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Improving STEM Graduate Students' Mental Health and Wellbeing

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Abstract

An emerging problem with graduate education is the unprecedented rise in mental health and wellbeing concerns across higher education institutions in Canada. Graduate education is widely associated with emotional, physical, and psychological stress. Graduate students are at risk of the onset of mental health illnesses due to a culture of acceptance that graduate studies is synonymous with stress and anxiety. This Organizational Improvement Plan (OIP) explores approaches to improve the mental health and wellness of Science, Technology, Engineering, and Math (STEM) graduate students to promote their personal wellbeing and academic success. The goal of my Problem of Practice (PoP) is to increase awareness of the complex factors and address the systemic barriers that contribute to STEM graduate student mental health illnesses at University Z, and to develop strategies to mitigate their onset. Transformational and distributed leadership practices underpinned by a social justice lens are the chosen leadership approaches. Nadler and Tushman's Congruence Model (1980) is used as a thought map to conduct a comprehensive organizational analysis which includes a partial PESTE analysis. Kotter's Eight-Stage Model (1996) is integrated with the Change Path Model (2016) to create a hybrid CDI x K Model to lead the change process. A resulting policy-based solution to empower STEM graduate students is pursued through the OIP. A thorough implementation plan that details objectives, actions, personnel, and timelines is presented. The plan is monitored and evaluated through the application of Deming's (1993) PDSA cycle. The OIP presents next steps, future considerations, and a reflective conclusion.

Keywords: mental health, graduate students, STEM, social justice, transformational leadership, distributed leadership

Executive Summary

Graduate education is seeing an unprecedented rise in mental health and wellbeing concerns across higher education institutions (HEIs) in Canada (Canadian Mental Health Association [CMHA], 2016; Cunningham & Duffy, 2019). In particular, the prevalence of mental health illnesses in Science, Technology, Engineering, and Math (STEM) graduate students is widespread and detrimental, as it has a high individual, organizational, and societal cost (Garcia-Williams et al., 2014; Mousavi et al., 2018). The problem of practice (PoP) that underpins this Organizational Improvement Plan (OIP) is to increase awareness of the complex factors and systemic barriers that contribute to STEM graduate student mental health illnesses at University Z, and to develop strategies to mitigate their onset. This OIP explores approaches to improve the mental health and wellness of STEM graduate students to promote their personal wellbeing and academic success.

Chapter 1 examines the prevalence and urgency of mental health illnesses among graduate students in STEM at University Z by exploring the organizational context of University Z; the background, history, internal, and external factors that shape the problem. The chapter also discusses the author's leadership position as the Development Officer with the Graduate Education Workers Union (GEWU), and the agency the author has to affect change. The chapter also identifies the importance of transformational and distributed leadership practices underpinned by a social justice lens to this OIP. In particular, social justice is at the very core of this OIP, since the GEWU is the vehicle that promotes equitable practices for graduate students at University Z. The chapter articulates the desired future state by exploring the gaps in the current organizational state using a partial PESTE (political, economic, social, technological, and environmental) analysis. The partial PESTE analysis revealed that the social element, and more

specifically stigma, is the most contentious issue affecting STEM graduate student mental health. The objective of the desired future state is to support graduate students as a whole to improve their mental health and wellbeing by enriching their experience as a graduate student. Lines of emerging inquiry to address the PoP and the organization's readiness to adopt change are also discussed. An informal change readiness survey identified the organization is well positioned to adopt change.

Chapter 2 explores a social justice lens, transformational leadership, and distributed leadership approaches to guide the change and considers the various frameworks that could be adopted to lead the change process. Specifically, a hybrid of Cawsey et al. (2016) Change Path Model and Kotter's (1996) Eight-Stage Model; CDI x K are chosen to lead the change. The linear synchronized model gives space to the voices of graduate students who are often underrepresented and outside of the traditional hierarchy, since the model's application in this OIP is within a unionized landscape, which is constructed to address the power differential between working groups. Partial elements of Nadler and Tushman's CM (1980) were utilized to conduct an organizational analysis to illuminate which organizational components are not aligning with the strategic goals of the institution. Stigma is identified again as a key social factor underpinning the deep discord with graduate student mental health. Four potential solutions are presented to address the PoP. The first is to maintain status quo, the second is to develop policies and standard operating procedures (SOPs), the third is to empower graduate students, and the fourth possible solution is to train faculty and staff. Of the four solutions proposed, a synchronized approach of the second and third solution is chosen to address the PoP. This hybrid solution will create policies to deconstruct systemic barriers and to proactively mitigate the onset of mental health illnesses. Furthermore, this approach will empower graduate

students by equipping them with knowledge on the newly developed policies and instilling confidence in them to enforce those rights. The chapter concludes with consideration of ethical implications that inform the change process.

Chapter 3 provides a detailed implementation, monitoring and evaluation, and the communication plan to address the PoP. The chapter builds upon contextual information presented on the problem and the institution from Chapter 1, as well as the frameworks and gap analysis identified in Chapter 2, to formulate a tactical implementation plan using the synthesized hybrid CDI x K Model. The multifaceted plan will detail the goals and priorities for change using the SMART goals template (Doran, 1981). The plan is presented in four phases developed in the CDI x K Model. It encompasses the implementation objectives; strategies; actions; stakeholder roles and responsibilities; and a target timeline. The author also considers approaches that will be used to manage the transition, anticipated challenges, and discuss plan limitations. Approaches to monitor and evaluate the change process through the application of Deming's (1993) PDSA cycle are also proposed. The PDSA model provides a methodical and evidenced based approach that is integral to the monitoring and evaluation process. A plan to communicate the change process to organizational stakeholders using the four phase framework (Cawsey et al., 2016) is presented. The four phases encompass pre-change, need for change, midstream change, and confirmation of change.

The OIP concludes with a reflection of the change leaders' motivations to pursue this work. As well as a reflection on the change leaders' academic discourse on organizational change, leadership practices, change models and frameworks, and mental health. The author looks to future opportunities to lead organizational change by leveraging the knowledge, tools, and skills harnessed through the development of this organizational improvement plan.

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Table of Contents

Abstract ii

Executive Summary iii

Acknowledgements vi

List of Tables xvi

List of Figures xvii

List of Acronyms xviii

Definition of Terms xx

Chapter 1: Introduction and Problem 1

Organizational Context 2

Vision, Mission, Values, Purpose, & Goals of University Z 3

Organizational Structure 4

Organizational History 5

Leadership Position and Lens Statement 6

Problem of Practice 10

Framing the PoP 13

Historical Overview of the PoP 13

Considering Key Organizational Models & Frameworks in Framing the PoP 15

Partial PESTE Analysis 16

Political 17

Economic 17

Social 18

Questions Emerging from the PoP 22

Vision for Change 24

Current State 24

Envisioned Future State 26

Change Drivers 27

Change Readiness 29

Internal Forces Shaping Change 32

External Forces Shaping Change 34

Chapter 1 Summary 36

Chapter 2: Planning and Development 37

Leadership Approaches to Change 37

Social Justice 38

Transformational Leadership 40

Idealized Influence 40

Inspirational Motivation 40

Intellectual Stimulation 41

Individualized Considerations 41

Distributed Leadership 42

Framework for Leading the Change Process 43

Kotter's Eight Stage Model 43

Cawsey, Deszca, and Ingols (CDI) Change Path Model 45

CDI x Kotter Model 47

Phase One: Awakening 48

Phase Two: Mobilization 50

Phase Three: Acceleration 51

Phase Four: Institutionalization 51

Critical Organizational Analysis 52

Inputs 54

Environment 54

Resources 55

History/Culture 57

Strategy 57

Transformation Processes 58

Work 58

People 59

Formal Organization 59

Informal Organization 60

Outputs 61

Possible Solutions 61

Possible Solution 1 - Maintain Status Quo 62

Actions and Resources 62

Benefits and Consequences 63

Possible Solution 2 - Develop Policies and Standard Operating Procedures 63

Actions and Resources 63

Benefits and Consequences 65

Possible Solution 3 – Empower Graduate Students 66

First Dimension 67

Second Dimension 67

Actions and Resources 68

Benefits and Consequences 69

Possible Solution 4 -Train Faculty and Staff 69

Actions and Resources 70

Benefits and Consequences 71

Ethical Considerations 73

Respect 75

Service 75

Honesty 76

Justice 76

Chapter 2 Summary 77

Chapter 3: Implementation, Evaluation, and Communication 78

Change Implementation Plan 78

Goals for Implementing Change 79

The Four Phases of Implementation 80

Awakening 81

Mobilization 83

Acceleration 85

Institutionalization 85

Managing the Transition 87

Stakeholder Reactions 87

Empower Others 88

Supports and Resources 88

Implementation Issues 90

Limitations 91

Change Process Monitoring and Evaluation 92

PDSA 92

Plan 94

Do 96

Study 97

Act 99

Plan to Communicate the Need for Change and the Change Process 100

The Four Phases of Communication 101

Pre-Change 101

Need for Change 102

Midstream Change 103

Confirming the Change 104

Next Steps and Future Considerations 105

Chapter 3 Summary 106

Conclusion 107

References 109

Appendix A 133

Appendix B 134

Appendix C 135

Appendix D 136

Appendix E 137

Appendix F 138

Appendix G 139

Appendix H 140

List of Tables

Table 1: Change Readiness Assessment 32

Table 2: Possible Solutions Summary 72

Table 3: Monitoring and Evaluation Plan Phase 96

Table 4: Monitoring and Evaluation Do Phase 97

Table 5: Monitoring and Evaluation Study Phase 98

Table 6: Monitoring and Evaluation Act Phase 99

List of Figures

Figure 1: Graduate Student Stressors 14

Figure 2: Nadler and Tushman's Congruence Model 16

Figure 3: Association between Stigmas and Mental Health 20

Figure 4: Student Self-Reported Depression, Anxiety, and Suicide 24

Figure 5: Visualization of Leadership Practices 38

Figure 6: Kotter's Eight-Stage Model 44

Figure 7: The Change Path Model 45

Figure 8: Synchronized CDI x K Model 48

Figure 9: Visualization of CM's Implementation 53

Figure 10: Ethical Considerations as Output Factors 75

Figure 11: Deming's PDSA Model 93

Figure 12: Conceptualization of the Interplay within CDI x K and PDSA 94

List of Acronyms

ACHA: American College Health Association

AACU: Association of American Colleges and Universities

CA: Collective Agreement

CCPA: Canadian Centre for Policy Alternatives

CDI: Cawsey, Deszca, Ingols

CECU: Council of Eastern Canadian Universities

CFSO: Canadian Federation of Students Ontario

CM: Congruence Model

CMHA: Canadian Mental Health Association

CSD: Counseling Services Department

ESA: Employment Standards Act

GEWU: Graduate Education Workers Union

GTA: Graduate Teaching Assistantships

HEI: Higher Education Institution

HR: Human Resources

MHC: Mental Health Coalition

OIP: Organizational Improvement Plan

PC: Progressive Conservative

PDSA: Plan, Do, Study, Act

PESTE: Political, Economic, Sociological, Technological, and Environmental

PoP: Problem of Practice

SMART: Specific, Measurable, Attainable, Results-focused, Time-bound

STEM: Science, Technology, Engineering, Math

SOP: Standard Operating Procedure

Definition of Terms

Anxiety: recurring intrusive thoughts of fear and concern from actual or perceived threats, may manifest in physical symptoms such as perspiration, trembling, dizziness, heart palpitations, or increased blood pressure (Kazdin, 2000).

Depression: is a mood disorder that causes a persistent feeling of sadness and loss of interest and impacts how one feels, thinks, and behaves (Larson, 1996).

Evaluation: evaluation is described as the systematic verification of the merit or worth of the information (Markiewicz & Patrick, 2016; Curry, 2019).

Mental health: a state of wellbeing in which the individual realizes his or her own potential, can cope with normal stresses of life, can work productively and fruitfully, and is able to contribute to her or his own community (World Health Organization, 2014).

Mental illness: a full range of patterns of behaviour, thinking, or emotions that bring some level of distress, suffering, or impairment in areas such as school, work, social, and family interactions or the ability to live independently (Mental Health Commission of Canada, 2012).

Monitoring: the continuous and systematic tracking of information (Markiewicz & Patrick, 2016).

Resilience: the capacity of a person to manage their own wellbeing and the ability to overcome professional/academic, personal, and social issues (Brewer et al., 2019).

Stigma: are socially constructed marks of disapproval, shame, and/or grace that are enacted through mediated and interpersonal communication, whereby personal prejudices become etched

into the fabric of societal beliefs and thus influence people's actions (Martin, 2010; Quinn et al., 2009; Rudick & Dannels, 2018).

Supervisor: refers to the primary investigator that is responsible for supporting, training, and guiding a graduate student to the completion of their degree requirements (National Institute of Allergy and Infectious Diseases, 2016).

Wellbeing: the degree to which an individual feels positive and enthusiastic about oneself and life (Manderscheid et al., 2010).

Chapter 1: Introduction and Problem

An emerging problem with graduate education is the unprecedented rise in mental health and wellbeing concerns across higher education institutions (HEIs) in Canada (Canadian Mental Health Association [CMHA], 2016; Cunningham & Duffy, 2019). In particular, the prevalence of mental health illnesses in Science, Technology, Engineering, and Math (STEM) graduate students is widespread and detrimental, as it has a high individual, organizational, and societal cost (Garcia-Williams et al., 2014; Mousavi et al., 2018). The pursuit of graduate studies is widely recognized and associated with emotional, physical, and psychological stress (Djokic & Lounis, 2014; Mackie & Bates, 2018), causing the onset of depression, anxiety, and suicide within this population (Cunningham & Duffy, 2019; Di Pierro, 2017). The problem of practice (PoP) that underpins this Organizational Improvement Plan (OIP) is to increase awareness of the complex factors and systemic barriers that contribute to STEM graduate student mental health illnesses at University Z, and to develop strategies to mitigate their onset. The OIP explores approaches to improve mental health and wellness of STEM graduate students to promote their personal wellbeing and academic success.

Chapter 1 examines the organizational context of University Z, which encompasses the background and history of the institution. This chapter describes in detail the problem of practice and the various contextual factors that influence the need for change. The chapter also articulates the leadership position, questions emerging from the PoP, the vision for change, the desired future state, and the institution's readiness to adopt changes. For the protection of privacy and confidentiality of the institution, pseudonyms are used throughout this OIP for organization name, department and office names unique to said institution, as well as specific program names that may inevitably result in identification of the organization.

Organizational Context

The organization, University Z is a large, multi-campus, urban university in Eastern Canada. While it is a relatively young higher education institution (HEI), University Z has created a name for itself by actively partnering with businesses, industry, and government to develop programs in the areas of engineering, technology, social services, and research. The institution has invested substantially in its expansion over the past decade and marking its legacy as a city builder (Deschamps, 2014; Girard, 2007; Mitanis, 2011). University Z is located in a large urban epicenter. Its proximity to government institutions, the commercial and retail district, the financial district, and prominent healthcare institutions have allowed it to cultivate a strong network which garners valuable experiential learning opportunities for its students (University Z, 2016a).

Each of the above factors has contributed to the visibility of the campus in relation to its surroundings and within the community, which attracts a diverse student population to University Z. Enrollment has steadily grown 32 per cent from 2008 to 2016 across the institution (University Z, 2016a), and in the same time period graduate programs have grown 35 per cent (University Z, 2018). Over the past 40 years, the shifting demographics of post-secondary students, and in particular graduate students, have resulted in more diverse and less traditional populations (Brus, 2006; Coniglio et al., 2005). For example, a single university cohort can have a wide range of ages, socio-economic status, ethnic backgrounds, cultural upbringings, and life experiences (Brinkman & Hartsell-Gundy, 2012). Among post-secondary populations, graduate students are an especially vulnerable population and experience elevated levels of stress in comparison to their undergraduate peers (Barry, Woods, Warnecke, et al., 2018; Patel, 2015; Shorr, 2017). Graduate students disproportionately report concerning mental health illnesses such as depression, anxiety, and suicidal behaviour that is onset by their academic pursuits (Di

Pierro, 2017; Djokic & Lounis, 2014). University Z offers mental health support services for students. However, due to the prevalence and severity of mental health issues facing STEM graduate students, the institution has not been able to keep pace with the growing demand.

University Z has promoted a holistic and inclusive approach to education which focuses on individual wellbeing at all levels of the organization. This is consistent with a liberal context and culture, which believes in the creation of a space for individual expression of thoughts and formulating authentic freedom and leisure learning (Association of American Colleges and Universities [AACU], 2013; Gary, 2006; Raven, 2005). In the context of this OIP, wellbeing refers to the degree to which an individual feels positive and enthusiastic about oneself and life (Manderscheid et al., 2010). A holistic approach to education is framed by the philosophy that elevating students to make psychological, social, and emotional growth, will positively contribute to intellectual development. Despite liberal principles being woven into the foundation of University Z's core values, a deficiency in support exists. Furthermore, to address this gap, University Z implemented an institutional wide response with the creation of a mental health coalition (MHC) in 2012. The MHC is a 40-member team which consists of students, staff, and faculty, and includes participation from various offices and departments such as the Diversity Office, Student Affairs, and Student Health and Wellness to name a few.

Vision, Mission, Values, Purpose, & Goals of University Z

University Z aims to create a vibrant and flourishing university community and environment that promotes mental wellbeing and a commitment to the success of all its members, by creating and sustaining a supportive campus culture and institutional ethos, free of stigma and discrimination (University Z, 2017). As part of University Z's overall mission, it seeks to grow as a neighbour and with the community, while working continuously to improve

the learning environment for students (University Z, 2016a). Its mission as it relates specifically to mental health is to create a comprehensive mental health strategy that aims to develop and maintain a campus environment that fosters its broad vision through decision making, policies, systems, pedagogy, structures, and delivery of education and services (University Z, 2017). The University aspires to provide advocacy in the eradication of stigma and mental health discrimination on campus.

The institution has also outlined a vision and mission specific to graduate education. University Z has a vision to develop creative leaders, intellectual explorers, and purposeful change makers (University Z, 2015). To fulfill this vision, its mission is to foster a student-centric culture that promotes success, enhances experiences, and opportunities through transformational leadership. University Z implements transformational leadership by cultivating positive collegial relationships to empower team members to achieve common goals (Mujkić et al., 2014; Northouse, 2019).

Organizational Structure

University Z's overall organizational structure is hierarchical, as is seen with the majority of Canadian universities (Jeppesen & Nazar, 2012; Manning, 2013). However, various entities are involved in the mental health initiative, as well as in the oversight of graduate students. Mental health strategies have been integrated throughout University Z at a high level, facilitated through several different offices, units, and programs (University Z, 2017). For instance, there are services available through the Diversity Office which are available campus wide, but there are also services available at the faculty and departmental level. University Z's mental health strategy does not conform to a traditional hierarchical structure; rather it has implemented a distributed leadership approach (University Z, 2016b). Distributed leadership (Gronn, 2003;

Harris et al., 2007; Spillane et al., 2003) refocuses from an individual leader centric approach to a multi-leader approach (Bolden, 2011; Gentle & Foreman, 2014). Distributed leadership will be discussed in greater detail in the following sections of this chapter.

Organizational History

Much of the student population at University Z is comprised of undergraduate students. The Council of Eastern Canadian Universities' (CECU) enrollment statistics in 2016 reported that there are approximately 15 undergraduate students for every graduate student (CECU, 2016). Most Canadian Universities have a larger undergraduate population than they do a graduate population, thus this ratio is not unusual. Despite receiving permission to grant graduate degrees a few decades ago, graduate programs at University Z are still in their infancy. This is primarily because the institution only shifted its focus to prioritizing graduate research initiatives in the last six years. However, since their implementation, graduate programs have developed at a rapid pace with 60 graduate programs now available at University Z which can be found across all faculties.

STEM fields of study have historically had the highest enrollment at University Z, this is also true with graduate programs. In 2007, STEM graduate programs represented approximately 65 per cent of graduate students, and in 2016 STEM graduate programs represented 46 per cent of the graduate students– the largest by comparison of any other field of study (see Appendix A) (University Z, 2014a). However, the support services for the specialized needs of those pursuing graduate work in STEM are not evolving at the same pace as its growing student body. Further examination of the institution's current strategic plan reveals a paradigm shift towards graduate education as a core priority, and all campus units are encouraged to develop internal plans accordingly with urgency (University Z, 2016a).

As part of University Z's efforts to prioritize student mental health and wellbeing, the MHC is intended to be an all-encompassing working group that crosses faculty and departmental boundaries to foster collaboration and spans the institution (University Z, 2016b). The counselling services department, medical services, peer support groups, and Student Affairs are among some of the support groups that participate in the MHC. One key commitment made in the academic strategic plan for graduate students is the deliverance of "leading academic and administrative supports and services" (University Z, 2016a). Despite University Z's strong institutional wide commitment to mental health initiatives, current services are not specifically tailored to meet the needs of STEM graduate students.

Leadership Position and Lens Statement

In my capacity as a Development Officer with the Graduate Education Workers Union (GEWU) at University Z, I promote the urgency of the ideal future state of the institution while keeping the institution accountable and just, which protects, empowers, and includes the diverse voices of graduate students. My agency is within a unionized environment, and I am responsible for leading ongoing negotiations and collective bargaining with the university. Through this process, I have the agency to develop and advocate for support services and policy changes that impact graduate student mental health. I have had the opportunity to demonstrate these advocacy and policy development skills through previous rounds of collective bargaining. Furthermore, I have successfully negotiated an increase in funding for each graduate student and secured a separate fund specific to health care needs.

As an institution, University Z takes a transformational leadership and distributed leadership approach to mental health. I draw upon both these leadership practices. My personal leadership values are inherently tied to transformational leadership (Bass, 1998; Leithwood &

Sleegers, 2006), which postulates that leadership's purpose is to motivate and inspire followers to become committed to a shared organizational vision by fostering and encouraging their creativity and innovation (Bass & Riggio, 2006a; Northouse, 2019). As described by Northouse (2019) transformational leadership is concerned with emotions, values, ethics, standards, and long-term goals, through the assessment of followers' motives, satisfying their needs, and treating them as full human beings (p. 161). A foundational objective of transformational leadership is to create an environment that builds human capacity by developing core values and purpose, and strengthens interconnectedness in the organization (Givens, 2008). It encourages followers to transcend their own self-interest for the good of the organization (Bass & Stogdill, 1990; Leithwood & Sleegers, 2006). To succeed in this individualized consideration approach, leaders concentrate on the followers' values and help them align their values with those of the organization (Givens, 2008).

Transformational leadership is a crucial leadership model in the success of this PoP because of the potential it poses in creating the desired experience in graduate education (Barry, Woods, Warnecke, et al., 2018). For instance, the transactional nature of graduate studies in STEM and strained supervisor and student relationships are commonly cited as challenges which adversely affect graduate student mental health (Barry, Woods, Warnecke, et al., 2018; Waight & Giordano, 2018). Thus, by employing transformational leadership approaches and shifting the graduate supervision paradigm from self-directed towards mentorship and empowerment of the graduate student, there is potential to improve graduate student mental health and wellbeing. A study conducted by Levecque et al. (2017) reported that students "who are advised by a professor with an inspirational leadership style" had better mental health (p. 875). An inspirational leadership style is parallel with the fundamental concepts of transformational leadership as both

approaches speak to inspiring team members through mentorship. Thus, in my capacity as a Development Officer, I will influence policy changes to align with transformational leadership.

In the bargaining process, I have historically taken a distributed leadership approach to form a committee to reflect the graduate student population. This strategy has been utilized to establish a committee that is inclusive of students from various fields of study, and encompasses diverse student profiles (age, gender, race, ethnicity, etc.). However, with a four-member bargaining committee this is not always possible. Thus, regular engagement and involvement with the general membership of the GEWU is conducted through surveys, focus groups, and member meetings. The distributed leadership (Gronn, 2003; Harris et al., 2007; Spillane, 2003) approach is also utilized by University Z. The institution's MHC consists of several departments, offices, and groups that are involved in providing support services across University Z's campus. Thus, a distributed leadership approach, where leadership activities are dispersed among multiple leaders (Stefani, 2015; Youngs, 2017), can be central to the PoP. However, because distributed leadership refocuses from an individual leader-centric approach (Bolden, 2011; Gentle & Foreman, 2014), and "acknowledges the work of all individuals who contribute to leadership practice" (Harris & Spillane, 2008, p. 31), greater attention would be needed to ensure these dispersed efforts are collaborative and not redundant. These leadership practices are informed by a social justice lens (Miller & Sendrowitz, 2011; Speight & Vera, 2009), necessary to effectively implement transformational and distributed leadership approaches which will best realize the efforts of this OIP.

Social justice theory deeply resonates with my personal beliefs and the need to advocate for social change, fighting stigma, and promoting equity to impact positive change (Gewirtz, 1998; Hage et al., 2014; Theoharis, 2007). Social justice theory is a branch of critical theory. The

objective of critical theory is to achieve social change by transforming individuals and society, through the inclusion of those who are traditionally silenced (Davies et al., 2011; Held, 1980; Kincheloe, 1999). Thus, there is an intersection with both critical theory and social justice theory with my leadership approach of building and maintaining resilient teams. I am committed to fostering an inclusive community by developing individuals and promoting personal fulfillment, eliminating prejudice and oppression, and to using my voice and platform to facilitate change by lending it to the graduate student population I serve (Brown, 2004). Furthermore, a social justice lens aligns strongly with my personal leadership style and approach where I empower, advocate, and protect the rights of graduate students, and in particular those who struggle and suffer with mental health illnesses. The integration of a social justice lens into graduate education and training could facilitate evolving from individual-level interventions to systematic redesign and action.

The social justice lens underpins my personal voice and the desire for the envisioned future state of this OIP. By adopting a social justice lens, one can explicitly recognize the disparities in opportunities, resources, achievement, and long-term outcomes among minority and low-income groups (Shakman et al., 2007). Beyond the deconstruction of inequalities, social justice seeks the fair and equitable distribution of power, resources, and obligations in society to all people, irrespective of race, ethnicity, age, gender, ability, status, sexual orientation, or religious background (Davies et al., 2011; Van den Bos, 2003). Social justice theory is fundamentally associated with mental health and wellbeing and nondiscriminatory practices based in social issues (Hage et al., 2014; Nilsson, & Schmidt, 2005; Speight & Vera, 2008), to achieve full and equal participation of all groups in a society that is shaped to mutually meet the needs of that society as a whole (Toporek & McNally, 2006). Thus, in the context of this OIP, a

social justice lens aims to cultivate conditions for equitable academic participation from those suffering from mental health illnesses. The GEWU is the vehicle that promotes the equitable participation of graduate students, as their underlying philosophy is formulated around social justice principles. An operational definition of social justice and a deeper discussion of the integration of a social justice lens within this OIP are detailed in Chapter 2.

Inclusion of a social justice lens is the most meaningful framework to inform this work and underpins the implementation of transformational and distributed leadership practices. Each of these leadership practices are complementary and demonstrate a kinship with a mental health PoP. The utilization of all three theories provides a comprehensive approach to leading the change process. Applying a transformational leadership approach will empower graduate students to be successful in their academic pursuits, and distributed leadership elucidates the importance of bringing the various change leaders together under a unified change plan. A social justice lens provides the framework for keeping the institution accountable and promoting just and equitable policies to be inclusive and supportive of those with mental health illnesses. Moreover, social justice interweaves the deconstruction of power and privilege into all aspects of this OIP. As such, by triangulating a social justice lens to transformational leadership, and distributed leadership, the PoP can be thoroughly addressed.

Problem of Practice

An emerging problem with graduate education is the unprecedented rise in mental health and wellbeing concerns across higher education institutions in Canada (CMHA, 2016; Cunningham & Duffy, 2019). The prevalence of mental health illnesses in STEM graduate students is widespread and detrimental as it has a high individual, organizational, and societal cost (Garcia-Williams et al., 2014). The pursuit of graduate studies in STEM is widely

recognized and associated with emotional, physical, and psychological stress (Calicchia & Graham, 2006; Djokic & Lounis, 2014; Mackie & Bates, 2018), causing the onset of depression, anxiety, and suicide within this population (Cunningham & Duffy, 2019; Di Pierro, 2017). The dynamics of graduate work in STEM fields is reported to be highly competitive, research intensive, self-directed, with little or no support from supervisors, the work operates on ambiguous timelines, and often the future of career trajectories are uncertain (CFSO, 2013; Constantin, 2018; Lipson et al., 2016; Offstein et al., 2004). Factors that contribute to the onset of mental illness among graduate students include strained supervisor and student relationships, expectations to overwork, financial stressors, and pressures to publish (Bruce & Stoodley, 2013; CFSO, 2013; Constantin, 2018; Woolston, 2017).

HEIs across Canada have been grappling with the challenge to meet the increasing and evolving needs of students with mental health illnesses across their campuses. In addition to student demands, government agencies are placing provisions on institutions to prioritize the mental health and wellbeing of students by providing adequate support interventions (Council of Ontario Universities [COU], 2020). To facilitate a systematic approach to address the gaps and fulfill government mandates, University Z implemented an institutional wide response with the creation of a MHC in its strategic plan. This coalition reports to the Provost of the institution, who is the second highest in the decision-making hierarchy at the university (organizational structure chart in Appendix B). The report from MHC (2017) provides data on University Z's students' mental health, the vision, their accomplishments, recommendations, and future considerations. The MHC's vision is a "flourishing university community and environment that sustains mental health and wellbeing for all members to succeed" and it aims for the work to be informed by multiple approaches (University Z, 2017).

However, data specifically on students based on their level of study and their program (bachelors, masters, or doctorate) is notably absent from the report, as is data specific to the students' particular field of study (arts, humanities, business, science, etc.). Lack of data collection specifically on graduate students is concealing the severity at which this population is facing mental health challenges and further exasperating the problem. For instance, STEM graduate students at University Z report a host of challenges in accessing support services; such as tailored specific services to address their needs do not exist, there is a lack of availability of scarce support interventions, as well as fear of stigma and reprisal from utilizing support services. As a leader and advocate of graduate students, working collaboratively with the MHC and all stakeholders at University Z will be important in furthering the understanding of the mental health needs of graduate students.

In my role as a Development Officer for the GEWU, I am responsible for negotiating and securing bursary funding for graduate students, the policy development pertaining to eligibility and distribution of these bursaries, as well as the approval and disbursement process. Through this process I have been collecting data for internal tracking and auditing purposes. Furthermore, an internal GEWU report compiled over a three-year period (2015-2018) revealed that 46.3% of University Z's graduate students were using the bursary funding from this program to pay for medical expenses (GEWU, 2018a). The report indicated that the highest category within medical expenses was mental health expenses at 37%. Extracting further metrics from this data, I noted that STEM graduate students represented 78.5% of all bursary applicants in the same three-year period (GEWU, 2015, 2016, 2017, 2018). In addition to this data, complaints and reports of violations of the collective agreement (CA) in the same time period were disproportionately from the STEM graduate students (61.2%) (GEWU, 2018b). As such, the rationale to focus on

the STEM graduate student demographic in this OIP is due to a combination of a few key facts. Firstly, STEM graduate students are the largest portion of graduate students at the institution (University Z, 2014a). Secondly, a higher number of STEM graduate students were reporting mental health concerns and seeking support. Lastly, complaints and violations of the collective agreement were disproportionately from STEM graduate students.

Thus, the Problem of Practice (PoP) that underpins this Organizational Improvement Plan (OIP) is to increase awareness of the complex factors and systemic barriers that contribute to STEM graduate student mental health illnesses at University Z, and to develop strategies to mitigate their onset.

Framing the PoP

The described PoP addresses the urgency with which HEIs in Canada must respond to increasing mental health and wellbeing concerns (CMHA, 2016; COU, 2020; Cunningham & Duffy, 2019; Garcia-Williams et al., 2014). Many Canadian universities participated in a survey administered by the American College Health Association (ACHA) in 2010 for the first time. Since then, the survey has been conducted every three years, with participation increasing by the thousands in each subsequent survey. The following section highlights key survey results and provides insight to the mental health crisis at HEIs.

Historical Overview of the PoP

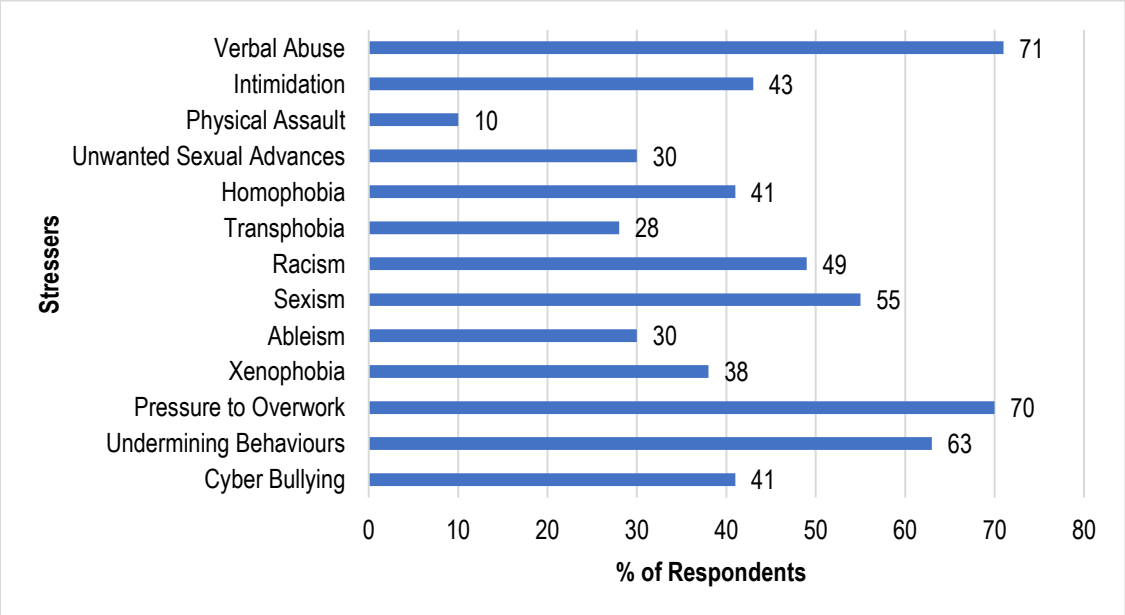
A comparison of data from the 2010, 2013, 2016, and 2019 ACHA surveys highlight the growing need to focus on student mental health. The 2016 survey from ACHA included responses from over 25,000 Eastern Canadian University students. The survey findings indicated 46 per cent of students felt depressed and found it difficult to function, 65 per cent reported having experienced overwhelming anxiety, 13 per cent reported that they had seriously

considered suicide, and 11 per cent had attempted suicide – all in the previous 12 months (ACHA, 2016). This data has compelled universities to take-action.

A two-year research study of over 2000 graduate students in Ontario, conducted by Canadian Federation of Students – Ontario (CFSO) (2015a), in collaboration with 13 Ontario universities, also revealed startling data. The survey results indicated 71 per cent of respondents having experienced and/or witnessed verbal abuse, 70 per cent reported pressure to overwork, 43 per cent reported intimidation (CFSO, 2015a). Figure 1 lists in detail the various stress factors that graduate students experienced and/or witnessed.

Figure 1

Graduate Student Stressors



Note: Graduate students selected from a list of 13 stressors that they experienced or witnessed. Adapted from Canadian Federation of Students Ontario, 2015a).

Mental health support is vital and needed with great urgency for graduate students, however the access to mental health support services has generally been found to be low (Barry, Woods, Martin, et al., 2018; Garcia-Williams et al., 2014). Support services for graduate and

undergraduate students are usually combined (Mackie & Bates, 2018; Mousavi et al., 2018). Harmonized services for both the graduate and undergraduate demographic is not an optimal approach given that the psychological profiles and life circumstances are different between these two populations (Djokic & Lounis, 2014; Mackie & Bates, 2018). Graduate students have a wider age range profile, often have larger financial constraints due to loans they have incurred from undergraduate studies and have greater familial responsibilities due to dependent spouses or children (Hyun et al., 2006). In contrast to the academic experiences of undergraduate students, graduate students face unique challenges because of pressures related to conducting research, teaching, publishing, securing funding, and trying to acquire disproportionately scarce academic positions (Hyun et al., 2006). Mental health illnesses in graduate students are not only widespread, but also multifaceted (Bruns & Letcher, 2018; Cunningham & Duffy, 2019). When graduate students fail to complete their studies, there is a loss of economic and social potential (Mackie & Bates, 2018). The impact of the PoP on political, economic, and social factors is examined in the subsequent section through an assessment of key organizational structures.

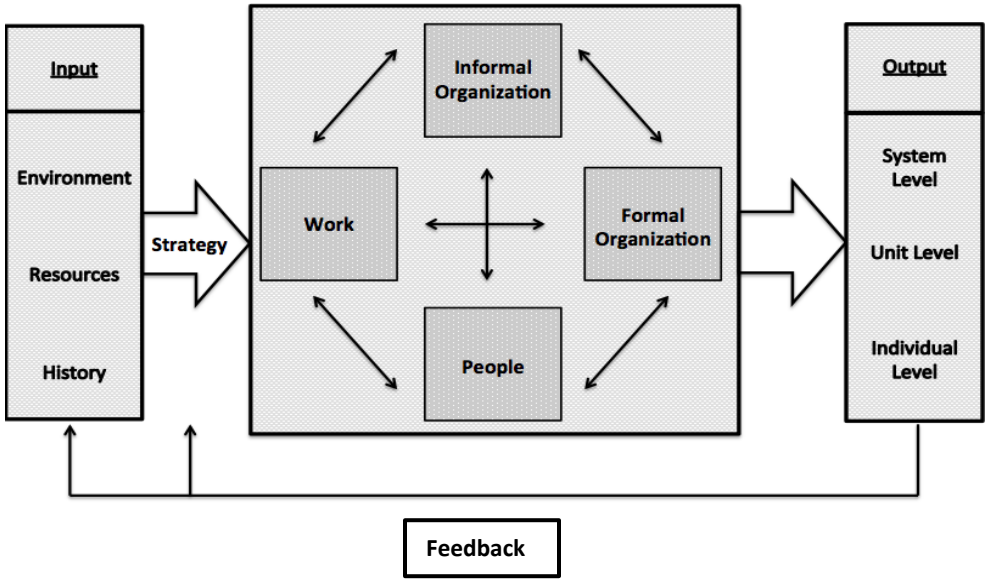
Considering Key Organizational Models & Frameworks in Framing the PoP

Nadler and Tushman's Congruence Model (CM) (1980), shown in Figure 2, depicts three input factors, which include environment, resources, and history, and how these factors influence the organization's ability to deliver output through four transformation processes: work; people; the structures and systems of the formal organization; and the informal organization or the culture (Nadler & Tushman, 1989, p. 195). The outputs can be seen on a micro, meso, and macro level. For the purposes of this OIP, the micro level would be the individual level (graduate students), the meso level would reflect the unit level (departments/faculty), and the macro level would represent system level (institution/society).

There is overlap between the elements of Nadler and Tushman's CM (1980) and various aspects of the political, economic, social, technological, and environmental (PESTE) analysis. Thus, the CM can serve as a systematic map to conduct the PESTE analysis. Several components of the Congruence Model are used throughout the first and second chapter and also provide a mechanism to converge other models by layering them onto the CM.

Figure 2

Nadler & Tushman's CM



Partial PESTE Analysis

Cawsey et al. (2016) posit that the PESTE (political, economic, social, technological, and environmental) analysis conceptualizes the various forces that influence ideas and decisions within an organization. Findings from the partial PESTE analysis can be embedded into the transformation processes (work, people, structures, and culture) from the CM due to the overlap of elements. The partial PESTE analysis focuses on the political, economic, and social dimensions of graduate student mental health. Particular emphasis was placed on examining the social element due to the overwhelming evidence in literature of the detrimental extent with

which social factors interfere and undermine the delivery of mental health care (Levecque et al., 2017; Rudick & Dannels, 2018; Rüsch et al., 2014; Waight & Giordano, 2018).

Political

A broad political factor that impacts the PoP is the unionized landscape of the institution. For instance, training initiatives for graduate supervisors must be negotiated through collective bargaining for faculty. These negotiations take place with University Z's senior management and faculty members' union. In these negotiations, the Graduate Development team does not have a voice at the bargaining table for this unit. However, our team maintains influence with senior management due to our unique dual role with the institution not only as their customer but also their employee. Graduate students are also unionized and can also strike and effectively disrupt the day to day functioning of University Z. This dynamic may be leveraged to successfully implement training and awareness initiatives on the faculty level.

Economic

An economic factor affecting the PoP is the substantial decrease of federal contributions to HEIs. Federal funding has declined by 50% to HEIs since the 1980s (CFSO, 2013; Fisher et al., 2009; Mackay, 2014). Due to the decreased government funding (Randall & Coakley, 2007), universities are bolstering their international student recruitment and relying on tuition fees to offset dwindling federal funding (CFSO, 2015b; Ontario Ministry of Advanced Education and Skills Development, 2017). A report by Shaker & Macdonald (2015) for The Canadian Centre for Policy Alternatives (CCPA) demonstrated that tuition fees have more than tripled since 1993. A comparison chart of tuition trends over the past 20 years can be found in Appendix C. In the report by CFSO that surveyed 2000 graduate students, 59% reported tuition fees and other institutional costs impacted their mental health (CFSO, 2015a). At University Z in particular,

graduate students' funding packages are not known to graduate students at the commencement of the academic year and are not guaranteed. The funding package given to a graduate student can comprise three components, external funding (government and/or research agency), internal funding (funding provided by the supervising instructor's funding), and graduate teaching assistantships (GTAs). It is noteworthy that external and internal funding are not options for all graduate students as there is typically narrow eligibility criteria (merit based, specific research categories, level of study, etc.). Furthermore, GTAs that are intended to supplement the funding package are highly competitive and are not guaranteed. A 2018 survey of graduate students at University Z, listed ambiguous and uncertain funding packages as one of the three top stressors, with workload topping the list (University Z, 2018). Having funding transparency could help graduate students better plan for the academic year and reduce stress.

Social

Social factors that impact the PoP are associated with preconceived notions pertaining to mental health and wellbeing that staff, faculty, students, and community members hold. The dominant view of mental illness is diabolical, derogatory, and associated with violence, character flaws, and incompetence (Kazemsoltani, 2017). These ideologies constitute powerful barriers to students seeking and receiving assistance (Martin & Oswin, 2008; Rössler, 2016). The experiences of mentally unwell people are often discredited, devalued, and dismissed because the symptomology are largely invisible, which compromise the credibility of the individual's account of suffering among the public (Overton & Medina, 2008).

One of the social issues around mental health in HEIs is that it is accompanied by stigma, which is complex and nuanced with many layers, and critical to this PoP (Rudick & Dannels, 2018). It is important to understand the frequency and severity with which stigma inhibits help-

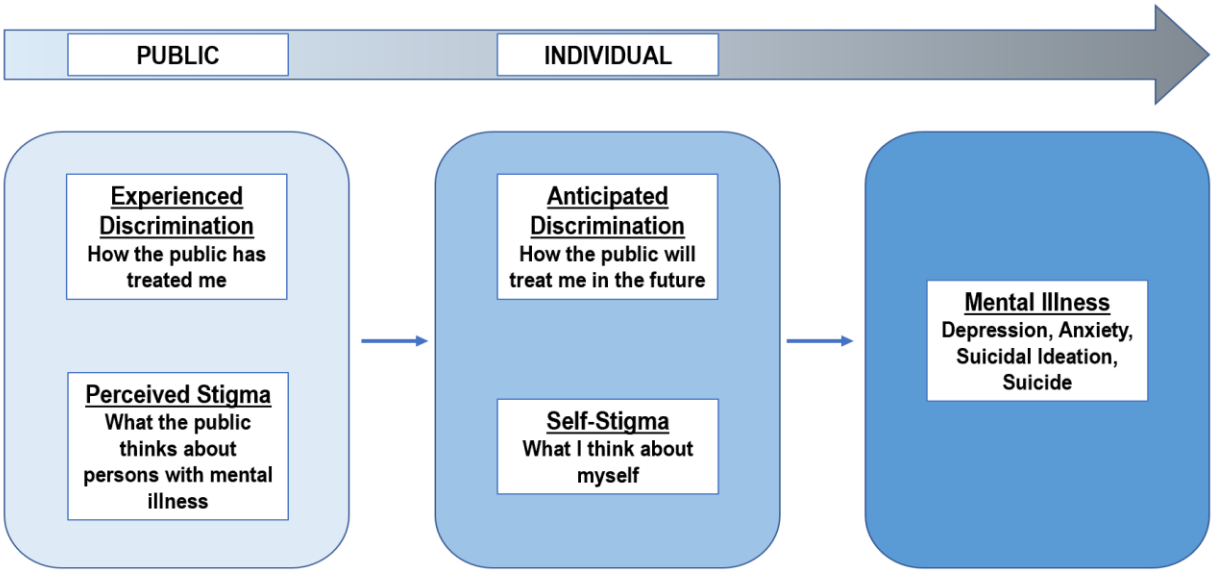
seeking behaviour, since fear of reprisal and discrimination are reported as the primary barriers to accessing support services by graduate students (Alemu, 2014; Eisenberg et al., 2009; Levecque et al., 2017; Waight & Giordano, 2018). Stigmas are socially constructed marks of disapproval, shame, and/or disgrace that are enacted through mediated and interpersonal communication, whereby personal prejudices become etched into the fabric of societal beliefs and thus influence people's actions (Martin, 2010; Quinn et al., 2009; Rudick & Dannels, 2018).

This section would be remiss to not categorize the three types of stigma that are responsible for exacerbating mental health illnesses; public, self, and structural. A reciprocal relationship has been evidenced with public, self, and structural stigma and the way in which they each contribute to mental illnesses (Carpiniello & Pinna, 2017; Rudick & Dannels, 2018; Rüsch et al., 2014). Public stigma refers to the aggregate of individual's negative stereotypes about mental illness that have diffused and been normalized into society (Carmack et al., 2018; Eisenberg et al., 2009). The ontological consequences of public stigma are social isolation and weakened social networks as members of the public distance themselves from people labelled as mentally ill (Pederson & Paves, 2014; Rüsch et al., 2014).

Self-stigma refers to the personalized negative attitudes internalized by people suffering from mental illness that leads to shame, social withdrawal, demoralization, and devaluation of oneself (Carpiniello & Pinna, 2018; Eisenberg et al., 2009). Self-stigma, or individual stigma, can also result in poor self-esteem, behavioural futility, and often motivate sufferers to keep their illness a secret due to fear of rejection (Oexle et al., 2018). It is important to note the causation relationship between public and personal stigma, seen in Figure 3, such that public stigma affects the way individuals with mental illness think about themselves and whether they anticipate future discrimination from the public.

Figure 3

Association between categories of stigma on persons with mental illness.



Note: Association between mental illness stigma and mental illness from the perspective of persons with mental illness. Adapted from Oexle et al., 2018.

Structural stigma is the set of practices, regulations or rules, policies, of a given social institution in order to restrict the rights and/or opportunities of citizens affected by a mental disorder (Carpiniello & Pinna, 2017). For instance, societal regulations can systematically disenfranchise people with mental illness due to the relatively poorer funding of mental health services in comparison with physical health services. This results in substandard quality of care and infringes on access to limited mental health services (Rüsch et al., 2014).

Each of the categories of stigma described above are culpable in creating a toxic culture at University Z and creating inherent tensions in graduate education (Rudick & Dannels, 2018). The paradoxical dissonance of factors that cause stigma, are also needed to correct stigma. For instance, stigmatization is performed through communication. Therefore, those suffering stigmatizations will avoid communication (Oexle et al., 2018). However, communication is

implicitly needed to achieve mental health wellness and build social relationships. Thus, as stigmatized people attempt to avoid the painful experiences of stigmatization and as non-stigmatized people attempt to avoid interactions with stigmatized people, stigmatized people's social networks shrink in size and quality, which only further intensifies the stigmatization (Rüsch et al., 2014). A second paradoxical issue that perpetuates stigmatization is that the onus to fight the stigma rests on the persons being stigmatized. For instance, students are expected to engage or present in a manner that will allow them to not be categorized into a marginalized group like those experiencing mental health illnesses (Rudick & Dannels, 2018). As such, University Z is in a position of power to create new stigmas, bolster existing ones, and help eliminate or relegate their power. Evolution of social ideals necessitates changes in the culture, which necessitates increased awareness for staff and faculty. Communications can serve as a valuable tool by raising awareness to tackle stigmas and will be an important consideration in future chapters.

The partial PESTE analysis (Cawsey et al., 2016) provides an overarching perspective of the factors that are impacting STEM graduate student mental health at University Z. The analysis deliberately focused only on the political, economic, and social factors as they have the greatest influence on graduate student mental health. In conducting the analysis, it is apparent that the social element is singlehandedly the most contentious issue and will need to be addressed tactically in the work of this OIP. Embedding the PESTE analysis into the Nadler and Tushman CM (1980) allows for a preliminary analysis, that can be triaged into a larger thought map that depicts the interconnectedness of all components. Thus, each of these leadership theories, the partial PESTE analysis, and the Congruence Model will be useful in articulating the change necessary to improve graduate student mental health and wellbeing.

Questions Emerging from the PoP

Some questions that emerge from the exploration of the PoP must be considered to better understand the objectives of this OIP. There are four general streams of inquiry that have shaped my guiding questions and are broadly categorized as questions related to: (a) trending patterns; (b) stigma; (c) accountability; and (d) expectations. These emerging inquiries serve to deepen the knowledge of graduate student mental health at University Z, and to better understand the degree to which these phenomena influence this OIP.

Due to the traditional scope of Student Affairs and counseling services data, which is primarily focused on undergraduate students, within graduate student mental health data, a first guiding question is what trending patterns and conclusions can be drawn? The data that is currently available in the literature either heavily focuses on undergraduate students or combines the data which make it challenging to develop a comprehensive picture of the mental health issues afflicting this cohort (Garcia-Williams et al., 2014). It is vital that this information be collected and kept delineated from the undergraduate demographic. Only then can trends and patterns be observed, that would ideally reveal frequency of occurrence in specific fields, programs, or year of study.

The second guiding question aims to understand the emphatic nature of stigma and how HEIs further propagate these toxic ideologies? How have HEIs contributed to the cultural norms and practices that propagate the prevailing stigmatization of graduate students experiencing mental illnesses? How do HEIs promote ableism in their treatment of mental health by associating notions of intellect with mental health ailments? How can I, in my agency, support students, staff, and faculty to create messages that do not perpetuate stigma when addressing mental health issues?

The third guiding question tries to understand to what degree are HEIs accountable? What are the moral and social obligations of HEIs to promote wellbeing and instill resilience skills? How can HEIs implement resilience training within curriculum and pedagogy? If graduate students are experiencing mental health illnesses as a result of job insecurity due to the labour market (Di Pierro, 2017), are HEIs to be held accountable for saturating the market? Are graduate students' frustrations displaced? Is it the responsibility of graduate students to make career choices that will yield to job prosperity?

A final consideration of the PoP concerns graduate students' expectations of their graduate experience and their degree outcomes. As such, the fourth guiding question tries to understand if graduate students' expectations are realistic? Are they asking for too much from educators and their supervisors? If educators and supervisors are already inundated with teaching responsibilities, research, publishing, securing funding (Lane, 2015; Rudick & Dannels, 2018), is it realistic to expect supervising instructors to impart life skills that they themselves perhaps have not cultivated? And while, compassion and advocacy leadership can be integrated into policy, can it be taught to educators and supervisors whose personal teaching style does not complement such approaches? How can staff and faculty be held accountable to identify mental health symptoms without mental health and counseling expertise?

There are various factors which will influence a PoP with multiple layers and many institutional stakeholders. These guiding questions will help this OIP to explore trends, stigma, accountability, social responsibility, and the expectations that exist within graduate student mental health. Furthermore, the guiding questions will inform the development of the possible solutions in the following chapter and influence the implementation of the chosen solution in the final chapter.

Vision for Change

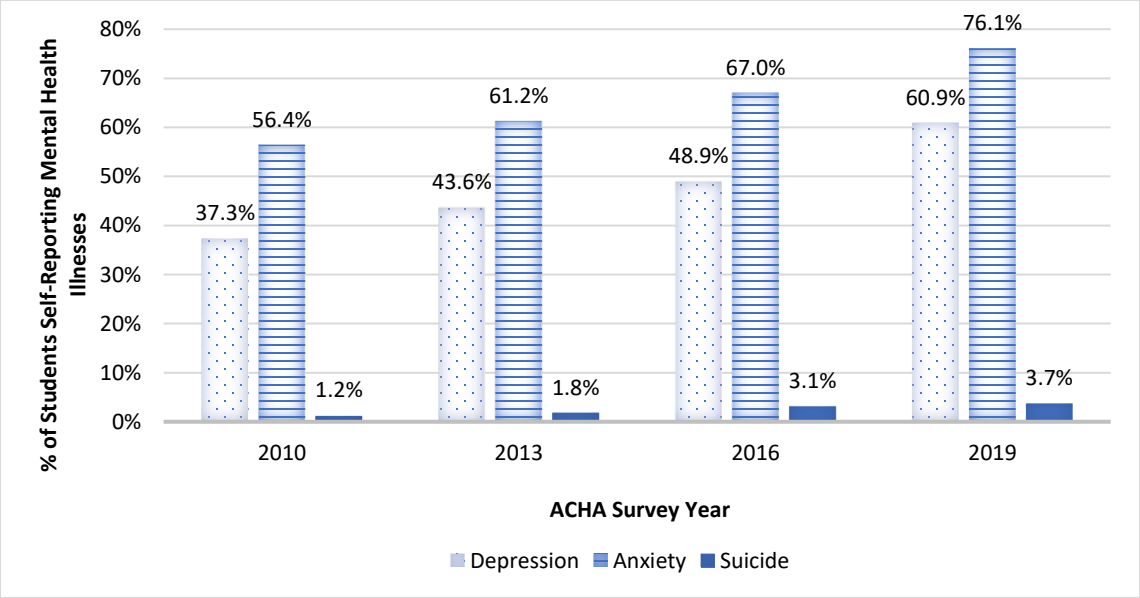
In considering a vision for change, the gap that exists between the current and future state must be understood. I will first comment on the current state of the organization and then move to discuss the envisioned future state.

Current State

The current state of mental health and well-being at University Z has been continually deteriorating over the past ten years, as evidenced by the national surveys conducted by the ACHA. It is important to recognize that while the ACHA is an American association, this survey is a North American wide effort and data can be isolated by country, province, and even by institution. However, this is not the case with all available data, as such American data is used as a proxy because of its high degree of relevance to the Canadian context. The surveys, conducted tri-annually, revealed a consistent increase in students self-reporting depression, anxiety, and suicide, as seen in Figure 4 (ACHA, 2010; ACHA, 2013; ACHA, 2016, ACHA 2019).

Figure 4

Student Self-Reported Depression, Anxiety, and Suicide at University Z (%).



Note: Data was pulled from four survey years to illustrate the rise in students self-reporting mental health illness trends at University Z from 2010 to 2019.

To examine the current policies in place and the existing support services, the MHC established four working groups: (i) Awareness, Education and Training, (ii) Curriculum and Pedagogy, (iii) Policy and Procedures, and (iv) Services and Programs. The working groups found that while there is a wide range of mental health education and training opportunities available at University Z, these efforts are uncoordinated and inconsistent (University Z, 2013). They also identified a wide range of existing services and programs, however, there is a lack of consistency in the message and content, and that services and programs can be difficult to find and navigate (University Z, 2013). With respect to Curriculum and Pedagogy, the working group found that a small group of educators were teaching critical/structure/positive aspects of mental health within course curriculum (University Z, 2017).

It is important to note that, although the MHC was established by the institution as a response to the mental health crisis on campus, the MHC operates largely in a research and information gathering capacity and therefore is unable to mobilize change. Furthermore, while the forty-member coalition spans the institution, they report to senior administrators of University Z, who are not normally advocates for change. While the institution has demonstrated it has a vested interest in their graduate students as a human resource, University Z also has political, economic, and social interests that often work at cross purposes with the needs of graduate students. In my role as the Development Officer of the GEWU, my primary focus is advocating for the personal wellbeing and academic excellence of all graduate students, and so I identify the MHC as a valued asset in this OIP as they have already begun gathering data that will contribute to stakeholder awareness of the mental health crisis at University Z. Additionally,

the MHC has existing structures in place to conduct research that could provide support and guidance to the process.

Specific to graduate students, University Z has limited data available on this demographic. Research supports that the pursuit of graduate studies is widely recognized and associated with emotional, physical, and psychological stress (Calicchia &Graham, 2006; Djokic & Lounis, 2014; Stubb et al., 2011). Stress has been found to be the leading cause of depression, anxiety, and suicide among graduate students (Di Pierro, 2017; Garcia-Williams et al., 2014). The counseling services department (CSD) at University Z, suggests that the tremendous power differential among graduate students and supervisors (University Z, 2018), the results driven and transactional nature of the supervision, and the lack of governance of the relationship, are all causes for the onset of mental health issues amongst graduate students. Furthermore, STEM graduate programs make up the largest group of graduate programs at University Z, with a total of 46% of graduate students reported in 2016 (University Z, 2016b). Kötter et al. (2014) illustrate that graduate students in STEM fields exhibited higher levels of mental health illnesses, due to the greater demands and academic expectations within STEM curriculum. Although there is a large population of STEM graduate students at University Z, the existing support services available are not tailored with a focus on STEM specific issues and do not proactively mitigate mental health illness onset.

Envisioned Future State

Education and health are interdependent and complementary; when students are healthy, they are better equipped to attain academic success (De Somma et al., 2017; Hunter & Devine, 2016). While the main objective of a HEI is to expand on the educational knowledge and provide intellectual growth, academic achievements can be enhanced by supporting the student as a

whole, including their mental health and wellbeing (University Z, 2014b). Graduate students have a dual student and employee status with University Z, as such the institution has a vested interest in their mental wellbeing, as a client and a human resource. It is vital for University Z to embed the promotion of mental health and wellbeing at every level, including curriculum and pedagogy. By raising institutional awareness, providing advocacy, and galvanizing leadership to eradicate stigma and discrimination against mental health illnesses – the future state can reflect a flourishing university campus that fosters community wide success (University Z, 2017). Historically, the graduate student demographic has been underrepresented by Student Affairs professionals (Guentzel & Nesheim, 2006; Offstein et al., 2004), thus the future state would integrate tailored programs to specifically meet the needs of this population. While this OIP's focus is STEM graduate students, the impacts of the changes, if successfully implemented, would reach University Z students at large.

The desired vision for change described in this OIP aligns with University Z's vision for change which identified graduate student mental health as a priority. Alignment is vital, as it will ideally garner support and collaboration with relevant stakeholders (senior leadership, faculties, support service departments, and graduate students) across the institution. To successfully change pervasive societal attitudes within an organization, support must be cultivated from the top-down (Tsai & Beverton, 2007).

Change Drivers

There are various factors that will contribute to driving the change and constructing the envisioned future state. People are the most influential change driver in affecting this change initiative. Thus, this section will focus on five categories of people and groups as change drivers. The five key change driver groups include: (a) Senior institutional leaders and administrators

(Provost, Vice-Provost, HR); (b) STEM Faculty leaders and the School of Graduate Studies; (c) leaders of student support groups (Student Affairs, Diversity Office, MHC, and the Teaching Office); (d) the GEWU; and (e) graduate students.

A brief description of the job role and expertise for each of the change drivers follows. These descriptions are not an exhaustive detailing of their job responsibilities, but rather focus on the aspects of their roles that relate specifically to this OIP. Senior institutional leaders, such as the Provost and Vice-Provosts, are responsible for overseeing academic growth and operations, supporting scholarly research, student wellbeing, and the institutional budget. The role of HR within the scope of this OIP is to provide accommodation support and to participate in collective bargaining. Student support groups, such as Student Affairs, provide academic, professional, and personal support programs. In the context of this OIP, Student Affairs offers academic support to graduate students, as well as offering support to students who are in distress. The Teaching Office provides orientation and training to graduate students in their roles as teaching assistants. The Diversity Office builds values of diversity, equity, and inclusion and addresses a range of systemic barriers at University Z. The MHC is a forty-member group of volunteers from various entities across the institution that work to support the mental health and wellbeing of students, staff, and faculty. The GEWU is the unionized body that advocates, negotiates, and enforces graduate education workers' rights. Lastly, this OIP focuses on the roughly three thousand graduate student body at University Z enrolled in a full-time or part-time graduate program.

One of the most fundamental factors is the recognition for the need to change by the five key change drivers. Recognition that there is an unmet need for adequate support services for graduate students in STEM from all of the above listed change drivers is critical. A study conducted by the University of California Berkeley found that 50% of self-reported suicide

attempts were made by STEM graduate students (Djokic & Lounis, 2014). Although this is a single study, the findings of the study are not an anomaly as evidenced by the breadth of literature (Cunningham & Duffy, 2019; Doran, & Kinchin, 2017; Garcia-Williams et al., 2014; Mackie & Bates, 2018). For instance, data specific to Canadian HEIs also reveal that graduate students are in crisis, and this is also evident specifically at University Z from the ACHA 2010, 2013, 2016, and 2019 report as seen in Figure 4. This is concerning due to the magnitude of this study and its' nation-wide reach, with participation from 42 schools, more than half of which were from Eastern Canada. Data suggests that if trends continue at this pace, graduate students are certainly in crisis.

Recent appointments to the Office of the President and Vice President of University Z must also be taken into careful consideration as both of these new appointments have had long standing affiliations with the STEM faculties as educators and leaders. These changes in senior leadership can drive the need for tailored support services within the STEM fields with agents who have a firsthand understanding of the systematic barriers that exist in the pursuit of STEM graduate degrees. Lastly, graduate students will need to be change drivers to achieve the envisioned state, and not operating in the periphery. Given support services often need to be customized, graduate students will need to put pressure on those who will lead the change within the organization and work in collaboration with leaders to have their voices shape the change.

Change Readiness

For successful implementation of change, leaders must first assess the organization's ability to adapt to change by understanding the need for change and the internal and external forces that influence the change. Cawsey et al. (2016) Organization's Readiness for Change Questionnaire can be utilized as a tool to assess University Z's change readiness. The authors

identify six readiness dimensions: previous change experiences; executive support; credible leadership and change champions; openness to change; rewards for change; and measures for change and accountability. The questionnaire provides an absolute score that can range from -10 to 35. The higher the score the more prepared the organization is to adopt change. The questionnaire can also identify areas that hinder the change readiness of the organization, and thereby direct where change leaders may focus their attention. In this way, Cawsey et al. (2016) Readiness for Change Questionnaire is both a quantitative and qualitative assessment.

I conducted the survey informally, and a readiness for change score of 23 was determined for University Z. The score breakdown in each of the six change readiness dimensions is shown in Table 1, and a comprehensive assessment of the change readiness survey can be found in Appendix D. The organization scored above 75% in four of the readiness dimensions. From the high score in four dimensions and the overall score, we can see that the institution is well poised for change. The survey results indicate leaders should focus their attention to facilitate openness for change to strengthen organizational readiness.

University Z scored 50 per cent for the previous change experiences dimension. This is because, while University Z is adaptable to change, it is not rooted in tradition and has not had any recent major failed experiences. Additionally, the organization can sometimes become comfortable with its current state. The executive support dimension ranked well, with a score of 75 per cent. This is largely because senior leaders have supported and participated in the development of a campus wide strategic plan to deal with mental health. Many stakeholders are in support of the change. However, there is resistance from faculty, whose participation is necessary to prepare for change. The credible leadership and change champions dimension also indicated a high degree of readiness, scoring 78 per cent. This score is attributed to the senior

leaders' quick calls to action and the creation of a coalition at all levels of the organization, positioning University Z as change champions to support change in a new direction. However, due to recent changes in senior leadership, the stakeholders' trust in senior leadership to lead an institutional wide change is lacking.

The fourth dimension, openness to change, requires deeper consideration as it has the lowest per cent score of 47 per cent. The success of an institution wide change plan at University Z hinges on openness to change from academic leaders. While change is supported by senior leaders and graduate students, change is not viewed as appropriate or necessary by academic leaders, resulting in the low score in this dimension. Furthermore, the power differential between graduate students and supervisors inhibits graduate students from voicing their concerns and dealing with conflict directly. Therefore, while graduate students believe they have the energy to undertake this task broadly, on the micro and individual level the risk of facing consequences from speaking up are a deterrent to tackling the PoP.

The fifth and sixth dimensions; rewards for change; and measure for change and accountability, both scored 100 per cent. University Z thrives on being innovative and values setting the benchmark for other HEI. As such, the rewards for change dimension does require further consideration. Furthermore, University Z has a few assessment tools for measuring the need for change already in place. These tools have demonstrated with great urgency the need for change. These tools help the institution gauge various metrics that inform data driven decision making, and currently do not require further consideration.

Therefore, from the overall score, we can see that the institution is well poised for change. A thorough assessment of the change readiness survey results indicate that leaders should focus their attention on garnering openness for change to strengthen organizational

readiness. In addition to the change readiness assessment, the overwhelming internal data (primarily bargaining survey results) and external data (ACHA survey results) on student mental health at University Z, also support that University Z is well positioned to tackle this PoP.

Table 1

University Z's Change Readiness Assessment

Readiness Dimension	Personal Assessment Score	Max. Possible Score	Per Cent Score (%)
Previous Change Experience	1	2	50
Executive Support	3	4	75
Credible Leadership & Change Champions	7	9	78
Openness to Change	7	15	47
Rewards for Change	1	1	100
Measures for Change & Accountability	4	4	100
Total	**23**	**35**	**66**

Note: Adapted from Cawsey et al., 2016 Change Readiness Survey

Internal Forces Shaping Change

There are several internal forces that are working towards or against promoting mental health and wellbeing for graduate students. Internal forces at University Z working in favour of the PoP include the Provost's Taskforce on graduate education. The taskforce called for an organizational paradigm shift to make graduate education a core and shared priority (University Z, 2015). This indicates that University Z is prepared to consider how each discipline can partake in improving conditions for graduate students. As mentioned throughout this chapter, support from senior administrators will help drive the necessary change plans. Furthermore, in a campus-wide five-year plan, University Z outlines priorities for change. While this plan does not

specifically mention improved mental health outcomes, it does explicitly commit to improving graduate education. University Z aims to do this by i) elevating excellence in graduate education by equipping students for "personal and professional success", and ii) providing the highest service standards and building structures that support graduate education (University Z, 2014b). University Z acknowledges the vital role graduate students play in scholarly research. With their institutional objective to improve University Z's reputation and gain recognition as a research-intensive university, there is overlap between graduate student needs and the institutions goals. Each of these factors will help to drive the change forward internally.

Internal forces working against the PoP that require consideration include the willingness of change agents, the unionized political climate, lack of policies governing graduate student workload, and the insufficient graduate student funding structure. Among some key stakeholders, conflicting ideological and philosophical perspectives persist as to the responsibility of the academe. There are those faculty, staff, and leaders who do not believe it is the responsibility of post-secondary educators to serve as mental health facilities, hospitals, or addiction centers (Lane, 2015; Rudick & Dannels, 2018). For example, Heather Lane, Executive Director at Ontario Universities' Application Centre says that educators' expertise is in subject matter and in the provision of learning opportunities, and that "by design, we are educational institutions" (Lane, 2015). Furthermore, an overhaul in training initiatives for staff and faculty would require negotiations with the University during collective bargaining with each independent bargaining unit. Thus, the unionized dynamic of University Z makes it difficult to implement new training initiatives for faculty. Also, there are a lack of existing policies or standard operating procedures (SOP's) that govern graduate student workload. Policies should govern maximum work hours and the responsibilities of the supervisor and the graduate student when working after hours.

These are only two examples from an extensive list of issues that require governance. This allows for unrealistic workload expectations to be imposed on graduate students because there is no standard or benchmark. These factors create an internal environment that further propagates poor working conditions for graduate students that lead to the onset of mental health concerns.

External Forces Shaping Change

External forces are those that University Z has less control over, however still require consideration as they impact the implementation of this OIP. An important external force that is catapulting the change is government pressure to prepare students with life skills and not strictly technical skills. The provincial government has mandated that curriculum and services must provide lessons necessary to nurture resilience (CECU, 2016). This is important in the context of this OIP. Resilience refers to an individual's ability to self-regulate emotions, verbalize positive thoughts about themselves and life, and navigate conflict and difficult emotions. Resilience has been evidenced as a non-risk predictor for onset of mental health illness (Bruns & Letcher, 2018). The provincial and federal government have the agency to influence degree expectations and learning outcomes, thus they have mandated mental health and wellbeing strategies must be incorporated into curriculum and pedagogy. Additionally, doctoral programs are required to foster an environment where students are able to cultivate transferable skills (Ontario Universities Council on Quality Assurance, 2015). Additionally, the provincial government of Ontario announced expansion of psychotherapy programs and a commitment to spend $72.6 million dollars over three years (Mental Health Commission of Canada, 2018). This will help alleviate the pressures on current services and allow for continued quality care. Lastly, throughout Eastern Canada HEIs have made mental wellness a top priority. This could influence University Z to keep pace with their competitors. Not only keeping pace but being an innovator

and leading the charge would allow them to attract top graduate students, which aligns with their vision to advance their reputation as a research-intensive institution (University Z, 2014b).

External forces that are barriers to the realization of this OIP must also be given consideration. While the government acknowledges the need to prioritize mental wellness and had made commitments – due to the involvement of various ministries (Health and Long-Term Care, Community and Social Services, Child and Youth Services, Education, Advanced Education and Skills Development), coordinated efforts can be a challenge to facilitate (CECU, 2016). Keeping track of which ministry is responsible for which support services for students can become a convoluted realm to navigate. Also, change implementations on the federal and provincial level do not typically pick up traction with expediency and urgency to meet the demand for mental health support interventions. An external factor that contributes to the onset of mental health challenges for graduate students is the high cost of tuition, with decreased federal funding. A report completed by Shaker & Macdonald (2015), for the CCPA demonstrated that tuition fees have more than tripled since 1993. This is in combination with a job market and economy which are forcing graduate students into mismatched jobs, due to a highly competitive market. The issue with the job market is two-fold. First, academic employment opportunities within Canada are scarce, with only 20% of PhD graduates securing a tenure track faculty job in their field (CBC Radio, 2015; Sekuler, 2014). This creates a highly competitive environment with peers, and the uncertainty of future opportunities perpetuates high stress. Second, mismatching of qualifications is prevalent, forcing individuals into jobs where they far exceed the qualifications required and experience diminished earnings (Bender & Heywood, 2011). This is widespread because there is a growing gap between the PhD graduates and the available jobs (Edge & Munro, 2015; Gould, 2015).

Chapter 1 Summary

Chapter 1 identifies the prevalence and urgency of mental health illnesses among graduate students in STEM at University Z as an emerging problem. Leadership practices and frameworks that align with the PoP and their intersection are considered. A partial PESTE analysis is conducted to examine the political, economic, and social factors that influence the PoP and to establish greater context of the problem. Stigma is identified as a key social factor underpinning the deep discord with graduate student mental health. A desired future organizational state to address the PoP and the OIP is presented, and those who are necessary participants of the change are identified. Chapter 2 will further detail frameworks for leading the change process, applying a change management path and addressing proposed solutions for the PoP.

Chapter 2: Planning and Development

This chapter focuses on the planning and development of an effective change plan to address the Problem of Practice (PoP) and achieve the desired future state. The objective of the PoP is to increase awareness of the complex factors and the systemic barriers that contribute to Science, Technology, Engineering, and Math (STEM) graduate student mental health illnesses at University Z, and to develop strategies to mitigate their onset. The selection of leadership approaches and theoretical frameworks to lead and implement the change are outlined and justified. A critical organizational analysis illustrates the gap between the current and desired state, and illuminates what factors are not in alignment with the institution's strategic plan. Four possible solutions to address the PoP are evaluated, and one is proposed for implementation. The chapter concludes with the consideration of ethical challenges and responsibilities of University Z through the change process.

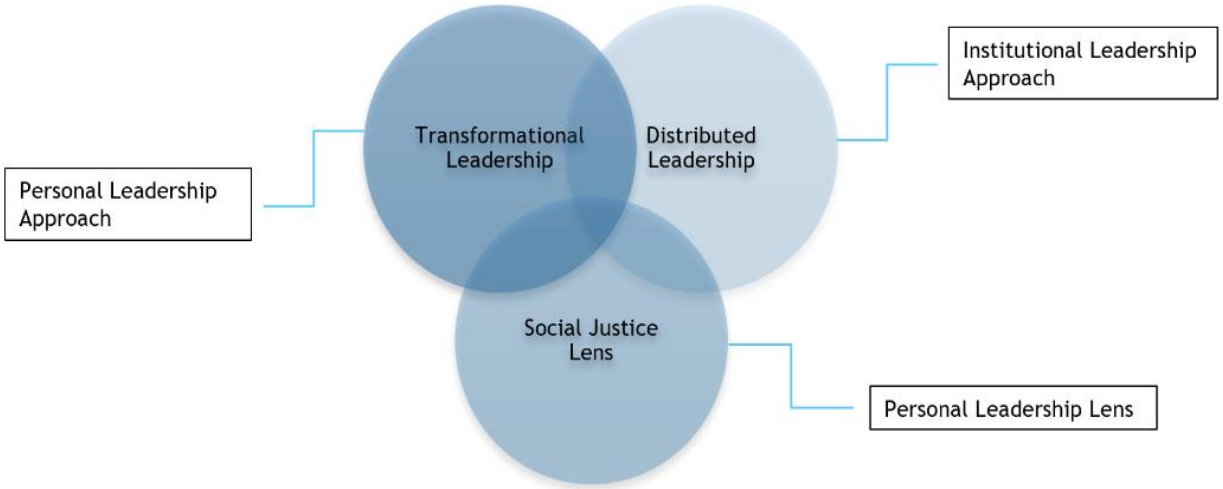
Leadership Approaches to Change

In my capacity as the Graduate Education Workers Development Officer, I will seek participation and consultation from the relevant senior leadership within Student Affairs, the Equity Office, the School of Graduate Studies, and the Provost's office, and lead from the middle to move change plans forward. Moreover, a PoP that aims to improve mental health and wellbeing of graduate students and involves multidisciplinary stakeholders is best informed by equitable and collaborative frameworks. Transformational and distributed leadership underpinned by a social justice lens, have been strategically selected as the leadership practices and leadership lens to move the change plans forward. The intersection of the two chosen leadership approaches and leadership lens within this OIP are depicted in Figure 5, and the

importance of each is articulated in the sections to follow. I begin by discussing the influence of social justice principles on the PoP.

Figure 5

Visualization of Leadership Practices



Social Justice

There is a connection between social justice and the inclusion of students with disabilities. Thus, there is an undeniable relationship between social justice and mental health advocacy (Inman et al., 2015). This is evidenced by nondiscriminatory practices on issues of race, religion, class, gender, disability, and sexual orientation being rooted in social issues (Theoharis, 2007). Social justice aims to deconstruct marginalization of historically disadvantaged groups within pedagogy (Kincheloe, 1999), which is consistent with the goals and objectives of this OIP. A singular definition of social justice in literature remains elusive. For the purposes of this OIP, two definitions are adopted. The first definition comes from Gewirtz (1998) who states that social justice is centered on the ideas of disrupting and subverting arrangements that promote marginalization and exclusionary processes and supports a process built on respect, care, recognition, and empathy (Gewirtz, 1998, p. 482). The second definition

comes from Goldfarb and Grinberg (2002), who state that social justice is “actively engaging in reclaiming, appropriating, sustaining, and advancing inherent human rights of equity, equality, and fairness in social, economic, educational, and personal dimensions” (Goldfarb & Grinberg, 2002, p. 162). A combination of Gewirtz’s (1998), and Goldfarb and Grinberg’s (2002) definitions provide a comprehensive and operational definition of social justice. Applying this social justice lens, this OIP seeks to disrupt systematic marginalization and exclusionary processes; implement interventions and services that are reflective of respect, empathy, and equity; and to advance human rights in education. This definition aligns strongly with the objectives of this OIP as it gives a voice to the people outside the traditional hierarchy and allows graduate students to participate in the change process through collective bargaining. Furthermore, the fundamental purpose of the unionized landscape of the GEWU is to act as the vehicle for social justice on campus for graduate students and to address the power differential between supervisors and graduate students.

Advocates of social justice argue that a paradigm shift is needed from individual-level interventions to systemic actions with regards to mental health treatments (Toporek et al., 2005). Although the work of this OIP attempts to improve individual-level interventions, in particular access to interventions, it also seeks to improve upon systemic barriers that exist. Toporek and McNally (2006) highlight that social justice education is both a process and a goal, aiming for full and equal inclusion and participation of all groups in a society. Even though social justice is not overtly presented in this work as a logistical step by step process, such as the transformational leadership framework, it is foundational to this work and my personal leadership style and approach. As such, social justice is woven into every aspect of this OIP, including driving the basic purpose of seeking improved mental health outcomes.

Transformational Leadership

Transformational leadership is arguably one of the most widely used leadership theories due to its diverse applicability, and effectiveness in addressing organizational tensions and overall performance (Bass & Riggio, 2006b). Its use in higher education has yielded positive outcomes with students' motivation, satisfaction, perceptions of instructor credibility, academic performance, and cognitive learning (Balwant, 2016). Transformational leadership motivates followers' consciousness beyond immediate self-interests through four dimensions: influence, inspiration, intellectual stimulation, and individualized consideration (Bass, 1999; Burns, 1978). Furthermore, my role as the Development Officer involves leading from the middle, which enables me to exert influence upward and downwards in the organization (Kealy, 2013).

Idealized Influence

This dimension is also commonly referred to as charisma. It speaks to the importance of a leader to articulate a sense of mission, emphasize trust, cultivate commitment to success, energize followers by reinforcing their own behaviours as role models, and to gain respect of followers (Bass, 1999; Burns, 2003). Specific to this OIP, it will be important that I, as the Development Officer establish trust of the graduate students and include their voices in creating a clear vision and mission. I aim to cultivate trust with graduate students through meaningful collaboration to help them see their tasks as part of the broader purpose, which is consistent with transformational leadership practice (Pasha et al., 2017).

Inspirational Motivation

This dimension communicates visions of the future state through the use of optimism, enthusiasm to build team spirit, praise, and personal interests and satisfaction (Balwant, 2016; Bass & Riggio, 2006b). Inspirational motivation will be needed with both graduate students, and

faculty members. Studies indicate the benefits of the inspirational motivation dimension improves client “well-being” (Farahnak et al., 2020). As such, motivating graduate students should occur relatively easily as they are the direct beneficiaries of improvements to mental health supports. To motivate faculty participation, I will appeal to their personal interests, as faculty and the institution overall has much to gain from improved health and wellbeing of graduate students, specifically as a human resource.

Intellectual Stimulation

In this dimension leaders encourage followers to deconstruct assumptions, take risks, and stimulate innovation and creativity (Bass & Riggio, 2006b). As such, stakeholders will be challenged to conceptualize, comprehend, and analyze the PoP in new ways and bring forward innovative strategies to fill the gaps (Balwant, 2016; Farahnak et al., 2020). Thus, by encouraging graduate students, faculty, staff, and senior leadership to examine current mental health support practices, I will collaboratively propose strategic and tactical solutions that can be implemented to address this PoP. This will empower stakeholder members to bring forth proposals from members at all leadership levels and dynamic backgrounds from across the institution.

Individualized Considerations

By fostering a sense of safety and trust, this dimension allows individual employees to feel comfortable having divergent views from their leader and one another. By appealing to the individual identities of their followers, and through coaching and mentoring followers in a supportive and empathetic way, this dimension encourages follower’s self-development and promotes their intrinsic motivations (Bass & Riggio, 2006b, Balwant, 2016). By recognizing

graduate students as unique individuals, this OIP aims to foster a sense of safety and trust that allows individuals to feel comfortable expressing divergent opinions (Farahnak et al., 2020).

Distributed Leadership

The PoP in this OIP spans across the institution so, due to the cross disciplinary and multi-departmental involvement of relevant stakeholders, shared responsibility is therefore central to the successful implementation of change plans. In order to effectively navigate such an organizational environment, distributed leadership has emerged as useful leadership strategy (Gronn, 2003; Harris et al., 2007; Youngs, 2017). Distributed leadership is described as being "primarily concerned with the co-performance of leadership and the reciprocal interdependencies that shape leadership practice to diverse contexts and cultures" (Spillane, 2006, p. 58), where responsibility is shared and distributed among multiple actors who support others in achieving organizational goals (Bolden, 2011; Holt et al, 2014).

The distributed leadership approach is well suited for an OIP seeking to improve mental health conditions for graduate students at a HEI, as an institutional change of this magnitude must be a shared responsibility. Furthermore, the distributed leadership approach is also fitting with my position as the Development Officer at the institution. Leading from the middle, I occupy a position that enables me to exert influence on those above me in the organizational hierarchy, along with those graduate students who I seek to serve (Hargreaves & Shirley, 2020; Kealy, 2013). However, it is vital that the limitations of this influence be acknowledged, as changes that involve faculty members are governed by a separate collective agreement (CA) and bargaining process. Furthermore, distributed leadership is built on respect and a culture that values trust, rather than regulation, and is focused on activity undertaken across institutional

stakeholders; each of these elements are ideal for propelling a change initiative of University Z's mental health support services (Jones, 2014).

The two leadership approaches and the leadership lens have been strategically selected as they are all complementary and support the desired change of this OIP. The approaches and lens are ideal as they elicit the learning capacity from formal and informal leadership roles (Harris, 2009). I am positioned to advocate for change, however participation from senior leadership will be necessary for the successful implementation of any change plans. Transformational and distributed leadership can be leveraged to address the PoP, with social justice as a foundational cornerstone in the realization of this OIP.

Framework for Leading the Change Process

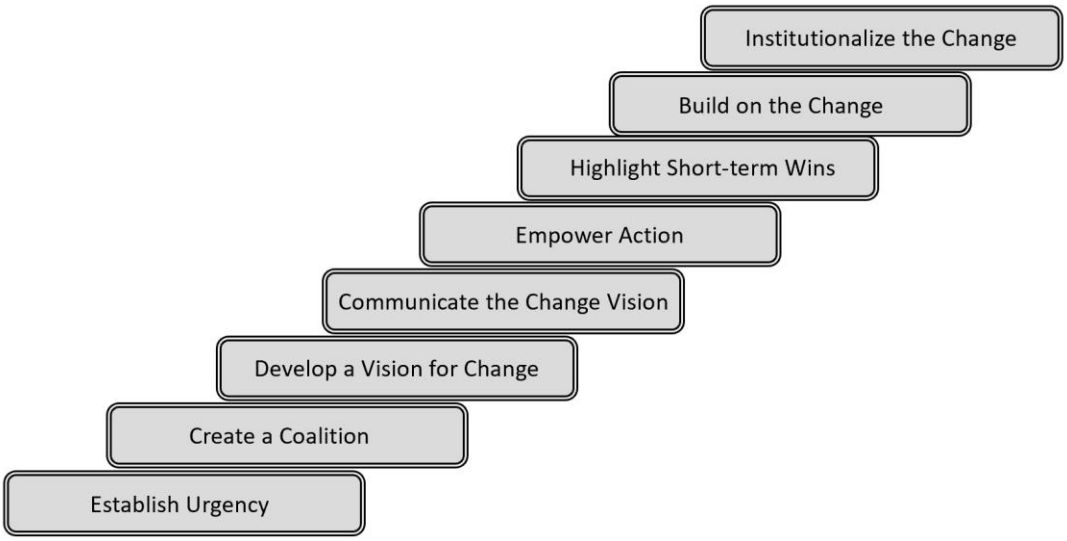
In this section, I examine the following models as possible frameworks to lead the change: Kotter's (1996) Eight-Stage Model; Cawsey et al. (2016) Change Path Model; as well as a hybrid model of the Eight-Stage Model and the Change Path Model. By bridging Kotter's (1996) and Caswey et al. (2016) frameworks together, the resulting superimposed synchronized framework tactically addresses both the practical and humanistic elements of the change process is established.

Kotter's Eight Stage Model

Kotter's (1996) Eight-Stage Model is one of the most widely recognized approaches to large-scale organizational transformation (Mento et al., 2002), and has been described as having the most compelling prescriptive formula for success in change management (Phelan, 2005, p. 467). The model offers a highly structured step-by-step process that an organization must sequentially complete to successfully implement (Cawsey et al., 2016). Figure 6 depicts each of the eight steps that Kotter outlines in his change model.

Figure 6

Kotter's Eight-Stage Change Model.



Note: Adapted from Kotter, J.P. (1996). Leading Change. Boston, MA: Harvard Business School.

The Eight-Stage Model is a useful tool for cultivating and maintaining participant engagement, encouraging continuous organizational improvement, and providing structured direction to change leaders (Calegari et al., 2015). However, Kotter's Model has its limitations. An expansive review conducted by Appelbaum et al. (2012) reveal in the book, *Leading Change*, that Kotter relies largely on personal experience and limited external sources. While the model is recognized as "mainstream" (Nitta et al., 2009), there is inadequate empirical evidence that outlines how the model has been used in practice (Pfeifer et al., 2005; Pollack & Pollack, 2014). The most negative criticism that is relevant to its application in this OIP is that Kotter's Model is far too mechanistic and fails to account for the humanistic element to change (Appelbaum et al., 2012; Hughes, 2016). With the current focus on graduate studies and its role in the onset of mental health illnesses, this OIP is deeply rooted in the humanistic element. Thus, to address the

deficiencies in Kotter's (1996) Eight-Stage Model, Cawsey et al. (2016) Change Path Model is considered.

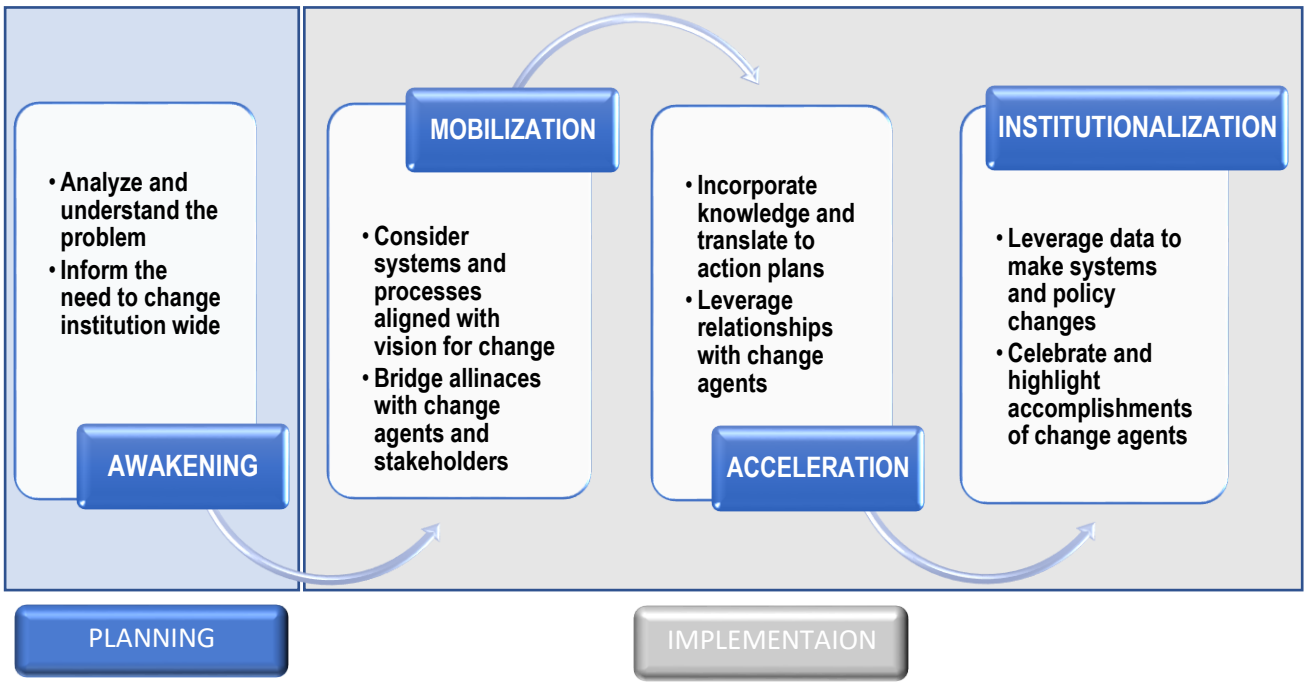
Cawsey, Deszca, and Ingols (CDI) Change Path Model

The Change Path Model by Cawsey et al. (2016) is action and task oriented, thus it can serve as a guiding framework in the planning and implementation phases of this OIP. The authors extract essential components from various preceding models and combine the process and prescription to provide a comprehensive framework to guide organizational change (Cawsey et al., 2016).

The Change Path Model consists of four stages; Awakening, Mobilization, Acceleration, and Institutionalization as depicted in Figure 7. In the awakening stage, change agents inform the need to change, deepen understanding of the gaps, and communicate this need to the various stakeholders (Cawsey et al., 2016, p. 53). In part, some of this has already taken place with the identification of the problem and assessment of some of the factors that contribute to the PoP.

Figure 7

The Change Path Model



Note: Adapted from Cawsey, T.F., Deszca, G., & Ingols, C. (2016). *Organizational change – An action-oriented toolkit* (4th ed.). SAGE.

In the mobilization stage, the authors highlight specific tasks to transition through the stage. The mobilization stage is the determination of what needs to change through engagement, discussions, and nurturing participation. This stage prompts consideration of systems and processes that are aligned with the vision for change and those that resist the change processes. Communication to manage change recipients' and relevant stakeholders' reactions to move the change forward is crucial in this stage. Also, it is vital that change leaders consider how their own skills can be bridged with alliances formed with other change agents.

The third stage, acceleration, incorporates the knowledge gained from the awakening and mobilization stages, and translates the knowledge into implementation plans (Cawsey et al., 2016). This stage consists of leveraging relationships, positions, and establishing cohesiveness among change agents. This can be achieved by routinely engaging graduate students, staff, and faculty members by ensuring they have the knowledge, skills, and resources they need throughout the planning and implementation of the change. At this point of the acceleration phase it is vital to "celebrate small wins and achievements" to boost morale and build momentum (Cawsey et al., 2016, p. 55). Institutionalization is the final stage. In this stage the Graduate Development team and I will need to collect data to measure the impact of change plans and make modifications as needed. This information is valuable in data-driven decision making to deploy new systems, policies, and structures to bring stability to the transformed organization. Data collection through graduate student surveys can continue to be the primary source of data since the Development Officer has direct agency over this information.

However, because this model is less prescriptive, the steps needed to be taken can be difficult to identify. The mechanistic and checklist nature of Kotter's Model is absent. A change of this magnitude requires detailed instruction. This can be valuable to ensuring there is some predictability in the change process. To address this limitation, the following section considers a combination of the Change Path Model and the Eight-Stage Model.

CDI x Kotter Model

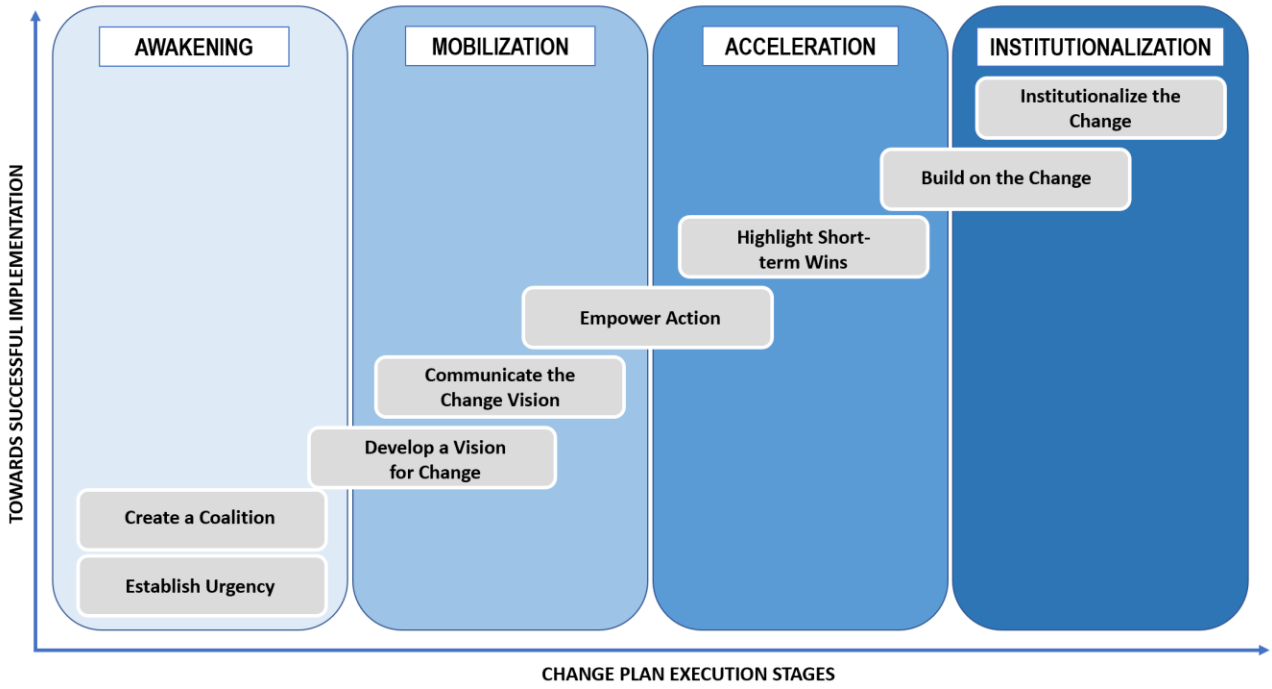
The implementation of Cawsey et al. (2016) and Kotter's (1996) Model as a hybrid model (CDI x K) offers a comprehensive change process by extracting and applying the best of both models. The Eight-Stage Model doesn't sufficiently address the humanistic element of the change process needed to improve the mental health and wellbeing of graduate students at University Z. By overlaying the Eight-Stages onto the Change Path Model to mitigate this limitation, both the prescriptive and humanistic dimensions of the change process are synchronized as seen in Figure 8. Due to the linear nature of both models, it can be seen how they are complementary when they are superimposed. Linear and traditional change management frameworks often prioritize the voices of senior leaders and managers. However, the resulting superimposed synchronized framework gives space to the voices of graduate students who are often underrepresented and outside of the traditional hierarchy, because its application in this OIP is within a unionized landscape, which addresses the power differential between working groups. As such, the model is responsive to the authority of collective bargaining and the GEWU, which operate on social justice principles.

There is significant overlap in the Change Path Model and Eight-Stage Model, which is to be expected since Cawsey and colleagues extracted from preceding models that had demonstrated success (Cawsey et al., 2016, p. 53). Leading the change process through each

phase of the hybrid CDI x K Model is explored in the following sections.

Figure 8

Synchronized Change Path Model + Eight-Stage Model (CDI x K)



Note: Adapted from "Organizational Change," by Cawsey et al., 2016, p. 55 and "Leading Change" by J.P. Kotter, 1996, p. 21.

Phase One: Awakening

The first stage of the Change Path Model is to identify the need for change through the collection of internal and external data, and to articulate the gap between the current and envisioned future state. This aligns with the first stage in Kotter's Model—establish a sense of urgency. Kotter cites the establishment of urgency as a critical factor in garnering cooperation (Pollack & Pollack, 2014). The failure to establish urgency is noted as the most detrimental error when trying to change an organization (Kotter, 2008). Therefore, both models essentially commence with the same first step of making organization members aware of the need for

change. In the case of this OIP, internal and external evidence has already been collected to propel the need for change. The data from the ACHA, nationally and specifically for University Z, highlights the compelling evidence that graduate students are at risk for the onset of mental health illnesses (ACHA, 2010; ACHA 2013; ACHA, 2016; ACHA, 2019). The findings from ACHA's 2010 report, sparked the creation of University Z's Mental Health Committee (MHC). The report compiled by the MHC found that 49 per cent of students in 2016 felt so depressed that it was difficult to function (University Z, 2017).

The establishment of University Z's MHC is consistent with the second stage of Kotter's (1996) Model; to create a powerful coalition. A strong coalition consists of: (a) the right people who have the authority and power, the expertise, and high credibility; (b) the ability to garner trust; and (c) a mutual goal (Kotter, 1996, p. 66). A coalition has already been formed that includes the key change drivers; Provost, senior leadership from Student Affairs and the Equity Office, the School of Graduate Studies, and graduate students into one centralized group. As previously mentioned, the coalition consists of many more departments and groups that span the institution. The coalition was established in 2012 (University Z, 2017).

Another task in the awakening phase, as outlined by the Change Path Model, is to develop a powerful vision for the desired change (Cawsey et al., 2016, p. 55), which is also consistent with the third stage in Kotter's (1996) Model. The benefits of a succinct vision for change encompasses the simplification of the process, motivating action, and coordinating the efforts of many (Kotter, 1996, p. 68), and is well documented in literature (Appelbaum et al., 2012; Whelan-Berry & Somerville, 2010). It is noteworthy, from the synthesized CDI x K Model, that developing the vision for change begins while in the awakening phase but ends in the mobilization phase. This is to highlight the fluidity of this stage, and to signal the beginning

of the mobilization phase. Additionally, stages from the Eight-Stage Model overlap two phases of The Change Path Model, which is observed with subsequent stages. It signifies the transition from one stage to the next stage.

Phase Two: Mobilization

In this phase change leaders must make sense of the desired change through formal systems and structures and build shared support for the change. The mobilization phase aligns with the fourth stage of Kotter's Model. The leadership team needs to "capture the hearts and minds" of most members (Cawsey et al., 2016), by relentlessly communicating the vision for change through various mediums and channels (Appelbaum et al., 2012). Failure to adequately communicate change plans to stakeholders can weaken the support garnered. This is vital for University Z, as several support services are decentralized. Effective communication will ensure that concerted efforts made by the coalition are not redundant within smaller factions in the institution.

Similar to the third stage of Kotter's Model, the fifth stage—empower action, also overlaps with two phases of the Change Path Model. In the fifth stage, Kotter identifies structures, skills, systems, and supervisors as four major barriers to employees feeling empowered to act. In the case of this OIP, all four of these barriers are relevant, especially structure and supervisors. The structures that exist within graduate studies do not foster the balance needed to maintain wellbeing, as standard operating procedures (SOPs) do not exist. For example, the times after hours that a graduate student can work alone in a lab are not formally outlined in any policies at University Z, which can pose a safety risk.

By assessing power and cultural dynamics and how change recipients and stakeholders are reacting to the change, leaders can leverage that which is working to move the improvement

plan forward and work collaboratively to remove barriers. In doing so, change agents will mobilize the change process, empower action, and begin to build momentum. In this way the Change Path Model bridges the humanistic element that was discussed earlier in this chapter.

Phase Three: Acceleration

As change plans gain traction, change leaders must continue to systematically fuel and drive the action forward by reaching out, engaging, and empowering others. They must push to support change makers in developing new knowledge, skills, abilities, and ways of thinking that are aligned with the change plans. This phase is also described as the "motivational" phase as it keeps the momentum going. This aligns with the sixth stage of Kotter's Model by highlighting short-term wins, which boosts morale, galvanizes employees, and recharges their commitment to the change plans. By publicizing gains and increasing visibility to large numbers of people, the progress is indisputable and reaffirms that the change plans are on track (Kotter, 1996). For example, the MHC has secured internal funding that has allowed for the creation of a centralized online communication zone, secured a dedicated position within Student Affairs, and implemented a voluntary training initiative (University Z, 2017). These are gains that highlight University Z's commitment and support to the change initiatives and allow change makers to see the benefit of their efforts. This segues into the seventh stage of Kotter's Model which is to consolidate the gains and build on them until the change "seeps into the deepest recesses" of the institution (Cawsey et al., 2016, p. 59).

Phase Four: Institutionalization

In the final stages of the implementation, leaders must track the change periodically and identify key indicators to gauge progress, make necessary adjustments, and mitigate risks. When changes have been integrated into the fabric of the organization, and the stable transition into the

desired state is underway – institutionalization can be achieved. The final stage of Kotter's Model also involves the institutionalization of change as it becomes part of the ongoing and daily activities of the institution (Jacobs, 2002). This step leads to the change in culture of the organization after a significant time investment and resource allocation.

This new synchronized CDI x K Model bridges the benefits of both the Change Path Model and the Eight-Stage Model and creates a framework that addresses both the practical and humanistic elements of change. The humanistic element is vital as it aligns with the social justice lens that supports a process built on respect, care, and empathy (Gewirtz, 1998). Furthermore, while linear and traditional change management frameworks center and prioritize the voices of senior leaders and managers, the use of the model by the GEWU, a unionized body, challenges exclusionary practices that reproduce social hierarchy. The hybrid framework is used in Chapter 3 as a thought map to detail the specific objectives, tasks, personnel, and timelines of the implementation plan.

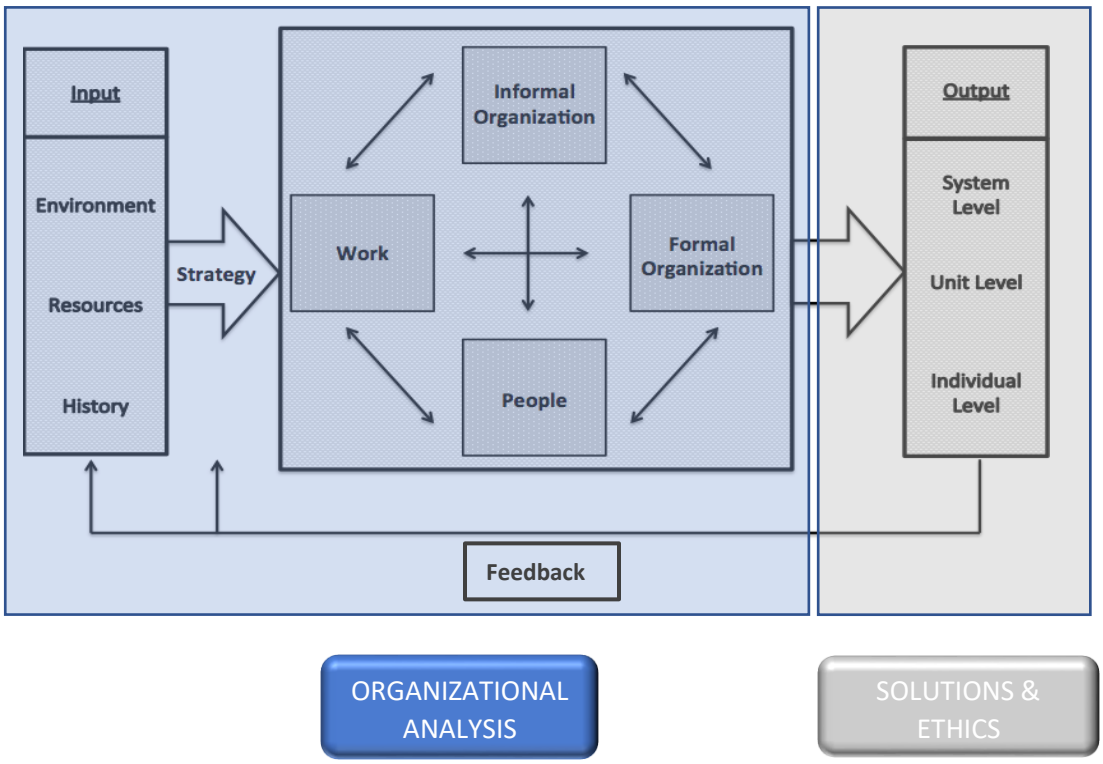
Critical Organizational Analysis

While extensive discussion has taken place with respect to the process for organizational change, it is also vital to consider *what* to change. In this section a comprehensive gap analysis to illuminate what needs to change will be undertaken using Nadler and Tushman's Congruence Model (CM) (1980) shown in Figure 9. The CM is an ideal tool due to its straightforward approach and the exhaustive organizational overview that can be achieved. This analysis will reveal what systems/structures within the organization are misaligned with the desired future state. Furthermore, this discussion expands on the brief introduction of Nadler and Tushman's CM that was provided in Chapter 1. In the previous chapter, the model was used as a strategic

way to present a partial PESTE analysis due to the overlap with the PESTE components within the CM. Therefore, its use to conduct an organizational gap analysis is appropriate.

Figure 9

Visualization of the Implementation of Nadler and Tushman's CM



Note: Adapted from "A model for diagnosing organizational behaviour," by D.A. Nader and M.L Tushman, 1980, Organizational Dynamics, 9.

Nadler and Tushman's CM (1980) will result in an analysis that considers multiple variables to provide a deep understanding of an organization and the way in which these variables relate to the external environment (Cawsey et al., 2016, p. 68). The model consists of inputs, transformation processes, and outputs. The model asserts that the greater the congruence between the organization's transformation processes; work, people, informal, and formal structures – the more the organization is aligned with external realities, and the performance and

organizational output is greater (Nadler & Tushman, 1989). The transformation process and its effect on outputs is briefly discussed. However, an in-depth examination of outputs and their impact on solutions and ethical considerations is provided in the subsequent sections of this chapter.

Inputs

The application of this model allows for examination of input into the organization by understanding its environment, resources, and history associated with the institution. This analysis, in conjunction with the partial PESTE from Chapter 1, offers a comprehensive overview of graduate student mental health at University Z. Furthermore, a strategy can be developed by incorporating these input factors, leading to a transformation process (Nadler & Tushman, 1980).

Environment

Environmental factors are external to the organization but can influence the institution by placing demands, limiting its activities, and creating opportunities. A critical external factor in this OIP is the provincial government. The ubiquity of mental health issues on campuses has drawn the attention of the Ontario government, such that teaching and cultivating resilience is now mandated in the curriculum of HEIs (CECU, 2016). This is an example of a demand that the external environment is placing on the organization. Although the government recognized the need to prioritize mental health at HEIs, recent shifts in government policies have impacted commitments made by the previous government and placed a limitation on the organization. For example, while in power, Ontario premier Kathleen Wynne made a commitment of $2.1 billion-dollars over a four-year period towards mental health care and addiction services, in addition to the $3.8 billion-dollars the province spends annually (Giovannetti, 2018). However, when Doug

Ford's Progressive Conservative (PC) government replaced the Liberal government in June of 2018, they cancelled previously promised funding. The PC government has now reduced the funding to $1.9 billion dollars over the next ten years (Benzie, 2018). Annually, the proposed $525 million dollars in funding towards mental health has also been reduced down to $190 million dollars. Contributions from the government, can change drastically when governance shifts from one political leader or party to another. As such, the strategy developed in this OIP cannot be solely dependent on government funding due to the uncertainty of politics.

Resources

The second input factor; resources, requires an in-depth consideration since there are several resources at play at HEIs. In a broader HEIs context, financial resources are increasingly scarce and government support is in decline (CFSO, 2013; Mackay, 2014). Thus, graduate studies and research rely primarily on grant funding, which is ambiguous, unstable, and operates with its own set of rules and challenges. For instance, each agency has independent policies for compliance and eligibility criteria, which makes navigating grant funding a difficult and highly obscure realm. As it pertains to role creation for mental health service providers, service creation, training program development and deployment, access to resources also needs consideration.

The success of this OIP hinges heavily on two categories of human resources. The first category is graduate students, who are the focal point of this OIP. Due to the dual role of graduate students as customers and as employees, graduate students are one of the institution's most dynamic human resources. Graduate students bring significant value to HEIs (de Lourdes Machado et al., 2011; Schmidt & Hansson, 2018), conducting over half of the research carried out by universities (Barry, Woods, Warnecke, et al., 2018), which is a large component in STEM

graduate studies degree requirements. The second category is faculty and staff, whose cooperation, collaboration, and commitment are necessary to bring this OIP to realization.

In Bolman and Gallos (2011) discussion of the Four Frame Model they attribute organizational health as being “dependent upon the quality of relationships between its employees and their ongoing professional development” (p. 93). The relationship between these human resources is an important factor since the power differential and negative dynamics have been reported as factors contributing to mental health illnesses among the graduate student population. This can result in diminished workforce talent, lower research productivity, and overall lost economic potential (Mackie & Bates, 2018; Schmidt & Hansson, 2018, Golde, 2005). Evidence suggests that graduate students are more likely to persist in graduate education if “they develop meaningful and collegial relationships with their supervisor” (Van der Linden et al., p. 100). By focusing on building relationships and shifting the transactional nature of supervision of graduate students towards mentorship, the envisioned future state can be achieved. This shift also aligns with the transformational leadership approach to create the desired change.

Also, consideration of the support resources available to graduate students is necessary as the lack of available services, long wait periods to access support interventions, inadequate number of counselling/therapy sessions, and cost have been cited as barriers to being sufficiently supported (Garcia-Williams et al., 2014).

Research and publications are an important component within university rankings. Institutional rankings have become increasingly vital with a growing globalized society (van de Schoot et al., 2013) and with the rise of international students to offset decreased government funding. Thus, University Z, has a vested interest to adequately support graduate students due to their role in producing large amounts of research output (Barry, Woods, Warnecke, et al., 2018;

van de Schoot et al., 2013). Failure to support employees with the necessary resources, serves as a deterrent and diminishes commitment to change plans (Austin & Sorcinelli, 2013; Shagrir, 2015).

History/Culture

Nadler and Tushman (1980) identify history as the third input factor and assert that the current functioning of an organization is influenced by the institution's evolution, mission, vision, and values. By understanding the organization's past events, change leaders can gain insight into its decision-making processes. While University Z was a late adopter of graduate education, it had been conducting research and partaking in scientific endeavours since 1948 (University Z, 2007). Despite a long trajectory in the research realm, University Z lacks governance on graduate student research. Directions and SOPs within a research group and a lab are set out by each individual lab supervisor. This is problematic for a few reasons. There is a lack of supervisor accountability, because of a lack of institutional policies. Furthermore, a lack of oversight from the institution creates an opportunity for abuse of graduate students due the disproportionate power differential (Lechuga, 2011; Mousavi et al., 2018). Secondly, allowing autonomous policy development of this nature at the individual lab level can create inconsistencies across the organization. This can be challenging for graduate students and external partners working with multiple labs to navigate.

Strategy

Input factors are used to develop the organization's strategy to achieve the desired outcome as indicated in Figure 9. A dissection of University Z's strategic plan reveals its commitment to various input factors that are relevant to this OIP. For example, the plan outlines prioritizing scholarly research, advancement of graduate education, and promotion of health and

well-being. However, there is a gap in University Z's articulated goals and its approaches to achieve said goals, which brings into question the legitimacy of the strategic plan. This lends itself to Argyris and Schön's (1974) work on espoused theories, which examines the dissonance between the way in which the organization *says* it operates and the way the organization *actually* operates. Even though University Z has outlined a commitment to research and graduate education, the strategic plan focuses on establishing a global footprint through innovation and entrepreneurship (University Z, 2014b).

Transformation Processes

Each of the four components of the transformation process are dissected in this section as part of the organizational gap analysis and to illuminate the priorities for change. The greater the congruence of these components, and alignment with the input factors and organizational strategy, the more likely the institution is to achieve the desired state. However due to the austerity and ubiquity of stigma and its interdependence with informal processes, greater attention was given to the informal component.

Work

Nadler and Tushman (1980) assert that basic work is the first component of the organization necessary to achieve the institution's strategy, or the task. In the context of this OIP, one specific strategy that University Z aims to achieve is advancing research excellence. Thus, the work being discussed in this section is the research that is being carried out by STEM graduate students as part of their degree requirement. The nature of the work is reported by STEM graduate students as being highly transactional (Hund et al., 2018). To evolve towards the desired state, graduate student supervision will need to move towards a mentorship approach (Van der Linden et al., 2018).

People

The second component of an organization are the people who complete the tasks (Nadler & Tushman, 1980). Ensuring graduate students are able to effectively complete their tasks and promoting their mental health and wellbeing involves a multitude of stakeholders. There is a gap in mental health awareness and training for staff and faculty, that limits the level and quality of support they can offer to graduate students that are at risk or already experiencing the onset of mental health illnesses (Hund et al., 2018). In the context of this OIP, a shift in attitudes of graduate supervisors to adapt and support students who have, or are at risk of, mental health illness is necessary. Supervisors will need to develop knowledge and skills to improve holistic mentorship. This will likely be met with resistance as it will challenge faculty members to evolve from the status quo, require training, and increase their involvement with the graduate student(s) they supervise.

Formal Organization

The formal organization is the third component of the transformation process of Nadler and Tushman's CM (1980). It encompasses the structures, processes, methods, and procedures that get the *people* to perform the *work.* As discussed in Chapter 1, the formal structure of University Z is hierarchal, however each department operates autonomously and provides oversight within their respective graduate programs. Furthermore, support services with the greatest expertise in mental health are offered through the centralized services. While the centralized service teams are experts in the field of mental health, they lack the context of the specific academic pressures associated within STEM graduate studies. Moreover, these departments and offices operate in a hierarchal structure. They are relatively insulated from one another which hinders knowledge transfer and opportunities for collaboration. The support

services and teams are situated throughout the organization, and so there is no intersection among key players such as the Equity Office and Student Affairs.

Informal Organization

The final component of the transformation process is the informal organization. Nadler and Tushman (1980) posit that the informal organization encompasses the institution's culture, established norms for task completion, values, beliefs, and management style. This is especially important in the context of this OIP due to University Z's relative infancy as an institution and consequently not being rooted in long standing traditions. However, due to the lack of established practices, much of the dynamic at University Z follows the "publish or perish" culture, as is prevalent within graduate education (Alvarez et al., 2014; Mousavi et al., 2018). To bridge the gap, a cultural shift in the way scientific research is valued needs to evolve at University Z, and graduate students' contributions need to extend beyond publications. Also, of significant relevance to this OIP, is the culture of acceptance that graduate studies is rigorous and therefore synonymous with the onset of mental health illnesses (Levecque et al., 2017). While it is accurate that academia is widely afflicted by mental health issues (Cunningham & Duffy, 2019; Garcia-Williams et al., 2014; Mousavi et al., 2018), the acceptance of such conditions within academic culture is largely the issue. The notion that anxiety, depression, and suicidal ideation are expected experiences of graduate studies are barriers to STEM graduate students seeking assistance and support (Martin, 2010; Rudick & Dannels, 2018). Further, the proclivity of stigmas associated with those who seek support, such as being regarded as weak, less intellectually able, and somehow less scientifically legitimate (Carmack et al., 2018; Carpiniello & Pinna, 2017) is reprehensible. Moving away from this stigma requires a collaborative effort at all levels of the institution.

Outputs

Nadler and Tushman's CM (1980) examines outputs on three levels of the organization: the individual, the unit, and the system level. Outputs can consist of the services an institution provides in order to achieve its objectives, or the satisfaction of institutional members/customers. In the context of this OIP, the individuals would represent the graduate students, the unit would represent the departments of the various graduate programs and governing bodies, such as the GEWU, and the system level would reflect University Z.

The four input factors and the four transformation process elements provide a comprehensive organizational gap analysis. The findings of the critical organizational analysis illuminate a few priorities for change that include; the need to shift graduate education supervision from a transactional towards a mentorship approach; mental health awareness and training for staff and faculty are essential; the hierarchal structure hinders knowledge transfer and opportunities for collaboration; a cultural shift in the way scientific research is valued is necessary, and fighting stigma requires collaboration at all levels of the institution. The outputs of the organization have not been utilized in the gap analysis but are discussed in the subsequent sections of this chapter. Nadler and Tushman's CM has been adapted to analyze University Z throughout this OIP, which allows for each component part to be considered in developing a solution to the PoP.

Possible Solutions

The application of Nadler and Tushman's CM (1980) to University Z identified several areas for change that are problematic for graduate student mental health. The organizational analysis demonstrated a misalignment of the institution's espoused strategic plan and its existing approaches. As such, there was a lack of congruence with several of the factors, which the Development Officer has to address. The factors that the Development Officer has direct or

indirect agency over are human resources (graduate students), work (workload), formal (CA) and informal organization (culture/stigma). Four solutions to address the PoP are considered in this section. The solutions presented aim to capture the information illuminated from the organizational analysis. The viability, potential benefits, resources necessary, and consequences of each solution are scrutinized.

Each solution presented elucidates whether it is a change at a micro, meso, or macro level which is an extrapolation of the outputs from Nadler and Tushman's CM (1980). The micro level represents the graduate students, the meso level represents the department/faculty level (GEWU), and the macro level represents the institution (University Z). Therefore, in my capacity as a Development Officer with the GEWU, I am well positioned to lead change from the middle.

Possible Solution 1 - Maintain Status Quo

As a first potential solution, the institution could take no active action and continue to observe and collect trending patterns. This solution would not require added resources, but existing measures that are in place to support mental health initiatives would need to be maintained at a macro level. This approach would not be a lasting solution as government mandates are calling HEIs to action to address mental health and wellbeing on campuses.

Actions and Resources

While this approach would seemingly be the easiest, the cost of continued deficiencies needs to be considered. As previously identified, graduate students are a valuable human resource at University Z. Not addressing ongoing illness among the population would create deficits in productivity, and potentially lead to absenteeism. Furthermore, failure to rectify systemic barriers would continue to exasperate mental health illnesses, and lead to the need for greater support interventions.

Benefits and Consequences

The benefits to this solution appear to be limited and short lived. While in the short term no immediate action would need to be taken, and University Z could continue its daily operations, it would be irresponsible of the institution to not be proactive at this stage. By doing nothing, the mental health needs of graduate students will only grow, and instead of taking a proactive approach, University Z will be reacting, and doing so retroactively.

Possible Solution 2 - Develop Policies and Standard Operating Procedures

Policies are needed to clearly outline the expectations and accountability of both graduate students and supervisors. Policy documents, such as SOPs and training guides, would serve to streamline the rules of engagement across the institution. Graduate students have a CA to protect their rights as employees of University Z. The institution must adhere to the CA, failure to do can result in actions taken against the organization. Currently, there is no policy document that provides governance specifically over graduate research and the academic aspect of graduate studies at University Z. Policies that specifically outline the maximum number of hours a graduate student can work, protocols for working in a lab that extend beyond typical office hours, and governance of the supervisor-graduate student relationship that mirror the Employment Standards Act are needed. The new policies would need to account for all other existing and relevant institutional policies, such as the student code of conduct and the CA and consider their impact on the new policies being implemented.

Actions and Resources

Policy development pertaining to graduate students and graduate education would involve consultation at various levels within the institution and require participation from several stakeholders. The development of policies would be in constant consultation of graduate

students, who have the agency to affect change through the process of collective bargaining. Although the focus of this OIP is on STEM graduate students, general policies that impact all graduate students across the university would need to be inclusive of non-STEM departments. A coalition that includes senior leadership from the School of Graduate Studies and GEWU, representatives from the relevant faculties and departments, including deans and chairs, human resources, graduate students, and the Vice-Provost would be needed to establish the harmonized policies that all stakeholders agree on. As such, instituting a policy change would involve participation at the micro, meso, and macro level. However, the initiative would largely be led by the Development Officer from the GEWU as this is one of the primary functions of the role. Although several stakeholders can increase the complexity, their participation increases the potential for knowledge transfer and is inclusive of multiple perspectives. Furthermore, this would result in a thorough policy development process, which has a higher chance of affecting lasting change (Senge, 2006).

The most significant resource involved in this solution would be time allocation of existing human resources. The consultation with the coalition is a time-consuming process and would require several meetings. The dialogue taking place in these meetings would also inform the collective bargaining process. Thus, the significant overlap in the nature of the work with the Development Officer role of the GEWU, makes this an achievable goal. The GEWU already oversees policy development and the negotiation of CAs that manage the graduate student relationship with University Z. While the skills, knowledge, and ability to develop policy already exist, it will require the support of University Z as this work would be in addition to the existing workload. To achieve tangible change efforts, it may necessitate the creation of a new role for a skilled expert to lead the coalition, which would require financial resources from the institution.

Benefits and Consequences

Establishing policy documents would allow for greater transparency and clarity on expectations for both graduate students and their respective supervisors. The policies would outline the minimum requirements of supervisors with respect to basic aspects of the graduate students' education. For instance, outlining at a minimum how frequently a supervisor should meet with a graduate student and also integrate mental health checks with the graduate student. These mental health checks should include conversations regarding workload and changes to funding commitments. This would allow for supervisors, who have one-on-one interactions with graduate students and function in a mentorship capacity, to gauge wellbeing concerns. This would also broaden the responsibility from the institution to support graduate students, to a more direct, accessible, and already exiting interaction with the graduate student supervisor. Greater transparency and clarity on expectations would help to improve the graduate student and supervisor interaction. Instituting policy changes would be the single greatest achievement of this OIP and would hold the utmost influence in improving mental health and wellness for graduate students in STEM. It is important to note that policy changes will not garner immediate results and will be a highly time-consuming process.

Additionally, as the Development Officer of the GEWU, one of my responsibilities is to enforce the CA and institutional policies that pertain to graduate students. There are existing structures in place to ensure these policies are robustly implemented. For instance, to verify compliance with hiring practices outlined in the CA, each department is required to provide a report which details the credentials of each applicant for all graduate teaching assistantship posting, and the individual that was selected, at the beginning of a new semester. I then review these documents to confirm the policies were adhered to, and that the candidate with the highest seniority and most relevant credentials was selected. When there is a violation in the hiring

process, the graduate student who was deserving of the position is compensated. Thus, with respect to accountability measures for the newly enacted policies, I will utilize the structures that are already in place to police the current CA. However, a limitation to this approach is that I can only take action when a violation has occurred, or a graduate student files a complaint. Thus, it is vital that graduate students are informed of their rights and empowered to come forward when there is a non-compliance issue because a key accountability measure is through communication. Furthermore, another accountability measure relies on the cyclical nature of bargaining, and that there is an opportunity to renegotiate a policy or bargaining items that were unsuccessful during negotiations or implementation had unintended consequences.

Possible Solution 3 – Empower Graduate Students

A third potential solution to address the PoP would be to empower graduate students with knowledge and awareness of the newly enacted policies. By educating graduate students on their rights as they are set out in the collective agreement, this strategy would build their confidence to seek the support of the GEWU when staff or faculty are not in compliance with the collective agreement. To this end, equipping graduate students with awareness of their rights and approaches to balancing the power differential with graduate supervisors, this approach create greater accountability and transparency in the supervisor and graduate student dynamic.This would require a two-dimensional approach, where the actions and resources are considered through orientation programs at the meso and macro levels as the first dimension, and the second dimension is the consideration of actions and resources of graduate students at the micro and meso levels to make informed decisions. My role as the Development Officer leading from the middle is vital to this solution as I would be representing the collective voice of graduate students to University Z.

First Dimension

At the meso and macro levels, orientation programs to aid graduate students with the transition into graduate studies already exist and their value to promote student success is well evidenced in literature (D'Souza et al., 2015; Habley et al., 2012). However, the current graduate student orientation content focuses heavily on student responsibilities but lacks thorough information on their rights and the various support entities available to them. Students' transition into graduate studies is critical, and as such, frontloaded orientation programs that outline the responsibilities the institution, their respective departments, and their supervisor have to them as graduate students of University Z are critical. Additionally, the orientation needs to have a comprehensive component that informs graduate students of the various mental health support services available to them. By redesigning the orientation program to inform in depth graduate students' rights as set out in the CA and on and off campus resources to access appropriate interventions, students would be equipped with knowledge and resources to seek the appropriate interventions and support, that may mitigate the onset of mental health challenges.

Second Dimension

This second dimension is harnessed through empowerment by establishing greater transparency on the rigors of graduate education. High attrition rates are reported in the pursuit of graduate studies (DeClou, 2016; Hunter & Devine, 2016; Lepp et al., 2016; van der Haert et al., 2014). This is in part due to the gap in expectation versus reality of what graduate studies entail (Hardre & Hackett, 2015). To better promote graduate student success, the graduate supervisors would need to navigate the supervisor-student relationship with greater awareness to begin dismantling the power differential. To achieve this, the GEWU in collaboration with graduate students would develop an interview guide for onboarding graduate students. This solution would operate on the micro and meso levels. The purpose of the interview guide would

be to assist new graduate students in the preliminary dialogue when seeking a potential thesis supervisor, raise awareness of typical short- and long-term considerations within their education, and ultimately allow them to make informed decisions prior to committing to a supervisor. Furthermore, increased transparency will shift the paradigm from authoritative to collaborative, laying the groundwork for dismantling the power differential between graduate students and their supervisors. This approach could be valuable since graduate students that select their supervisor are more likely to persist and complete their degree, than those who are assigned a supervisor (Lovitts, 2001).

Actions and Resources

The implementation of a mental health component into an established orientation program would require collaboration with several stakeholders but would be led by the Teaching Office and the GEWU. Consultation from the Student Affairs department and the Diversity Office would also be vital as both teams have subject matter expertise in mental health support. The Teaching Office currently develops and disseminates the orientation program with consultation from the GEWU and approval of the Vice-Provost. Redesigning an existing program would alleviate some of the preliminary and logistical burdens of new program development. For instance, attendance at the orientation program is a mandatory requirement of graduate students, thus significant attention would not be required to engage student participation.

The development of the interview guide would require continued collaboration with the GEWU and graduate students. The survey development skills required to conduct such work, are already within the realm of the Development Officer. Additionally, through bargaining the GEWU team has already identified a few key considerations that graduate students at University

Z feel they would have benefited from knowing prior to commencing graduate studies. This ongoing list could serve to catapult the discussion and development of the interview guide. Furthermore, due to the overlap of this task with existing responsibilities of the Development Officer, this would be an achievable goal.

Furthermore, redesign of the orientation plan and development of the interview guide would require time from existing human resources. Similar to policy development, the skills, knowledge, and ability already exist within the institution and relevant stakeholders. However, the support of University Z would be essential as it would add to the existing workload, which may require additional funding.

Benefits and Consequences

Both strategies would aid in managing graduate student academic expectations and could influence their motivation throughout their program (Hardre & Hackett, 2015), and ultimately their mental wellbeing. A well-established mental health component in the orientation could provide graduate students strategies on how to cope with the challenges of graduate education and conflicts with supervisors. This solution demonstrates a potential in increasing transparency and illuminates how actual experiences may significantly diverge from expectations. By fostering transparency, this could empower graduate students to make informed decisions, have greater control of their graduate education path, and match with a graduate supervisor whose leadership style is akin to their individual learning style.

Possible Solution 4 -Train Faculty and Staff

The fourth proposed solution to address the PoP would be to equip faculty supervisors and support staff with the knowledge and tools to mitigate the onset of mental health illnesses. There is evidence of a widespread problem of “inadequate or inexperienced supervision” which

is known to contribute to depression among graduate students (Delamont et al., 2004). Due to the lack of formal training in the area of academic mentorship, the common assumption within STEM graduate student supervision is that faculty will "learn how to mentor on the job" (Hund et al., 2018, p. 9963), and often supervisors' mentorship style is based on their own experiences as mentees. While it is true that mentorship skills should evolve as leadership abilities strengthen, it is a disservice to faculty, staff, and graduate students to not prioritize faculty supervisory training (Hunter & Devine, 2016). Graduate students who are dissatisfied with their supervisor have higher attrition rates. Graduate students who quit their programs can face repercussions to their own mental health, but attrition also has an emotional and economic cost to the faculty supervisor, and the reputation of the institution (Lunsford et al., 2013).

Actions and Resources

Faculty and staff training initiatives would involve collaboration with senior administrators, the Teaching Office, the relevant faculty and staff unions/associations, departments, and the faculty and staff. This solution would operate on the meso and macro levels of the institution. Academic departments, faculty, and supervisors have a lasting impact on institutional culture (Mousavi et al., 2018). Soliciting the support and cooperation of faculty and staff and mediating resistance will be vital, as they can prevent emergent approaches from gaining traction. The GEWU could develop key objectives that graduate students aim to seek through mentorship from graduate supervisors which could be collected through surveys. Jacobi (1991) demonstrates that the role of mentorship should include, guidance, encouragement, coaching, provision of information, role modeling, and advocacy (p. 513). However, any such survey data would be provided as a courtesy and a suggestion. The Development Officer and the GEWU do not have agency to implement changes on the faculty and staff level. This initiative

would need to be led by senior administrators to mandate such a change. In addition to time commitments from faculty and staff as existing human resources, financial resources would be needed to develop and facilitate a training program.

Benefits and Consequences

There are reciprocal benefits for graduate students as well as faculty in training supervisors to be mentors. By improving supervisors' mentorship abilities, it will in turn improve graduate student outcomes, which will lead to improved collegial efforts and research output (Lunsford et al., 2013). To adequately respond to graduate student demands for increased faculty mentorship in the supervising relationship, senior administrators must acknowledge and address the potential costs of such mentorship (Lunsford et al., 2013). This requires shifting of institutional culture, which comes with risk of alienating long-time employees, and creating actions that subscribe to different values and approaches (Clark, 1972; Heifetz & Linsky, 2002). Also, institutional cultural shifts are very large undertakings as they are tied to peoples' innate beliefs, values, and customs (Bolman & Deal, 2013).

Of the four solutions presented, the latter three solutions are related. The solutions were discussed in both the context of outputs from Nadler and Tushman's CM (1980), and whether the change is at the micro, meso, or macro level(s). While the complementary strategies can lead to greater efficiencies within the institution, in my role as the Development Officer, I do not have the agency to enact change at the faculty or staff level. The fourth solution requires a cultural shift, that may have greater traction once the second and third solutions demonstrate positive outcomes and could be introduced as a "build on the change" stage of CDI x K Model. Therefore, the second and third solutions are prioritized, and the fourth solution will be considered at a future time. Table 2 summarizes the possible solutions, details the actions and

resources, and discusses the benefits and consequences of each solution. There is a natural order among solution 2 and 3. Such that, policies and procedures need to be created before graduate students can be empowered, therefore solution 2 will be implemented first.

Table 2

Summary of four possible solutions under consideration

Possible Solution	Actions and Resources	Benefits and Consequences	Levels of Change
1. Maintain status quo	No new actions would be taken, and new resources would not need to be acquired.	The benefits of maintaining status quo is that no immediate action would need to be taken. However, the potential consequences of this could result in further exasperating mental health illnesses at University Z.	None
2. Develop policies and SOPs	The policy development would require consultation with various institutional stakeholders, and the most significant resource would be the allocation of time from existing human resources.	This solution has the potential to improve mental health and wellness by providing governance and transparency in areas that STEM graduate students report as problematic.	Micro, Meso, Macro
3. Empower graduate students	First dimension: Would need to incorporate educational component on graduate student rights' and mental health and wellness component into the orientation programs in collaboration with the Teaching Office and GEWU. This solution would require a time commitment from relevant stakeholders.	The potential benefits of both these dimensions would be increased transparency in graduate student expectations from their student academic experience, which may improve motivation, and mental health, and wellness through the duration of the program. By fostering transparency, graduate students can be empowered to make informed decisions regarding their academic pursuits.	Meso, Macro
	Second dimension: Would involve the development of an onboarding guide to direct them in the process of seeking a graduate student supervisor. This solution would require a time commitment from graduate students and the GEWU.		Micro, Meso,
4. Train faculty and staff	Faculty and staff training initiatives would involve collaboration from senior administrators, the Teaching Office, Faculty and Staff Unions, and the STEM department leaders. Time commitment would be needed from faculty and staff as well as financial resources.	There is potential for this solution to create a reciprocal benefit for graduate students as well as faculty. By increasing mentorship in the supervision of graduate students, there is potential to improve graduate student outcomes and improved research outputs.	Meso, Macro

The purpose of policy development is to disrupt structures of privilege and dismantle systemic barriers that perpetuate mental health illnesses in STEM graduate students. This process is carried out in constant consultation with graduate students. They are represented through the process of collective bargaining and are situated within the institutional structure with agency to affect change. Furthermore, before any policies can be instituted, graduate students must have a majority vote to pass these newly developed policies. Therefore, the chosen solution empowers graduate students and gives them authority to dictate the beginning and end of the process by exercising their right to strike if they feel the institution is not bargaining in good faith. The underlying philosophy of the bargaining process is formulated on principles of equity, inclusivity, and to disrupt marginalization, as such, it does not allow other voices to interject. Thus, this process is very much aligned with social justice as it empowers graduate students to participate in the change and gives a voice to those outside of the traditional hierarchy. The primary objective of both solutions is to proactively mitigate the cause and, thus, the potential for the onset of mental health illnesses. The secondary objective of both solutions is for graduate students to adopt coping strategies. The last objective of both solutions is for the institution to implement support interventions specifically for graduate students.

Ethical Considerations

The OIP itself is an ethical process aimed at improving STEM graduate student mental health and wellbeing. Ethics is a central component of the change process, as it dictates the way in which leaders make decisions and how they respond to situations (Northouse, 2019). I will be drawing on Northouse's (2019) foundational principles to ethical leadership: respect, service, justice, honesty, and community. From the Northouse (2019) framework, and in the context of this OIP, my ethical leadership is manifested in respect, servitude, honesty, and transparency.

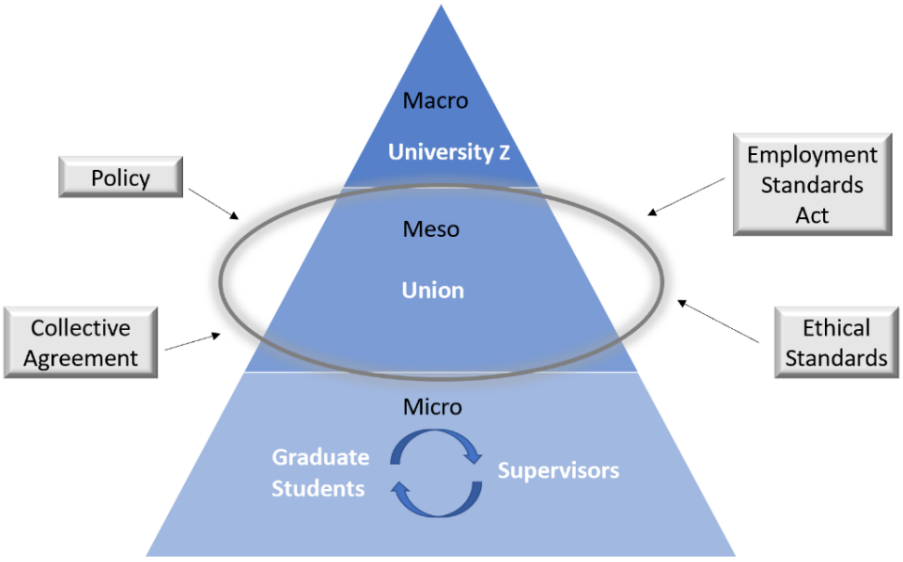
The nature of my work in negotiating CAs involves a high degree of assessing fairness, social justice, advocacy, and equity. As such, my ethics are policy driven, practitioner based, and defined by my day to day operations, as well as strongly influenced by my personality and moral compass. Ehrich et al. (2015) developed a model, which asserts that ethical leadership consists of three elements: care, justice, and critique. From Ehrich et al.'s (2015) framework, all three ethical dimensions are relevant in the context of my OIP. Furthermore, my personal ethics have influenced my perception of the institution's onus and accountability to its graduate students and how ethical considerations are a function of the university's role.

The PoP is deeply rooted in ethical obligations to ensure equitable and fair opportunity for success for those who are predisposed or afflicted by mental health illnesses. Equity for mental health support is navigated through institutional policy derivatives, the GEWU's CA, and informally by the employment standards act (ESA). This section examines how ethics underpins these policies and practices in the treatment of STEM graduate students. The ethical framework aligns with each of the theories espoused in previous sections of this OIP such as, transformational leadership, distributed leadership, and social justice.

Expanding on the outputs from Nadler and Tushman's CM (1980), the ethical considerations of addressing STEM graduate student mental health and wellbeing can also be examined at the individual, unit, and system level. My role as the Development Officer is at the unit level, and identified as leading from the middle in the micro, meso, and macro model shown in Figure 10. While ethical considerations are relevant on all three levels, the primary focus of this section will be on the ethical obligation of the GEWU (meso level) and University Z's obligations (macro level) and their adherence to respect, servitude, honesty, and justice principles (Ehrich et al., 2015; Northouse, 2019).

Figure 10

Ethical Considerations as projected onto micro, meso, and macro output factors.



Respect

This principle requires leaders to accept the diversity of individuals and value the input, beliefs, and attitudes of others (Northouse, 2019). Respect is a key ethical principle that will influence policy development by the GEWU (meso level), as well as dismantling stigmatized behaviours institutionally (macro), which are both integral to the improvement plan. Stigma and associated notions derived from stigmatized perceptions are the single most detrimental barrier to accessing support.

Service

The service of others is the backbone of this improvement plan, which is to improve the mental health and wellness for graduate students in STEM at University Z. Institutions have an obligation to provide a healthy environment that fosters student wellbeing and scholarship while ensuring appropriate services are in place to support those with existing or emerging mental health illnesses (Cunningham & Duffy, 2019). Thus, University Z (macro) and program faculties

and departments (meso) have a moral obligation to provide the best support interventions to graduate students and to provide services ethically, justly, and equitably.

Honesty

Northouse (2019) defines honesty as being open with others and representing reality as full and completely as possible (p. 346). This principle is parallel to the discussion around the responsibility of graduate supervisors (meso) and the institution (macro) to depict the rigors of graduate education with complete transparency to manage unrealistic expectations and mitigate unanticipated hardships.

Justice

The principle of justice is central to mental health advocacy and interventions. It is a common element shared in both Northouse's (2016) ethical leadership practices as well as Ehrich et al.'s (2015) three-dimensional ethical model. Currently, support interventions are heavily focused on undergraduate students and fails to address the unique needs of graduate students. The proposed orientation to empower all graduate students on their rights and mental health and wellbeing, will not only give graduate students the necessary information, but it will also raise awareness of those who will not personally be impacted. By raising awareness with the general graduate student population, it will ideally reduce stigmatized behaviours. Because stigma operates on all layers within the institution, dismantling its power is a micro, meso, and macro level ethical outcome.

The current state of graduate student education at University Z prioritizes research outcomes to advance its reputation and ranking, and places a significant power differential on the graduate supervisory role. The current direction places a greater importance on task outcomes than on its graduate student as human resources, which challenges my ethical leadership

approach and principles including respect, service of others, honesty, and justice. The desired state responds to the urgency with which graduate mental health needs attention, aims to serve graduate students with honesty and transparency to mitigate the onset of mental health illnesses, and provides just advocacy for those suffering from mental health illnesses.

Chapter 2 Summary

This chapter explores social justice, transformational leadership, and distributed leadership approaches to guide the change and considers the various frameworks that could be adopted to lead the change process. Specifically, a hybrid of the Cawsey et al. (2016) Change Path Model and Kotter's (1996) Eight-Stage Model was developed to lead the change process. Partial elements of Nadler and Tushman's CM (1980) were utilized to conduct an organizational analysis to illuminate which organizational components are not aligning with the strategic goals of the institution. Four potential solutions are presented, and ethical implications are considered. Chapter 3 focuses on the implementation, monitoring and evaluation, and the communication of the change plan.

Chapter 3: Implementation, Evaluation, and Communication

The final chapter outlines a plan to implement, evaluate, and communicate approaches to improve mental health and wellness of STEM graduate students. The chapter builds upon contextual information presented on the problem and the institution from Chapter 1, as well as the frameworks and gap analysis identified in Chapter 2, to formulate a tactical implementation plan. The multifaceted plan will detail the goals and priorities for change; encompass an implementation timeline; consider anticipated challenges; and discuss plan limitations. Approaches to monitor and evaluate the change process, using a model that aligns with the CDI x K hybrid model, is also proposed. A plan to communicate the need to change and the change process to organizational members and stakeholders is presented. The chapter concludes with a reflection of future considerations and suggestions for next steps.

Change Implementation Plan

To support the objectives of the PoP, which seeks to increase awareness of the complex factors and systemic barriers that contribute to STEM graduate student mental health illnesses at University Z, and to develop strategies to mitigate their onset, a change implementation plan has been developed and is detailed in this section. To achieve the desired state, strategies that leverage transformational leadership (Bass & Riggio, 2006b; Leithwood & Sleegers, 2006), distributed leadership (Gronn, 2003; Spillane, 2003) and social justice (Speight & Vera, 2009; Miller & Sendrowitz, 2011) as introduced in Chapter 1 are employed through the CDI x K hybrid model. The analysis of the possible solutions conducted in Chapter 2, indicated that as the Development Officer, I have greatest agency and resources to realize change through policy development (solution 2) and empowering graduate students (solution 3). Additionally, a blended solution was chosen as the two are interlinked. Solution 3, empowering graduate

students, cannot happen without first developing the policies, procedures, and training guides from solution 2. Furthermore, this hybrid solution aligns with University Z's strategic goal and commitment to enhance the mental wellbeing of its community (University Z, 2020). The goals of this implementation plan are discussed in the subsequent section.

Goals for Implementing Change

To bring the selected hybrid solution to fruition, the change implementation plan will prioritize the following five key goals that span over two academic years.

1. Create a shared vision.
2. Develop and design policies, SOP's, and training guides.
3. Institute policies, SOP's, and training guides.
4. Sustain the shared vision.
5. Continuously improve the shared vision through ongoing feedback.

Careful consideration was given to the development of each of the above described goals to ensure that they meet the criteria of the SMART (i.e., specific, measurable, attainable, results-focused, and time-bound) goals template (Doran, 1981; see also Bjerke & Renger, 2017; Weintraub et al., 2021). The SMART goals template allows for ongoing monitoring, and therefore continuous improvement (Conzemius & O'Neill, 2002). Furthermore, the emerging questions from Chapter 1 were also considered and shaped the development of the goals. The first two questions were focused on establishing greater understanding of trending patterns and stigma that would tie in with the first goal of creating a shared vision. A unified vision can be articulated by understanding the systematic barriers STEM graduate students face. The final two emerging questions focused on accountability and expectations. This provided valuable insight with respect to stakeholder roles, responsibilities and in identifying attainable goals. The

following section discusses the objectives, strategies, actions, and which stakeholders are necessary to achieve these goals.

The Four Phases of Implementation

To achieve these goals, the change implementation plan will utilize the hybrid CDI x K framework developed in Chapter 2. The four phases of implementation discusses how each goal tactically branches into specific objectives, strategies, actions, stakeholders' roles and responsibilities, and a target timeline, all of which are embedded into the appropriate phase of implementation from the hybrid CDI x K framework. For the purposes of this implementation plan, definitions within the following section are developed based on the experience and interpretation of the change leader. Objective refers to a specific outcome that the plan uses to meet the larger goals of this OIP from the previous section. A strategy refers to an approach or a mechanism used to meet those objectives. Lastly, an action, which can be a task, tool, or tactic, is the way a strategy is fulfilled.

Furthermore, each of the action items in the implementation plan articulates whether the stakeholder involved is the lead, a part of the team, or a support person. Support persons act as liaisons and network with individuals and groups that offer further insight, expertise, or resources towards the success of this OIP. The list of support persons and groups includes: STEM Faculty leaders, Student Affairs, Diversity Office, School of Graduate Studies, HR, MHC, and the Teaching Office. There is overlap with each of these support persons and groups and the change drivers. A description of the institutional roles for these support persons has been provided in Chapter 1. Furthermore, the support personnel are valuable to this OIP and bring a depth of knowledge that is vital. However, they function in a support capacity because the authority over policy development within the CA and the bargaining process lies with graduate

students and the GEWU, which is the chosen solution. The details of the plan outlined in the following sections, are found in Appendix E, F, G, and H.

Awakening

There are two objectives in the awakening phase. The first is to form a GEWU Mental Health Task Force and the second objective is for the Task Force to identify and analyze the problem. The details of the awakening phase have been charted in Appendix E. As part of the "awakening stage" from the Change Path Model, which is to analyze and understand the problem, this change implementation plan seeks to further its existing analysis. Currently, the data to support the pursuit of this initiative has come about largely from an unrelated graduate student support program. Thus, the objective of acquiring more specific data to guide this process as a first step is appropriate. The process of enacting change through policy design is a collaborative effort. The problem will be re-analyzed as a team, so the PoP that I have identified can be confirmed and conceptualized by all team members. At this stage, tailored specific data is necessary that can support the integrity process of collective bargaining. Changing policy or developing new policies can have unintending and lasting impacts. Having multiple perspectives and allowing the PoP to conceptualized and analyzed in new ways, as seen in distributed leadership, allows for innovative strategies to fill the gaps and ensures diverse groups are represented in the policy development, which aligns with the objectives of a social justice lens. Furthermore, the GEWU Task Force will be developing policy around what this newly curated data reveals. While I expect to see STEM graduate students continue to report facing mental health challenges, I am aware the factors they attribute to this may vary in the newly acquired data. As such, analyzing the problem has been listed as the very first step of this process and specific policy language has not been proposed in this OIP.

The strategy to establish a Task Force is modeled by the GEWU's Bargaining Committee, which consists of four members. To recruit individuals to the Task Force, I will put out a call for three volunteers. If more than three volunteers come forward, in compliance with the GEWU bylaws, elections will be held. I will be the fourth member of the Task Force, as part of my role as the GEWU Development Officer. As a function of my job role I am also a member of the GEWU Bargaining Committee. Therefore, my participation as the Development Officer on both the GEWU Task Force and Bargaining Committee will allow for knowledge transfer between the two teams. This initiative will be led by me, and supported by the Task Force, the GEWU Stewards, and the Staff Representative. The timeline to form the coalition is three months, beginning in October 2021. This timeframe coincides with a general membership meeting; thus, the call for volunteers will also be announced at the meeting. Ideally, the Task Force will be assembled before the commencement of the winter semester of January 2022.

The strategy for the GEWU Task Force will be to conduct an internal and external environmental scan to fully capture the complexities of the problem. The survey data from previous bargaining years will be an important part of the internal scan. Bargaining survey data can be vital in illuminating the top priorities for graduate students over the years, as the survey has specifically inquired about this. In addition to the bargaining survey, it will be important to analyze the metrics from Student Affairs, Diversity Office, School of Graduate Studies, and the American College Health Association (ACHA). The external scan will focus on the current practices of other HEIs, government mandates, legislation, and data. Furthermore, the data will need to be linked to areas within the policies, SOPs, training guides, and the collective agreement (CA) that perpetuate STEM graduate student mental health. For instance, if "hours of expected work on research" comes up as a repeated issue through the internal data, this issue will need to

be flagged through the policy development process. This will be led by me, in my capacity as the Development Officer. The team will consist of the three other members from the Task Force, the Bargaining Committee, as well as the Stewards. The team may need support from the various entities across the institution to acquire key metrics, such as the Mental Health Coalition (MHC), STEM Faculty Leaders, Human Resources (HR), Student Affairs, Diversity Office, and the School of Graduate Studies. A brief description of the institutional roles that each of these stakeholders plays in the context of this OIP has been described in Chapter 1. It is noteworthy that the Staff Representative of the GEWU will be an important part of the implementation of this OIP. This individual will be involved in almost all tasks as either a team member or a support person. Their participation will provide valuable insight as they participate in bargaining negotiations with other bargaining units at the institution.

Lastly, gaps in existing survey data can be addressed through the development of the initial equity survey. By designing an initial equity survey there will be an opportunity to mine the information that is missing in the current bargaining survey data. Additionally, the equity survey will focus specifically on identifying equity issues that put graduate student mental health at risk. This initiative will be led by the GEWU Task Force. The Stewards and Bargaining Committee will be consulted for their feedback on the design of the audit tool. The MHC will be used for support and may offer valuable insight in the development of the equity tool. The internal and external scans and the development of the equity survey tool would commence in January 2022 for the duration of the four-month winter semester.

Mobilization

The objective in the second phase of the implementation plan is to develop the vision for change. The strategy for the vision will be mobilized through policy development. The details of

the mobilization phase have been charted in Appendix F. As mentioned in the awakening section, there are four document categories that are the focus of this OIP: policies, SOPs, training guides, and the CA. The GEWU Task Force is comprised of four members, thus the ownership of each document category will be distributed equally among each of us. I will be responsible for leading changes to the CA because of my dual role as a Task Force member and a Bargaining Committee member. Currently a policy document that governs the dynamic between the supervising instructor and the graduate student does not exist. Standard operating procedures (SOPs) outlining research and general work practices, do not exist either. The focus of policies will follow legislative guidelines drawn from the Employment Standards Act (ESA) and will define maximum research hours, safety protocols when working in a lab alone afterhours, and scope of responsibilities, to name a few. The aim of the development of SOPs is to provide guidance to incoming students on the onboarding process; offer an interview guide when meeting with perspective supervising instructors; provide standard performance review documents and guidelines; and meeting frequency guidelines. With respect to the CA, the Task Force will focus primarily on areas that impact graduate student mental health outcomes. A comprehensive review of the full CA will not be conducted by the Task Force, as that is a process that will be carried out during collective bargaining by the Bargaining Committee.

While each member of the Task Force will be the lead and responsible for one document category, it is important to note that this is a highly collaborative process and all members of the Task Force will work on all policy documents together. The Staff Representative will be the support person for each document category. The development of a policy document, SOPs, and training guides will commence at the beginning of the spring semester in May 2022 and will be allotted eight months for completion. The review process and proposed updates for the CA will

commence in September 2022 and will also be allocated a full year to complete. The reason the work on the CA is subsequent to the policy document, SOPs, and training guides is to align with the expiration timeline for the current CA. Additionally, commencing the review of each document type in a staggered approach will allow me to ensure that each of the Task Force members is empowered and has the capacity to lead the charge with their specific document category.

Acceleration

In the acceleration phase, the objective is to implement the change. To carry out this objective, the strategy will be to empower key stakeholders. Prior to instituting the newly developed policy document, SOPs, and training guides from the previous phase, graduate students, Faculty leaders, HR, Student Affairs, the Diversity Office, and the School of Graduate Studies will be consulted. The Task Force will work closely with these institutional stakeholders to scrutinize the benefits and unintended outcomes. This feedback will be collected and considered prior to specific policy changes or implementation of SOPs. I will be responsible for leading this phase. The team for this phase will consist of the Task Force, Staff Representative, and the MHC. The anticipated timeline for this is in January 2023. Due to the several entities involved, this process is expected to be lengthy and has been allocated eight months. Once the feedback has been considered and incorporated where appropriate, the policies are anticipated to be instituted in September 2023. The discussion from this section is captured in a table found in Appendix G.

Institutionalization

This phase of the implementation plan has two main objectives that are intended to fulfill two of the overarching goals of this OIP. The details articulating the objectives, strategies,

actions, stakeholders, and timelines of this phase can be referenced in Appendix H. The first objective is to build on the change. The strategy is to highlight and celebrate small wins and build momentum. This policy development initiative is a large undertaking. As such it is vital to acknowledge the efforts of individuals, the GEWU Task Force, graduate students, and all relevant stakeholders. Through the celebration of small wins, the change implementation team can be re-energized and motivated to take on iterative cycles of improvement. This process will commence formally in May 2023 and will be ongoing. However, it is important the individuals and groups are celebrated early on for their accomplishments. Examples of some early wins that this initiative anticipates celebrating is the creation of a strong GEWU Task Force that bring diverse perspectives, identifying issues from the internal and external scan that are within mine and the GEWU's agency to solve, collaborations with institutional stakeholders, and the development of an initial equity survey. This strategy will be led by me. The team will consist of the GEWU Task Force, Staff Representative, and the MHC. The support stakeholders will include the STEM faculty leaders, HR, Student Affairs, the Diversity Office, and the School of Graduate Studies. The final tasks to build on the change will be to establish the new GEWU Bargaining Committee, who will be responsible for institutionalizing new articles into the CA for the 2024 negotiations with University Z. The recruitment process is expected to take four months and shall commence September 2023. The establishment of this new Bargaining Committee is in line with the expiry of the current CA, and the timeline for when GEWU is expected to meet with University Z to negotiate a new contract.

The second objective of the institutionalization phase is the continuous improvement of the plan. This will be accomplished by examining the impacts of the institutionalization of policies. Continuous improvement is discussed in detail in the Monitoring and Evaluation section

of this chapter. Following the institutionalization of policies, a follow up or secondary equity audit will be valuable in gauging the progress of the implementation plan by comparing to data from the initial equity audit. This comparative analysis will be conducted by the Stewards, Bargaining Committee, and the Task Force. As a member of each of these teams, I will lead the comparative analysis. The initiative may require support from the Staff Representative. The ideal time to conduct the equity assessment is prior to the next round of collective bargaining in January 2024. The comparative analysis from the two equity audits could be valuable in informing negotiations, which is discussed towards the end of this chapter. The next section looks at approaches to managing the transition and expands on the connection to the leadership approaches from Chapter 2.

Managing the Transition

It is important to consider strategies to manage the change to ensure the implementation plan is executed effectively and that disruptions to the organizational operations are anticipated, and ideally mitigated. The following section discusses stakeholder reactions, empowering others, supports and resources, implementation issues, plan limitations and how the selected leadership approaches from Chapter 1 are useful in managing the transition.

Stakeholder Reactions

While the change initiative spans across multiple departments and several institutional stakeholders are involved, there are two stakeholder groups that will primarily be affected by this change: graduate students and supervising instructors. The OIP is intended to improve STEM graduate student mental health and wellbeing, and a strategy employed to achieve this is by designing policies that provide guidelines around graduate work and expectations from their supervising instructor. However, it is anticipated that there will be some resistance from

supervising instructors. Faculty members have expressed reluctance to adopt policies which challenge the status quo and disrupt their current practices.

To alleviate reluctance from Faculty members, I will apply transformational leadership approaches to build a shared vision and motivate buy in (Leithwood & Sleegers, 2006; Kotter, 1996). To facilitate participation and to create a shared vision among faculty members I will use the four dimensions discussed in Chapter 2; influence, inspiration, intellectual stimulation, and individualized consideration (Bass, 1999). In particular, the inspirational motivation dimension can appeal to faculty members' personal interests, as faculty and the institution are indirect beneficiaries of the change. Promoting transparency of expectations for both graduate students and supervising instructors can improve the mentoring dynamic, which will improve the mental health and wellbeing of STEM graduate students who are a key human resource for University Z.

Empower Others

In addition to managing stakeholder reactions, empowering others can also be a powerful approach to motivating buy in. Furthermore, through transformation leadership and distributed leadership approaches, I will foster collaboration and a collegial environment by engaging and empowering stakeholders. Consultation with graduate students and faculty members and incorporation of their feedback is crucial to cultivating the shared mission. Inclusion of their voices in the change implementation can empower graduate students and faculty, not only as recipients of the change but as change makers (Pasha et al., 2017).

Supports and Resources

Empowering others throughout the implementation of the change must be aligned with supports and resources. Thus, I will work to ensure that the Task Force, graduate students, staff, and Faculty have the knowledge, skills, and resources they need to carry out the change so that

each stakeholder is adequately supported to contribute to implementation success. The most instrumental supports and resources for the implementation of this OIP are time, human resources, and information. Technology and financial resources are also given consideration. The implementation plan is anticipated to span over two years. Substantial time will need to be allocated towards meetings, especially while the policy documents are being revised and designed. Currently the plan estimates the Task Force will need to meet bi-weekly for four hours. This will give each member an hour to discuss the proposals with respect to their document category. Participation from human resources across the institution including graduate students, Faculty leaders, Student Affairs, Diversity Office, School of Graduate Studies, HR, and the MHC will be necessary. The frequency with which these meetings are held and the time that will need to be allocated cannot be appropriately assessed at this stage. In the transitional phase, continuous collection of data is necessary to assess implementation progress, as information is a fundamental resource which sets the stage for why the change is necessary, what to change, and how to change.

Financial resources are needed to compensate the Task Force members for their contributions over the two-year period. As the Development Officer, I would not require compensation as this initiative is a function of my job role. Furthermore, the funds will come from the GEWU and will be allocated according to the GEWU bylaws. Beyond this, financial resources will be needed to prepare materials for meetings and a subscription to an online survey tool for the two-year period. This brings us to the technological resources. To maintain continuity in data mining platforms, the Task Force will use the same survey tool that is used during preparations for the bargaining process. The other technological resources are already in place and supported by University Z's Information Technology department.

Implementation Issues

Some of the implementation concerns revolve around timeline and the fact that this OIP is trying to affect change in a rapidly evolving landscape. The first timeline concern is the time commitment of Task Force members over the course of the implementation plan may exceed the time they have remaining in their respective graduate programs. As such, it would be ideal if Task Force members' time for program completion exceeded the duration of the implementation plan. However, GEWU members will not be discouraged from volunteering for the Task Force if this is not the case. In the event that a Task Force member completes their program of study before the implementation plan is complete, a new member will need to be recruited. The second issue with time is the time-consuming nature of some stages within this OIP. For instance, in the policy language development phase, the Task Force is primarily working together for eight to twelve months. During this time, it will be important for me and the Task Force to keep continuous engagement and communication with institutional stakeholders. It will be beneficial to communicate that work is ongoing, the team is still building momentum, and on track with timelines.

Additionally, the landscape within the mental health realm is rapidly evolving. As new data is continually collected by various internal and external sources, government mandates could change, or institutional dynamics could become more dire. The Task Force and I will need to gather continuous feedback throughout the duration of the implementation plan and be able to adapt and amend appropriately. A final plan limitation to consider is the nature of some of these policy documents are not STEM student specific. The training guides and CA encompass policies that affect all graduate students. While the scope of this OIP is on STEM students, it will be important to differentiate this when possible. For instance, STEM graduate students already

have a separate onboarding orientation than other faculties and departments. However, some of the changes may have impacts on all graduate students and careful consideration needs to be given to ensure that in those instances all graduate students would benefit.

Limitations

Improving the mental health conditions of STEM graduate students at University Z has limitations that must be acknowledged. Firstly, a change implementation plan of this magnitude hinges on cooperation from Faculty members. While I have considered strategies to spark buy in and mobilize their participation, I cannot guarantee the degree to which Faculty will embrace the change plans. Furthermore, this plan seeks to challenge the status quo of long-standing dynamics in STEM fields which are deeply entrenched in tradition. On a larger scale, the plan also challenges pervasive societal attitudes and culture around mental health. Another limitation of this plan is that the indicators for progress or success can be difficult to assess. The sample population from the initial equity assessment will not be the same for the follow up equity assessment, as the graduate student body changes every semester. Data is a vital component of this OIP, as it initiated the need for change, and will be used to gauge progress of the implementation plan, as is discussed in the following section. Therefore, it is important to be aware of any inconsistencies in data due to a constantly changing student body and a rapidly evolving external environment. A final limitation that must be considered is the retroactive nature of ensuring accountability and compliance of the CA and policies. I can only take action when a violation has occurred, or a graduate student files a complaint or commences a grievance process. As such, it is vital that graduate students are informed of their rights and empowered to come forward when there is a non-compliance issue because a key accountability measure is through communication.

Change Process Monitoring and Evaluation

The key to successful implementation of a change initiative is ensuring mechanisms to measure and gauge progress are established from the onset. This is because high quality monitoring systems that are designed for evaluation offer tremendous opportunity to assess achievement of results, or lack thereof (Curry, 2019; Saunders et al., 2005). Monitoring is described as the continuous and systematic tracking of information, that enables change leaders to confirm whether a change initiative is on track (Morand et al., 2014). Evaluation is described as the systematic verification of the merit or worth of the information (Markiewicz & Patrick, 2016; Curry, 2019), and allows change leaders to measure the effectiveness of change plans, as well as identify the strengths and weaknesses of a project (Morand et al., 2014). Monitoring and evaluation allow for the ongoing assessment of plan strengths and weaknesses (Malone et al., 2014; Saunders et al., 2005). Furthermore, early monitoring of the implementation can identify deviations from the desired outcomes and can be quickly rectified (Durlack & DuPre, 2008). Thus, to assess the effectiveness of this OIP, the implementation will be monitored through the application of the Deming's (1993) Plan-Do-Study-Act (PDSA) cycle (Moen & Norman, 2010).

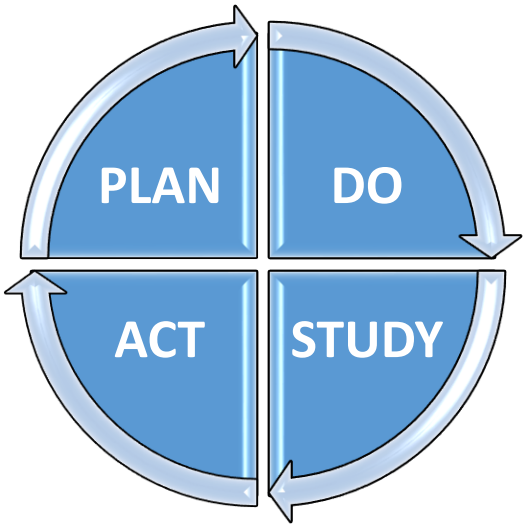
PDSA

The PDSA cycle, depicted in Figure 11, is a model for developing, testing, and implementing changes through an iterative, trial-and-learning approach, which leads to organizational improvement (Langley et al., 2009). While the PDSA Model is simplistic, it provides a methodical and evidenced based approach that is integral to the monitoring and evaluation process. By enacting this cyclical approach to improve the mental health and wellbeing of STEM graduate students at University Z, the PDSA model will direct the change plans while continually offering opportunity for reflection and adjustments at each stage. The PDSA model

as a monitoring and evaluation tool is valuable to this change implementation plan, due to the similarity of collective bargaining also being a cyclical process.

Figure 11

Deming's PDSA Model

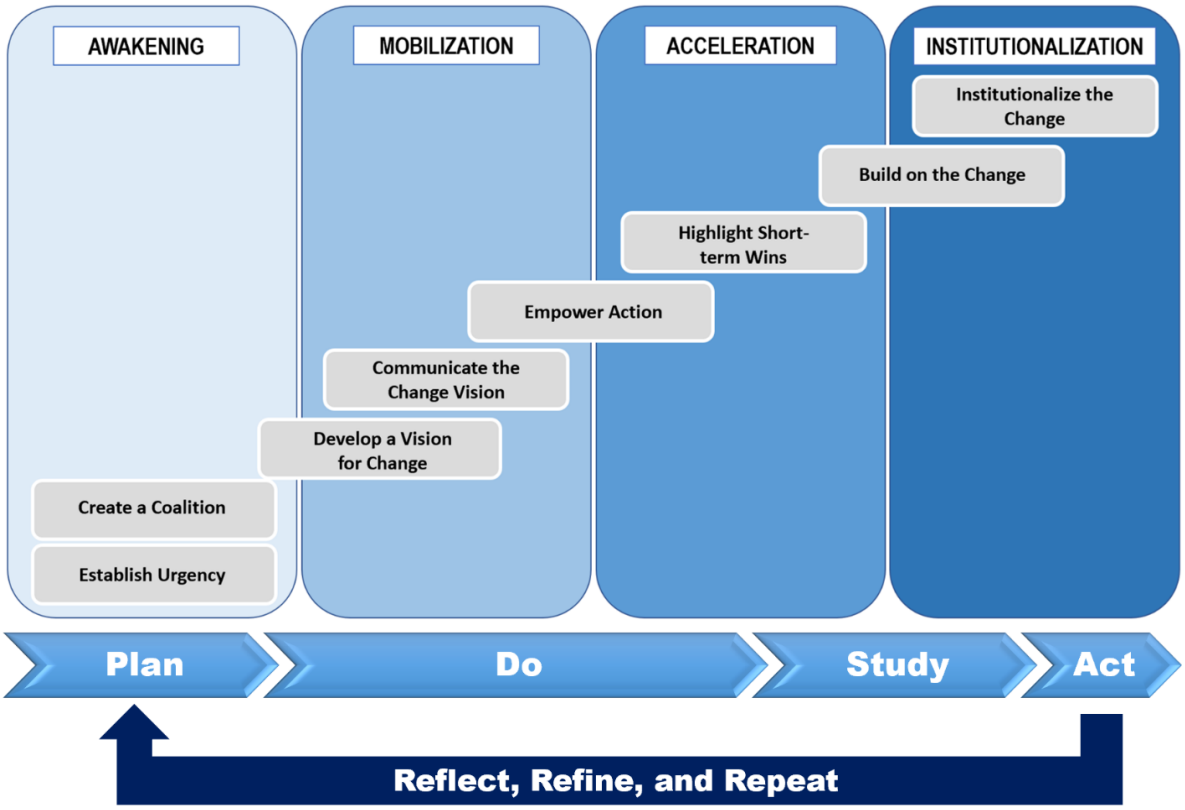


Note: Adapted from Moen and Norman, 2010, p. 27.

The PDSA cycle has been reimagined as a linear model and superimposed onto the CDI x K synchronized model developed in Chapter 2. Figure 12 provides the conceptualization of where the various stages of the PDSA model are integrated with each of the phases of the CDI x K hybrid model. In Chapter 2, I demonstrated the alignment of the CDI x K model and social justice due to the synchronized model's application to a collective bargaining process, which serves to address the power differential between working groups and gives a voice to those outside of the traditional hierarchy. Thus, the conceptualization of these three models as synchronized, is innovative and highly congruent to the objectives of this OIP. The following section deconstructs the monitoring and evaluation objective, strategy, and tools used at each phase of the PDSA Model (1993).

Figure 12

Conceptualization of the Interplay within the hybrid CDI xK Implementation Model, and the PDSA Monitoring & Evaluation Model



Plan

The main objective of the planning phase is to identify and analyze the problem, and to design and map out the change initiative. From Figure 12, the planning phase of the PDSA cycle aligns with the first step of the Change Path Model (2016); awakening, and the first two stages of Kotter's Model (1996); establish urgency and create a coalition. The urgent need for this OIP is well established considering the pressure from the federal and provincial government to improve mental health outcomes on University campuses across Canada (Canadian Alliance of Student Associations [CASA], 2018; COU, 2020). Currently graduate student mental health is monitored through several different modalities that are decentralized to various entities within the

institution, as well as externally. These modalities are largely comprised of survey data. However, insights and trends from students accessing services within the institution provide valuable monitoring and evaluation metrics. From the existing monitoring systems in place, the GEWU Task Force would be able to identify detailed information, such as which programs graduate students are accessing, which services have the greatest delays, quantifying how significant the delays are, and a multitude of other parameters. Furthermore, the existing monitoring processes are extensive and can continue to be utilized to evaluate the effectiveness of this change implementation plan.

The strategy for the GEWU Task Force is to conduct an internal and external environmental scan to develop an understanding of the problem and its complexities. The tools used to conduct the internal scan will be survey data from the ACHA from the years 2010, 2013, 2016, and 2019. This will involve a comparative analysis, where the metrics will be used to interpret the data for University Z over this time, but also to compare University Z to the national averages. An external scan of government mandates and the implementation by other HEIs can also provide insight. The Task Force will need to examine the existing policies, standard operating procedures (SOPs), training guidance documents, and the CA to identify gaps. The Task Force can begin creating a shared vision and desired outcomes. However, one of the most valuable diagnostic tools will be an equity assessment at the onset and at the end of the PDSA cycle. The equity assessment offers an opportunity to mine specific data for monitoring that is not currently present in the ACHA survey data or in the bargaining surveys. The GEWU Task Force will need to develop an equity assessment tool that focuses on the goals of this OIP and is aligned with the goals of the institution. The details of the monitoring and evaluation approach, tools, and success indicators for this phase are shown below in Table 3.

Table 3

Monitoring and evaluation approach, tools, and indicators of "plan" phase

Phase: Plan			
Goal 1: Create a shared vision			
OBJECTIVE and KEY STRATEGY	**MONITORING and EVALUATION**	**MONITORING TOOLS**	**INDICATOR**
Identify and analyze the problem	Diagnostic assessment of existing survey data and metrics	•Comparative analysis of metrics from NCHA survey data •Comparative analysis of metrics from programs and services •Comparative analysis of key performance indicators from bargaining surveys •Initial equity assessment	•Increase in metrics measuring mental health service usage •Increase in STEM graduate students reporting mental health illnesses and inequitable conditions •Increase over the years in HR complaints and grievances against supervising instructors

Do

In the second phase of the PDSA cycle, the implementation plan is put in action. From Figure 12, the "do" phase aligns well with the mobilization phase and partially with the acceleration phase of the Change Path Model (2016). Furthermore, the "do" phase overlaps with the third, fourth, and fifth stages of Kotter's Model (1996). However, Kotter's fifth stage; empower action, bridges with both the mobilization and acceleration phase, and it is monitored and evaluated partially in both the "do" phase and the "study" phase.

As part of the "do" phase and to achieve the objective of developing a vision for change, the policies, SOPs, training guides, and the CA are reviewed, revised, and in some cases designed from scratch. To monitor the development of policies in the direction of the desired outcomes of graduate students' needs, communicating the vision for change is a vital part of the change process, and will ensure inclusion and participation from graduate students. The vision for change will primarily be communicated through email and the members' portal. The members' portal allows secure access to confidential communications that are not on the institution's server. It is important to allow for graduate students to have the opportunity for two-

way dialogue. As such, a minimum of five general meetings shall be held during the "do" phase, that is anticipated to commence May 2022, and to last for a year. To monitor engagement with graduate students, metrics will be collected on email communications, member portal activity, participation in member meetings, and if needed focus groups. The details of the monitoring and evaluation approach, tools, and success indicators for this phase are shown below in Table 4. Lastly, empowering action will take place during the do phase.

Table 4

Monitoring and evaluation approach, tools, and indicators of "do" phase

Phase: Do			
Goal 2: Develop and design policies, SOPs, and training guides			
OBJECTIVE and KEY STRATEGY	**MONITORING and EVALUATION**	**MONITORING TOOLS**	**INDICATOR**
Develop vision for change through policy development	Metrics derived from communication systems and qualitative feedback	•Email metrics to track engagement •Member portal activity and metrics •Qualitative feedback from membership meetings and focus groups	•Increased email interactions and portal activity relevant to the change •Positive and constructive feedback from graduate students

Study

The third phase of the PDSA cycle provides an opportunity to gauge the progress of the change implementation towards the desired outcomes. From Figure 12, the "study" phase aligns with the acceleration phase of the Change Path Model (2016) and aligns with the fifth and sixth stages of Kotter's Model (1996). As mentioned in the previous section, Kotter's fifth stage, empower action is broken into two parts, and the second part is examined in this section.

As part of the "study" phase, the policies are instituted, and their impacts are observed. To monitor the progress of this phase, a comparative analysis of data from the ACHA 2022 survey will be compared to the previous surveys. This will allow the GEWU Task Force to assess the same metrics prior to the implementation of the new policies, and post

institutionalization. Furthermore, engagement with graduate students should continue through email, the members' portal, and meetings to gauge their responses and collect feedback. More specific data can be collected through focus groups.

Instituting policies of this magnitude may need to be in place for some time before sufficient assessments can be made. Thus, it may take a few iterations of the PDSA cycle and modifications to root out deficiencies. A few key metrics will be measured to understand the impacts of the policy development, which include, the number of graduate students seeking mental health interventions, the frequency with which graduate students are filing grievances against their supervising instructor, and the scope of such complaints. By assessing these metrics, the policies can be reviewed, revised, and refined. The details of the monitoring and evaluation approach, tools, and success indicators for this phase are shown in Table 5.

Table 5

Monitoring and evaluation approach, tools, and indicators of "study" phase

Phase: Study			
Goal 3: Institute policies, SOPs, and training guides			
OBJECTIVE and KEY STRATEGY	**MONITORING and EVALUATION**	**MONITORING TOOLS**	**INDICATOR**
Implement the change by empowering key stakeholders	Metrics derived from GEWU grievance process and support intervention services	•Metrics from grievance and complaint process •Metrics and data from mental health support services and programs	•Decrease in the number of grievances and/or complaints filed •Decrease in STEM graduate students accessing mental health support interventions
	Qualitative feedback	•Feedback from graduate students as change recipients •Feedback from institutional stakeholders	•Positive and constructive feedback from graduate students and institutional stakeholders

Additionally, as part of the review process, there is opportunity to reflect on the successful aspects of the change implementation and celebrate short-term wins. It is vital to acknowledge the efforts of individuals, the GEWU Task Force, graduate students, and all

relevant stakeholders. Through the celebration of small wins, the change implementation team can be re-energized and motivated.

Act

In the final stage of the PDSA cycle the change is assessed, the shortfalls are addressed, and the successes are replicated. The "act" phase aligns with the institutionalization phase of the Change Path Model (2016), and the seventh and eight stages of Kotter's Model (1996) as shown in Figure 12. As part of the "act" phase, it is important for the GEWU Task Force to stay engaged with staff, faculty, and graduate students to nurture capacity and build upon the change. Furthermore, consistent with Kotter's Model (1996), the final stage is to institutionalize the change by empowering graduate students on the various new policies and training documents. The details of the monitoring and evaluation approach, tools, and success indicators for this phase are shown in Table 6.

Table 6

Monitoring and evaluation approach, tools, and indicators of "act" phase

Phase: Act			
Goal 4: Sustain the shared vision			
Goal 5: Continuously improve the shared vision			
OBJECTIVE and KEY STRATEGY	**MONITORING and EVALUATION**	**MONITORING TOOLS**	**INDICATOR**
Build on the change	Qualitative feedback	•Feedback from graduate students as change recipients •Feedback from institutional stakeholders	•No to minimal unintended consequences •Policies adopted with minor revisions
Continuous improvement by restarting the PDSA cycle	Follow up assessment of new survey data and metrics	•Comparative analysis of metrics from NCHA survey data •Comparative analysis of metrics from programs and services •Comparative analysis of key performance indicators from bargaining surveys •Follow up equity assessment	•Decrease in metrics measuring mental health service usage after change •Decrease in STEM graduate students reporting mental health illnesses after change •Decrease report of inequitable conditions from equity assessment

To assess if these actions have yielded the desired outcome of improved graduate student mental health and wellness, monitoring and evaluation will be conducted through a second equity assessment, bargaining surveys, and focus groups. The timeline of the institutionalization phase corresponds with the commencement of collective bargaining negotiations. Thus, in preparation for negotiations, and through the utilization of these tools, the GEWU Task Force and the GEWU Bargaining Committee will be able to evaluate and assess if the rate at which STEM graduate students reported mental health illnesses had decreased, which would be a positive success indicator of this change plan. Additionally, metrics such as improved availability of counseling services, increase in program and service accessibility, decrease in grievances filed, and the less use of the GEWU Bursary towards mental health services could also be positive success indicators. The data gathered through this process can be compared with the data collected throughout the plan, do, and study stages, and used to facilitate continuous learning through iterative PDSA cycles. While this section touched on the importance of communication and the continuous engagement of change recipients through feedback, the following section expands on communication strategies.

Plan to Communicate the Need for Change and the Change Process

Communications related to change initiatives are vital to project success. Beatty (2015) reports a high correlation between communication efforts and change success. Communication is described as the essence of change such that “communication produces change rather than merely serving as a one tool in its implementation” (Beatty, 2015, p. 1). As such, a comprehensive communication strategy is needed before implementation begins. Cawsey et al. (2016) assert that a communication plan has four overarching goals. The first goal is to infuse the need for change within the organization. The second goal is to enable organization members to

understand the impact the change will have directly on them. The third goal is to communicate how the change will impact work and jobs. And lastly, the fourth goal is to keep people informed about the progress throughout the entirety of the change process (Cawsey et al., 2016). Additionally, Beatty (2015) presents a model that guides leaders through a series of seven introspective questions to aid leaders in formulating an effective communication strategy. These goals and questions have been integrated into the four phases of communication and will used to inform the communication strategy.

The Four Phases of Communication

The implementation plan of this OIP is data driven. A vital source of that data is derived from communication with change recipients and stakeholders. Furthermore, Ford and Ford (1995) contend that "communication is the context in which change occurs and extends the understanding of producing intentional change as a communication-based and communication-driven phenomenon" (p. 1). Therefore, in this way, the implementation plan is not only data-driven but also communication-driven. As such, the communication plan follows Cawsey et al. (2016) four phase framework. The four phases encompass pre-change, need for change, midstream change, and confirmation of change. Furthermore, while the communication plan will follow the Cawsey et al. (2016) four phase model, it will also leverage transformational and distributed leadership approaches which are intrinsic to the plan.

Pre-Change

The pre-change phase involves the need to convince senior leaders that the change is necessary. In the case of this OIP, this has already happened within the organization's recognition of the severity of the issue and the assembly of their 40-member MHC. In addition to this, the government mandates for greater mental health interventions for students at HEI across

Canada have compelled University Z into action. However, the institution has a broad campus wide approach, while this OIP is focused on STEM graduate student mental health and wellbeing. Thus, while senior leadership is vested in improving the mental health and wellbeing of the overall campus community, the Task Force efforts could be enhanced by raising awareness and establishing urgency for the STEM graduate student demographic. Furthermore, the MHC is a valuable support resource for the realization of this OIP. As such, directives to the MHC from senior leadership to collaborate with the GEWU Task Force, share data, and resources will be valuable. It is also important to be aware that I will be leading this change initiative from the middle, in my role as the GEWU Development Officer. With respect to leading from the middle, it is important to strategically seek out endorsements from senior leadership to avoid confusion with a top-down approach and risk alienating other stakeholders (Hargreaves & Shirley, 2020; Kealy, 2013). Therefore, leveraging senior leadership support will be utilized and communicated mindfully and delicately.

Need for Change

This phase encompasses persuading stakeholders to adopt a new view of the future by communicating a clear rationale for why the change is needed, what it will entail, and how it will be implemented (Cawsey et al., 2016; Beatty, 2015). Moreover, it is evidenced that change projects fail if change agents are unable to inspire and motivate organizational members to endorse the change and participate in creating a shared vision (Jørgensen et al., 2007). This change initiative seeks to improve STEM graduate student mental health and wellbeing in support of the PoP. It will challenge the status quo and the organizational culture that is rife with mental health stigma. As such, the communication plan must adequately prepare stakeholders for the change by helping them understand why the change is necessary. By leveraging the data from

Chapter 1, and tailoring communications to cater to each stakeholder audience, the Task Force will seek to secure stakeholder support. Furthermore, through the application of transformational leadership principles, myself and the Task Force will seek to motivate graduate students and faculty members. To garner support from graduate students the "idealized influence" dimension of transformational leadership will be employed in communications to establish trust and strengthen the relationship through meaningful collaboration (Pasha et al., 2017). With respect to faculty members, the Task Force will appeal to the second dimension "inspirational motivation" of transformational leadership and communicate visions through optimism and enthusiasm, and petition to faculty members' personal interests (Balwant, 2016).

Midstream Change

In this phase the objective is to communicate information while the change is being implemented to keep stakeholders aware and engaged in the change process (Cawsey et al., 2016). This communication phase is vital to the implementation phase and the monitoring and evaluation of the plan, as it will keep the change initiative on track. As mentioned earlier, the effective execution of this OIP hinges on qualitative feedback communicated from change recipients as well as institutional stakeholders. The implementation plan has outlined a consultation process where feedback will be collected from graduate students through meetings and focus groups to gather qualitative data during the change process. The feedback that is provided from graduate students through these communications will be considered and incorporated into the policy development. Feedback will also be collected on an ongoing basis through the members' portal and email. These communications will allow the GEWU Task Force to gauge stakeholder reactions as the change progresses and make amendments to policies and plans.

Confirming the Change

This phase is intended to communicate the successful implementation of the plan and the positive impact of the change. Confirming the change also aligns with highlighting and celebrating short term wins from Kotter's Model. The implementation of this plan's success is partially assessed by a follow-up equity survey. The equity survey is a critical communication tool, even though it offers limited two-way communication. The survey will be designed and sent to the GEWU Communications Officer to gather feedback. However, in order for the survey to provide valuable information it will need to collect similar metrics from the initial equity assessment. Following the completion of the survey, the data will be analyzed, and a report will be compiled that summarizes the key metrics. This will be communicated to graduate students at a meeting. It will be followed up through email and will be posted on the members' portal. Multiple communication modalities will be needed to ensure the message reaches the STEM graduate student demographic. Furthermore, the progress will need to be communicated to institutional stakeholders to engage their continued support. The message will need to be catered to each audience. For instance, the communication to Faculty leaders will need to indicate how improved mental health and wellness of STEM graduate students is improving academic and research outcomes.

Thus, the communication plan seeks to keep ongoing engagement with stakeholders, and provide authentic and transparent communications, in a timely manner. Qualitative feedback will be vital at this stage as well and aligned with the institutional phase described earlier in this chapter. Since this implementation plan is intended to be iterative; ideally a subsequent PDSA cycle will follow, and communications that capture deficiencies, concerns, and suggestions will continue to be collected.

Next Steps and Future Considerations

This section discusses three future considerations that would further advance the objectives outlined in this OIP. The first consideration is bargaining as it follows the sequence of events once the Task Force has implemented the OIP. The second consideration is expanding and modifying the implementation plan to other faculties at University Z. The final consideration is training faculty, which was also presented in Chapter 2 as a possible solution.

The bargaining process will benefit from the implementation plan described at the beginning of this chapter, which will commence shortly after the institutionalization phase from the CDI x K Model (see Appendices F, G, H, and I). The institutionalization phase is expected to conclude approximately two years after the project commences. This coincides with the current CA's expiry in December 2023. Ideally there will be an opportunity for the Task Force to formally transfer information to the new Bargaining Committee. It will be important that the transition is comprehensive and thorough, as the proposed new language by the Task Force will be negotiated by the Bargaining Committee. The work that is to be completed by the Bargaining Committee will initiate a second PDSA cycle. My participation as a member of both the Task Force and the Bargaining Committee, will assure there is continuity between these two teams. Additionally, unlike the Task Force that is focused on STEM graduate students, the Bargaining Committee looks at the CA with a broad lens that encompasses all graduate students. Therefore, having diverse graduate student voices present through the bargaining process is extremely valuable. The Bargaining Committee will ensure that the importance of mental health policies for the entire graduate student demographic will be incorporated. The bargaining process is often quite lengthy and operates with uncertain timelines. This would be an important consideration for any graduate student contemplating participation on the Bargaining Committee.

Another important future consideration is the expansion of this initiative to other faculties or to the entire graduate student demographic. Such an initiative could be undertaken in a future iteration of the PDSA cycle once plan institutionalization has been fully observed and assessed. Additionally, because policy language will have already been drafted it is likely the plan implementation could occur expediently. The hope would be that training initiatives could be expanded to include Faculty members, Staff, and the broader University Z community to provide knowledge and strategies for working with graduate students with mental health challenges. This would be a consideration for the institution as it is not within the agency of my role as the Development Officer. Any mandatory training for Faculty is governed by a separate unionized body and a different CA.

Chapter 3 Summary

This chapter examined how the OIP will be implemented, monitored, and evaluated, and how it will be communicated to improve the mental health and wellbeing of STEM graduate students at University Z. The chapter provided a comprehensive implementation plan that was modeled around the hybrid CDI x K framework synthesized in Chapter 2. Implementation plans that detailed the goals, objectives, strategies, actions, and timelines were articulated. An in-depth discussion pertaining the monitoring and evaluation strategies, tools, and success indicators through the PDSA model were also explored. A strategy to communicate the implementation plan was provided. Lastly, the chapter concluded with considerations of next steps for continuous improvement, as well as how the plan outcomes can be enhanced in the future.

Conclusion

This organizational improvement plan explores approaches to improve the mental health and wellness of STEM graduate students to promote their personal wellbeing and academic success. To support the objective of this OIP, a PoP to increase the awareness of the complex factors and systemic barriers that contribute to STEM graduate student mental health illnesses at University Z, and to develop strategies to mitigate their onset, was identified. The unprecedented rise of mental health illnesses across HEI in Canada has been well evidenced in this work. The implementation of this plan is important because of the sustainable potential to improve STEM graduate student mental health and their academic outcomes. The successful implementation of this change initiative will continue to follow the personal and professional paths of graduate students well beyond University Z. The value of this work is timely, imperative, and ethically compelling.

As the change leader, the pursuit of this journey has been inspired by a strong moral responsibility to uphold principles of social justice and to advocate for marginalized groups. At the onset of developing an implementation plan, there were many ideas and goals. It is through the academic discourse on leadership approaches and theories, as well as the frameworks and models to guide the change process that these ideas materialized into a comprehensive and systematic change plan.

The path to doing this work that I am so passionate about has been non-traditional, however, the learning journey and academic evolution have been so very rich. My earlier academic and career trajectory surely had me carved out for a life of research in a lab. I am humbled by the opportunity to do advocacy work that is so deeply personal to me and has a meaningful impact on the students I serve by upholding principles of equity, diversity, and

inclusivity. This journey has given me the necessary knowledge, tools, and skills to address large scale organizational change through a data-driven prescriptive process that is widely applicable. I will continue to leverage my leadership strengths to promote social change.

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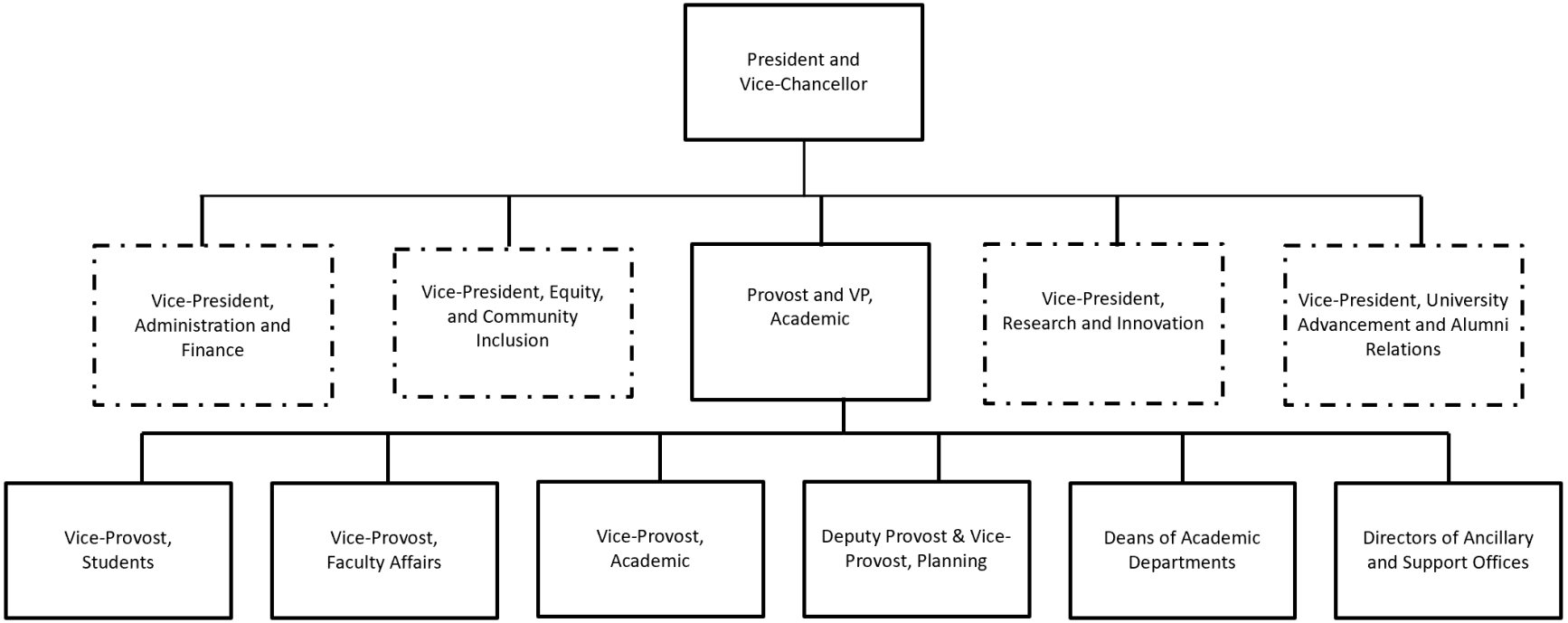
Appendix A

Breakdown of graduate student enrolment in per cent, from 2007-2016 by field of study. (University Z, 2016b).

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Arts	14	12.2	11.3	12.3	13.8	14.2	14.9	15.6	15.3	15.6
Business	6.7	9.1	10	9.7	10	10.7	10.2	10.5	12.2	11.9
Communications	4.4	9.3	10.4	9.7	10.8	11.2	10.8	9.8	9	9.7
Community Service	15.5	16.4	16.2	15.5	15.1	15	15.3	16.2	18	16.8
STEM	59.4	53	52.1	52.9	50.2	48.9	48.8	47.9	45.5	46

Appendix B

University Z's Organizational Structure



Note: Adapted from University Z, 2014

Appendix C

Cost of Tuition and Compulsory Fees and Rankings across Canadian Provinces from 1993 to 2019 (Shaker & Macdonald, 2015)

Table C1

Cost of Tuition and Compulsory Fees

	Canada	NF	PEI	NS	NB	QB	ON	MN	SA	AB	BC
1993-1994	2320	2120	2801	2910	2520	1755	2497	2502	2436	2524	2441
2014-2015	6780	2857	6481	7167	6819	3531	8426	4460	7053	6799	5861
2015-2016	6971	2862	6694	7397	6834	3648	8691	4578	7406	6799	5964
2018-2019	7590	2876	7380	8132	7468	4022	9541	4958	8573	6936	6300

Table C2

Ranking of Tuition and Compulsory Fees

	NF	PEI	NS	NB	QB	ON	MN	SA	AB	BC
1993-1994	2	9	10	7	1	5	6	3	8	4
2014-2015	1	5	9	7	2	10	3	8	6	4
2015-2016	1	5	8	7	2	10	3	9	6	4
2018-2019	1	6	8	7	2	10	3	9	5	4

Appendix D

University Z's Change Readiness Assessment (Adapted from Cawsey et al., 2016).

Readiness Dimension	Personal Assessment Score	Max. Possible Score	Per Cent Score (%)
Previous Change Experience	1	2	50
The organization has an upbeat mood and has had positive experiences with change. Since University Z is a young HEI, it is adaptable to evolving and adopting change, as it is not rooted in tradition. While University Z has not had any recent major failed change experiences, it sometimes becomes comfortable in its current state.			
Executive Support	3	4	75
Senior leaders have supported and participated in the development of a campus wide strategic plan to deal with mental health, garnering the support of other stakeholders with a unified plan. While there is support of senior leaders, there is resistance from faculty, whose participation is necessary to prepare for change.			
Credible Leadership & Change Champions	7	9	78
Due to changes in senior leadership at University Z, various stakeholders do not yet have established trust to lead an institution wide change. However, the senior leaders quick calls to action and to create a coalition at all levels of the organization has positioned change champions to support movement in a new direction. Although, greater consideration will need to be given on bridging senior leaders with academic leaders.			
Openness to Change	7	15	47
On a macro level, University Z does have mechanisms to monitor any change plans thoroughly, and it does inform large scale decisions based on data derived from such assessment tools and mechanisms. However, on a micro level, graduate students are not able to voice their concerns and deal with conflict openly and are often forced to suppress issues with their supervisors. While change will be supported by senior leaders and graduate students, change will not be viewed as appropriate or needed by academic leaders. And although graduate students believe they have the energy to undertake this task, resources are limited. The success of change plans hinge on openness to change from academic leaders.			
Rewards for Change	1	1	100
University Z has thrived by being innovative at all levels of the institution, not only does it welcome innovation, it promotes it. Furthermore, the institution values being a leader and setting a standard or benchmark for other organizations.			
Measures for Change & Accountability	4	4	100
There are a few assessment tools for measuring the need for change already in place, and these tools have demonstrated with great urgency the need for change. Through surveys, focus groups, and the bargaining process the GEWU has seen evidence for dire changes to University Z's graduate student mental health approach. Not only does the GEWU collect data, as does the institution, and further the institution participates in a nationwide survey conducted every three years.			
Total	**23**	**35**	**66**

Appendix E

CDI x K Implementation Plan: Awakening Phase

Phase: Awakening			
Goal 1: Create a shared vision			
OBJECTIVE and KEY STRATEGY	**ACTIONS**	**STAKEHOLDERS**	**TIMELINE**
Form a task force	Send out a call for volunteers to enlist on the GEWU Mental Health Task Force	**Lead:** GEWU Development Officer **Team:** GEWU Stewards **Support:** Staff Representative	Start: October 2021 Duration: 3 months
	In compliance with GEWU bylaws, hold a membership meeting and an election if more than 3 individuals volunteer		
Identify and analyze the problem through an internal and external scan	Conduct an internal scan of survey data from previous bargaining years, Student Affairs, Diversity Office, School of Graduate Studies, and the NCHA	**Lead:** GEWU Development Officer **Team:** GEWU Stewards, GEWU Bargaining Committee, GEWU Task Force **Support:** Staff Representative, MHC, STEM Faculty Leaders, Human Resources, Student Affairs, Diversity Office, School of Graduate Studies	Start: January 2022 Duration: 4 months, ongoing
	Conduct an external scan of current practices at other HEI, government mandates, legislation, and data		
	Review the policies, SOPs, and training guides to identify gaps	**Lead:** GEWU Task Force **Team:** GEWU Stewards, GEWU Bargaining Committee **Support:** Staff Representative, Teaching Office, MHC	
	Develop an initial equity survey to mine data that is lacking in the internal and external scans		

Appendix F

CDI x K Implementation Plan: Mobilization Phase

Phase: Mobilization			
Goal 2: Develop and design policies, SOPs, and training guides			
OBJECTIVE and KEY STRATEGY	**ACTIONS**	**STAKEHOLDERS**	**TIMELINE**
Develop vision for change through policy development	**Policies:** Draft language for policy document	**Lead:** Task Force Member 1 **Team:** GEWU Task Force **Support**: Staff Representative	Start: May 2022 Duration: 12 months
	SOPs: Draft language for procedural documents (interview guide, onboarding procedures, performance reviews, meeting guidelines)	**Lead:** Task Force Member 2 **Team:** GEWU Task Force **Support**: Staff Representative	
	Orientation: Create a presentation and orientation package to be distributed to incoming graduate students	**Lead:** Task Force Member 3 **Team:** GEWU Task Force **Support**: Staff Representative	
	CA: review language in existing articles of the CA, update, and introduce new articles to support graduate student mental health.	**Lead:** GEWU Development Officer **Team:** GEWU Task Force **Support**: Staff Representative	Start: September 2022 Duration: 12 months

Appendix G

CDI x K Implementation Plan: Acceleration Phase

Phase: Acceleration			
Goal 3: Institute policies, SOPs, and training guides			
OBJECTIVE and KEY STRATEGY	**ACTIONS**	**STAKEHOLDERS**	**TIMELINE**
Implement the change by empowering key stakeholders	Work with institutional stakeholders to scrutinize the benefits and losses of specific policy changes and SOP implementation. Amend and adapt if necessary.	**Lead:** GEWU Development Officer **Team:** GEWU Task Force, Staff Representative, MHC **Support**: STEM Faculty Leaders, Human Resources, Student Affairs, Diversity Office, School of Graduate Studies	Start: January 2023 Duration: 8 months
	Institute policies in consultation with STEM faculty leaders and School of Graduate Studies	**Lead:** Task Force Member 1 **Team:** GEWU Task Force **Support**: MHC, Student Affairs, Diversity Office, School of Graduate Studies	Start: September 2023
	Institute SOPs in consultation with STEM faculty leaders and School of Graduate Studies	**Lead:** Task Force Member 2 **Team:** GEWU Task Force **Support**: MHC, Student Affairs, Diversity Office, School of Graduate Studies	
	In collaboration with the Teaching Office roll out new orientation presentation and training guidance documents	**Lead:** Task Force Member 3 **Team:** GEWU Task Force **Support**: MHC, Student Affairs, Diversity Office, School of Graduate Studies	

Appendix H

CDI x K Implementation Plan: Institutionalization Phase

Phase: Institutionalization			
Goal 4: Sustain the shared vision			
Goal 5: Continuously improve the shared vision			
OBJECTIVE and KEY STRATEGY	**ACTIONS**	**STAKEHOLDERS**	**TIMELINE**
Build on the change	Highlight and celebrate accomplishments of individuals, the Task Force, and graduate students through meetings, communications, and awards	**Lead:** GEWU Development Officer **Team:** GEWU Task Force, Staff Representative, MHC **Support:** STEM Faculty Leaders, Human Resources, Student Affairs, Diversity Office, School of Graduate Studies	Start: May 2023, Duration: Ongoing
	Engage staff, faculty, and graduate students to get insight on their experiences and feedback		
	Recruit and establish new bargaining team to institutionalize new articles into the CA for 2024 negotiations	**Lead:** GEWU Development Officer **Team:** Staff Representative **Support**: GEWU Stewards	Start: September 2023, Duration: 4 months
Continuous improvement by restarting the PDSA cycle	Conduct a follow up equity assessment to compare to the initial equity assessment	**Lead:** GEWU Development Officer **Team:** GEWU Stewards, GEWU Bargaining Committee, GEWU Task Force **Support**: Staff Representative	Start: September 2023, ongoing