 1 Jamaican participant had this concern but no longer does and 1 Jamaican participant never had this concern. Two Spanish/Portuguese and 1 Italian participant had this concern but no longer do and 1 Spanish/Portuguese and 1 Italian participant continue to have this concern. Six of the Canadian participants indicated they had this concern but no longer do, 9 never had this concern, and 4 continue to have this concern.

Similar to the comparison of question four and five made earlier, 16 (70%) of the ethnic participants indicated they either had a MH concern in the past or continue to have this concern and 15 (65%) of the ethnic students in question four reported that they wondered about having a MH issue sometime within a year. This provides further

support that question four and five were effective in determining the MH experience of the participants based on an ethnic perspective.

4.1.2.3.3 Question six.

Table 17 summarizes the results from question six which asked: have you accessed MH (mental illness) education services at any point in your life?

Table 17: Breakdown of Question Six by Answer Options

Question Six Response Options	**n**	**%**
a. Daily	1	2%
b. Three times a week	0	0%
c. Once a week	1	2%
d. Once a month	4	10%
e. Three times a year	7	17%
f. Never	26	62%
No response	3	7%

The results for this question show 1 participant (2%) accessed services daily, 1 (2%) selected once a week, 0 participants selected three times a week, 4 (10%) selected once a month, 7 (17%) reported three times a year, 26 (62%) indicated they never accessed mental health services, and 3 (7%) indicated they accessed MH services for school but did not identify how many times (although this was not an original option and is therefore charted as no response).

It appears that the majority of participants in this study (62%) have never accessed services even though questions four and five indicate that the majority of participants either wondered about having these problems or experienced these problems at some point in their life. These results are consistent with the fact that students are not accessing MH services even though MHI are being identified by them (Tjia et al., 2005;

Ziven et al., 2009) and are also consistent with the fact that 75% of individuals with a diagnosis have never used MH services (MDSC, 2009).

There are many reasons students are not accessing MH services as outlined in the literature review section of this thesis. Based on the barriers discussed by students in past research, it is hoped that Mindsight will be an effective method in helping to breakdown some of those barriers and helping participants recognize the importance of seeking help.

The results for question six based on ethnicity are presented in *Table 18*.

Table 18: Breakdown of Question Six by Ethnicity

Ethnicity	**a**	**b**	**c**	**d**	**e**	**f**	**No response**	**n**	**%**
East/South Indian/ Pakistani	0	0	0	0	2	10	0	12	29%
Middle Eastern	0	0	0	0	0	1	0	1	2%
Chinese	0	1	0	0	0	0	0	1	2%
Jamaican	0	0	0	0	0	2	0	2	5%
Spanish/ Portuguese	0	0	0	0	1	2	0	3	7%
Italian	0	0	0	1	1	0	0	2	5%
Polish	0	0	0	0	1	0	0	1	2%
Belgian	0	0	0	0	0	1	0	1	2%
Canadian	1	0	0	3	2	10	3	19	45%
n	1	1	0	4	7	26	3	42	100%
%	2%	2%	0%	10%	17%	62%	7%	100%	

The results indicate that 2 of the East/South Indian/Pakistani group selected three times a year and 10 selected never. The Middle Eastern, both Jamaicans, and the Belgian participant selected never. The Chinese participant selected once a week, the Polish participant selected three times a years, 1 Spanish/Portuguese participant selected three times a year and the other 2 selected never. One Italian participant indicated once a

month and 1 indicated three times a year. One Canadian participant selected daily, 3 selected once a month, 2 selected three times a year, 10 selected never, and 3 selected the no response category.

In total, 16 of the 23 ethnic students (70%) selected that they never sought MH services when it was earlier reported that 16 (70%) either had MH concerns in the past or continue to have these concerns and 15 (65%) of the participants wondered about having a MHI. These results have important implications for this study because the main goal of the researcher was to identify if Mindsight, as a web-based educational tool, would help this group of students recognize what MHI are and the importance of accessing MH services. Moreover, the literature review in this study has indicated the various stigmas that become a barrier to services for ethnic populations and it is hoped that Mindsight will help to breakdown some of these barriers. To address the question of whether or not Mindsight is an effective educational tool and if it helps to reduce the negative attitudes related to MHI, the researcher invited the ethnic students from the first phase of the study to participate in the second phase.

4.2 Results and Discussion of Pre/Post Measures

The second section of this chapter is a discussion of the pre/post knowledge test and attitude scale which addressed the following central research question: are web-based mental health educational tools effective with ethnic post-secondary students (other than Canadian)? The pre/post knowledge test and attitude scale explored this central research question in more detail through research sub-questions three and four: (3) is Mindsight an effective tool in educating UOIT self-identified ethnic students about

MHI, and (4) will Mindsight help to change UOIT self-identified ethnic students' attitudes about MHI?

Self-identified ethnic students from the first phase were recruited for the second phase, and were asked to complete Mindsight and a pre/post knowledge test and attitude scale.

4.2.1 Respondent Demographics for Phase Two

The 23 ethnic students from the first phase of the study were invited to participate in phase two and 14 of these participants responded back to the researcher. Of these 14 participants, one completed the pre-test results for both the knowledge test and the attitude scale but did not return the post-test results so her data was excluded from the analysis. A summary of the respondents is charted in *Table 19.* The participants are referred to by pseudonyms in order to protect their identity.

Table 19: Participant Demographics for Phase Two and Three

Name	**Ethnicity**	**M/F**	**Age**	**Field of Study**	**Year of Study**	**Notes**
Allen	East Indian	M	19-25	Commerce	2nd	
Alex	East Indian	M	25 +	Engineering	Graduate	
Andy	East Indian	M	25+	Engineering	Graduate	
Austin	East Indian	M	19-25	Commerce	1st	
Cindy	Italian	F	19-25	Social Sciences	2nd	
Cathy	South Indian	F	25+	Social Sciences	3nd	
Coleen	East Indian	F	19-25	Life Sciences	3rd	
Maddy	East Indian	F	19-25	Life Sciences	4th	
Marry	East Indian	F	18 under	Life Sciences	1st	
Marv	South Indian	M	19-25	Engineering	3rd	
Tina	Chinese	F	19-25	Life Sciences	4th	
Tammy	Belgian	F	19-25	Life Sciences	3rd	
Donald	Spanish	M	19-25	Life Sciences	4th	*Phone interview
Totals	9 South/East Indian/ Pakistani 1 Italian 1 Belgian 1 Chinese 1 Spanish	M=6 F=7	9 (19-25) 1 (18) 3 (25+)	6 Life Sciences 2 Social Sciences 2 Commerce 3 Engineering	2 (1st year) 1 (2nd year) 4 (3rd year) 4 (4th year) 2 Graduate	
Wendy	South Indian	F	19-25	Social Sciences	1st	*No post-test excluded from phase two *phone interview

Nine participants were South/East Indian/Pakistani, 1 was Italian, 1 was Belgian, 1 was Chinese, and 1 was Spanish. It is not clear why there were higher numbers of South/East Indian/Pakistani participants; the researcher attributed this to her own ethnicity (she is East Indian).

The gender of the participants was fairly equally split; 7 were female and 6 were male. One participant was 18 or under, 9 were between the ages of 19-25, and 3 were over 25.

Six of the participants were in the Life Sciences Program, 2 were in Social Sciences, 2 were in Commerce, and 3 were in Engineering. Two participants were in their first year of studies, 1 was in second year, 4 were in third year, 4 were in fourth year, and 2 were in graduate studies. The majority of students (8 participants) were from either Life or Social Sciences. It is likely that these participants had more MH knowledge due to the type of program they are in. Although the researcher cannot guarantee how much previous MH knowledge the students had, the researcher kept this in mind when analyzing the results.

4.2.2 Pre/Post Knowledge Test Results and Discussion

The results from the pre/post knowledge test were analyzed in two different ways. The researcher assessed the difference in pre-test results compared to the post-test results by question and by participant.

4.2.2.1 Pre/Post-test Results and Discussions by Question

Table 20 summarizes the average number of correct answers for each sub-category of the knowledge test and the mean difference of the pre/post test results.

Table 20: Mean Difference for Grouped Sub-categories of Knowledge Test

**The mean is the average # of participants who got the answers right for each category			
Sub-categories	**Pre-test Mean**	**Post-test Mean**	**Mean Difference**
Anxiety	7	11	4.00
Depression	8	13	5.00
Self-Harm	7.5	12	4.50
Eating Disorder	4.5	9	4.50
Psychosis	10.5	12.5	2.00
Stigma	4.5	7	2.50
Addictions	6.5	10	3.50
Suicide	8	11.5	3.50
Trauma	7.5	10	2.50
Bipolar disorder	10	11.5	1.50
Total for all 20 questions	7.4	10.75	3.35

For anxiety, the pre-test result was 8, the post-test result was 11, and the mean difference was 4. The depression pre-test result was 8, the post-test result was 13, and the mean difference was 5. For self-harm, the pre-test result was 7.5, the post-test result was 12, and the mean difference was 4.5. The result for eating disorders was 4.5 for the pre-test, 9 for the post-test, and a mean difference of 4.5. For psychosis the pre-test result was 10.5, the post-test result was 12.5, and the mean difference was 2. The pre-test result for stigma was 4.5, the post-test result was 7, and the mean difference was 2.5. The addiction pre-test result was 6.5, the post-test result was 10, and the mean difference was 3.5. For suicide the pre-test result was 8, the post-test result was 11.5, and the mean difference was 3.5. The trauma pre-test result was 7.5, the post-test result was 10, and the mean difference was 2.5. The bipolar disorder pre-test result was 10, the post-test result was 11.5, and the mean difference was 1.5. The total pre-test result for all 20 questions was 7.4, the post-test result was 10.75, and the mean difference was 3.35.

The mean difference of the pre/post results ranged from 1.5 to 5 which indicated a positive change in knowledge following the use of Mindsight for all sub-categories. The mean difference for anxiety, depression, self-harm, and eating disorders was slightly higher than the other categories. Bipolar disorder had the lowest mean difference. It may be possible that the change in knowledge related to anxiety, depression, self-harm, and eating disorders was slightly higher because these disorders are less "scary" compared to psychosis and bipolar disorder (Angermeyer, Matschinger, & Corrigan, 2004; CMHA, 2009; Kurihara et al., 2006). It may also be possible that the sub-categories of anxiety, depression, self-harm, and eating disorders may have been more effective in educating participants compared to the other six sub-categories of Mindsight: although this cannot be confirmed and future research would be needed to assess the effectiveness of each sub-section.

Overall, the positive change for all sub-categories revealed that there was improvement in knowledge after the completion of Mindsight. This suggests that Mindsight was effective in delivering overall knowledge about MHI for this study. However, a larger sample size would have allowed the researcher to use statistical analysis to test for significant difference. Future studies should assess if these results are significant with a bigger sample size.

It appears that the literature has not addressed knowledge acquisition via web-based tools based on categories of MHI. Future studies on MH educational tools should focus on the reasons why certain MHI are easier to understand and what content educational tools should include for better knowledge acquisition for each illness category.

4.2.2.2 Pre/Post-test Results and Discussion by Participant

The knowledge test was also analyzed based on the pre/post results for each participant. *Table 21* and *Figure 8* summarize pre/post scores for each participant and the percent improvement scores are charted in *Figure 9*.

Table 21: Pre/Post-test Score and Percent Improvement for Knowledge Test

Participant (pseudonyms)	**Pre-test Score %**	**Post-test Score %**	**% Improvement in Score**
Allen	45%	95%	111%
Cindy	70%	90%	29%
Donald	50%	80%	60%
Tina	70%	80%	14%
Alex	70%	75%	7%
Cathy	45%	90%	100%
Austin	40%	100%	150%
Tammy	85%	100%	18%
Merry	50%	85%	70%
Marv	45%	80%	78%
Andy	60%	80%	33%
Coleen	80%	85%	6%
Maddy	35%	60%	71%
Average Improvement	59%	87%	56%

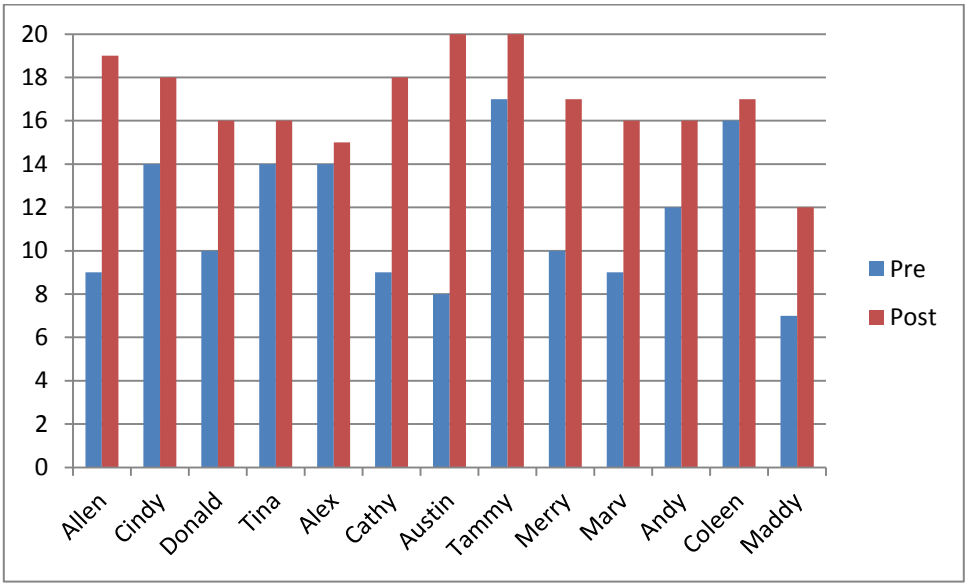

Figure 8: Pre/Post-test Score for Knowledge Test by Participant

The bar chart shows the pre/post-test scores for each individual participant for the knowledge test.

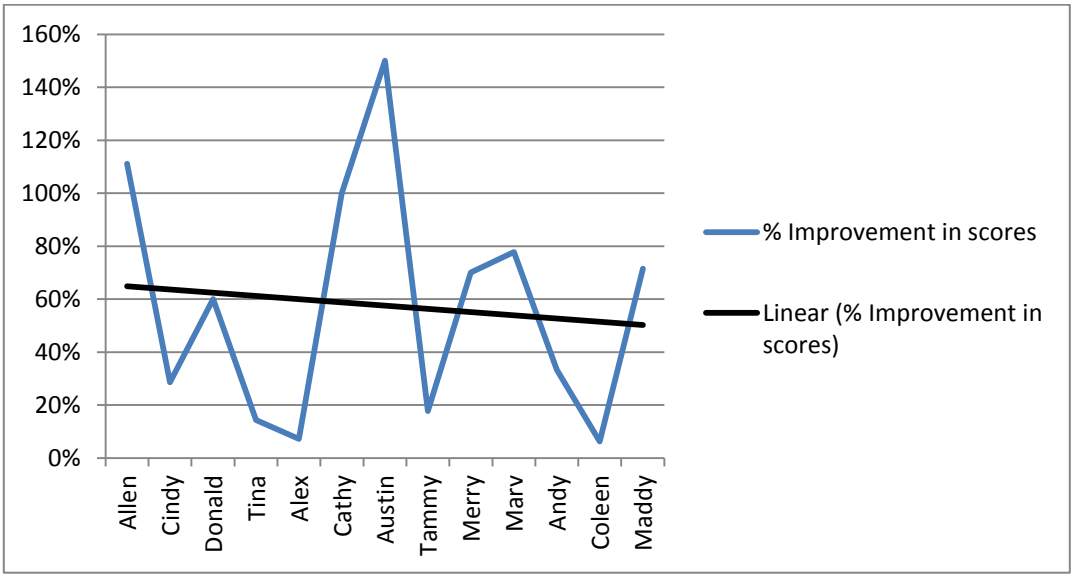

Figure 9: Linear Percent Improvement in Knowledge Test

Linear representation of the percent improvement in scores for each participant.

The Chinese participant, Tina, got 70% on the pre-test and 80% on the post-test, which was a 14% improvement. Tammy, the Belgian participant, got 85% on the pre-

test and 100% on the post-test, which was an 18% improvement. Donald who is Spanish received 50% on the pre-test and 80% on the post-test, which was a 60% improvement. Cindy, who is Italian, got 70% on the pre-test and 90% on the post-test, which was a 29% improvement. Of these participants, Donald had the greatest improvement in score and he started off with the smallest pre-test score. It was difficult to comment on any trends in the results because each ethnicity was represented by only one participant. The researcher was also unable to locate any research that discussed differences in MH knowledge based on ethnicity. It would be interesting to see what the results would be if this aspect of this study was replicated with a greater representation for each ethnic group.

The remainder of the participants were all South/East Indian/Pakistani. Allen got 45% for the pre-test and 95% for the post-test, which was an improvement of 111%. Alex got 70% for the pre-test and 75% for the post-test, which was a 7% improvement. Cathy got 45% for the pre-test and 90% for the post-test, which was a 100% improvement. Austin got 40% for the pre-test and 100% for the post-test, which was a 150% improvement. Merry received 45% for the pre-test and 80% for the post-test, which was a 78% improvement. Marv got 45% for the pre-test and 80% for the post-test; which was a 78% improvement. Andy got 60% for the pre-test and 80% for the post-test, which was a 33% improvement. Coleen got 80% for the pre-test and 85% for the post-test, which was a 6% improvement. Maddy got 35% for the pre-test and 60% for the post-test, which was a 71% improvement.

The majority (6) of the South/East Indian/Pakistani participants had a percent improvement of 71% to 111%. This is a significant improvement in score. Overall, the

results of this study suggest that the South/East Indian/Pakistani participants had a significant improvement in scores. However, the researcher did not find any research to support these results and future studies should assess if this ethnic group has favourable opinions about web-based mental health education.

Overall, as *Figure 8*and *Figure 9* display, all participants increased in knowledge post the completion of Mindsight and 6 participants had a percent improvement of over 50%. When the Wilcoxon matched paired signed rank test is performed on the mean differences of the participants' scores (refer to *Table 22*), the results are significant at p=0.008 (refer to *Table 23*).

Table 22: Difference of Pre/Post Scores for Knowledge Test by Participant

Participant	**Pre-Test Score**	**Post-Test Score**	**Difference**
Allen	9	19	10
Cindy	14	18	4
Donald	10	16	6
Tina	14	16	2
Alex	14	15	1
Cathy	9	18	9
Austin	8	20	12
Tammy	17	20	3
Merry	10	17	7
Marv	9	16	7
Andy	12	16	4
Coleen	16	17	1
Maddy	7	12	5
Average	11.4615	16.9231	5.46154

Table 23: Wilcoxon Matched Paired Signed Rank Test for Knowledge Test

Sum of difference	-91	
ns/r	13	
Z Score	-3.16	
p(one-tail)	0.0008	*

There is a possibility that these improvements are overestimated because previous MH knowledge has not been accounted for. Even if these participants had previous knowledge, they still gained additional knowledge from Mindsight which provides support for web-based MH education. The literature for web-based MH education is still in its infancy. Previous studies have found that there are many advantages with this method of education (Bastelaar et al., 2008; Corrigan et al., 2005; Fravolden et al., 2005; Griffiths & Christensen, 2007; Oh et al., 2009; Papworth, 2009; Spijker et al., 2010), in particular for people of different ethnic backgrounds (Fravolden et al., 2005). However, the research has not looked at the specific effects of MH education via web-based tools for ethnically diverse peoples. Additional research is needed to determine the effectiveness of web-based applications on ethnic individuals' attitudes about MHI, which was an element researched in this study.

4.2.3 Pre/Post Attitude Scale Results and Discussion

The results of the pre-test/post-test attitude scale are presented in *Table 24*.

Table 24: Ranking of Attitude Scale and Difference of Summed Ranks

Participant (pseudonyms)	**Pre-Test Sum of Ranks**	**Post-Test Sum of Ranks**	**Difference of Summed Ranks**
Allen	-8	-4	4
Cindy	-4	1	6
Donald	0	1	1
Tina	-3	0	3
Alex	-3	-5	-2
Cathy	-6	-6	0
Austin	-5	-6	-1
Tammy	-3	-1	2
Merry	-7	-6	1
Marv	-10	-10	0
Andy	-5	-3	2
Coleen	-8	-7	1
Maddy	-7	-6	1

Allen's pre-test rank was -8 and his post-test rank was -4. Cindy had pre-test rank -4 and post-test rank of 1. Donald scored 0 for the pre-test and 1 for the post-test. Tina ranked -3 for the pre-test and 0 for the post-test. Alex got -3 for the pre-test and -5 for the post-test. Cathy scored -6 for both the pre and post-test. Austin ranked -5 for the pre-test and -6 for the post-test. Tammy scored -3 for the pre-test and -1 for the post-test. Merry got -7 for the pre-test and -6 for the post-test. Marv ranked -10 on both the pre and post-tests. Andy got -5 for the pre-test and -3 for the post-test. Coleen ranked -8 for the pre-test and -7 for the post-test. Maddy got -7 for the pre-test and -6 for the post-test.

These results of the attitude scale indicate that none of the participants had a positive attitude about MHI prior to completing Mindsight. Although these results may

be considered shocking, this is consistent with previous studies that found ethnic individuals have negative attitudes about MHI (Al-Krenawi et al., 2009; Bogner et al., 2008; Donnelly, 2005; Jorm et al., 2005; Kurihara et al., 2006; War et al., 2009; Zafar et al., 2008).

Two participants' attitudes shifted into the positive range after the completion of Mindsight; both Cindy and Donald's summed rank was one for the post-test. Overall, all but two participants had a positive shift in attitude, however the shift was not great enough to result in a positive rank (refer to *Figure 10*).

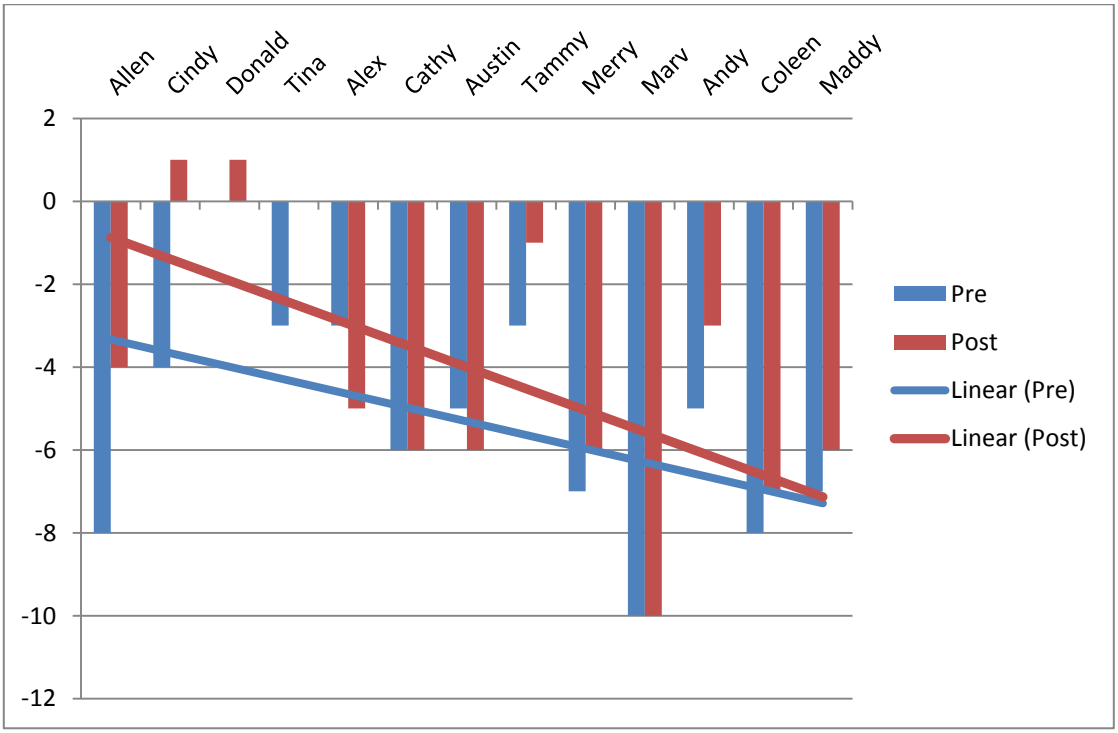

Figure 10: Pre/Post-test Change in Attitude

A bar chart of the sum of ranks for each participant for the attitude scale. The linear scale represents the overall sum of ranks for all participants.

Table 25: Wilcoxon Matched Paired Signed Rank Test for Attitude Scale

Sum of ranked difference	-46	
ns/r	11	
Z Score	-2.02	
p(one-tail)	0.0127	*

Shifts in attitudes about MHI are difficult because of the beliefs held by families and social networks (Bogner et al., 2008; Shim et al., 2009) and because negative attitudes about MHI may be a part of an individual's ethnic beliefs (Al-Krenawi et al., 2009; Bogner et al., 2008; Donnelly, 2005; Jorm et al., 2005; Kurihara et al., 2006; Ward et al., 2009; Zafar et al., 2008). Even though shifts in attitudes are difficult, Mindsight was effective in creating a positive shift for all but two participants in this study. Web-based applications have been found useful for changing individuals' attitudes about MHI (Christensen et al., 2006; Farrell et al., 2004; Fravolden et al., 2005) which is consistent with the results from this study. However, the shifts in attitudes about MHI cannot be attributed to Mindsight alone; further studies will need to be done with Mindsight to provide support for the findings of this study.

4.3 Chapter Four Summary

In conclusion, the results of the quantitative phase of this study found that students consider MH education important and would use web-based tools as a form of education, if available. The findings also suggested that Mindsight was effective in increasing ethnic students' knowledge and helped to reduce stigmatizing attitudes about MHI.

The results for the knowledge test and the attitude scale are significant for research in the area of knowledge and attitudes about MHI from an ethnic perspective and further studies should look at how web-based education can be used to change MHI perceptions among ethnic populations. To answer this question, it is important to ask ethnic individuals about their experiences of MHI, the barriers they face in accessing MH education, and how education should be delivered to most effectively educate ethnic communities about MHI. Although quantitative studies are useful in collecting statistics about these concepts, they do not provide insight about the actual experiences of individuals. This study used focus groups with the self-identified ethnic students from the second phase in order to gain a better understanding of the impact of MH education for self-identified ethnic students at UOIT.

5.0 QUALITATIVE DATA RESULTS AND DISCUSSION

Self-identified ethnic students from the second phase of the study were asked to participate in focus groups (n=14) for the final phase of the study. The focus group discussions provided additional data for all of the central research questions and research sub-questions one to four. The focus groups also provided data for research sub-questions five to seven: (5) how much knowledge do UOIT self-identified ethnic students have about MHI, (6) what are UOIT self-identified ethnic students' attitudes about MHI, and (7) do UOIT students from self-identified ethnic groups require additional/different information based on diverse ethnic beliefs in order to better understand MHI?

This chapter provides a discussion of the results from the four focus groups and two telephone interviews. The data from the two telephone interviews have been integrated with the data from the focus group discussions because the same interview guide and method of data collection was used. The results are divided into three major themes that emerged during analysis: (1) mental health education, (2) barriers to MH, and (3) the use of Mindsight. These themes are sub-divided into nine categories and 25 sub-categories that emerged during the data analysis (refer to *Table 26*).

Table 26: Focus Group Thematic Chart

Themes	**Categories**	**Sub-categories**
Mental health education	Need for education	General need for education Early education Education to identify MHI
	Ethnic considerations	Ethnic considerations
	Future of MH education	Ethnic studies Method of education
Barriers to mental health	Stigma	Public Stigma Family stigma Ethnic specific stigma
	Misconceptions	General MHI misconceptions Ethnic specific misconceptions
	Systemic barriers	Systemic barriers
Use of Mindsight	Mindsight's effectiveness	Overall usability and effectiveness as a tool Knowledge acquisition Breaking down the barriers Mindsight's ethnic sensitivity
	Limitations	Next steps following education Overall functioning As a tool for education Information on MHI
	Suggestions	For Mindsight as a tool Additional material Added ethnic sensitivity Additional resources

The quotes used in this chapter are verbatim and only minor modifications have been made to facilitate reading. A summary of the participants is provided in *Table 19*.

5.1 Mental Health Education

During the discussion three categories about MH education emerged: (1) need for MH education (section 5.1.1), (2) ethnic considerations (section 5.1.2), and (3) the

future of MH education (section 5.1.3). All of the participants shared their thoughts about MH education.

5.1.1 Need for Education

Three concepts emerged during these discussions about the need for MH education: (1) general need for education (section 5.1.1.1), (2) early education and training (section 5.1.1.2), and (3) education to identify MHI (section 5.1.1.3).

5.1.1.1 General Need for Education

All of the participants shared their various views on the impact of MH education. For Tammy, meeting individuals with MHI and attempting to understand their illness was an important aspect:

> I've encountered quite a few different people with different mental illnesses and so I think it really helps to have a roundabout knowledge not only if you know what they're going through and different symptoms that you might not have known of before, but just how they are experiencing things and actually hear their life story because not everyone with a mental illness wants to tell their story. So to actually hear what...like for some people to go through and what they experience really is like a humbling thing because you can kind of like say okay well that's one person's experience of...I kind of see what they went through.

Education about MHI results in greater sensitivity towards people with a diagnosis and education is most effective when the real life stories of individuals with a diagnosis are included in the educational material (Chung et al., 2001). Using real life examples is also a criterion of the Cognitive Flexibility Theory (CFT) discussed in the theoretical

framework of this study (Spiro & Jehng, 1990). The developer of Mindsight was proactive in this area and able to incorporate videos of individuals telling their stories about how MHI impact their lives.

Tammy indicated that she personally encountered individuals with MHI. This is consistent with the statistics that four in five people will meet an individual with a MHI (CAMH, 2009). Another participant, David, shared a similar comment:

> I think that it's (referring to MHI) something very common. It's something that is out there and just the fact of being aware of it like...just to know that it's there and like there's very simple but effective ways to actually help each other, like that could make a difference is important.

As David mentions, MHI are becoming a growing concern (CMHA, n.d.b) especially on university/college campuses (Zivin et al., 2009). It is becoming increasingly important to provide MH education especially for students (Dominicus et al., 2005; Vogel et al., 2009) and those from different ethnic backgrounds (Anglin et al., 2008; Chung et al., 2001). According to David's perspective, even basic MH education is considered sufficient to build awareness. This type of fundamental education is what Mindsight offers to university/college students and possibly to those from different ethnic backgrounds.

Mental health education was also considered important to correct misconceptions and because MHI are often minimized. Merry pointed out:

> Yeah I definitely think that...everyone should be educated about MH because like I said with the whole depression thing everyone you know talks about it so

> lightly but each and every one of those like I said disorders or syndromes they're so real.

Mental disorders are not well understood and individuals often take mental illnesses lightly or may have misconceptions about what MHI actually are (Al-Krenawi et al., 2009; Donnelly, 2005; Jorm et al., 2005; Kurihara et al., 2006; Zafar, et al., 2008), which can lead to negative perceptions about the disorders. Negative perceptions about MHI are often displayed by media (Al-Krenawi et al., 2009; CMHA, n.d.b.; Jorm et al., 2005) and found in the myths and beliefs of various ethnic groups (Donnelly, 2005; Kurihara et al., 2006; Zafar, et al., 2008). Similarly, participants in this study openly acknowledged having misconceptions and a lack of understanding. Marv shared that he was personally misinformed about MHI:

> Definitely education is important because...I'm pretty sure there's a large population out there that they think that they know (referring to MHI), like I was a perfect example. I thought I knew, but once you go to the website and once you look at all those videos and flip through it, definitely you get a better understanding.

Inaccurate perceptions about MHI can be corrected through education (Kurihara et al., 2006). This was consistent with Marv's experience who found Mindsight effective in helping him better understand MHI.

Correcting negative perceptions about MHI is important because misinformation can lead to minimizing the concerns (Bogner et al., 2008; Kurihara et al., 2006). Andy shared how individuals may not take MHI seriously because of a lack of understanding:

> I think to some degree...because people aren't educated about it (MHI) and because they don't realize what the problems are and what the actual issues are, they don't tend to take it seriously and that's I think what leads to this sort of discouragement.

The lack of understanding about MHI has been shown to increase barriers and stigma (Al-Krenawi et al., 2009; Bogner et al., 2008; Donnelly, 2005; Jorm et al., 2005; Kurihara et al., 2006; Ward et al., 2009). Maddy shared a personal experience of not taking MHI seriously, "I've had friends that are clinically depressed and the first time they told me they were depressed I laughed because...I thought they were joking, I didn't understand." As Maddy points out, having a lack of understanding of MHI resulted in minimizing her friend's clinical diagnosis. A negative response such as this from family and friends can become a huge barrier for individuals experiencing MHI, as individuals may become less willing to seek help for their illness (Bogner et al., 2008; Donnelly, 2005; Kurihara et al., 2006).

5.1.1.2 Early Education and Training

Participants also mentioned the need for MH education early in life. Andy advised "We require some kind of education or sort of pre-education of some kind which sort of indicates...that there is an issue with mental illnesses". To add to this Austin stated:

> I think every student from high school or even university should know about all these illnesses because it's like very common today and we should know...in detail exactly what these illnesses are. So I personally think it's a good idea.

As noted earlier by David in discussing a general need for education, Austin also shared that mental illnesses are a growing concern. Early education has many advantages given the age of onset for MHI. It has further been discussed that there are differences in the perceptions about MHI based on an individual's age (Golberstein et al., 2008; Tjia et al., 2005). These differences would require further research to understand why there is a discrepancy and to identify educational strategies that are specific to young individuals' learning needs.

Although there is a need for early education one participant (Andy) noted, "I don't think our education system provides enough education about mental illnesses." The lack of education about MHI has been a concern for Canadians in general (Standing Committee on Social Affairs, 2006) and for students (Zivin et al., 2009). This participant further described how a lack of education within the school environment can lead to a misunderstanding of student behaviour:

> A lot of the stuff that people go through is often taken...in an incorrect manner. People think that either they're misbehaving or...they haven't been brought up properly...If you look at the symptoms that people go through you'll realize that a lot of them are probably suffering from some kind of mental illness and if it was diagnosed, if it was dealt with appropriately, then they could probably recover...so I think yeah there should be definitely more emphasis on mental illness education.

This experience was also shared by Allen:

> It's unfortunate that students in universities and high schools...have to face this naivety when it comes to such issues (MHI) and unfortunately the common

> misconception that children or...adults or young adults are trying to gain attention by faking such, but they're not actually faking it and they're actually suffering it and it's sad because we don't know what they're going through, but at the same time the, the social media and everything...taught us about these disorders have given us just the complete wrong you know concept of it all.

Allen acknowledges that the media does not provide an accurate image of what MHI are. As both Allen and Andy reported, students often do not receive the support they need because family and friends do not understand they are experiencing a MHI (Brimstone et al., 2007; Eisenberg et al., 2009). More importantly it is sometimes assumed that young people use MHI as an excuse for their bad behaviour (CMHA, 2009). Another participant, Marv, pointed out how students often do not understand their own MHI:

> Kids growing up...they definitely need...to have at least a basic understanding of MH issues because I think there are a lot of kids that are not going on the right path that and they, slowly are developing mental issues because of what they're doing.

Young adults often do not understand they are experiencing MHI (Golberstein et al., 2008; Zivin et al., 2009) and education can help individuals recognize a possible MH concern. Overall, there are advantages to early education of MHI. As Cathy put it, "I think students in general should have a general knowledge about mental illness." Mindsight may be considered an appropriate educational tool for university/college students because it can help students realize that their experiences may be a result of MHI and Mindsight can help direct them to appropriate supports.

5.1.1.3 Education to Identify Mental Health Issues

Being able to recognize some of the signs and symptoms of MHI can empower individuals and facilitate their ability to reach out and seek supports. One informant (Maddy) stated, "Education is important...I feel that a lot of people would be going undiagnosed or...they won't know where to turn and there is lots of help available." Individuals often do not recognize the signs of a MHI due to a lack of education (Golberstein et al., 2008; Zivin et al., 2009). They do not receive a proper diagnosis, and are therefore unable to find the supports they need (Tjia et al., 2005; Zivin et al., 2009). Another participant supported the concept that education will be helpful in encouraging individuals to seek support. Wendy advised:

> With education...actually because it's like you know that way other people won't be afraid and stuff to come out of the closet like and get help for it and that way at least we know that someone else is working towards more of a cure.

There is evidence that education can help breakdown some of the barriers to MH treatment and reduce the stigma associated with seeking help (Eisenberg et al., 2009; Hsu & Alden, 2008). However, barriers associated with MHI are complex and future research is needed to address these complexities, particularly when it comes to promoting help-seeking behaviours. These challenges are discussed in more detail later in this chapter.

Education is not only important to help people identify the signs and symptoms of MHI but also to discourage people from misdiagnosing themselves based on inaccurate/incomplete perceptions of MHI. Merry stated, "I think that sometimes when you're not informed you start to misdiagnose on your own." This can be very

problematic as individuals may attempt to “cure” themselves of an illness they may not even have. Given inappropriate information or a lack of information, individuals may also assume they have a MHI because they fit within a few symptom definitions. This can lead to further confusion and can be more detrimental to the individual experiencing a MHI. As Cathy put it:

> The information might help, that even if you don’t have an illness that’s diagnosed and you see the symptoms on your own and you know you might just go crazy seeing the diagnosis...if you know that...you are bipolar but then you don’t really know what happens, like you yourself don’t know because you’ve been exposed to something that you are not familiar with and knowing what is supposed to happen, what’s not supposed to happen, it’s just going to help you figure yourself out, feel more confident, you know and whatever is going on like you’ll understand your own situation much better.

Mental health education becomes all the more important when an individual is diagnosed with a MHI for the very reason individuals often fear what they do not understand and this fear may further compromise their mental and physical well-being.

5.1.2 Ethnic Considerations

Participants in this study also discussed the need for MH education, taking into account ethnic considerations. Cathy informed:

> So I think it’s definitely...necessary for a lot of people in my ethnicity to learn about these kind of things (MHI)...somebody they know might have one (a diagnosis) and it will...help them better deal with their social life, their personal

> social lives, or their support, anybody in their family or friends that might have a mental illness.

Ethnic minority groups have more stigmatizing beliefs about MHI and these beliefs are often related to a lack of education about the biomedical causes of MHI (Al-Krenawi et al., 2009; Bogner et al., 2008; Donnelly, 2005; Jorm et al., 2005; Kurihara et al., 2006; Ward et al., 2009; Zafar, et al., 2008). Paying particular attention to educating different ethnic groups about MHI is therefore important (Al-Krenawi et al., 2009; Anglin et al., 2008; Shim et al., 2009; Ward et al., 2009). Another participant, Merry, added her thoughts about the reasons MH education is important from an ethnic perspective:

> I guess so we're very community based (referring to her own ethnic group) so I would think that people would be more ashamed if they had these like conditions but if there was more education about it then I think they would be more open to seeking help...and then at least proper...action can be taken.

This participant raised the issue of how ethnic norms can at times get in the way of identifying MHI and finding appropriate supports (Bogner et al., 2008; Ng et al., 2008; Reitmanova & Gustafon, 2009; Shim et al., 2009; Zivin et al., 2009). Education about MHI can reverse this effect and individuals from diverse ethnic backgrounds may be more willing to seek supports following education.

Mental health education from an ethnic perspective is imperative because Canada has a multi-ethnic population. This ethnic population is more susceptible to MHI due to economic reasons, social isolation, and discrimination (CMHA n.d.b.). Austin, one of the participants, commented on this by saying, "Education is important since the new generation is more ethnically diverse and we are meeting people from

different countries and different religions and have their own background and today...these illnesses are very common." As a result of immigration, ethnic communities already experience the disadvantage of not having the supports they once received from family and friends from their country of origin (Reitmanova & Gustafon, 2009; Ward et al., 2009). Donald advised, "I think generally when you come from another ethnicity you may somehow suffer like identity crisis." This identity crisis and disconnect from family can sometimes result in an onset of MHI (CMHA, n.d.b). These things combined with a lack of MH education can make matters worse. To add to this point Tina advised:

> People who sponsor their parents to come over and help take care of their children...sometimes they feel like isolated because like they're not in China or India...and they don't have their family or friends or...maybe people around them if they live in like a more, a less vigorous area of Canada might feel isolated.

Another participant Marv stated, "I think adults should be more informed as well, like especially adults from different ethnicities...because...they don't have the opportunity to view MHI like we're doing right now." Overall, MH education is needed for ethnically diverse groups because they face many barriers and possibly do not have appropriate resources to educate themselves.

5.1.3 Future of Mental Health Education

Participants in this study shared their thoughts about the future of MH education in terms of (1) ethnic studies (section 5.1.3.1) and (2) different methods of MH education that should be considered (section 5.1.3.2).

5.1.3.1 Ethnic Studies

It was suggested that more research be done on the MH educational needs for ethnic groups. Alex advised, "So if you guys can do further studies with the aim of mental illnesses not only by the diseases but also by different ethnicities." This suggestion has been made by other ethnically sensitive MH studies (Al-Krenawi et al., 2009; Kurihara et al., 2006; Shim et al., 2009; Ward et al., 2009). Another participant, Andy, discussed what he felt ethnic individuals need to be educated about:

> I think if there was some way to educate our ethnic groups and make them realize that these are...physical problems...like there could be problems with chemical imbalances in your body or...then I think there will be more of a realization that there isn't as much control over mental illnesses as our ethnic group seems to promote. That way I think people will be more inclined to realizing them as regular and normal and so basically not separate from other physical illnesses.

Many people from different ethnic backgrounds do not view MHI as a physical illness (Al-Krenawi et al., 2009; Bogner et al., 2008; Donnelly, 2005; Jorm et al., 2005; Kurihara et al., 2006; Ward et al., 2009; Zafar, et al., 2008). These studies also discussed the limited number of empirical studies on MHI from an ethnic standpoint, which is consistent with the researcher's findings during the literature review process. To address this gap, future studies aimed at understanding differences in ethnic beliefs about MHI are needed so that these differences can be reflected in educational materials.

5.1.3.2 Method of Education

Suggestions were made about the method of MH education participants believed would be effective. Alex suggested, "If you can come up with something which is compulsory for people to do (referring to MH education), it so they don't have an option." Another participant indicated that this sort of compulsory training should be a part of the educational system. Donald advised:

> I really like that idea and I was actually learning the things that you guys are teaching. I don't know if you teach this in the institution, but it's really helpful and I wish many of things that we learned were actually part of our programs.

The concept of compulsory MH training during some point of a student's life would need further exploration. In the meantime, another participant suggested more community support for MH resources. Wendy advised:

> I think there should be more resources...like there should be actual...more official people trying to support this rather than just one or two people who go up and like make a video type thing. So there should be more officials like trying to promote this (referring to MHI).

This participant indicated a need to support MH education on a policy and government level. In Canada this initiative is being supported by the Mental Health Commission of Canada. Funding is currently being made available and the current national campaign is focusing on promoting awareness and reducing stigma of MHI (MHCC, 2009).

5.2 Barriers to Mental Health

Participants were asked to share how MH is viewed within their ethnic group and what types of barriers students experience from an ethnic standpoint. Three main categories of barriers emerged: (1) stigma (section 5.2.1), (2) misconceptions (section 5.2.2), and (3) systemic barriers (section 5.2.3). Ethnic beliefs and how these beliefs can act as barriers are discussed as a component in both of these categories. All of the participants shared their thoughts on the barriers of MHI.

5.2.1 Stigma

Participants shared their views on how stigma becomes a barrier for MHI. Three levels of stigma were discussed: (1) public stigma (section 5.2.1.1), (2) family stigma (section 5.2.1.2), and (3) ethnic specific stigma (section 5.2.1.3).

5.2.1.1 Public stigma

The stigma associated with MHI has been well documented in the literature. This stigma is real and Cindy shared how the stigma affected her life:

> I developed anxiety when I found out I had bipolar...and I kind of just hid it away from people because the stigmatism against it is too massive I feel...they're thinking it's not a real illness. They're kind of at the social stigmatism.

This study has discussed how a lack of education results in minimizing MHI which translates to a lack of support for individuals with a diagnosis. A lack of support is often linked to stigmatizing attitudes and beliefs (Al-Krenawi et al., 2009; Bogner et al., 2008; Donnelly, 2005); Jorm et al., 2005; Kurihara et al., 2006; Ward et al., 2009; Zafar, et al., 2008). Individuals diagnosed with MHI often hide due to the stigma associated with their diagnosis (Chung et al., 2001), as was the case in Cindy's personal experience.

Two other participants also recognized the impact stigma has on MHI. Andy advised, "Normally people who have these kinds of problems (referring to MHI) we notice they are very reluctant to be helped." Wendy shared, "I was familiar with the fact about like the main reason that people didn't...get help for it was because they were afraid or they won't know if they would fit in and stuff like that." These statements are similar to the finding of other studies that reported individuals often do not seek help as a result of stigma and are often afraid of being segregated as "different" (Donnelly, 2005; Kurihara et al., 2006; Zafar, et al., 2008). Adding to this, Tammy explained how stigma is associated with people's beliefs about MHI and how individuals are judged as being different:

> People who have like bipolar or they're diagnosed with schizophrenia or like they're mental ill, they're considered different ...but they have like the same you know a stigma, like those other people with depression and they have mental illnesses as well and that they're all, they're classified differently.

Individuals with a diagnosis of schizophrenia or bipolar disorder have been considered scary (Kurihara et al., 2006) or dangerous (Angermeyer et al., 2004) and many people are fearful of an individual with a MHI in general (CMHA, 2009). These perceptions and a lack of understanding facilitate the stigmatizing attitudes towards MHI and encourage the segregation of individuals with a diagnosis (Al-Krenawi et al., 2009; Donnelly, 2005; Jorm et al., 2005; Kurihara et al., 2006).

Even when individuals do attempt to seek help, Tina noted that stigma gets in the way of accessing help, "Going to a community centre and learning about MH...people are like oh why are they doing that, they have problems or something like that, or

they're just wasting their time learning about some sort of stuff." The fear and stigma of what others may think thus becomes a barrier to both education and treatment for those who need it (Al-Krenawi et al., 2009; Donnelly, 2005; Jorm et al., 2005; Kurihara et al., 2006; Zafar, et al., 2008). This finding has important implications for this study because the hope is that web-based education can help minimize the barriers created by stigma (Carrard et al., 2006; Oh et al., 2009).

5.2.1.2 Family Stigma

During the discussions about stigma, participants further elaborated on family stigma. Maddy noted, "Because I remember when I was looking through the website I was in the living room and I didn't want to play the video (referring to Mindsight) while I was sitting in the living room." Tina shared a similar experience, "I live with my family so like I didn't get to do most of the part with sound (referring to the videos on Mindsight)." Both these participants were making particular reference to Mindsight and the message was consistent: they felt reluctant to complete particular aspects of Mindsight because they did not want their families to know what they were doing. Family stigma has been discussed as one of the biggest barriers to MH education/treatment (Bogner et al., 2008; Kurihara et al., 2006), which is often related to the family's ethnic belief system.

Coleen noted how family creates a barrier by not understanding the implications of having a MHI: "Like every time...I feel so depressed...mom is like yeah okay, you know like go do something else. Like she doesn't take it seriously...she needs to know like if I am feeling depressed...maybe it is something serious." Cathy had a similar comment:

> Like every time you feel something that...is telling you for sure that there is something wrong (referring to experiencing a MHI), they're (referring to family) just not really going to register it at all because it's just going to be like oh yeah get over it.

Families are sometimes not able to deal with the MHI of a family member and will either ignore the matter or segregate that family member due to the fear of being socially stigmatised (Al-Krenawi et al., 2009; Donnelly, 2005). This aspect of stigma was also found in this study as Tina noted:

> They don't understand they're actually health issues and not like personal flaws and I guess there's also a culture of silence. Like we don't talk about things outside of our families. We try not to...we don't like to talk about our problems just cause, it's like gossip and stuff like that...and word spread and it's just a lot of drama and stuff so.

Tina's comment is consistent with the fact that MHI are not considered equal to physical illnesses by ethnic communities (Al-Krenawi et al., 2009; Bogner et al., 2008; Donnelly, 2005; Jorm et al., 2005; Kurihara et al., 2006; Ward et al., 2009; Zafar, et al., 2008) and generally are not discussed outside the family (Al-Krenawi et al., 2009; Jorm et al., 2005). Another participant, Merry, shared a similar experience, "I think if you're not comfortable talking about it to begin with and I think that if your family isn't ready to hear what you have to say then it's a lot harder." Allen elaborated on the barrier related to family stigma, "In our ethnic background...there's a tendency to give up. Once the family finds out that their child or whoever it might be in their family is going through this (MHI) they give up...and...they just lose hope." The most important point to be

noted about family stigma is that it is strongly connected to the ethnic beliefs about MHI, which adds to the barriers.

5.2.1.3 Ethnic Specific Stigma

Many ethnicities have stigmatizing attitudes towards MH but the reasons for these stigmatizing beliefs vary. Many ethnic groups believe that MHI can be controlled because it is in the mind. This perception often results in individuals with a diagnosis suppressing their own MHI. Allen noted:

> It's sad...in our traditions...we're suppressed when it comes to such issues and it's encouraged in society that we don't come out and...say that yes I'm suffering. So instead of you know, healing yourself, we're just suppressing ourselves and what happens at the end of the day is it becomes worse and worse and no one helps and it becomes from bad to worse.

Andy added to this by mentioning how negativity associated with MHI from an ethnic perspective makes matters worse:

> In fact I'd also like to add that it's not just a matter of not encouraging it, I think it's discouraged in our community. People who do come out and say things like this they're usually sort of taunted or you know negative things are said about them and...that becomes sort of a what you could say a model for the rest of the community and then that discourages people even more so from coming out. So that you know that really doesn't help the situation. It makes it quite a bit worse.

Both Allen and Andy's comments confirm what has been found in the literature in terms of the barriers ethnic specific stigma creates towards MHI (Al-Krenawi et al., 2009; Donnelly, 2005; Jorm et al., 2005; Kurihara et al., 2006; Zafar, et al., 2008). What is

most concerning is how Andy describes a perpetual cycle of discouragement from an ethnic standpoint.

Maddy also recognized the ethnic specific stigma of MHI which stops people from seeking help:

> My culture I think people would be reluctant to go seek help because it like may be frowned upon or it's you know you should not be feeling that way. It's just you know, one of those things where I think if they did bring it up it'd be like okay well it's nothing.

Similarly Tina mentioned:

> I know that in a lot of East Asian, South Asian ethnicities that the idea of shame is very big...like in my culture about Chinese...they have like been ashamed or disgraced and like maybe been rejected by their families for maybe admitting that you have these health issues.

The concepts of being rejected or segregated as a result of MHI were discussed earlier in connection to social stigma and a lack of education. Here Tina made specific reference to the shame and disgrace of MHI which has been described in other studies (Al-Krenawi et al., 2009; Donnelly, 2005; Kurihara et al., 2006; Zafar, et al., 2008). Shame and disgrace are a huge aspect of the stigma associated with MHI, often emerging from beliefs that mental illnesses can be controlled because they are not physical illnesses (Al-Krenawi et al., 2009; Bogner et al., 2008; Donnelly, 2005; Jorm et al., 2005; Kurihara et al., 2006; Ward et al., 2009; Zafar, et al., 2008). Many of these studies found that collectivist communities (such as the Asian and South Asian communities) have a focus on shame and disgrace because of their strong social ties with families and

communities (Al-Krenawi et al., 2009; Donnelly, 2005; Jorm et al., 2005; Kurihara et al., 2006; Zafar, et al., 2008).

MHI are challenging in ethnic communities because there is often a fear that an individual living with MHI will no longer be capable of fulfilling their social responsibilities (Al-Krenawi et al., 2009; Donnelly, 2005; Jorm et al., 2005; Kurihara et al., 2006; Zafar, et al., 2008). This aspect of social responsibility was discussed by two participants. Merry noted, "I guess so we're very community based (referring to her own ethnic group) so I would think that people would be more ashamed if they had these like conditions." Wendy added, "You know like in a lot of ethnic groups it's really good to like try and fit in with everything...so MH isn't important." Given these fears, ethnic individuals who have been diagnosed often deal with their MHI in secrecy (Chung et al., 2001).

5.2.2 Misconceptions

Participants shared how misconceptions about MHI create another barrier to MH. Two main sub-categories related to misconceptions emerged: (1) general MHI misconceptions (section 5.2.2.1) and (2) ethnic specific misconceptions (section 5.2.2.2).

5.2.2.1 General Misconceptions of Mental Health Issues

It was pointed out earlier that MHI are not considered equivalent to physical disabilities. Maddy added to this finding, "I think a lot of people just feel that because it's not really a physical disability that people won't take it seriously." The idea that MHI are not taken seriously has been brought up numerous times in this study in different contexts. Here Maddy made specific reference to the fact that MHI are not considered physical, which is problematic because it is often assumed that MHI are a

conceptual problem and individuals have control over “sicknesses of the mind” (Al-Krenawi et al., 2009; Bogner et al., 2008; Donnelly, 2005; Jorm et al., 2005; Kurihara et al., 2006; Ward et al., 2009; Zafar, et al., 2008). Tammy elaborated on this misconception about what MHI are:

> People have like a really big misconception about it (referring to MHI) ...people think that if...this person has depression or like they have an eating disorder or you know like they cut themselves, they don’t necessarily say like they have a mental illness. It’s just like oh yeah they’re just weird.

Because people do not understand the true nature of MHI, they do not understand the symptoms of mental health problems. Another participant, Cindy, shared her personal experience of barriers created due to misconceptions about MHI:

> I feel like people are actually somewhat afraid of me when I say that I’m bipolar. They expect me to go off on wild tangents and I’m bipolar 2 so I don’t really experience the mania and if people realized what it included I think that they would be more understanding, obviously. So I think people should know these sorts of things.

Cindy’s personal experience speaks to the real barrier that a lack of education can create for those with a diagnosis and provides support for a need to educate people.

5.2.2.2 Ethnic Specific Misconceptions

Misconceptions about MHI can be ethnic specific as well. Tina shared:

> Like there are a lot of people...who don’t really consider mental illness to be an illness...especially in like ethnic minority groups like the Chinese community here...they tend to prefer to see it as things like personal weakness instead of an

> actual legitimate illness...So it's like oh so and so is just lazy or so and so because they're tired all the time ...it's their personality or they are anxious ever since this event but that's just the way they are. They just tend to be like mental illness just tends to be accepted as a personal flaw, it makes the person maybe intrinsically inferior.

Mental health issues are not considered real illnesses by many ethnic communities because of beliefs that MHI are crazy or divine diseases (Donnelly, 2005) caused by supernatural factors (Kurihara et al., 2006), and a result of personal deficiencies (Zafar et al., 2008). To add to this discussion Cathy advised, "As for my personal experience, people in my ethnic background we don't really have a lot of focus on MH disease because nobody really considers them a real disease." Andy noted that in his ethnic group MHI are not considered serious:

> Well....my perspective on it is that in our ethnicity, our community people don't take mental illnesses seriously enough...they sort of brush it off as something that you don't need or something that is sort of a waste of time basically...one of the problems is that our culture, you know the reason why we don't take mental illnesses the way that we should is because unlike physical illnesses I think in our culture mental illnesses are perceived as something which you can control because of the fact that it's related...to your mind basically.

Misconceptions about MHI from an ethnic standpoint can be particularly problematic because these misconceptions are based on belief systems (Al-Krenawi et al., 2009; Bogner et al., 2008; Donnelly, 2005; Jorm et al., 2005; Kurihara et al., 2006; Ward et al., 2009; Zafar et al., 2008) and these belief systems can be difficult to change. Pender's

Health Promotion Model (PHPM) indicates that perceived barriers related to family/peer influences about MH can become barriers to positive conceptual change about MH. It should also be noted that belief systems are passed down from generation to generation and changing the core values of an ethnic group is not an easy task. However, the PHPM supports the idea that cognitions about MH can change through education, making it imperative that MH education be provided to ethnic communities.

5.2.3 Systemic Barriers

Even if individuals are able to get past the barriers created by misconceptions, participants noted that individuals experiencing MHI can find it difficult to access MH services, which is an added barrier. Merry advised:

> I think that you just don't know where to turn or what to do about it (referring to MHI). I think that's where situations get worse and more problems start to build and you just don't know who to turn to because you don't know what's readily available for them.

The various types of stigma and misconceptions about MHI are already a huge barrier. As a result of lack of family and community supports, individuals often do not know what they can do if they experience a MHI (Tabassum et al., 2000; Jorm et al., 2005). The misconception about MHI discussed earlier also creates confusion about what types of help individuals can and should seek (Tabassum et al., 2000; Jorm et al., 2005). Tina further noted, "Yeah it's a lot harder to go into a community centre or picking up pamphlets." Tammy elaborated on this statement and noted that people may be reluctant to go to community resources for MH education:

> If I want to go learn about MH I have to walk over to the university or take the bus or I have to go downtown or I have to go here or there it's like I could sleep for an extra two hours why would I want do this. No I can do it later.

Although individuals realize that they can probably access supports through community centers, often there is a stigma associated with being seen at MH specific education and treatment centers (Christensen et al., 2006; Papworth, 2006; Spijker et al., 2010). Both Tina and Tammy also noted people are not willing to go to a center or educational institution for the sole purpose of learning about MHI. This inconvenience and lack of accessibility has also been documented in the literature as a barrier (Corrigan, 2005; Griffiths & Christensen, 2007). To address the accessibility issue, studies have commented on the need to research and implement alternative MH education and treatment methods such as web-based education (Christensen et al., 2006; Corrigan, 2005; Griffiths & Christensen, 2007; Papworth, 2006; Spijker et al., 2010). Based on the suggestions outlined in the literature, the researcher introduced Mindsight in this study to determine if this web application would be an effective method of providing MH education to ethnic students at UOIT. The remainder of this chapter is dedicated to the findings and discussions related to Mindsight.

5.3 The Use of Mindsight

Participants in this study completed Mindsight in the second phase of the study. During the focus groups, participants were asked to share their experience with completing Mindsight. Three main categories emerged during these discussions: (1) Mindsight's effectiveness (section 5.3.1), (2) Mindsight's limitations (section 5.3.2), and (3) suggestions for Mindsight (section 5.3.3). Ethnicity was also discussed in relation to

the uses of Mindsight and is discussed within the three categories. All of the participants commented on the effectiveness of Mindsight.

5.3.1 Mindsight Effectiveness

During the focus group discussion about Mindsight's effectiveness four sub-categories emerged: (1) overall usability (section 5.3.1.1), (2) knowledge acquisition (section 5.3.1.2), (3) breaking down the barriers (section 5.3.1.3), and (4) ethnic sensitivity (section 5.3.1.4).

5.3.1.1 Overall Usability

All the participants in this study shared their views on what made Mindsight easy to use.

5.3.1.1.1 Information in one location.

Mindsight was found easy to use because information about MHI and methods of accessing supports were synthesized in one location. Austin summarized, "It was pretty much everything put in one website". To support this Donald noted, "You know it's just in one place, like we have all these stereotypes and ideas, but in just one website it gives you the truth. You know like really good ideas, effective ways of actually being helpful." One of the many benefits of web-based material is the fact that the educational material can be brought together in one location (Fravolden et al., 2005). Having information provided in one location was deemed to be a useful method of providing education, as supported by two other participants:

> The one thing I realized about the website was that it managed to cover many different disorders...whether it be bipolar or eating disorders, suicide, it was so

> many different things covered and...gave fun facts and also gave a lot...of knowledge (Allen).
>
> One of the things that I liked about the website or the new thing that I found was the first time I was able to see all the mental illnesses all put together in one place...and this was the first website where I could like find out about each and every mental illness and have an idea of what exactly it is (Alex).

From Alex's comment it appears that he had learned about mental illness via other similar tools. In his comparison of other tools Alex pointed out that learning about many different mental illnesses in one location was an effective method of education. Bastelaar et al. (2008) similarly found that web-based material was useful in promoting knowledge about a range of MHI.

5.3.1.1.2 Organized and simple to use.

Mindsight was also considered easy to use and well organized as noted by Andy, "Yeah I found it pretty easy to use. I mean there wasn't anything complicated about it to be honest. It was pretty well laid out, pretty simple, there wasn't...anything complicated about it." Another participant, Allen, commented:

> The way it's organized...in tabs on the top just makes it very organized and easy to follow...and we can just go onto whatever tab you want and get all the information instead of taking time to actually search for information.

The use of hypertext, such as the tabs mentioned, for web-based material is what allows users to decide how they want to navigate through the information (Gillham, 1998). Using tabs helped to separate the different disorders and their symptoms, as another three participants reported, "Also it makes it like a distinct...makes it clear...if you're

having depression or having an eating disorder, you're not confusing the information because it's in separate areas (Tammy)."

> Like the different tabs prevents it from being like information overload, which I really appreciated just because there's a lot there, but it didn't seem like a lot because you're like interacting with all the different things and you can like scroll over (Tina)."
>
> It was very organized...they had like a whole bunch of categories like for substance abuse, anxiety, I can't remember all of them but it was...well organized and it was easy to navigate and the videos were excellent, the quizzes were good. So yeah it was a really good...the layout was really good on the website (Marv).

The Cognitive Flexibility Theory indicated that using categories to break down complex issues is an effective method to simplify the material for learning (Lowrey & Kim, 2009), which was also confirmed by the participants in this study. Of the many educational and treatment methods discussed in the literature, web-based material is one of the most effective methods to simply information (Bastelaar et al., 2008). Another participant, Coleen, referred to the simplicity of Mindsight:

> I think it's simple to use too right. There's no you know confusing links or steps that you would have to go through to get all the information. It's just simple. You know scroll down and it tells you, you know click on the arrow, you know got next, or if you can't see it than you can click on the HTML site. So I think it's pretty simple to use.

Organization and simplicity are required when the material to be learned is complex (Spiro & Jehng, 1990), and Mindsight was found to be both organized and simple by the participants of this study.

5.3.1.1.3 Brief overview of information.

Mindsight was also considered easy to use because it gave a brief introduction to the disorders. Alex noted that this method was an effective way of providing information:

> It was good that its sort of...brief and it produced a lot of good ideas and at the beginning it gives a quick introduction of things...they had a lot of knowledge...breaking down the illnesses into a bunch of different categories...so that was pretty informative.

As noted earlier, the use of categories is effective to simplify information (Lowrey & Kim, 2009; Bastelaar et al., 2008), which is what Alex indicated. Another two participants commented on the condensed nature of the information:

> I found it was pretty good, pretty well laid out as well. It provided a lot of information and really briefly which is also pretty useful for people who don't want to go into too much detail but want to get an overview of things. So I thought it was nice the way they laid it out and just sort of introduced a brief idea to what types of illnesses exist and how one should deal with them (Andy).
>
> I think it's a very good basic introduction...like it's...not overly detailed...In this one you just have like a very visual...representation of many general facts that you need to know basically. They are so basic that you know a person won't get lost, won't get confused but they'll get the information (Cathy).

Given the fact that knowledge about MHI is still low it seems appropriate that educational material begin by providing a basic understanding of MHI. Furthermore, the misconceptions addressed earlier can be corrected using simple facts, which Mindsight does, without the need to provide complex detailed material.

5.3.1.1.4 An interactive tool.

Another aspect of Mindsight that was found to be effective was the interactive nature of the tool. Tina commented, "It's interactive and there are lots of fun things to do but it's not cheesy which I appreciated...it's not just reading...It's more fun than reading a textbook." and Donald added, "It's just way more effective than just words or...just a book right...all that information in a very interactive form." The interactive nature of web-based materials is the most fundamental component to this type of learning. According to the CFT, the interactivity aspect allows users of web-based applications to use the material in the most meaningful way for their own understanding (Sprio et al., n.d.). The advantage of this is that users are better able to transfer the knowledge to new situations because they control their own learning (Lima et al., 2004). Other web-based materials such as MoodGYM and BluePages also utilize interactive tools (Oh et al., 2009).

The participants made reference to the fact that they were not simply reading the material. As an interactive tool, participants found Mindsight useful in learning the information because of the different methods used to deliver the content.

> Yeah I guess with like you know today no one really has time to sit down and read paragraphs so I guess like the bullets and you know just the point form words and like the videos and stuff was really easy to just look at it and even I

> think when you put your cursor across...it was easy just you know just quick to navigate through and you didn't really spend a whole lot of time looking through it but you gain a lot of knowledge in that short time (Merry).

The fact that web-based resources use a variety of interactive tools to promote the material has been found effective in other studies (Bastelaar et al., 2008; Corrigan, 2005; Fravolden et al., 2005; Oh et al., 2009).

It is likely that web-based material is more effective than traditional methods because it takes into consideration the different learning styles of individuals. This was supported by Tammy's statement, "It does give you the elements...not only reading and you're clicking through things but it does have like as I said the videos and so for auditory learners that's really good. So it covers...Kinesics." Tina also commented on the fact that Mindsight was able to cover different learning styles:

> I think the incorporation of like written text, and like the fact we had...videos and stuff is helpful because like, I was born here but a lot of my peers and stuff they find reading to be a bit easier than hearing just because like when you listen to the radio or something it's a bit faster than the piece and tone, even with the like captions or whatever are going by quickly you can still kind of like pause it, where you can look it up in your little like electronic dictionary.

Using different interactive methods allows individuals to choose the method that best suits them. The Health Promotion Model states that behaviour change happens when individuals regulate their own behaviour (Pender, 2011). Ultimately this allows the user to rapidly move through the information making connections with the material in a way that is most meaningful for their own learning (Gillham, 1998).

When discussing the interactive nature of Mindsight and the fact that participants were not simple reading the material, the videos in particular were found helpful as Merry, Tammy, and Tina had stated. Donald pointed out, “Some of the videos in there are really good...it explains the situation and, and they’re so beautiful those videos like they may be, they may be like a helpful tool for other people you know.” Another two participants added to the discussion about the videos:

> You can like scroll and you can click and say you’re doing things, so you learn that way and then for the visual learners they see the pictures and the writing... reading a text book is one thing but actually having interactive things that you can do, okay yes I read through this...If you wanted videos because people love watching videos. (Tammy).
>
> For me it worked because...I have seen MHI like I guess commercials or from books and stuff like that but when I went on this website I actually learned more...just the way it was laid out...is more interactive to use...there was videos... it was just I guess very user friendly way of approaching (Marv).

The use of videos as an interactive tool is particularly useful because it can help promote the lived experience of people in a very real way (Gillham, 1998; Spiro & Jehng, 1990). When the different components of web-based tools, written content, interactive material, and videos are brought together, it has been found that web-based resources can be more effective than traditional methods of education and treatment (Bastelaar et al., 2008; Carrard et al., 2006; Graff, et al., 2008; Spijker et al., 2010).

During the discussion of Mindsight as an interactive tool, two participants pointed out the similarity Mindsight has with Facebook. Tina commented, “I really like how the links are like kind of like Facebook.” Cathy stated:

> I thought was a lot like Facebook, so I was just thinking; it was just a lot more comfortable to use it. It just felt like okay I’m in a place that I’m familiar with. So like navigation was much easier in...that sense. Like it wasn’t a whole new website that you had to learn.

Young adults and youth are very familiar with computer technology and the use of social media, such as Facebook, is on the rise (Oh et al., 2009). Cathy and Tina both pointed out that the layout of Mindsight was familiar to them because it was similar to Facebook, which reduced the time needed to understand how to navigate through Mindsight. Although other participants did not make specific reference to this similarity, it is likely that they also found Mindsight easy to use because it resembles Facebook.

The most important aspect of any learning tool according to the CFT is the user’s ability to retain knowledge for use in real life situations (Spiro & Jehng, 1990). In this study the quizzes in Mindsight were considered helpful in knowledge retention as noted by two participants:

> I found that was really cool...the fact that the quizzes were there kind of to keep you grounded and helped you maybe wanted to investigate more but I was really driven to get the certificate. It sounded exciting (Tina).

> Now let's see if I actually harness the knowledge by doing the quizzes at the end. They're really helpful because if you're like oh I didn't get that one...oh I have to go and read that section again (Tammy).

The quizzes helped to interconnect the material the participants learned. The method of interconnecting learned data has been discussed as one method to help individuals retain knowledge pass the formal learning phase (Spiro & Jehng, 1990). This aspect of attempting to retain the material was discussed by Donald:

> Just the fact that it challenges you to do a quiz it helps a lot too right because...it challenges you to actually learn. You know because like those little videos are actually like bombing you with a lot of information but when you take the quiz I was like wait a minute, is this option A or option B. You're, you're still thinking and you're trying to actually like assimilate information.

As users of web-based materials are provided with the same information in different contexts, it requires them to think about what they have learned from different perspectives (Lima et al., 2004). Using the quizzes and then having to refer back to the material is an effective way to avoid coming to conclusions about the learned material based on a single representation of the material and helps to incorporate a flexible worldview of the material (Wolsey, 2010).

5.3.1.1.5 Mindsight an accessible tool.

Unlike other forms of MH education (such as books and courses) Mindsight is a web-based application which allows it to be accessible on a computer at any location. Coleen noted "I think it is good to have a web-based because than you can you know access it anywhere in the world." Other studies have discussed the accessibility of web-

based tools as an asset for MH promotion (Fravolden et al., 2005; Griffiths et al., 2007; Papworth, 2006). It has further been discussed that web-based material has the potential as an international standard for MH education (Gega et al., 2007). This level of accessibility was found to be an asset of Mindsight as noted by another two participants:

> I think people are more encouraged to do things than they do outside their home. When it's at home they have it available whenever they feel like doing it, when they have time. I can just oh I want to do this section today; I can do it whenever I feel like it (Tammy).
>
> Yeah I personally think the, the web base is the best approach because it has the largest reach...Nowadays it's very hard to find the time to actually pick up the phone and call or whether it be anything or attend classes or anything of that sort. So it's nice to have something available all the time and it's, and to be honest it has the largest reach because it's something that is available to everyone and the growing nature of moving towards the web-based system for everything. It's just going to keep us updated and up to date (Allen).

Web-based material can be used for different ethnic backgrounds (Fravolden et al., 2005) and for individuals who have MHI (Bastelaar et al., 2008).

The convenience of web applications is particular true at UOIT because each student is required to have a laptop. Instead of having to carry additional resources, such as books or pamphlets, the material is accessed through a medium that students already use. Students are familiar with computer technology (Eisenberg et al., 2009), which allows Mindsight to be an appropriate accessible resource. This particular point was brought up by Tina:

> Yeah it's a lot harder to go into a community centre or picking up pamphlets because like pamphlets they get lost and stuff but...so it's really accessible and I know especially at this university where everyone has a laptop.

Given UOIT students are users of computer technology Alex noted, "I think ...any person who decently uses computers I don't think should have any problem accessing the information." Furthermore, Donald advised, "I think like that's the way to go (referring to computers) for everything today. Like that website you know it's like a place that you can access from anywhere." Moreover, another participant, Cathy, noted that students, in general, access websites first as a source of information:

> Like most kids, most you know you're in high school or college or university they're...usually going to go try to find a website first, and I think a website that is from an educational institution might help in that sense too because we're not going to go and try and find a book on it first.

Young adults are not familiar with traditional methods for MH promotion and many youth are more comfortable with web-based material (Oh et al., 2009). Not only do students access websites for information, but Alex noted they also trust website information:

> Yes I think the next generation that comes up like starting our generation, I think we all trust web a lot...So I think generation after us shouldn't have any problems identifying with it and our generation pretty much trusts it.

Although this study addressed the use of Mindsight with ethnic students, it would be equally important to determine if this method of education can be used with older people and particularly with older ethnic individuals.

5.3.1.1.6 Real-life examples.

Interacting with a person experiencing MHI provides hands-on experience about disorders but this may not always be feasible (Angermeyer et al., 2004; Chung et al., 2004; Finkelstein et al., 2007). It was previously mentioned that education is most effective when the real life stories of individuals with a diagnosis are included in the material (Chung et al., 2001). The participants in this study reported that the real life stories of individuals with MHI displayed through the use of videos and hypertexts were helpful in learning the information. Merry stated, "The videos...and seeing you know firsthand what somebody actually goes through...was helpful." This statement is further supported by Tammy who noted, "It contains like real life stories, which really can touch a person especially if they experience something similar...it kind of gives them that kind of an angle so I think it helps." The CFT recommends the use of cased based scenarios that portray real life situations for optimal learning (Spiro & Jehng, 1990). The connection to real life situations helps to transfer the new knowledge for practical use (Spiro & Jehng, 1990). To add to this discussion Cathy advised, "It was comforting...you know these are real people saying real things...and the fact that there was like more than...one person posting different stories." This study found that the real life stories and the multiple representations of the material were effective in providing MH education.

5.3.1.2 Knowledge Acquisition

Participants further discussed various aspects of Mindsight that helped them increase their knowledge about MHI.

5.3.1.2.1 Refreshing and adding to previously learned material.

Participants who had previous MH knowledge found Mindsight to be useful as a refresher to their memory. Allen reported:

> In my first year at university I took a course in psychology and learned about bipolar disorders about depression...everything covered in the introduction section that's in the website and also trauma. So as a, student who has taken a course in psychology earlier...it was nice to just refresh my memory on it because it's been a while since I've actually looked through this.

As Allen mentioned, psychology is an elective course students can take during their university education. However, this learning may not be retained possibly because the material is learned simply for the purpose of acquiring a credit. Further research would be needed to identify if learning about MH for personal use is more effective in retaining knowledge.

Other participants discussed that they had previous knowledge but not as in-depth as Mindsight offered. Alex mentioned "I didn't know anxiety was an illness...and I knew about most of the mental illnesses but I didn't know in detail about them." Tina supported this and suggested:

> Like even though I have my experience and also like the courses I'm taking in psychology...I thought there was still a lot of information that I didn't know. Even just like facts about like things like bipolar disorder and brief episode psychosis, just like details about those conditions that I didn't know before and just the fact I wasn't getting

Again, the usefulness of the quizzes in retaining knowledge and thinking about the learned material is mentioned. An important implication for Mindsight is the fact that even if students learn about MHI by means of other strategies, it seems the added knowledge gained from Mindsight is effective in shedding light on new information the students were previously unaware of. The literature supports that web-based content is equally effective and at times more effective than traditional methods of learning (Gega et al., 2007; Oh et al., 2009). This may be the case because of the multiple representations of material and interactive nature of the tool (Spiro & Jehng, 1990); although these concepts would have to be further examined from the perspective of Mindsight.

5.3.1.2.2 New knowledge attained.

Participants who thought they had knowledge about MHI found Mindsight effective in making them aware that there was information they did not know. Cathy noted, "I have to say a lot of the statistics were pretty like oh." To support this Merry added:

> Well I didn't really rush through the questionnaire. I kind of had this mentality that said okay I'm in nursing I should know all of this stuff. I've taken it before, it's so simple and then I thought I know the answers for most of them and then when I had to redo the quiz afterwards I guess it bolded what the actual answer was and I realized how little I knew and then I kind of felt embarrassed thinking that I thought I knew so much about it...Yeah I learned a lot more than I thought I would.

This finding is connected to the earlier discussion about having misconceptions about MHI. Two participants indicated that they thought they knew what MHI were and after completing Mindsight they realized that they had more to learn. This finding is significant especially because Merry is a nursing student. It would be assumed that courses in the Life and Social Sciences would have more material on MHI because these subject areas are connected to the human experience. It would therefore be particularly important for students in these fields to have a sound knowledge of MHI. However, it seems this level of knowledge is either not being delivered in these programs or students are not retaining knowledge about MHI through these programs. In either case, further studies would need to address the amount of MHI being taught in these programs and possibly determine if applications such as Mindsight can be used as a supplementary resource to educate students.

The use of Mindsight was also considered effective in providing new information about MHI as Austin mentioned, “Well it’s pretty much everything they just said. It was really like, there’s a lot of information and I got to know some stuff that I didn’t even know about.” Coleen also experienced new knowledge about specific disorders, “I would say Stigma, I wasn’t really sure about what it was... actually I’ve never heard that term.” This finding is interesting given the barrier stigma creates. It is possible that people experience the effects of stigma for various reasons but are not aware of how stigma is impacting their perceptions of MHI.

Further endorsement of this gain in knowledge, two participants discussed the use of statistics and facts in Mindsight which they found useful:

> How many people in the world ...do generally have suicide, and especially the campuses having the second highest suicide rate. Like it was just small facts like that or you know how many people can have depression in their real lives. I think it was, I think it said 33% of Canadians or something. So it was just like a lot of general knowledge that you really don't know about. Like it's just...what you see is whatever you hear all around you. It's never, factual information so it was nice to actually have a kind of a scope on what actually is happening with mental disorders ...you learn about it in a website that ... it has actual facts (Cathy).
>
> Actually I found like a lot of the things I didn't know about before, a lot of the facts and things I found to be very new and they were kind of shocking too at the same time...I didn't know the cost of helping one person can be over $35,000, like $35,000 per year it's ridiculous... Just to help one person (Wendy).

The fact that these two participants recalled specific statistics on MHI indicates that the tool was effective for these participants in retaining the knowledge they learned. It is likely that the shock of these statistics, as Wendy put it, is what allowed her to retain this knowledge. This element of shock was also described by Austin "What surprised me was about anxiety disorder. I mean some of the symptoms I saw, I read were pretty surprising to me because they're very common amongst people".

5.3.1.2.3 Correcting inaccurate knowledge.

Knowledge attained through Mindsight was found effective in dispelling some of the misleading information participants had previously discussed. Merry noted:

> Depression kind of hit hard because I guess everyone uses the word depression so lightly. So loosely and it's like oh I'm so depressed, I'm so depressed, and when you actually look at the term and it's so much more than just you know I'm you know depressed because I couldn't go out tonight with my friends.

To add to this Cathy noted how Mindsight helped to correct inaccurate information:

> A lot of the stuff that you just hear about depression and anxiety, like it's what, whatever you see on TV or whatever you just hear in general, you never really go into researching it. So it was nice to actually see some facts.

Previously it was addressed how misconceptions about MHI are created because of the way media portrays the disorders and also because of various beliefs about MHI. Another two participants shared a similar experience of realizing the true nature of MHI:

> I didn't know it was a matter that was taken so seriously and I also did not know how often or how regularly a person can....be suffering from this. So it was shocking at the same time and also it's also good for us to increase our knowledge in such issues so that we can hopefully benefit and everyone around us benefits as well (Allen).

> One of the things that I learned which I also found really informative was, I think it's on the foreword page on the right hand side, there are 2 small questions. One of the questions was for schizophrenics. And the question read something along that how much of schizophrenia affects their life and I answered a lot but

> actually it does not affect their life at all. That's what that survey told me and that was pretty surprising that, you know I thought that their illness played a huge part in their life but actually it does not which was new for me (Alex).

Considering inaccurate perceptions about MHI are the biggest barriers, the finding that Mindsight was helpful in correcting these misconceptions is significant. Further Larger scale studies would need to be done to determine if these findings are consistent. More importantly, it would need to be determined if there are long term changes in how MHI are viewed following the completion of Mindsight.

5.3.1.2.4 Ability to identify MHI.

New knowledge attained from Mindsight about the signs and symptoms of MHI was considered important for identifying MHI and finding help. Allen noted:

> Before hand I wouldn't have known some of the symptoms and signs. So now that I know the specific symptoms of each disorder I can somewhat to a certain degree say you know...this looks like it's in the red and you know this person should get professional help.

Maddy concurred that knowledge attained through Mindsight provided her the ability to identify MHI:

> This website really helped like you know tell people that they don't have to be like completely depressed to actually be depressed. Like I have friends with anxiety problems...so I remember I was talking to my friend just last week and he was telling me how he drinks like a couple of times a week and I knew from the website then like you're not supposed to be.

Web-based material has been effective in helping individuals realize what MHI are and in creating a willingness to encourage others to seek support (Christensen et al., 2006: Farrell et al., 2004; Fravolden et al., 2005).

Not only did participants find it helpful to identify MHI for others, they also found it helpful to identity their own MHI. Austin stated:

> Actually like when I was reading the symptoms and stuff of different illnesses I actually realized, I stopped at the section anxiety and realized that the symptoms that have been described I actually experience those and most of the times and it was like surprising.

Another participant, Andy, shared a similar feeling about personal problems:

> I think the website was helpful enough that if I were to go through some, one or more of these illnesses then I would be able to, I think I might be able to see some of those symptoms at least now. In the past I might have like just looked it over.

Although participants shared that they would be able to recognize a MHI following the information they learned from Mindsight, it is not clear if participants would actually do something about it. This could be an area of research as it would be beneficial to determine if Mindsight goes beyond knowledge acquisition to the actual application in real life scenarios.

5.3.1.2.5 Knowledge acquisition on solutions.

Participants reported that they learned new content about MHI, the facts and symptoms, but they also discussed new knowledge about how to deal with MHI. Austin noted, “I learned like several things on how you can fix those problems as well. For

example for suicide I learned a lot on how to prevent that from happening." Studies have found that following the use of web-based resources individuals are more educated about the effects of MHI and are more willing to utilize support systems (Christensen et al., 2006: Farrell et al., 2004; Fravolden et al., 2005). Equally, three other participants had a similar experience of learning how to deal with MHI:

> Just like how to deal with people, who have the problems in their lives...basically just how to approach them, what to say, what not to say, things like that. I never really thought about it to that extent before (Marv).
>
> Some of the problems like how to deal with them and like what you have said what to say, not to say that was definitely something new...I think the most helpful thing I found was some of the videos and things they told you how to deal with your friends and stuff if they were showing symptoms or and this was, I don't know was one of big ones like what to do in that situation (Maddy).
>
> I think most of the information that we've learned...what it does is that it gives me a background. So it's like next time if I am in contact with a person who has one of these...mental illnesses then...I know how to handle it instead of just like freaking out and being like oh my God did I do something wrong (Cathy).

These three participants commented that Mindsight helped them recognize what they could do if they encountered someone with a MHI. Two participants added to this and advised that Mindsight was helpful in providing knowledge about strategies that they would not previously consider:

> Confrontation is something that I would probably not think of doing. You know I would want to make them feel comfortable instead of like you know, distract

> them with something else but they said you know get professional help right away or talk to the person right away which is something that in general, like I guess in a social, in like the social realm you wouldn't do in general...Yeah a lot of those questions was like confrontation is what they suggested (Cathy).
>
> Where like the question was like should I ask like directly are you, you know having suicidal thoughts. I would never think of you know like asking the person. I would more be like okay you know here's a topic, you know think about something you know better, but it's actually you know you're suppose to ask them (Coleen).

People often feel they cannot and should not approach people with a MHI (Vogel et al., 2009). The results from this study seem to indicate that Mindsight was effective in helping participants recognize strategies for MH promotion that they initially thought would be ineffective.

5.3.1.3 Breaking down the Barriers

This study found that following the completion of Mindsight participants were more willing to breakdown some of the barriers to MHI discussed earlier in this chapter. Participants commented on the different aspects of MH barriers that Mindsight addressed.

5.3.1.3.1 Willingness to help.

Following education via Mindsight, participants noted that they would be more willing to help a family or friend experiencing a MHI. Marv noted, "If I do ever come across this with a friend or family, I would definitely use the website or use the tools

depending on the situation to help." Furthermore, Andy noted that individuals can make an effort to do something to help individuals:

> I think at least some effort can be, can be done on our part. We can help a little bit...simply things...just how to sort of talk to someone with a mental illness. I mean if you realize that they might be going through something just sort of changing the tone...way you speak with them or the way you deal with them I think is, simple little things that.

Following the use of web-based MH services individuals are more willing to help themselves and others (Christensen et al., 2006: Farrell et al., 2004; Fravolden et al., 2005). From a theoretical standpoint, these results indicate that Mindsight is likely to be effective in transmitting the knowledge to real life situations (Spiro & Jehng, 1990). More importantly, there appears to be a transformation in participants' health promoting behaviours following the completion of Mindsight, which is an essential competent of Pender's Health Promotion Model (PHPM) (Pender, 2011).

Further evidence was provided that participants were able to use the information from Mindsight for their personal life. Austin indicated that he has friends who might require MH services. Austin commented:

> By looking at this website I learned I can at least somehow help some of my friends because looking at information given...I noticed that I know some friends who probably are running through the same disorders...I can somehow help them a little bit and give them guidelines on what I learned...the information does give me a general knowledge exactly of what I should do so.

By being more willing to help others, it appears Mindsight may be effective in reducing the stigma of talking about MHI with family and friends. This aspect of Mindsight and web-based applications in general require further research as discussed in the literature (Adamle et al., 2009; Eisenberg et al., 2009; Hsu & Alden, 2008; Zivin et al., 2009).

Participants were also more willing to help themselves as noted by Austin, "If I ever had a problem, like well it's not such a bad situation, but if it becomes worse I will definitely like check out a psychologist for sure because it's one of the mental illnesses." This willingness to help oneself was also reported by Andy:

> Like there's nothing to be concerned about but I think in the future if you know instance if like if I'm feeling depressed or something and I notice symptoms like I'm getting excessively tired or mood swings, stuff like that then I think I might be more keen on realizing that something might be wrong and then I might try to change, try to do something about it basically.

Based on these results, there is some agreement that Mindsight helped to change the specific cognitions that were a barrier to participants' health promoting behaviours (Pender, 2011). It would be interesting to find out if Mindsight is effective in helping other ethnic students' breakdown the ethnic specific barriers of MHI.

Mindsight was effective in helping participants recognize where they could direct family and friends for services, as Maddy advised, "I'd be able to listen to them and I know there is resources so I would be willing to help them find someone or encourage them. I know there's a MH specialist here that helps." In discussing the barriers to MHI, one aspect participants talked about was the systemic barriers and not knowing where to go to for resources. Maddy indicated that Mindsight addresses this

particular issue and she would be willing to help others by referring them to Mindsight. Similarly, Andy suggested:

> Certainly at least I think the information that was provided here at least gives us enough to realize that someone might be going through something and...we could at least direct in the ...right direction, not necessarily just this website but you know perhaps to a doctor or a psychiatrist or somebody else who might be more professionally um capable of handling the situation.

Although Mindsight is an educational tool about the most common MHI, it also provides other learning resources and access to information about MH services. Access to other services through Mindsight was found helpful, as noted by Allen:

> Seeing the support resources and there specialized resources for each disorder or mental illness and it's nice to see that there's a choice. There's also...toll free call that you can actually call, you can email them, and you can go to their website. So choices given and it just makes the patient more comfortable in whichever way he wants to approach it.

The studies that found individual were more willing to help others and themselves following a web-based intervention also found that those individuals would be more willing to seek supports from a professional (Christensen et al., 2006: Farrell et al., 2004; Fravolden et al., 2005). This is an important finding for Mindsight because this intervention is a basic educational tool and individuals managing a MHI often need to seek further supports.

5.3.1.3.2 Attitude change.

A significant barrier to MHI from an ethnic standpoint and for young people is the negative attitude towards MHI (Al-Krenawi et al., 2009; Bogner et al., 2008; Donnelly, 2005; Jorm et al., 2005; Kurihara et al., 2006; Ward et al., 2009; Zafar, et al., 2008). Participants in this study reported a change in their attitude about MHI following the completion of Mindsight, as Wendy pointed out, "I think I'm going to be more open minded towards people." Another participant, Marv, expressed a similar attitude change, "So for our kids I guess we would be better parents in that respect because now I want to talk to them." Andy also experienced a change in attitude:

> I guess one of the things that I learned was that...substance abuse can actually be considered like an illness. People would control that sort of thing but I guess you know it changed my view after reading some material on the subject. So that was kind of new for me.

It cannot be claimed that Mindsight caused a change in attitude about MHI among the participants. However, given these findings it would be worthwhile replicating this research with other ethnic students to determine if similar results are found. Other studies have found that web-based resources are effective in changing perceptions about MHI (Bastelaar et al., 2008; Christensen et al., 2006; Carrard et al., 2006; Fravolden et al., 2005; Graff et al., 2008), although these studies did not consider the changes from an ethnic student perspective.

Along with a change in attitude, Mindsight helped Cindy identify the stereotypes associated to MHI: Cindy:

> I felt that it destroyed some stereotypes, like the self harm section in particular. It wasn't an emo kid with the hair going across the face and like crying and cutting because like when we think of emo that's exactly and self harm that's exactly the picture we have in our minds.

Similar to negative attitudes about MHI, negative stereotypes are an equivalent barrier. These stereotypes were discussed in the misconceptions about MHI. Both negative attitudes and stereotypes pose a huge problem for MHI and the use of Mindsight in reducing these barriers needs to be further studied.

5.3.1.3.3 Learning in private.

The fact that Mindsight is a web-based application allows participants to learn about MHI in private, as noted by Donald:

> You don't have any pressure to go off to read at any time. You know like you can be just alone at home like just go up, go up there. You don't need to be in front of other people, like you can experience it like from a very personal way. You know what I mean?

Privacy associated with web-based material is helpful in addressing stigma (Spijker et al., 2010) and individuals can control when and how they use the content which is a component of the Cognitive Flexibility Theory (Lima et al., 2004). Another two participants shared a similar experience of being able to use Mindsight privately. Tina informed "It can be helpful because it allows us a means of people to educate themselves while being, keeping it on the down low." Tammy stated:

> Like you won't even notice that, it's so cool. It's kind of like keeping them private even though if they're in a public area because people aren't going to be

> like oh they'll just walk by like oh yeah the people are on, you know MySpace or Facebook or whatever and they're not even going to think that they're learning about mental illness.

The format of Mindsight was familiar to participants because of its similarity to Facebook. Tammy indicated another aspect of this similarity that was helpful. She commented that because Mindsight is so similar to social media, people may not even realize that an individual is learning about MHI.

5.3.1.4 Mindsight's Ethnic Sensitivity

During the literature search the researcher was unable to identify any research that discussed the use of web-based material from an ethnic student perspective. However, a number of the studies made reference to a need for research in this area (Al-Krenawi et al., 2009; Fravolden et al., 2005). Participants in this study discussed the effectiveness of Mindsight from their ethnic perspective.

5.3.1.4.1 Ethnic sensitivity by diversity of individuals.

Mindsight was considered ethnically sensitive in its use of individuals who represented the MHI in the videos. Tammy informed:

> Like you know there's pictures of everyone, different ages, different backgrounds you know, and so like I think more people would be able to relate instead of just having everyone be one colour or one age group. Like everyone is you know 20 or everyone's 40... it's like a big range so I think that was good.

This aspect of Mindsight is consistent with providing different representations of the content (Spiro & Jehng, 1990). Tammy reported that individuals represented in

Mindsight are not only diverse in terms of ethnicity but also age. As well, Allen expressed that Mindsight was diverse in its representation of individuals:

> We're pretty fortunate because we live in Canada and there is a lot of diversity in terms of ethnicities here and the examples given and the people who had personal stories on the website they're from different ethnicities and you can see it, although they are Canadian, but they have the backgrounds and ethnicities of different races.

Canada is a diverse country and educational tools should address the diverse needs of the population. Allen pointed out that although it appeared the individuals in the videos were from different ethnic backgrounds, they still presented themselves as Canadian, not from an ethnic group. So although Mindsight was considered diverse to some degree, it seems Mindsight may be lacking in its range of diversity.

5.3.1.4.2 Diversity of content.

Participants further noted that the content in Mindsight was displayed in a way that addressed all ethnicities in general. Wendy informed:

> I found the impact site to be fairly overall. It didn't really go like oh this kind of person should be like this and this kind of person, like you know? It wasn't like being racist towards a particular ethnicity. It just kind of said in general.

This goes back to the simplicity of Mindsight and its function of providing elementary MH education. Wendy pointed out that the information presented was general and did not go into detail about the complexities of different ethnicities. In support of this Cathy mentioned, "I didn't really notice any like any specific ethnic difference. Like you know it...just felt like you know I can read dictionary and that's the meaning you get."

Keeping the content general made the material seem ethnically sensitive as Tammy noted:

> Well like at first everything's like pretty general which is good because then you know people are like aren't oh well that doesn't really apply to me, but at the same time it's like oh you know it just has instead of like incorporating like different ethnic aspects it just says like keep in mind there are different ethnic aspects and this might not apply to you.

5.3.1.4.3 Ethnically sensitive method of education.

Web-based education might be useful from an ethnic perspective if ethnic groups are familiar with web use. Tammy pointed out:

> I think everyone's pretty, like everyone around the world is pretty aware of internet sites like Facebook and stuff like MySpace, things like that. So I think the way that it, the website is set up is pretty user friendly for that because it's something that people already can relate to.

The comparison to Facebook was discussed earlier and it is likely that Facebook is used in many ethnic communities. However, it is not clear what the usage of web-based material is within different ethnic communities and further studies would need to assess this area. One participant, Andy, raised the questions about web-based usage by ethnic communities:

> I don't know if people from my ethnic background generally will find that they are more or less effective than any other means. I'm still sort of leaning towards the opinion that it sort of depends more on the inclination of the individual as to how they acquire information not so much the ethnicity. I think it's just an

> individual basis. But yeah I don't see, much of an ethnic difference on that. I don't think, at least I can't see why different ethnic groups might view the web-based application differently.

As Andy suggested, web usage may not only depend on an individual's ethnic background, it may simply be a person's comfort with web-based materials. These differences would require further research.

5.3.2 Limitations of Mindsight

In discussing the limitations of Mindsight four sub-categories emerged: (1) next steps following education (section 5.3.2.1), (2) overall functioning (section 5.3.2.2), (3) as a tool for education (section 5.3.2.3), and (4) information about MHI (section 5.3.2.4).

5.3.2.1 Next Steps following Education

Participants were concerned that they did not know what they could to do once a MHI has been identified. Marv noted, "Well the only thing I could do is basically like I said talk to them or show them the website, but I wouldn't really know where to go from there." Along this line, Alex noted that the website was informative, but it didn't help him determine what to do next:

> Personally what I feel is I'll be very apprehensive because I don't think I'll have tools to help a person...I can suggest to him this website which I really found informative... but I don't know how sure I'll be with helping someone...because that's basically you know playing with their life...and I don't know what they are going through.

Both Marv and Alex felt that at the very least they could refer individuals to Mindsight, but did not know what to do from there. Mindsight was developed as a self-help tool for

individuals to educate themselves about basic MHI and then use the resources suggested on the website if they felt they needed further supports. It seems from Marv and Alex's comments that this is not clear. An introduction page might be beneficial to explain the purpose of Mindsight and how to use this resource. Andy also reported not knowing what to do in case he has to deal with someone with a MHI:

> They sort of mention that oh you know you should go and talk to people about it, and encourage them to you know to change the way they're doing things but they don't really say how you should deal with it if they you know react negatively to you and then you know what steps you should take in that case. So I think that's something that was missing and it would have been good if they had something like that.

Mindsight provides basic suggestions about how to support someone with MHI but it does not go into detail about how to deal with particular scenarios. It might be beneficial to have case-based scenarios on how the information learned can be used in real life.

5.3.2.2 Overall Functioning

When considering the overall functioning of Mindsight, a few limitations were noted. Cindy stated, "The only thing I can mention is when I was trying to load the videos they took a long time to load." This is one drawback of technology. It is true that Mindsight is dependent on internet connections and the use of a laptop. If for whatever reason one or both of these technologies fail, a web-based application cannot be used (Straten et al., 2007). Another concern raised by Tina was that the quizzes might be the only motivation for people to learn about MHI:

> I'm going to say there's the potential to be a cheater...to do the quiz while looking at the things...I have a feeling that like when most people access the site they won't be necessarily as motivated as me to get the certificate because it's like even though it's very possible that I really want it is just a certificate at the end. So it's not like it's money or anything. A lot of people would be like, must get it.

Previously it was discussed that the motivation of receiving a credit for a course may result in lack of knowledge retention. This may also be true for Mindsight. If the individual is motivated to simply receive the certificate, then there is a likelihood that they will only attain enough knowledge to do well on the quizzes. The motivation to simply receive the certificate could be to obtain a course credit, to put on a resume, or to discuss in an interview. Whatever the motivation might be, this would defeat the purpose of Mindsight. A potential solution to this problem would be locking the quizzes until the participant has viewed every aspect of the website.

5.3.2.3 As a Tool for Education

Older people may not use a web-based application for MH education as much as younger people, especially if they are not familiar with the technology. Andy advised:

> I mean if you ask me or I think any one of us here specifically I think we might incline towards a web-based application but that's because we're all sort of younger people from, the new generation and we obviously have a natural inclination towards using web-based sort of things and technology and stuff like that. But I think looking at it from the perspective of some either people from an older generation who aren't as used to technology or even those people who just

> generally don't use technology as much in their lives, I see this being a bit of a problem. I mean I know people, my own family for instance, who don't use technology as much and aren't very comfortable with the web and I can see them having a problem trying to find their way around this sort of method of information. So I think, I'm not sure what the best method would be, but I don't think this would be very useful to them. I think it's great for as I said for our generation and people who are more you know tech inclined, but uh something else would probably be more effective for somebody.

Web-based technology is relatively new in the area of MH education and it is not clear what portion of the population is comfortable using web-based technology. Demographic studies would help to determine differences in the use of web-based technology based on gender, age, and ethnicity. Another participant, Cathy, also indicated an age gap in web application usage, "I think that, personally I think my parents, I wouldn't find my parents on the website...So in a way it's um, it's not going to help change the views of the older generation." Cathy not only mentioned that there are differences in technology usage by age, but the fact that there is a possibility that web technology may not be effective in changing the views of an older generation. This point relates back to the fact that younger people generally trust technology as a source of information but it is not clear if older people trust technology to the same degree.

Another problem noted about Mindsight as a tool for education was that not everyone will have a computer. Wendy reported:

> You can't just like rely on the fact that everyone's going to have a computer or a website because most people don't, like very few people. I think those who are

> staying in Canada probably, but if you were to go back to like I think again to like a third world country or even like somewhere that's not in poverty but even above, not everyone is available to computer and stuff right? So you have to have different methods for them.

For the purpose of this study, this was not an issue because the study was based on a university campus. However, if Mindsight is promoted beyond university or college campuses, this can pose as a significant limitation to the accessibility of Mindsight.

5.3.2.4 Information about Mental Health Issues

There was concern that the information provided on MHI did not offer enough variation on the topic. Alex commented:

> I don't know which mental illness I was watching on video but the person, the one in the video was very proactive with her approach. So I have no problems with that but she said she was very proud of her, she is very open about it, but she does not compromise of majority of population who is going through that illness. You know not everyone is so open about, about it so they should also put video of people who are going through that pain and who have a tough time coming out with it rather than someone who is just like saying that I'm loud and I'm proud of what I have and I have been coping with it just nice, which like I give a lot of props and a lot of um good thing, but can a person who is dealing with mental illness and who feels very low and is not as confident as her identify with her? ...because I don't think there are a lot of people who can take control of their life like she did you know.

Although there are different representations of the content in Mindsight, it seems that there isn't enough variation in terms of the effects of MHI. Although it might be beneficial to include videos or statements from individuals who have not coped well with their illness, this might be challenging because these individuals may not be willing to share their story. Another participant, Cindy, expressed her concern based on her own personal experience:

> Okay I didn't like the bipolar story, it just, I don't think it really encompassed everything that could happen and it, kind of was disappointing...Um when she came out and started talking about her bipolar disorder she had a completely different experience than my own and I felt that she was downplaying it entirely. I felt that her disorder was more depression than it was bipolar.

Each person's experience with MHI is likely to be very unique yet it may be difficult to include material on the whole range of differences. However, Cindy's point must be taken into consideration because the goal is to correct misconceptions about MHI and Mindsight needs to have enough representations of the problem to demonstrate the individual differences that exist.

5.3.3 Suggestions for Mindsight

The participants in this study shared their views on potential modifications to Mindsight. During these discussions four sub-categories emerged: (1) Mindsight as a tool (section 5.3.3.1), (2) additional material (section 5.3.3.2), (3) additional resources (section 5.3.3.3), and (4) added ethnic sensitivity (section 5.3.3.4).

5.3.3.1 For Mindsight as a Tool

In light of the limitations of Mindsight, suggestions for future development were made. Maddy suggested the ability to download material would be helpful, "Yeah I think one thing maybe in addition to the video also have maybe a download, like a download you could click on." Another participant commented on the ability to share particular aspects of the website. Donald advised:

> It would be really nice if you could share those videos with your friend...but not the entire website, just one of the videos because maybe if you email the link of the entire website it's a bit overwhelming.

The suggestion made by Donald is a good one considering individuals who are reluctant to educate themselves about MHI may not be willing to view the entire website. It may be possible that viewing just one or two of the videos will create an impact and stimulate interest in wanting to learn more about MHI.

5.3.3.2 Additional Mental Health Material

Another recommendation was made for the material provided on the website. It was suggested that case scenarios would be helpful, as Merry indicated, "Even just like small case scenarios....and prepare the situation how could you get passed to you know seek help for yourself." This statement reflects the limitation of Mindsight that it does not provide enough case scenarios. As discussed earlier, more scenarios will help users of Mindsight understand how MHI impacts individuals differently. Another suggestion was made by Wendy about adding more facts:

> I think there's a lot of good facts on it, but they should elaborate more on the website. Like the videos and stuff, it should also have more of like a background and stuff. They do have a lot of interesting facts but I think there's too few.

The facts presented in Mindsight were considered effective by a number of participants. It seems adding more facts, especially about the background of the individuals in the videos would be beneficial.

5.3.3.3 Additional Resources

It was suggested that individuals should be able to consult with others via a live-interaction method. Tammy indicated, "I think it's really important to have that consecutiveness because I think people really, they like knowing that there's people that can relate to them and they like seeing those faces." To support this statement Tina suggested:

> There are some people who like to ask questions...and maybe if there was a section where someone who is monitoring the website you can pose questions and they can respond. That might be helpful for people.

It would be helpful to have a blog system where individuals can post questions they may have or clarify items they did not understand. This suggestion may help with the limitation participants discussed about not knowing what to do if they ever came across someone with MHI. If this suggestion was taken into consideration, care would need to be taken to assure that a skilled individual monitored the website and answered the questions. Along this line Wendy suggested, "Yeah like almost like a storyboard and then people trying to help them." In terms of this life interaction, Tina suggested, "Perhaps it could be helpful if they exist like links to support groups for people who may

not be too comfortable, I don't know going outside their, their group of people." Alex further supported this idea by suggesting a hotline link supported by university PhD students:

> I think phone support line I think is 1800 talk something along those lines where a person has um a live counsellor 24 hours a day so they can call and reach and, if it's, I'm just thinking if it's done the right way you can actually do it in such a way that um I know it can be expensive for government but if you have students in psychology program and PhD program you know you can do something where they are experienced so they know how to deal with this. At the same time they can get extra credit, university credits or what not where they can be on the phone and yet provide the services, which people need and it can be a win-win situation for both the sites.

5.3.3.4 Added Ethnic Sensitivity

Participants provided suggestions for making Mindsight ethnically sensitive. Alex noted, "Different ethnicities have a different mental makeup." In order to appreciate this Alex suggests:

> So what I'm suggesting is that even in websites when you go a little bit more inside it can have different kind of approaches for like Indian community compared to African community compared to others, because certain things in ethnic groups...is considered wrong and same thing can be said about different ethnicities. So on that basis the website should be more in-depth about people of different ethnicities and class.

It was earlier reported that presenting the material in a general way was effective, but it appears that added ethnic sensitivity would enrich the material. Based on the earlier discussion and based on this comment it seems Mindsight does not fully take into consideration the domains of culture discussed in the PMCC (Purnell, 2000). What seems to be missing from Mindsight are the concepts of heritage (ethnic belief systems) and family roles and organizations (Purnell, 2000). Individuals are exposed to these systems from an early age and they become the basis of what individuals believe. From a theoretical standpoint, educational material should address how these systems shape beliefs about MHI. To support this, Alex went on to discuss how different communities deal with MHI differently and the need to incorporate this into Mindsight:

> If you guys can do some kind of research on people of different ethnic communities and how they deal with certain problems so you guys have a better knowledge, and what's something that might work for an Indian person might not work for a Canadian born Caucasian person...I think that will be really informative and uh really useful because then people, like Asians like us can identify with an Asian person who is in the same environment as us, who is going through the same problems and it'd be a lot more easier.

This statement is supported in the literature, which has reported that there is still a lack of empirical studies on the differences in healthcare usage by ethnic communities especially in the realm of web-based technology (Al-Krenawi, 2009; Shim et al., 2009; Ward et al., 2009).

In order to address how different ethnicities may view MHI, Cathy suggested the inclusion of particular links to views of MHI based on ethnicity:

> Like you can have like another category which talks about you know because say in my ethnic group if I were to go to this website it be like this is wonderful... if there was information that you know most south Asia families have this disorder or that disorder then I'm like oh okay, I'm south Asian so maybe I do have this or maybe I you know someone I know does have this so. In that, like just very general it be 1 in 3 people or something, like general information like that might help me uh relate it more to my own life.

Research will first need to determine the statistics of MHI based on different ethnic communities and determine the methods used by these communities to deal with MHI. This is a complex matter and there does not seem to be an easy answer. However, it was also suggested that diversity in the videos would be helpful, which is a more viable solution. Marv stated, "Diversity in the videos themselves, or like even the clothing....and just how they present themselves." It is possible to recruit individuals for the videos from different ethnic backgrounds. The challenge may be the fact that ethnic and family stigma might hold individuals back from speaking openly about a MHI.

Another aspect that could make Mindsight ethnically sensitive is introducing the content in different languages as Marv noted, "I guess another problem is it's not in different languages." This suggestion was supported by Alex:

> I also recommend that since Canada has such a diverse population um this website should also been done in at least 3 or 4 different languages because a bunch of people cannot speak or even if they can speak they cannot understand English.... or if certain words if it's done in French, Hindi, Chinese, so that

> people from when they come from that background it will be easier for them to read and identify it in their own language.

Tammy agreed by saying, “Because there are still a lot of people in Canada who don’t speak English” and Tina mentioned, “Definitely like if you were to have it in like I guess the most common languages for particular parts of the world that would be helpful.” There is support in the literature for developing tools in different languages (Al-Krenawi et al., 2009; Donnelly, 2005). With enough funding, this option seems to be the easiest of all the suggestions to implement because it would not require any content changes to Mindsight. Although care would need to be given to assure that a skilled individual provides appropriate translations for the material.

5.4 Chapter Five Summary

Overall, the qualitative results from the focus groups provided information about the level of knowledge and stigmatizing attitudes about MHI among ethnic students, the effectiveness of Mindsight in increasing knowledge and changing attitudes, and whether Mindsight was ethnically sensitive. The findings indicated that some students had previous knowledge while others had inaccurate knowledge and in both cases students gained additional knowledge about MHI after completing Mindsight. It was further found that students did have stigmatizing attitudes about MHI and Mindsight was able to reduce these attitudes in a number of ways through case scenarios, facts about MHI, and interactive tools. In terms of ethnic sensitivity, the students were split in their opinion and some students made the recommendation to add ethnic sensitivity to future versions of Mindsight. It was not surprising that Mindsight has limitations, as this study piloted

Mindsight for the first time and recommendations were made to address these limitations.

In conclusion, the focus group discussions provided additional supports for the results of the quantitative data and helped to explain the results of the interest questionnaire and the pre/post knowledge test and attitude scale. A discussion of the combined results is summarized in chapter six.

6.0 SUMMARY OF QUANTITATIVE AND QUALITATIVE RESULTS: ANSWERING THE RESEARCH SUB-QUESTIONS

Chapters four and five presented the results and discussions of the quantitative and qualitative data for this study. This chapter combines and summarizes the main findings of the quantitative and qualitative data by examining the research sub-questions that framed this study. The suggestions for improvement to Mindsight and a discussion of Mindsight from a theoretical perspective are also summarized in this chapter.

6.1 Research Sub-question One

Research sub-question one asked: do UOIT students think there is a need for MH education? Forty-two students completed an interest questionnaire in the first phase of the study and 95% considered mental health (MH) education important. However, 62% of this sample had never accessed MH services even when faced with a mental health issues (MHI). This gap in health service usage speaks to the importance of having MH supports that students recognize as useful, accessible, and meaningful to their needs.

During the focus groups, self-identified ethnic students talked about why they thought MH education is important. Correcting inaccurate perceptions, being able to identify what MHI are, increasing sensitivity towards MHI, and helping to reduce barriers to MHI were some of the main reasons they gave. The discussions focused on the need for education to help change inaccurate perceptions about MHI from an ethnic perspective because erroneous beliefs and stigmatizing perceptions are some of the biggest barriers to help-seeking behaviours. These discussions helped to explain how the barriers created by social/family perceptions about MHI play a part in why students do not access supports and are not easy to eliminate.

6.2 Research Sub-question Two

Research sub-question two asked: will UOIT students use web-based tools for MH education if they are available? Based on the interest questionnaire, 55% of the students indicated they would use web-based tools as a form of MH education if they were available. This is not surprising given young adults are increasingly tech savvy and all UOIT students have access to laptops. This finding provided significant support for further research about the effectiveness of web-based tools for MH education with post-secondary students. Although previous studies have discussed the possible benefits of using web-based technology for MH education, this is a relatively new approach in the field of MH. In order to gain greater insight about the effectiveness of web-based tools this study piloted Mindsight, a MH educational tool designed by UOIT faculty.

6.3 Research Sub-question Three

Research sub-question three asked: is Mindsight an effective tool in educating UOIT self-identified ethnic students about MHI? In the second phase of the study, 13 self-identified ethnic students were selected from the first phase to complete Mindsight and a pre/post knowledge test. All 13 students' scores on the post-test increased. This change was statistically significant based on the Wilcoxon matched paired signed rank test at p=0.0008. The average improvement in knowledge scores for all the students was 65%. These findings are consistent with the literature that has found web-based materials to be useful in many MH promotion initiatives. The focus group discussions offered some reasons for why Mindsight was helpful in increasing MH knowledge.

Mindsight was deemed effective in providing education because it was easy to use, easy to navigate, and the material was well organized. The interactive nature of

Mindsight, the real life examples it provided, and the quizzes all helped the students learn the material in a way that made sense to them and further assisted in their knowledge retention. Based on these findings it is likely Mindsight helped to increased MH knowledge, however, because this is a pilot study it cannot be concluded that Mindsight was the sole factor contributing to the increase in the knowledge scores of the participants.

6.4 Research Sub-question Four

Research sub-question four asked: will Mindsight help to change UOIT self-identified ethnic students' attitudes about MHI? The 13 self-identified ethnic students from the second phase of the study also completed a pre/post attitude scale. Nine of these students had a positive shift in attitude after completing Mindsight, two had no change, and two had a negative shift in attitude. This change was statistically significant based on the Wilcoxon matched paired signed rank test at p=0.0127. All of the students had negative attitudes about MHI prior to completing Mindsight and the focus group discussions provided some possible explanations for these negative attitudes.

Students mentioned that Mindsight helped to correct inaccurate perceptions and increased sensitivity towards MHI thereby reducing stigmatizing attitudes. However, students reported the biggest barriers to help-seeking behaviours are the stereotypes of MHI in their community. These barriers exist because social/family perceptions about MHI are not easy to modify. Even if the students in this study are open to changing their own perceptions and attitudes of MHI, it still may be difficult because the perceptions and stigma within their greater community may not have changed. Increased outreach

efforts will be needed to educate different communities about the importance of MH education and these outreach efforts will need to consider ethnic sensitivity.

6.5 Research Sub-question Five

Research sub-question five asked: how much knowledge do UOIT self-identified ethnic students have about MHI? In the final phase of the study, self-identified ethnic students described how their awareness of MHI increased following the completion of Mindsight. The students discussed having prior knowledge about more common MHI such as depression, anxiety, and suicide; although they indicated they had gained a better understanding of these disorders after completing Mindsight. In addition, students learned about the various signs and symptoms associated with MHI. More importantly, the students in this study expressed a lack of prior knowledge about support systems for MHI. According to the students, Mindsight was helpful in providing information about effective ways to assist themselves and others when a MHI has been identified.

6.6 Research Sub-question Six

Research sub-question six asked: what are UOIT self-identified ethnic students' attitudes about MHI? Self-identified ethnic students talked about the stigma associated with MHI in their ethnic communities which becomes a barrier to help-seeking behaviours. These stigmas and stereotypes were shared by the students in this study as they discussed their apprehension in approaching individuals with serious MHI. Following the completion of Mindsight students expressed a change in attitude about MHI and an increased willingness to help themselves and others. Students also expressed concern over the misconceptions in their communities about MHI and they communicated an eagerness to help others understand what MHI actually are.

6.7 Research Sub-question Seven

Research sub-question seven asked: do UOIT students from self-identified ethnic groups require additional/different information based on diverse ethnic beliefs in order to better understand MHI? Students in this study discussed the potential effectiveness of Mindsight from an ethnic standpoint. Some of the students found that the videos represented diverse ages, genders, and ethnicities, and the simplicity of the material helped to make Mindsight ethnically sensitive because the content was depicted as all-encompassing and inclusive. These results provide added support for the use of web-based MH education with ethnic individuals. However, other students suggested that there should be additional information that helps to identify ethnic differences in descriptions of MHI, and ethnic specific barriers and methods of accessing supports. Although some of this study's findings provided support for the research claim that web-based MH education is effective with ethnic individuals, this is a complex issue that requires further research and assessment.

6.8 Suggestions for Mindsight

Although many advantages of Mindsight were discussed, this study was the first to pilot Mindsight and the students offered the following suggestions to strengthen the ethnic sensitivity of this resource:

1. Make Mindsight available in different languages which may lead to making it an international standard for MH education.
2. Provide more examples of the challenges of MHI based on ethnic differences and the ethnic specific barriers faced by individuals.

3. Include additional resources and strategies that focus on what to do if a MHI is identified from an ethnic standpoint.
4. Discuss negative perceptions of MHI based on different ethnic backgrounds and provide strategies to help change these perceptions.

These recommendations have implications for the future of web-based MH education because the students expressed confidence that if these changes are implemented Mindsight may be a functional tool to address MHI with ethnic individuals.

6.9 Mindsight from a Theoretical Perspective

The researcher discussed a new theoretical approach for MH education in the literature review chapter. This new model uses the basic framework of Pender's Health Promotion model which addresses the importance of MH promotion for an individual's well-being. The new model also integrates the importance of ethnicity in MH promotion and the essential requirements of an intervention needed to achieve mental well-being. The results of this study show that Mindsight fits within the concepts of this new approach (refer to *Figure 3*). Mindsight takes into consideration different learning needs of individuals and uses simple facts to correct inaccurate misconceptions about MHI. These aspects of Mindsight contribute to its effectiveness in increasing knowledge and reducing stigmatizing attitudes. As an interactive tool Mindsight uses case-based scenarios and multiple representations of the content to provide situation specific understanding. However, Mindsight does not address important distinctions related to stigma and perceptions based on ethnic differences and therefore is lacking in ethnic competence. Ethnic groups often face different barriers to health promotion compared

to the general population and it is important to address these differences to help ethnic individuals relate to the material. So although the results of this study provided some support for Mindsight's ethnic sensitivity, when examined from a theoretical standpoint Mindsight has limitations in this aspect. Overall, in theory, this study's findings provide support for the use of web-based MH education with ethnic individuals although further research is required.

6.10 Chapter Six Summary

This chapter provided a combined summary of the quantitative and qualitative results of this case study. The seven research sub-questions were individually examined and supported using the results. The recommendations for Mindsight and a discussion of Mindsight from a theoretical perspective were also summarized in this chapter.

7.0 CONCLUSION: ANSWERING THE CENTRAL RESEARCH QUESTIONS

This thesis presented the results of a mixed-method case study completed at the University of Ontario Institute of Technology (UOIT). The main research goal was to gain an understanding of post-secondary students' perspective about MH (mental health) education, their preferred method of MH education, and the effectiveness of web-based mental health (MH) education with post-secondary ethnic students. Research sub-questions pertaining to this study included: (1) do UOIT students think there is a need for MH education, (2) will UOIT students use web-based tools for MH education if they are available, (3) is Mindsight (a web-based tool) an effective tool in educating UOIT self-identified ethnic students about mental health issues (MHI), (4) will Mindsight help to change UOIT self-identified ethnic students' attitudes about MHI, (5) how much knowledge do UOIT self-identified ethnic students have about MHI, (6) what are UOIT self-identified ethnic students' attitudes about MHI, and (7) do UOIT students from self-identified ethnic groups require additional/different information based on diverse ethnic beliefs in order to better understand MHI?

Chapter two provided a comprehensive literature review on the three broad themes for this study: (1) MH education with post-secondary students, (2) the use of web-based tools for MH promotion, and (3) the importance of ethnicity in MH education. Discussions of the literature lead to the proposal of a new theoretical framework, The Cognitively Flexible Cultural Adaptive Model of Health Promotion (CFCAMHP), representing a combination of the Pender's Health Promotion Model (PHPM), the Purnell Model for Cultural Competence (PMCC), and the Cognitive Flexibility Theory (CFT). The CFCAMHP was used to assess the web-based MH

educational tool used in this study, Mindsight, and a discussion of Mindsight from a theoretical perspective is presented in chapter six.

The method of research used in this case study was discussed in chapter three. As a mixed-method design, this study was conducted in three parts. The quantitative component of this study included a self administered interest questionnaire addressing the need for MH education with post-secondary students at UOIT and if web-based MH education was considered the preferred method of MH education. A total of 42 students completed the interest questionnaire. Key findings were that 95% of the sample considered MH education important and 55% would use web-based MH education as the preferred method of MH education. The details of these results are presented in chapter four (results and discussions about the quantitative data) and a summary of the discussion based on research sub-questions one and two is outlined in chapter six.

In the second phase a pre/post knowledge test and attitude scale was used for additional quantitative data. This phase assessed self-identified ethnic students' level of knowledge and stigma about MHI pre/post the intervention, completing Mindsight. Fourteen self-identified ethnic students from the first phase of the study were selected to participate in the second phase; 13 completed the pre and post tests. The key findings in this phase included the fact that all 13 students had an increase in MH knowledge following education via Mindsight and nine of the 13 students had a decrease in stigmatising attitudes; both results were statistically significant. These results were presented in detail in chapter four (results and discussions about the quantitative data) and a summary of the discussion based on research sub-questions three and four was outlined in chapter six.

In the final phase of the study focus groups were conducted with the 14 students from the second phase of the study. This method of qualitative data collection allowed the researcher to gather valuable insight about the students' experience about MHI from an ethnic perspective and the impact of Mindsight in providing MH education. Key findings in this phase included the fact that the self-identified ethnic students in this study experience barriers to MH services as a result of ethnic stigma, family stigma, and social stigma. Students elaborated on a need for ethnically sensitive MH education in order to correct inaccurate perceptions about MHI and to direct individuals to appropriate resources. Students found that Mindsight has the potential to provide ethnically sensitive MH education because it was easy to use, well organized, and can be easily modified to incorporate ethnically sensitive content. The details of these results were discussed in chapter five (results and discussions of the qualitative data) and a summary of the discussion based on the research sub-questions five to seven was outlined in chapter six.

This final chapter focuses on the central research questions of this thesis and the implications for practice and for future research. The chapter concludes with a reflection on the part of the researcher.

7.1 Implications for Practice and Future Research

The central research questions guiding this case study were:

1. What are post-secondary students' views about acquiring MH knowledge?
2. What is their preferred method of MH education?
3. Are web-based mental health educational tools effective with ethnic post-secondary students (other than Canadian)?

The researcher hypothesized:

1. Students do believe MH education is important because of the prevalence of MHI on post-secondary campuses.
2. Students would use web-based MH education because computer technology is a trusted source of information for this group.
3. Web-based MH education (Mindsight) is effective for increasing knowledge and decreasing stigmatizing attitudes among ethnic students because the web-based materials have the potential to present information using individuals from various ethnic origins, genders, and ages, and the information can be changed to reflect ethnic differences.

The researcher discussed in chapter six that UOIT students considered MH education important, they are interested in web-based MH education, and UOIT self-identified ethnic students overall found Mindsight to be an effective MH educational tool. These results have implications for the use of web-based MH education on two levels. Section 7.2.1 outlines the implications for practice and section 7.2.2 discusses the implications for future research.

7.1.1 Implications for Practice

The literature review pointed to training and education as the first steps in facilitating changes in people's attitudes and behaviours about mental illness. Educating post-secondary students about MHI is an effective way of changing future perceptions in both the general population and among ethnically diverse individuals. This is a proactive measure to reduce the societal burden of MHI, and is of significant importance because of an increase in the prevalence of MHI on university and college campuses.

Web-based resources are useful tools in reaching individuals who do not participate in traditional education about MHI (books, lectures, and community resources) such as those from ethnic minority groups, and post-secondary students. Web-based education is a relatively new approach to MH education, and this study provided multiple levels of analysis for this method using Mindsight. Few studies have approached MH education from an ethnic student's perspective using web-based tools; this study may be one of the first. To date the literature has only commented on the complex nature of MHI among ethnic individuals and suggests that web-based education may be an option; a clear and useful solution to the problem has yet to be found.

The results of this study indicate Mindsight has the potential to educate post-secondary students about MHI and to do this in an ethnically sensitive way. This is the most crucial finding of this study given past MH educational tools have not focused on ethnically sensitive MH promotion. This gap in the literature is concerning given there is a recognition that ethnically diverse students have greater stigmatizing attitudes about MHI and have a harder time accessing services/supports that meet their needs. It is well known that there are ethnic differences in descriptions of MHI and ethnic specific barriers to accessing supports, concerns that were also shared by students in this study. However, current MH educational supports do not address these issues and addressing this gap is particularly important given the diversity of post-secondary campuses across Canada.

The results of this study have positive implications for determining a solution to educating Canadian students about MH issues, particularly ethnic students; however, these implications may not be limited to Canada. In order to understand the true

potential of Mindsight on a Canadian and global level, future studies will need to provide empirical support for the use of web-based tools, in particular Mindsight, as this study has only provided preliminary findings.

7.1.2 Implications for Future Research

Ongoing research is needed to address the gap in the literature related to MH education and Mindsight requires further empirical support. Possible future directions for research include:

1. Examining the need for MH education with students in other post-secondary institutions and determining whether these students would use web-based tools as a form of MH education.
2. Studying the effectiveness of web-based education with larger samples of ethnically diverse students.
3. Comparing various web-based tools to assess ethnic sensitivity of web-based applications.
4. Implementing changes to Mindsight based on the recommendations of this study, particularly around additional material that discuss ethnic specific MH barriers and supports, and assessing the effectiveness of these changes.
5. Conducting a larger study using Mindsight to determine its long term effectiveness with post-secondary students, in particular with self-identified ethnic students.

7.2 Chapter Seven Summary: Personal Reflection

In the end the results of this study provide support for Mindsight as a MH educational resource for all students and in particular for ethnically diverse students. The researcher identifies as an East Indian and has experienced the challenges and barriers to MH promotion on a personal level. This study was conducted based on her recognition that individuals in her ethnic community hold negative attitudes about MHI and her appreciation that many other ethnic minority groups share similar stigmatizing views about MHI. The researcher also recognized the lack of ethnic competence in MH promotion and wanted to address this gap in the research. Based on personal experience, the researcher believes that Mindsight has the potential to address these ethnic gaps by educating ethnic individuals in a sensitive and effective way.

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9.0 GLOSSARY OF TERMS

Anxiety Disorder

Anxiety disorders are classified with intense feelings of anxiety, which are prolonged and may appear for no apparent reason (CMHA, n.d.b).

Cognitive Behaviour Therapy (CBT)

This form of therapy has been the most extensively researched form of psychological treatment (Cuijpers et al., 2008), which commonly uses components of psycho-education, cognitive restructuring, goal setting and exposure (Amstadter et al., 2009).

Cognitive Flexibility Theory (CFT)

The Cognitive Flexibility Theory suggests that learners grasp the nature of complexity more readily by being presented with multiple representations of the same information in different contexts with the help of interactive educational tools (Spiro & Jehng, 1990).

Co-morbid Illness

Co-morbid illness is the situation when an individual has a mental illness, along with other emotional, physical or mental illnesses/disorders (Bastelaar et al., 2008).

Culture

Purnell & Paulanka (2003) defined culture as;

> The totality of socially transmitted behavioural patterns, arts, belief, values, customs, life ways, and all other products of human work and thought characteristics of a population of people that guide their world view and decision making. These patterns may be explicit or implicit, are primarily learned and

> transmitted within the family, are shared by most members of the culture, and are emergent phenomena that change in response to global phenomena. Culture is learned first in the family, then in school, then in the community and other social organizations such as the church (p.3).

Cultural Competence

The NAMI (n.d.) defines cultural competence as "the ability to work effectively and sensitively within various cultural contexts."

Cultural Sensitivity/Cultural Awareness/Cultural Knowledge

This is being aware that people have different beliefs. With regards to mental illness, this is particularly important because people may have different beliefs about mental illness, and what may be acceptable in one culture may be derogatory or unacceptable in another culture (NAMI, n.d.).

Depression

Depression is an intense feeling of sadness and worthlessness, leading to a loss of interest in life. To be clinically depressed one must meet the criteria of the DSM-IV-TR (MDSC, 2009).

Discrimination

According to CMHA (n.d.a) discrimination is the behaviour resulting from stigma. Discrimination refers to actions taken to exclude others because of their perceived differences, but it can also be manifest in more overt acts of hostility and aggression.

Ethnicity

Ethnicity refers to the self-identified, real, or assumed commonalty amongst groups of people, based on cultural heritage (NAMI, n.d.).

Health Promotion (HP)

The WHO (1986) defines HP as the:

> Process of enabling people to increase control over, and to improve, their health. To reach a state of complete physical, mental and social well-being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment. Health is, therefore, seen as a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities. Therefore, health promotion is not just the responsibility of the health sector, but goes beyond healthy life-styles to well-being.

Mental Health (Mental Wellbeing)

The PHAC (2005) defines MH as:

> The capacity of the individual, the group and the environment to interact with one another in ways that promote subjective well-being, the optimal development and use of mental abilities (cognitive, affective and relational), the achievement of individual and collective goals consistent with justice and the attainment and preservation of conditions of fundamental equality.

Mental Health Promotion

Mental health promotion is a means to reach the goal of psychological well-being and is applied to the whole population, not only to at risk individuals or those experiencing a mental illness, in order to dismantle stigma and encourage personal control, empowerment, self-determination, and resilience (CMHA, n.d.c).

Mental Illness/Disorder

The PHAC (2005) defines a mental illness as:

> Mental illness is a recognized, medically diagnosable illness that results in the significant impairment of an individual's cognitive, affective, or relational abilities. Mental disorders result from biological, developmental and/or psychological factors, and can, in principle, at least, be managed using approaches comparable to those applied to physical disease (that is, prevention, diagnosis, treatment and rehabilitation).

Mood disorder

Mood disorders are categorized as disorders such as depression, bipolar disorder, and seasonal affective disorder. Individuals experience the highs and lows of life with greater intensity and longer periods of time than the common person (CMHA, n.d.a).

Phobia

Phobia is classified as an anxiety disorder, where a person has irrational and/or illogical intense fear which is unpredictable and causes the person to avoid the situation that elicited the fear response (CMHA, n.d.c).

Schizophrenia

Schizophrenia is a mental disorder often identified when a person holds firm beliefs which may not make sense to other people. A diagnosis of schizophrenia has certain requirements outlined in the DSM-IV-TR (MDSC, 2009).

Self-Stigmatisation

Self-stigmatisation ooccurs when an individual begins to believe the negative opinions and stereotypes attached to them and think they deserve to be called names or denied opportunities (MDSC, 2009).

Stereotype

Stereotypes are oversimplified beliefs and conceptions about a group of people as if it were a common occurrence among all people within that group (CMHA, n.d.a).

Stigma

Stigma refers to negative attitudes or beliefs that are held about people who are perceived as different (CMHA, n.d.a).

Web-Based Materials

Mental health education that is offered using technology and a Cognitive Behavioural Therapy (CBT) approach is referred to as web-based materials. It is often identified as Web-based Cognitive Behavioural Therapy (W-CBT) (Bastelaar et al., 2008) or Computerized Cognitive Behavioural Therapy (CCBT) (Graff, et al., 2008).

10.0 APPENDICES

Appendix A: Interest Questionnaire

Student Interest in MH Education

Part A: Interest Questions

1. Do you think mental health education is important?
    a. Strongly Agree
    b. Partially Agree
    c. Not sure but agree
    d. Not sure but disagree
    e. Partially Disagree
    f. Strongly Disagree
2. As a student, do you think mental health (mental illness) education is an important factor for your success at school?
    a. Strongly Agree
    b. Partially Agree
    c. Not sure but agree
    d. Not sure but disagree
    e. Partially Disagree
    f. Strongly Disagree
3. What method of mental health education would you most likely use?
    a. Web-based educational program
    b. Reading material from a book
    c. Going to a professional therapist

d. Accessing information from a family doctor

e. Other_____(please specify)

4. Do you wonder if you are experiencing a mental health problem?

a. Daily

b. Once a week

c. Three times a week

d. Once a month

e. Three times a year

f. Never

5. Have you experienced, or thought you might be experiencing a mental health problem in the past but no longer have this concern?

a. Yes, I had these concerns but no longer do

b. No, I never had this concern

c. I continue to have this concern

6. Have you accessed mental health (mental illness) educational services at any point in your life?

a. Daily

b. Once a week

c. Three times a week

d. Once a month

e. Three times a year

f. Never

Part B: Demographic Information

Gender: Male Female

Age:

Program of study: Year(s) of study:

Do you identify with an ethnic group other than Canadian? Yes No

If you answered yes, please specify the ethnic group. (e.g. Chinese, East Indian, Spanish, French, Jamaican, Italian etc.).

If No;

Do you have knowledge of another ethnic group as a result of family background and believe you could identify attributes of that culture?

Yes No

If you answered yes, please specify the ethnic group. (e.g. Chinese, East Indian, Spanish, French, Jamaican, Italian etc.).

Appendix B: Knowledge Test

Knowledge Test

1. Anxiety disorders

   a) Affect men and women equally
   b) Is the most common group of mental illnesses
   c) Involve an inability to feel pleasure in activities previously enjoyed
   d) Do not affect children

2. A self-help strategy for managing an anxiety disorder is:

   a) Make an effort to avoid stressful situations
   b) Engage in regular, strenuous exercise to facilitate sleep
   c) Spend time reflecting on the illogical nature of your worries
   d) Turn your negative thinking into positive statements

3. Common signs and symptoms of depression include:

   a) Hopelessness/helplessness; lack of energy; eating/sleeping difficulties
   b) Extreme boredom; pacing back and forth; difficulty with decision making
   c) Apathy; feelings of guilt; frequent crying
   d) Highs/lows; irritability; low self esteem

4. You can help someone who has depression by:

   a) Being cheerful and upbeat
   b) Making decisions for them
   c) Pointing out the positives in their life
   d) Being a good listener

5. Individuals who engage in self-harming behaviours do so primarily to:

   a) Control their feelings of anger
   b) Gain the attention of people around them
   c) Cope with their emotional pain
   d) Punish themselves for their negative thinking

6. Self-harming behaviour is most often seen in:

   a) Men under 20 years of age
   b) Teenage girls
   c) Teenage boys and girls
   d) Men and women 16-25 years of age

7. Eating disorders are:

a) About food and unhealthy eating patterns
b) A way of dealing with problems
c) Not considered a mental illness
d) Only a women's issue

8. One of the main risk factors for developing an eating disorder is:

a) An obsession with physical activity
b) Adhering to a strict vegetarian diet
c) Low socioeconomic status
d) A family history of an eating disorder

9. A first psychotic episode is:

a) Always associated with schizophrenia
b) Highly treatable when identified early
c) Indicative of a serious mental illness
d) Not very common among young people

10. You can best help an individual who may be experiencing a psychotic episode by:

a) Pointing out the illogical nature of their thoughts
b) Encouraging them to develop a healthier lifestyle
c) Focusing away from their bizarre behaviour
d) Assisting them in obtaining professional help early

11. One of the most serious consequences of the stigma associated with mental illness is:

a) Individuals may delay in seeking assistance/treatment
b) Media exaggerates/distorts incidents involving mentally ill individuals
c) Mental illness is associated with violence
d) Individuals are labelled according to their illness

12. Negative attitudes and behaviours directed towards individuals is referred to as:

    a) Prejudice
    b) Persecution
    c) Discrimination
    d) Stigma

13. The majority of Canadians who have an addiction are addicted to:

    a) Legally available substances
    b) Hallucinogenic drugs
    c) Cigarettes
    d) Street drugs

14. What can you do to help someone who may have a substance use disorder?

    a) Recognize that the individual is not responsible for his/her behaviour
    b) Consistently remind the person of the many consequences of having an addiction
    c) Focus on the positives; even small gains are steps forward
    d) Give the individual a specific timeline for his/her recovery

15. An individual who attempts suicide:

    a) Has an immediate death wish
    b) Has a diagnosed mental illness
    c) Is really looking to gain peoples' attention
    d) Is most likely trying to ease their emotional pain

16. What can you do to help someone who may be thinking of suicide?

    a) Respect the person's right to privacy
    b) Ask the person directly if he/she is thinking of suicide
    c) Make every effort to brighten the person's mood
    d) Remind the person that everyone feels down at times

17. What determines whether an event is traumatic?

    a) Whether the person was physically harmed or not
    b) The person's subjective emotional experience of the event
    c) The extent of physical harm that the person experienced
    d) How frightened the person felt during the event

18. What can you do if you think you have been traumatized?

a) Help yourself regain a sense of control by making as many daily decisions as possible
b) Take as much time as you need to reflect on the factors that contributed to the traumatic event
c) Allow people who care about you to relieve you of the stress of making daily decisions
d) Be kind to yourself and don't push yourself to get back into a daily routine

19. An accurate description of bipolar disorder is:

a) A brain disorder characterized by mood swings from severely depressed to wildly manic
b) A medical condition that causes a person to experience periods of extreme elation
c) A brain illness that causes a person to be unable to determine what's real and what's not
d) A medical condition with changes in brain function leading to dramatic, abnormal mood swings

20. A self-help strategy for someone living with bipolar disorder is:

a) Avoiding drugs and alcohol
b) Become an expert on the illness
c) Seek out the support of family, friends, colleagues
d) All of the above

Appendix C: Attitude Scale

Attitudes toward Mental Illness Questionnaire (AMIQ)

Please read the following statement: John has been injecting heroin daily for 1 year.

Please select the answer which best reflects your views:

1. Do you think that this would damage John's career?
    a. Strongly agree -2
    b. Agree -1
    c. Neutral 0
    d. Disagree +1
    e. Strongly disagree +2
    f. Don't know 0
2. I would be comfortable if John was my colleague at work?
    a. Strongly agree +2
    b. Agree +1
    c. Neutral 0
    d. Disagree -1
    e. Strongly disagree -2
    f. Don't know 0
3. I would be comfortable about inviting John to a dinner party?
    a. Strongly agree +2
    b. Agree +1
    c. Neutral 0
    d. Disagree -1

e. Strongly disagree -2

f. Don't know 0

4. How likely do you think it would be for John's wife to leave him?

a. Very likely -2

b. Quite likely -1

c. Neutral 0

d. Unlikely +1

e. Very unlikely +2

f. Don't know 0

5. How likely do you think it would be for John to get in trouble with the law?

a. Very likely -2

b. Quite likely -1

c. Neutral 0

d. Unlikely +1

e. Very unlikely +2

f. Don't know 0

Attitudes toward Mental Illness Questionnaire (AMIQ). Adapted from Luty, J., Fekadu, D., Umoh, O., & Gallangher, J. (2006). Validation of a short insturment to measure stigmatizing attitudes toward mental illness. *The Psychiatry. 30*, 257-260.

Appendix D: REB Approval for Phase One

RESEARCH ETHICS BOARD

Date: July 27th, 2010

To: Atiquah Syed (PI); Wendy Stanyon (Faculty Supervisor)

From: Raymond Cox, REB Chair

File #: 10-002

Title: Educating Students about Mental Illness: Ethnic Students Perspective of the Effectiveness of a Web-based Educational Tool

The University of Ontario Institute of Technology Research Ethics Board has reviewed the above research proposal. The application in support of the above research project has been reviewed by the Research Ethics Board to ensure compliance with the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS) and the UOIT Research Ethics Policy and Procedures.

DECISION: Approved

COMMENTS AND CONDITIONS:

This project has been approved for the period of **July 27th, 2010 until July 27th, 2011 and is** subject to full REB ratification at the Research Ethics Board's next scheduled meeting. The approval may be extended upon request.

Please note that the Research Ethics Board (REB) requires that you adhere to the protocol as last reviewed and approved by the REB. The Board must approve any modifications before they can be implemented. If you wish to modify your research project, please contact REB Administration, to obtain the Change Request Form.

Adverse or unexpected events must be reported to the REB as soon as possible with an indication of how these events affect, in the view of the Principal Investigator, the safety of the participants and the continuation of the protocol.

If research participants are in the care of a health facility, a school, community organization or other institution it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and approvals of those facilities or institutions are obtained and filed with the REB prior to the initiation of any research protocols.

Section F, Article 1.13, Review Procedures for Ongoing Research of the TCPS http://www.pre.ethics.gc.ca/english/policystatement/policystatement.cfm requires that ongoing research be monitored. A Final Report is required for all projects, with the

exception of undergraduate projects, upon completion of the project. Researchers with projects lasting more than one year are required to submit a Renewal Request annually. Contact REB Administration to obtain a copy of the Renewal Request/Final Report form.

Please quote your REB file number on all future correspondence. Thank you.

REB Chair	Compliance Officer
Dr. Raymond Cox, FBIT Raymond.cox@uoit.ca	Sascha Tuuha, (905) 721-8668 ext. 3693 compliance@uoit.ca

Appendix E: Consent Form for Phase One

Participant Information Sheet and Consent Form: First phase

Title of study: Educating Students about Mental Illness: Ethnic Students' Perspective of the Effectiveness of a Web-based Educational Tool

Principal investigator: Atiquah Syed, Health Sciences graduate student.

Research Supervisor: Wendy Stanyon, Faculty of Health Sciences.

What is the purpose of this study?

The objective of the first phase of this study is to determine if students are interested in learning about mental illness via a web-based educational tool. For the purpose of the first phase, all current UOIT students, from all ethnic backgrounds will be contacted to respond to an interest questionnaire about mental health education. Once the results of the first phase have been collected, students who identify with an ethnic group and agree to participate in this first phase of the study will be contacted for the second phase of this study to assess their level of knowledge and stigma about mental illness. In the second phase students will be given the opportunity to learn about mental illness via a web-based educational tool.

What will my responsibilities be?

If you volunteer to participate in the first phase of this study, you will be asked to fill out a brief web-based questionnaire about your perspective of mental health education. The web-based questionnaire addresses six multiple choice questions related to mental health education. Some simple demographic data will also be collected such as your program of study and number of years in the program. This is important for the researcher to determine if you already have some prior mental health knowledge as a result of your

course curriculum (ie. studies in Psychology). The questionnaire will take about five minutes of your time.

What are the possible risks?

The possible risks for this study will be no greater than any risk you experience in your day to day life. You may be concerned or feel stressed about answering questions related to mental health education. You may also be worried about the privacy of the information you provided. If you have these concerns, you may contact the supervisor of this study Wendy Stanyon, Wendy.Stanyon@uoit.ca who is an expert in mental health education.

What information will be kept private?

Participants are being recruited for this study via their student email accounts in order to reach all UOIT students. As a result, students' names will be disclosed to the research investigator via students' email addresses. However, the purpose of this study is to gather general information about student interest in mental health education. As such, all personal information will be kept confidential and separate from the data being collected. Personal information will not be used in the study. Once the study is complete, all information provided by you will be destroyed.

Can participation in the study end early?

You will not be affected in any way if you wish to discontinue your participation in the study. You may request to have your data removed from the study. If you do not wish to continue in the study, all information provided by you will be discarded/deleted and none of your information will be used as a part of the study. You are also not obliged to

answer any questions you do not want to answer and you can still remain in the study. Participants who withdraw will still be considered for compensation.

How many people will be in the study?

The questionnaire will be sent to all UOIT students using their UOIT email accounts.

What are the possible benefits for me and/or for society?

The interest questionnaire will determine if students are interested in learning about mental illness and will help inform the development of mental health education resources.

Students who agree to participate in this study will be entered in a draw to win two movie passes.

What if I do not want to take part in the study?

Students can choose not to take part in this study. Refusing to participate will not affect you in any way.

Will there be any costs?

There are no costs to you in order to participate in this study.

If I have questions or problems, who can I call?

If you have any questions about the research, now or in the future, please contact Atiquah Syed, principal investigator, Atiquah.Syed@uoit.ca, or the research supervisor, Wendy Stanyon, Wendy.Stanyon@uoit.ca. If you have any questions regarding your rights as a research participant, please contact the UOIT research office, 905 721-3111 ext. 2357 or compliance@uoit.ca.

Consent Statement

I have read the preceding information thoroughly and understand the terms of the research. By responding to this email, I give consent to participate in this study and allow the researcher to use my data for analysis of the study.

Name of participant: _____ Date:_____

Appendix F: REB Renewal for Phase One

RESEARCH ETHICS BOARD

Date: September 9th, 2011

To: Atiquah Syed (PI); Wendy Stanyon (Faculty Supervisor)

From: Amy Leach, REB Chair

REB File #: 10-002

Project Title: Educating Students about Mental Illness: Ethnic Students' Perspective of the

Effectiveness of a Web-based Educational Tool

DECISION: RE-APPROVED

RENEWAL DATE: July 27th, 2011 RENEWED EXPIRY: July 27th, 2012
The University Of Ontario Institute Of Technology Research Ethics Board has reviewed and re-approved the above research proposal. The application in support of the above research project has been reviewed by the Research Ethics Board to ensure compliance with the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2) and the UOIT Research Ethics Policy and Procedures. Please note that the Research Ethics Board (REB) requires that you adhere to the protocol as last reviewed and approved by the REB.

Always quote your REB file number on all future correspondence.

All Forms can be found at
http://research.uoit.ca/EN/main/231307/Research_Forms.html.

REB Chair	Compliance Officer
Dr. Raymond Cox, FBIT Raymond.cox@uoit.ca	Sascha Tuuha, (905) 721-8668 ext. 3693 compliance@uoit.ca

Appendix G: REB Approval for Phase Two and Three

RESEARCH ETHICS BOARD

Date: November 29th, 2010

To: Atiquah Syed (PI), Wendy Stanyon (Faculty Supervisor)

From: Raymond Cox, REB Chair

REB File #: 10-048

Project Title: Educating Students about Mental Illness: Ethnic Students' Perspective of the Effectiveness of a Web-based Educational Tool.

DECISION: APPROVED

START DATE: November 29th, 2010 EXPIRY: November 29th, 2011
The University Of Ontario Institute Of Technology Research Ethics Board has reviewed and approved the above research proposal. The application in support of the above research project has been reviewed by the Research Ethics Board to ensure compliance with the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS) and the UOIT Research Ethics Policy and Procedures.
Please note that the Research Ethics Board (REB) requires that you adhere to the protocol as last reviewed and approved by the REB.
Always quote your REB file number on all future correspondence.
Please familiarize yourself with the following forms as they may become of use to you.
 Change Request Form: any changes or modifications (i.e. adding a Co-PI or a change in methodology) must be approved by the REB through the completion of a change request form before implemented.

 Adverse or unexpected Events Form: events must be reported to the REB within 72 hours after the event occurred with an indication of how these events affect (in the view of the Principal Investigator) the safety of the participants and the continuation of the protocol. (I.e. un-anticipated or un-mitigated physical, social or psychological harm to a participant).

 Research Project Completion Form: must be completed when the research study has completed.

 Renewal Request Form: any project that exceeds the original approval period must receive approval by the REB through the completion of a Renewal Request Form before the expiry date has passed.

REB Chair	Compliance Officer
Dr. Raymond Cox, FBIT Raymond.cox@uoit.ca	Sascha Tuuha, (905) 721-8668 ext. 3693 compliance@uoit.ca

Appendix H: Consent Form for Phase Two

Participant Information Sheet and Consent Form for Web-based Intervention

Title of study: Educating Students about Mental Illness: Ethnic Students' Perspective of the Effectiveness of a Web-based Educational Tool

Principal investigator: Atiquah Syed, Health Sciences graduate student.

Research Supervisor: Wendy Stanyon, Faculty of Health Sciences.

What is the purpose of this study?

The objective of the second phase of the study is to determine: 1) self-identified ethnic students' level of knowledge about and attitudes toward mental illness, and 2) if a web-based educational tool about mental illness will be effective in educating students about mental illness and if the educational tool will be effective in reducing anxiety/stigma about mental illness. Students who participate in the second phase of this study will be contacted to participate in a focus group for the last phase of this study.

What will my responsibilities be?

If you volunteer to participate in the second phase of this study, you will be asked to fill out the Attitudes toward Mental Illness Questionnaire (AMIQ) and a mental health knowledge test. You will then be presented with mental health information via a web-based application. Following this intervention, you will be asked to complete the knowledge questions and attitude questionnaire a second time.

What are the possible risks?

The possible risks for this study will be no greater than any risk you experience in your day to day life. You may be concerned or feel stressed about answering questions related to mental health education. You may also be worried about the privacy of the

information you provided. If you have these concerns, you may contact the supervisor of this study Wendy Stanyon, Wendy.Stanyon@uoit.ca who is an expert in mental health education.

What information will be kept private?

Participants are being recruited for this study via their student email accounts in order to reach UOIT students from different ethnic backgrounds. As a result, students' names will be disclosed to the research investigator via students' email addresses. However, the purpose of this study is to gather general information about student interest in mental health education. As such, all personal information will be kept confidential and separate from the data being collected. Personal information will not be used in the study. Once the study is complete, all information provided by you will be destroyed.

Can participation in the study end early?

You will not be affected in any way if you wish to discontinue your participation in the study. You may request to have your data removed from the study. If you do not wish to continue in the study, all information provided by you will be destroyed /deleted and none of your information will be used as a part of the study. You are also not obliged to answer any questions you do not want to answer and you can still remain in the study. Participants who withdraw will still be considered for compensation.

How many people will be in the study?

Students who completed the first phase of this study and who identify with an ethnic group are invited to participate in the second phase. The aim is to have 10-15 participants from different ethnic backgrounds for the focus groups. Each focus group will include 2-5 participants.

What are the possible benefits for me and/or for society?

Participants in this study will have the opportunity to increase their knowledge about mental illness and will be provided with information about accessible mental health services. Once the research is complete, the results of the study will be made available to the participants and other UOIT students. Students who agree to participate in this study will be entered in a draw to win two movie passes.

What if I do not want to take part in the study?

Participants can choose not to take part in this study. Refusing to participate will not affect you in any way.

Will there be any costs?

There are no costs to you in order to participate in this study.

If I have questions or problems, who can I call?

If you have any questions about the research, now or in the future, please contact Atiquah Syed, principal investigator, Atiquah.Syed@uoit.ca, or the research supervisor, Wendy Stanyon, Wendy.Stanyon@uoit.ca. If you have any questions regarding your rights as a research participant, please contact the UOIT research office, 905 721-3111 ext. 2357 or compliance@uoit.ca.

Consent Statement

I have read the preceding information thoroughly and understand the terms of the research. By responding to this email, I give consent to participate in this study and allow the researcher to use my data for analysis of the study.

Name of participant: _____

Signature _____ Date:_____

Appendix I: Consent Form for Phase Three

Participant Information Sheet and Consent Form: Focus Groups

Title of study: Educating Students about Mental Illness: Ethnic Students' Perspective of the Effectiveness of a Web-based Educational Tool.

Principal investigator: Atiquah Syed, Health Sciences graduate student.

Research Supervisor: Wendy Stanyon, Faculty of Health Sciences.

What is the purpose of this study?

The objective of the last phase of this study is to determine if the web-based educational tool, which was presented in the second phase, is culturally sensitive, if the format is easy to follow, and if students believe the content is educational. The last phase also aims to determine if the educational tool requires modification for future use with ethnic students.

What will my responsibilities be?

If you volunteer to participate in the last phase of this study, you will be participating in a focus group with individuals from a cultural background similar to your own. The focus group will take approximately one and a half hours and will be recorded for research purposes. Please remember the content of the discussions during the focus groups is to be kept confidential and is not to be shared outside of this forum.

What are the possible risks?

The possible risks for this study will be no greater than any risk you experience in your day to day life. You may be concerned or feel stressed about answering questions related to mental health education. You may also be worried about the privacy of the information you provided. If you have these concerns, you may contact the supervisor

of this study Wendy Stanyon, Wendy.Stanyon@uoit.ca who is an expert in mental health education.

What information will be kept private?

Participants are being recruited for this study via their student email accounts. As a result, students' names will be disclosed to the research investigator via students' email addresses. However, the purpose of this study is to gather general information about student interest in mental health education. As such, all personal information will be kept confidential and separate from the data being collected. Personal information will not be used in the study. Once the study is complete, all information provided by you will be destroyed.

Can participation in the study end early?

You will not be affected in any way if you wish to discontinue your participation in the study. You may request to have your data removed from the study. If you do not wish to continue in the study, all information provided by you will be destroyed /deleted and none of your information will be used as a part of the study. You are also not obliged to answer any questions you do not want to answer and you can still remain in the study. Participants who withdraw will still be considered for compensation.

How many people will be in the study?

UOIT students who self-identify with ethnic minority groups and who completed the second phase of this study are invited to participate in the last phase of this study. The aim is to have 10-15 participants from different ethnic backgrounds for the focus groups. Each focus group will include 2-5 participants consisting of students who identify from similar cultural backgrounds. The number of focus groups to be conducted will be

determined by the number of cultures identified and the number of students who show interest in this study.

What are the possible benefits for me and/or for society?

Participants will provide valuable information about mental illness from a cultural perspective. This information can be used to modify the educational tool to reflect cultural sensitivity. Once the research is complete, the results of the study will be made available to the participants and other UOIT students. Participants will have their names entered in a draw to win two movie passes for participation in the study.

What if I do not want to take part in the study?

Participants can choose not to take part in this study. Refusing to participate will not affect you in any way.

Will there be any costs?

There are no costs to you in order to participate in this study.

If I have questions or problems, who can I call?

If you have any questions about the research, now or in the future, please contact Atiquah Syed, principal investigator, Atiquah.Syed@uoit.ca, or the research supervisor, Wendy Stanyon, Wendy.Stanyon@uoit.ca.

If you have any questions regarding your rights as a research participant, please contact the UOIT research office, 905 721-3111 ext. 2357 or compliance@uoit.ca.

Consent Statement

I have read the preceding information thoroughly and understand the terms of the research. By responding to this email, I give consent to participate in this study and allow the researcher to use my data for analysis of the study.

Name of participant: _____

Signature: _____ Date:_____

Principal Investigator _____ Date: _____

Appendix J: Focus Group Guide

Focus Group Guiding Questions

1. **Was the mental health education informative?**

   Probing questions:

   a. What was something new you learned?

   b. What information were you already familiar with?

   c. Do you think all students should be informed about mental illness?

   d. Do you think this material will be helpful to other students from your cultural background?

2. **Would you be able to incorporate what you learned in your personal life?**

   Probing questions:

   a. Would you use this information if you ever encountered a mental illness in your own life now or in the future? Please give an example.

   b. Do you think you would now be able to guide someone who is in need of mental health services to the right resources? Please give an example.

3. **Was the web-based educational tool easy to use and effective in providing information about mental health?**

   Probing questions:

   a. What are the positive aspects of the web-based material?

   b. What are the negative aspects of the web-based material?

   c. Do you think the web-based application will be easier to use than other methods of education?

d. Do you think this method of education will be effective with individuals from your cultural background?

4. Did you find the information to be culturally sensitive?

Probing questions:

a. What aspects were culturally sensitive?

b. What aspects were not culturally sensitive?

c. What aspect of your culture in relation to mental health do you think would need to be identified in the material?