The Relationship between Institutional Climate and Student Engagement and Learning Outcomes in Ontario Community Colleges

by

Wenlu Feng

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Department of Leadership, Higher and Adult Education

University of Toronto

ABSTRACT

This study was designed to examine the relationship between institutional climate and student engagement in Ontario colleges. Climate and engagement data were gathered by questionnaires from a sample of 348 students from an Ontario community college. The climate data were collected by the Course Experience Questionnaire (CEQ), and student engagement was measured by a questionnaire compiled using items selected from the Ontario College Student Engagement Survey (OCSES). Statistical analyses of correlation and multiple-regression were applied to test the relationship between the variables, using SPSS Statistics Version 21. Results revealed that students' perception of their learning environment was significantly related to both engagement and learning outcomes. The climate dimensions of good teaching practice, emphasis on independence, appropriate workload, and support for learners were found to be significant predictors of student engagement, which in turn was significantly related to learning outcomes. Findings provide empirical evidence that supports the feasibility of using institutional climate dimensions to predict student engagement and learning outcomes. Based on this, future studies may treat student engagement as a type of organizational behaviour that can be studied in relation to the social psychological context of educational institutions, thus broadening the scope of study on student engagement. From a practical point of view, the findings provide clear indications for college educators around building appropriate policies that encourage and support optimal student outcomes. As well, effective teaching practices that are appropriately conceived and implemented can make a significant difference that results in improved education quality.

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This thesis is dedicated to my family:

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Chapter 1: Introduction

1.1 The Background

Higher education institutions are viewed to be responsible for educating competent graduates and providing quality student learning experiences. Quality of teaching and learning has always been an important topic in postsecondary education, and

"Quality assurance of university academic programs has been adopted around the world and is widely recognized as a vital component of every viable educational system. Considerable international experimentation in the development of quality assurance processes, along with increasing pressure for greater public accountability, has raised the bar for articulating Degree Level Expectations and learning outcomes in postsecondary education" (Ontario Universities Council on Quality Assurance, 2012, p.1).

Moreover, universities and community colleges rely considerably on public funding, which brings a high level of accountability. Recent years have witnessed an increased emphasis on value for money, and the accountability of higher education institutions to those who fund them. Researchers have noted that, with the large and growing public expenditure going toward higher education as a result of enrolment expansion, and the government investment on higher education deemed critical to national and regional economic growth and security, it is natural for governments to want to ensure that money is being spent effectively and in service of its goals. Institutions are thus being held accountable for ensuring and assuring quality learning outcomes for students. (Lodge & Bonsanquet, 2014; Skolnik, 2010; Stensaker & Harvey, 2011).

When does a university or college earn the right to be deemed "high quality"? There exist diverse views regarding quality, various approaches have been used to assess it, and different criteria for judging quality are used by different interest groups, depending on which best serves the interests of the group (Skolnik, 2010). Traditional quality assurance defines and measures quality in terms of resources, applying criteria such as selectivity in admissions, student-faculty ratio, average class size, library holdings, financial resources, institutional prestige from faculty research, etc., to assess the quality of undergraduate education (Astin, 1980; Skolnik, 1986). However, it has become increasingly suspect whether these quality measures are valid in measuring excellence in undergraduate education (e.g., Harvey & Newton, 2004; Kuh, 2001; Massaro, 2010; Skolnik, 2000; Zepke & Leach, 2010). Researchers have argued that quality assurance should be a support mechanism used to enhance quality in higher education and to improve student learning (Brink, 2010; French et al., 2014; Lodge & Bosanquet, 2014). New higher education performance evaluation systems should assure stakeholders that graduates actually have the skills that their qualifications certify them to have (Blackmur, 2010). According to Astin (1980, 1984, 1991), a "high-quality" institution is one that is aware of what is happening to their students, and that provides faculty definite opportunities to develop their teaching skills under supportive conditions. Such an institution should also know how much students are actually learning.

Research about "time on task" and "involvement" suggests that the way students spend their time directly affects how much and what they learn. In a sense, therefore, one of an institution's

most precious resources is the time of its students. Educationally effective postsecondary institutions are those that channel students' energies toward appropriate activities and engage them at a high level in these activities. Therefore, it makes sense to assess a university or college's quality and effectiveness, at least in part, by measuring how students devote their time and energy to educationally purposeful activities, and what they gain from attending university (Kuh, 2003). Given that competition in higher education, emphasis on student outcomes by government funding agencies, and the call for accountability by government and the public have been increasing in recent years, it is more important than ever to understand which institutional factors might enhance learning outcomes.

1.2 Student Engagement

Student engagement in learning has increasingly attracted research attention over recent years because it is believed that student engagement reflects "good practice" in undergraduate education, and that engaged students are more likely to persist, perform better and complete qualifications (e.g., Astin, 1993; Carini et al., 2006; Coates, 2005; Hu & McCormick, 2012; Leach & Zepke, 2011; Kuh, 2009b; McCormick et al, 2013; Pike, 2013; Webber et al., 2013; Zhao & Kuh, 2004). Extensive research consistently suggests that student engagement is tied to desired educational outcomes, such as increased learning, persistence in college, and graduation (Hu, 2010; Hu & Kuh, 2003; Kuh et al., 2007; Pascarella & Terenzini, 2005; Pike, 2013).

Student engagement can be broadly defined as "the time and effort students devote to activities that are empirically linked to desired outcomes of college and what institutions do to induce students to participate in these activities" (Kuh, 2009b, p. 683). According to Wolf-Wendel et al. (2009),

"The concept of student engagement represents two key components. The first is the amount of time and effort students put into their studies and other activities that lead to the experiences and outcomes that constitute student success. The second is how institutions of higher education allocate their human and other resources and organize learning opportunities and services to encourage students to participate in and benefit from such activities" (pp. 412-413).

This reveals that certain institutional conditions are required for engagement to flourish, and research on student engagement needs to explore various conditions and requirements, especially around the support programs offered by institutions to help students to grow and succeed academically. It is evident that it is of utmost importance to study what institutional conditions and supports will contribute to student engagement, and how.

Student engagement has now become a much-studied topic in higher education, both in Canada and the United States (US) (e.g., Gasiewski et al., 2012; Hu & McCormick, 2012; Jones, 2007; Kuh, 2009a; McCormick et al., 2013; Pike, 2013; Price & Baker, 2012; Skolnik, 2010; Webber et al., 2013). Different ways of measuring student learning engagement, and various

measurement instruments in engagement surveys, have been used (CCI Research Inc., 2009). One such measurement is the US-based annual National Survey of Student Engagement (NSSE), which is designed to obtain information from colleges and universities nationwide about student participation in the programs and activities that institutions provide for learning and personal development. According to NSSE, the Survey

"Collects information from first-year and senior students about the nature and quality of their undergraduate experience. Since its inception, more than 1,500 bachelor's degree-granting colleges and universities in the United States and Canada have used NSSE to measure the extent to which students engage in effective educational practices that are empirically linked with learning, personal development, and other desired outcomes such as persistence, satisfaction, and graduation" (NSSE, 2013b, p. 1).

Every year since 2000, hundreds of thousands of students from US and Canadian institutions participate in the NSSE survey. For example, 364,193 students from 595 institutions (568 US and 27 Canadian) responded to the 2013 NSSE survey (NSSE, 2013a). The rationale for assessing student engagement is based on two premises: (1) learning and success in college are related to the amount of time and effort students devote to educationally purposeful activities, and (2) institutions can use their resources to influence the extent to which students are engaged in educational activities (Kuh, 2003, 2009b).

The survey results provide an estimate of how undergraduates spend their time and what they gain from attending college. The NSSE (2013b) has five engagement scales: academic

challenge, active learning, interactions, enriching educational experiences, and supportive learning environment. Survey items in the National Survey of Student Engagement represent empirically confirmed "good practices" in undergraduate education, meaning that they reflect behaviours of students that are associated with desired learning outcomes. The literature in studies using NSSE data have consistently confirmed that student engagement is positively related to a range of learning outcomes, including GPA, satisfaction, perceived gains in learning and personal development, and persistence (e.g., Carini et al., 2006; Hu & Kuh 2003; Kuh, 2003; Kuh et al., 2007; NSSE, 2013a; Pascarella & Terenzini, 2005; Pike and Kuh, 2005; The implication of using NSSE as an institutional effectiveness Pike et al., 2012). measurement is clear, and institutions that fully engage their students in a variety of activities that contribute to valued institutional outcomes can claim to be of higher effectiveness than other institutions where students are less engaged. NSSE data has been embedded in larger improvement initiatives including accreditation reports and reviews, institution-wide agendas for improvement, and the encouragement of faculty participation in improvement efforts (Jones, 2007; NSSE, 2013a). In addition, questionnaires based on NSSE are being used in Australia (Coates, 2010; Hagel et al., 2011) and New Zealand (Brogt & Comer, 2013). Other countries such as China, Macedonia, and Spain have also experimented with instruments adapted from NSSE, making the engagement phenomenon worldwide (Kuh, 2009b).

What factors might influence student engagement, and what can be done to promote it? Since the 1990s, researchers have used the data from the administration of the NSSE to investigate the relationships between institutional characteristics and student engagement, trying in various ways to investigate what and how institutional factors or conditions might affect student engagement. It was found that institutional structures such as selectivity, size, and research orientation affect student engagement in predictable and substantively significant ways (Porter, 2006). Studies also examined the relationship between institutional expenditures and student engagement (e.g., Kuh & Hayak, 2006; Pike & Kuh, 2011; Ryan, 2005); however, the studies in this direction have produced inconsistent or contradictory results. Studies also suggest that students report higher levels of engagement and learning at institutions where faculty members use active and collaborative learning techniques, engage students in experiential learning, emphasize higher-order cognitive activities in the classroom, interact with students, challenge students academically, value enriching educational experiences, consistently signal an openness to student questions, and recognize the roles of faculty in helping students succeed (Bryson & Hand, 2007; Gasiewski et al., 2012; Reason et al., 2006; Umbach & Wawrzynski, 2005). Studies also examined the relationships between participating in learning communities and engagement in educational activities inside and outside the classroom. The findings in this area of investigation indicated that learning community participation was positively linked to engagement, as well as student self-reported outcomes and overall satisfaction with college, although analyses also revealed there was substantial variability across institutions in the magnitude of the relationships between learning community participation and first-year students' levels of engagement. (Pike et al., 2011; Zhao & Kuh, 2004). Information technology has also fundamentally changed the manner in which we communicate, interact, and learn, and computers and the Internet have inserted themselves into college and university life and challenged our cognitive abilities and the traditional classroom paradigm. As a result, researchers have started to investigate the relationship between students' uses of information technology and their learning engagement and desired educational outcomes (e.g., Kennedy, 2000; Laird & Kuh, 2005; Twigg, 2004). One new model of educational technology is the massive open online courses (MOOCs), which are online courses aimed at unlimited participation and open access via the web (Kaplan, 2016). MOOCs provide interactive user forums to support community interactions among students, professors, and teaching assistants. Although MOOCs are regarded by many as an important tool to widen access to Higher Education (HE) for millions of people, research highlighted the lack of social presence and the high level of autonomy required as major challenges (Kop & Fournier, 2010). As well, the time and effort required from participants may exceed what students are willing to commit to a free online course (MoocGuide, 2013). This potentially affects student engagement.

However, there has been limited research conducted to date on how the social psychological environment of institutions might affect student engagement, and, if so, in what way. Does a learning-centered institutional climate encourage student engagement? How do students' perceptions of their learning environment affect engagement? What institutional climate dimensions might contribute to student engagement, and how can institutional management create a favourable internal social psychological context that fosters student engagement? Exploring the relationship between institutional climate and student engagement can assist in answering these questions.

Student engagement is a type of organizational behaviour that can be studied in relation to the social psychological context of an organization, which in turn, is mostly studied through research on organizational climate. Studies on organizational climate examine the internal social psychological environment of organizations and the relationship of that environment to individual meaning and organizational adaptation. It entertains the possibility of a shared, holistic, and collectively-defined social context that emerges over time, as organizations struggle with the combined challenges of adaptation, individual meaning, and social integration. The study of organizational climate examines people's perception of social contexts and their impacts (Denison, 1996), and helps to gain understanding of how the internal social psychological context will affect individuals' behaviour. With a growing body of research on organizational and institutional climate, studies have also examined the linkage between institutional climate and student engagement (e.g., Choi & Rhee, 2014; Denson & Chang, 2009; Hatch, 2012; Kahu, 2013; Kezar & Kinzie, 2006; Lawson, 2013; Ryan, 2005; Zepke, 2011, 2014; Zepke, & Leach, 2010a, 2010b; Zhao & Kuh, 2004). The present study is designed to examine the possible relationship between institutional climate and student engagement and learning outcomes in postsecondary educational institutions.

1.3 Organizational Climate and Individual Performance and Organizational

Effectiveness

Organizational climate has been a focus of management literature since the 1960s, because it exerts important influence on organizations and the people who work in organizations. Climate research examines the subjective perceptions of individuals regarding their work environment and how these perceptions drive their behaviors and attitudes (Ostroff et al., 2003, Schneider & Reichers, 1983; Schneider, 2000; Schneider et al., 2013). "Organizational climate may be defined as the shared perceptions of and the meaning attached to the policies, practices, and procedures employees experience and the behaviors they observe getting rewarded and that are supported and expected" (Schneider et al., 2013, p.362).

Organizational climate emerges from social interactions that lead to shared meaning among members (Glick, 1985; Klein et al., 2001). In their early model of organizational functioning, James and Jones (1974) argued that climate is tied causally to what they called outcome or "end-result" criteria, which includes promotion rate, productivity indices, turnover rate, and salary progressions. This occurs through two mediating mechanisms: 1) organizationally related attitudes and motivation; and 2) job behaviour and performance. Building on the conceptual basis supplied by James and Jones (1974), Kopelman et al. (1990) outlined a conceptual model of the relationship between organizational climate and productivity. This model states that the organization provides the context where organizational climate is nested, and that climate is the mediator of the management practice-productivity link. The authors declare, "Some of the consequences of productivity improvement practices reflect changes in climate" (p. 292). The main argument here is that organizational processes influence productivity through their effect on climate, because the way in which the members of an organization interpret their work environment will affect their work attitude, behaviour, and performance, which in turn will affect organizational productivity and effectiveness.

A half century of thinking and research has produced significant literature on organizational climate. Researchers have sought to understand its antecedents and consequences. It emerged as a way to understand organizational outcomes and became a foundation for understanding organizational effectiveness (e.g., Carr et al., 2003; Ismail, 2005; Kozlowski & Klein, 2000; Mahajan & Benson, 2013; Norton et al., 2014; Shahin et al., 2014; Schulte et al., 2009; Walumbwa et al., 2010). Studies have suggested that organizational climate may relate to various individual and organizational outcomes. Many researchers assert that organizational climate may be related to organizational productivity and effectiveness, because organizational climate is the psychological process that mediates the relationship between the organizational environment (conceived as an objective set of organizational policies, practices, and procedures) and work-related attitudes and behaviours. The studies on these topics have been well documented since the 1960s (e.g., Abramis, 1994; Baltes et al., 2003; Brown & Leigh, 1996; Burton et al., 2004; Campbell et al., 1970; Carr et al., 2003; Evans & Dion, 1991; Clark et al., 2014; Gelade & Ivery, 2003; Hollmann, 1976; Murphy et al., 2014; Norton et al., 2014; Pradesh, 1989; Liao & Chuang, 2007; Parker et al., 2003; Spell & Arnold, 2007; Walumbwa et al., 2010; Schreurs et al., 2013; Walumbwa et al., Wu, 2008).

At the individual level of analysis, organizational climate has long been seen as an important factor related to individual performance and outcomes. Research has consistently demonstrated relationships between climate and attitudes, such as job satisfaction, job involvement, and commitment (Ehrhart, 2004; Fletcher et al., 2008; Martin & Cullen, 2006; Shadur et al., 1999; Temitope, 2010). Researchers also argue that when employees perceive the potential for satisfying their psychological needs in the workplace, they engage themselves more completely and invest greater time and effort into the organization's work (Carr et al, 2003; Kahn, 1990; Parker et al., 2003; Pfeffer, 1994), resulting in higher job performance and effectiveness (e.g. Brown & Leigh, 1996; Jones & James, 1979; Lawler et al., 1974; Luthans et al, 2008; McKay et al., 2008; Mathisen et al., 2006; Spell et al., 2014). Also, an organizational environment that is perceived by employees as psychologically safe and meaningful is positively related to productivity, through the mediation of job involvement and effort (Brown & Leigh, 1996; Clarke, 2006; Neal et al., 2000). Some early evidence from studies also exists on the relationship between organizational climate and scientific research performance and effectiveness (e.g. Abbey & Dickson, 1983; Amabile, 1986; Lawler et al., 1974; Kozlowski & Hults, 1987; McCarrey & Edwards, 1973; Pelz & Andrews, 1976; Witt & Beorkrem, 1989).

In the past two decades, research on organizational climate tended to study the focused climates and their relationship to individual performance and organizational outcomes, in contrast to a more generic climate. One area of these focused climate studies is on the relationship between organizational safety climate and workplace safety behaviour and safety performance (e.g., Colley et al., 2013; Murphy et al., 2014; Tholen et al., 2013). Another topic that has drawn much attention is the customer service climate. Studies reveal that service climate is correlated with customer satisfaction, financial performance,

employee behaviour, and service quality (e.g., Gracia et al., 2010; Greenslade & Jimmieson, 2011; Schneider et al., 2009; Walumbwa et al., 2010). Another example of a focused climate in recent research is the ethical climate. It has been found that an organization's ethical climate is related to job satisfaction and organizational commitment (Borhani et al., 2014; Huang et al., 2012; Roch et al., 2014), organization identification (Roch et al., 2014), and customer satisfaction and financial performance (Moon and Choi, 2014).

Although most findings have arisen from studies conducted in industrial or business settings, studies of organizational climate have also been conducted within postsecondary systems, involving the faculty, staff, and students' perception of the teaching and learning environment.

1.4 Climate Study in Postsecondary Education Institutions

The past two decades have also witnessed an increased interest in the study on organizational/institutional climate in higher education. Researchers have tried to investigate the relationship between climate and other institutional processes and outcomes, such as faculty and staff job satisfaction, faculty commitment, research outcomes, and undergraduate retention.

Austin (1987) conducted a study focused on the academic workplace in liberal arts colleges, incorporating organizational climate variables (e.g. communication,

supportiveness, and decision making). A particularly interesting feature of the study was that it compared faculty perceptions of the workplace at low-morale and high-morale colleges, with the purpose of identifying aspects of the academic workplace where interventions to enhance the workplace might be needed, and that would be effective. Results indicated that colleges where faculty morale and satisfaction were relatively high had environments that were more collaborative, more supportive of faculty, and more conducive to risk-taking and innovation. Furthermore, faculty at these institutions expressed greater engagement in their work, as well as greater involvement in institutional decision-making, and a strong commitment to the mission of their college.

West and associates (1998) conducted a longitudinal study to investigate the relationship between departmental climate and research excellence in British universities. The researchers collected data from a sample of 522 academics from 72 academic departments at 14 universities in the United Kingdom (UK), and the research findings indicated that within the context of university departments, the ratings awarded for research excellence predict departmental climate. Effective departments perhaps created a working environment where innovation is perceived to be supported, where the degree of formalization was allowed to be relaxed, and where careers were perceived to be developed and rewarded (West et al., 1998).

Mayhew and associates (2006) performed a study to identify factors that create a positive climate for diversity, and to demonstrate how these factors predicted outcomes related to

achieving a positive campus climate for diversity. Based on survey data collected from 437 staff members employed at a large, public university in the Midwest of the US, multiple regression analyses were performed to determine how the factors work together to predict the criterion. The results suggested that the institution's ability to achieve a positive climate for diversity reflected not only the personal characteristics of the staff members (race, gender, education level, and age) but also their perceptions of their immediate work environment and personal experiences with diversity (Mayhew et al., 2006). The researchers proposed that institutional researchers need to account for many factors when trying to predict staff perceptions of their campus's climate for diversity, and a meaningful assessment effort designed to measure a campus's climate for diversity should ensure that multiple perspectives from the campus are represented, including individuals who play different roles on campus (e.g. faculty, staff, and students).

Gormley and Kennerly (2010) examined how organizational commitment is influenced by organizational climate and nurse faculty role in departments and colleges of nursing. Statistical analysis revealed the dynamic interplay that exists between faculty perceptions of organizational climate and commitment. Faculty perceptions represent the faculty's image of the organizational context at the respective institution. The consideration, intimacy, and production emphasis dimensions of organizational climate were positively related to affective and normative commitment, and negatively correlated to continuance commitment. On the other hand, significant negative relationships were observed between subscales of organizational climate and role ambiguity and role conflict; that is, as role ambiguity and role conflict increased, all dimensions of organizational commitment were influenced negatively. Organizational commitment was diminished when role ambiguity and role conflict were experienced by nursing faculty (Gormley & Kennerly, 2010).

Adenike (2011) explored organizational climate as a predictor of employee job satisfaction in academic staff from a private Nigerian university. Data was collected from questionnaires answered by 293 academic staff. The results showed a significant positive relationship between organizational climate and job satisfaction. Thus, the researcher believed that the study paved the way for other research opportunities in the field to stretch the depth of knowledge in public universities in Nigeria. In addition to confirming a theoretical proposition, the findings of this study were likely to have significant practical value (Adenike, 2011).

A study conducted by Schulz (2013) focused on academics in research-intensive universities in the UK and explored their perceptions of organizational climate, role conflict, role ambiguity, and job satisfaction. The findings suggested that universities have multiple organizational climates. Three organizational climate types, namely the collegial, the hierarchy, and the adhocracy, were associated with lower levels of role stress. However, the market climate was associated with higher levels of role conflict. Only the collegial-type climate was directly related to high levels of job satisfaction, as the collegial climate emphasizes basic beliefs that people behave appropriately when they have trust in, loyalty to, and membership in the organization, which lead to collegial behaviours of teamwork, participation, involvement, and open communication. This finding suggests that despite changes in university management styles due to economic and technology changes, the collegial climate is still a very important contributor to the satisfaction of academic staff (Schulz, 2013).

There have also been efforts to develop special-purpose measurement tools for assessing climate in higher education. Martinson and colleagues (2013) conducted research to develop and validate the Survey of Organizational Research Climate (SORC), which was claimed to be an efficient measure of organizational research climate, demonstrating good internal and external reliability. The SORC demonstrates construct and discriminant validity for use in the following: baseline institutional self-assessment to ensure local organizational climates are conducive to ethical, professional, and sound research practices; monitoring the organizational research climate over time; and raising awareness among respondents about responsible research practices. The authors also hoped that the SORC will be useful for judging the impact of initiatives to sustain or improve the organizational environment for research integrity in higher educational institutions (Crain et al., 2013; Martinson et al., 2013).

To date, studies of organizational climate have tended to explore how the perception of managerial practice inside an organization affects its members' behaviour and performance, which in turn affect organizational outcomes. Most of these studies have been conducted in business organizations, and studies conducted within the postsecondary system involved mostly faculty and staff, rather than students. Now that the measurement of institutional quality can be defined from evaluating student learning and development outcomes, as opposed to emphasizing conventional outcomes, research interest in institutional climate should involve more student-anchored climate dimensions, as opposed to employee-anchored climate dimensions.

1.5 Purpose of the Study and Research Questions

The purpose of the present study is to investigate the relationship between institutional climate and student engagement in Ontario community colleges. It will employ a quantitative approach in design and data collection and analysis. The present study accepts the conceptual framework that organizational processes influence organizational effectiveness through their effect on climate, and explores the relationship between institutional climate (students' perception of their learning environment) and student engagement and learning outcomes in Ontario colleges. Several research questions are put forth: 1) What is the relationship of institutional climate to student engagement? 2) What institutional climate dimensions may contribute to student engagement? 3) How can we measure institutional climate appropriately for the purpose of relating it to student engagement and learning?

1.6 Significance of This Study

The measurement of the college learning environment (perceived by students as institutional climate) and the measurement of student engagement have been separated from one another.

To date, empirical evidence for the relationship between the learning environment of a postsecondary institution and student engagement is needed, and the question of what environmental factors facilitate or hinder student engagement remains unanswered. What core climate dimensions should be measured, how should they be measured, and what climate dimensions are related to student engagement? These are significant questions worth investigating. Identifying the relationship between institutional climate and student engagement will contribute to the body of knowledge regarding student engagement at Canadian postsecondary institutions, as well as the study of organizational climate in general. On the practical side, the results of this study should be able to provide clear indications for college management about appropriate policies and practices for encouraging and supporting optimal student engagement and learning outcomes. It is both theoretically and practically significant to study the relationship of institutional climate and student engagement in order to improve quality and meet today's requirement of educational quality and institutional accountability.

Now that one measurement of institutional quality can be determined from evaluating student outcomes, as opposed to emphasizing conventional outcomes, the research interest in institutional climate should also be of student-anchored climate dimensions, in addition to employee-anchored climate dimensions. The present research follows research initiatives of theorists who argue that the prodigious research on more general populations of organizations should be applied to colleges and universities (Bess, 1983), and implicitly considers the utility of this more general research for higher education.

If we accept the conceptual framework that organizational processes influence performance and productivity through their effect on climate, we can design a study to explore the relationship between institutional climate and student engagement and learning outcomes in postsecondary institutions. If this relationship can be identified, it will provide clear indications for institutional management about appropriate organizational practices to encourage student engagement and learning. As mentioned above, several research questions are put forth here: 1) Is institutional climate related to student engagement? If so: 2) Which institutional climate dimensions may contribute to student engagement? 3) How can we measure institutional climate appropriately for the purpose of relating it to student engagement and learning?

The following discussion provides a review of relevant previous studies. Several pertinent issues in the literature regarding institutional climate will be addressed, and the specific domain of climate for student learning outcomes will be considered.

Chapter 2: Literature Review

2.1 The Studies on Institutional Climate and Student Outcomes

The rise of the systematic study of organizational climate within postsecondary systems can be dated as early as the 1960s. In this context, organizational climate is usually referred to as institutional climate or campus climate, which is understood as a function of the interactions between students, staff, faculty, and administrative policy, and as socially created learning environments. The California Postsecondary Education Commission (CFEC) defined campus climate as "the formal and informal environment, both institutionally and community based, in which individuals learn, teach, work and live in a post-secondary setting" (California Postsecondary Education Commission, 1992, p. 2). Therefore, campus climate is a collage of the interpersonal and group dynamics that comprise the experience of participants in a collegiate setting.

Among early studies, a substantial amount of research has focused on perceptions of the university climate by different "student subcultures". The general findings of this type of research suggest that varying perceptions of institutional characteristics may be associated with the following: gender (Duling, 1969; Stern, 1970); student residence grouping (Donohue, 1973; Lindahl, 1967); extent of drug use (Forrer, 1975); the interaction of sex and years of enrollment (Pascarella, 1976a); gender, race, and the different academic majors at colleges (Pascarella, 1976b); and so on. While many of the early studies treated institutional climate as the dependent variable, or a "predictor", and

investigated its impact on institutional outcomes such as student satisfaction, retention, engagement, and performance.

2.2 Institutional Climate as an Independent Variable

In an attempt to develop a predictive model of student attachment to the university, Long (1976) used four variable sets: perceptions of university goals, perceptions of university academic climate, perceptions of university academic environment, and feelings of academic alienation. The multiple discriminant analytical results indicated that of those four variable sets, perceptions of the academic climate and feelings of academic alienation exert more influence on students' attachment to the university than do perceptions of university goals and perceptions of the academic environment (Long, 1976).

Since the 1980s, many studies have focused on the relationship between institutional/campus climate and student learning outcomes and institutional effectiveness. For example, Pascarella (1985) proposed a general causal model for assessing the effects of differential college environments on student learning and cognitive development. In that model, five independent variables, including structural/organizational characteristics, student background/precollege traits, interaction with agents of socialization, institutional environment, and quality of student effort, are hypothesized to have direct or indirect impact on student learning and cognitive development, as well as quality of student learning effort. Pascarella's model was tested

and supported by a study conducted by Franklin (1995), which used secondary analysis of longitudinal data of 2,165 students at four-year institutions. The survey sample was composed from the 1986 Cooperative Institutional Research Program (CIRP) freshman survey and from the 1990 follow-up CIRP. Results of the path analyses partially supported Pascarella's theoretical causal model, and findings suggested that student precollege traits, the quality of student effort in academic pursuits during college, and interactions with faculty and peers are more salient influences on learning and student perceptions of cognitive development than institutional characteristics and institutional environment. Based on the findings, the author proposed a refined causal model for college student academic and cognitive outcomes (Franklin, 1995), as presented in Figure 1.1 below:



Figure 1.1: Causal Model for College Student Academic and Cognitive Outcomes

Proposed refined model for assessing student academic outcomes (Franklin, 1995, P.147)

Umbach and Wawrzynski (2005) used two national data sets to explore the relationship between faculty practices and student engagement, and the findings suggest that "students report higher levels of engagement and learning at institutions where faculty members use active and collaborative learning techniques, engage students in experiences, emphasize higher-order cognitive activities in the classroom, interact with students, challenge students academically, and value enriching educational experiences" (p.153). While Umbach and Wawrzynski's study explores the institutional context created by faculty and its relationship to student experience in terms of organizational climate, this "faculty-created" context could be viewed as equivalent to a climate dimension perceived by the students, which in turn affects the students' learning and engagement (Umbach & Wawrzynski, 2005).

Researchers have also investigated the relation between institutional climate and student growth and satisfaction. In a study on the impact of departmental climate on undergraduate student growth and satisfaction, Volkwein and Carbone (1994) developed measures of departmental research and teaching climate, and related them to various student outcome measures, including intellectual growth, growth in disciplinary skills, and academic satisfaction. The major findings of Volkwein and Carbone's study are, first, that the departmental research climate is significantly correlated with students' disciplinary understanding, meaning that a highly active research department has students with greater disciplinary understanding. Second, the students' college experience, as measured by dimensions such as classroom involvement, faculty contact, peer relations, social involvement and activities, is significantly correlated with all dimensions of student outcome measures. Third, when a strong research climate is combined with attention to teaching responsibilities, it will have a beneficial influence on academic integrity and intellectual growth of undergraduate majors. Thus, departmental climate does play a significant role in student learning and cognitive development (Volkwein & Carbone, 1994).

Another area of research is the relationship between institutional climate and student retention. Oseguera and Rhee (2009) incorporated the perspectives of faculty and students to describe the climate for student retention. They used hierarchical generalized linear models (HGLM) to examine the extent to which institutional climate (as measured by peer institutional retention climate and faculty perceived climate), student ability, expectations, and family socioeconomic status influence students' persistence behavior. They found that institutional retention climate, as defined by a student body's aggregated report of withdrawal intentions, indeed independently determined whether a student would persist or not. It showed that measures of intentions to leave had contextual effects on student persistence. For example, "attending a college where students' collectively report a certain behavior such as likelihood of transferring, dropping out, or stopping out has independent effects above students' own likelihood of engaging in these behaviors" (p. 562). Their research results call for the attention of peer institutional retention climates (Oseguera & Rhee, 2009).
Pike and Kuh (2006) examined the relationship among structural diversity, informal peer interactions and perceptions of the campus environment. The study analyzed related data from 45,000 senior students at 305 institutions, using the institutional data from the Spring 2001 National Survey of Student Engagement (NSSE) and the Fall 2000 IPEDS institutional data collection. Institutions were the unit of analysis in this study. Information about informal interactional diversity and perceptions of the campus environment was drawn from responses to the NSSE survey, which asked students about their perceptions of their college experiences, and to indicate the frequency with which they engage in activities that are related to desirable learning outcomes. The results of this study indicate that the effects on campus environment due to interactions among diverse groups seem to depend on the nature and quality of the interactions, rather than on their quantity. Thus, attracting diverse students should be seen as a necessary, but not sufficient, condition for positive diversity outcomes. Future research should examine the relationships among structural diversity, informal interactional diversity, and perceived supportiveness of the campus environment using longitudinal data (Pike & Kuh, 2006).

Yi (2008) conducted a study to examine the extent to which the institutional climate for diversity influences the different types of college student withdrawal, such as stop-out, drop-out, and transfer. The study found that institutional climate for diversity had significant but differing effects on the different types of student withdrawal. The author reminds educators to take institutional climate for diversity more seriously, and suggests

a more sophisticated method for conducting research on college student withdrawal (Yi, 2008).

In an investigation on the effects of stress and campus climate on the persistence of students, Johnson and colleagues (2014) used the Psychological Model of College Student Retention proposed by Bean and Eaton (2000, 2001/2002) to illustrate how the campus environment, including racial climate perception, can contribute to the psychological dimensions of students' experiences in college during their first year, and how these initial experiences go on to affect their persistence decisions during the first two years of college. The sample of the study consisted of 1,491 students from a US research university. The sample was further divided into two subgroups, 1) Students of Colour and 2) White students, with the purpose of testing the different effects of campus climate on the two student groups. Using measures of stress and feelings about the campus environment as the psychological dimensions of students' college experiences, the models identified common and unique psychological factors and campus experiences important to student persistence. The climate survey instrument included seven topical areas: experiences in the classroom, experiences in the major, interactions with peers on campus and in the living environment, campus environment perceptions, institutional practices related to diversity, reasons for choosing and remaining enrolled at the institution, and sources of stress and support at the institution. Using squared multiple correlations (SMC), which explicate the proportion of the variance in the variable that is accounted for by all other associated variables in the model (Tabachnick & Fidell, 2007), the results revealed that campus environment perception accounted for 27% of the variance in White students' persistence, and 33% of the variance in the Students of Colour's persistence, after two years of college. Based on their results, the authors suggested that institutions could play a role in mitigating the psychological effects of the college experience by attending to the campus racial climate and academic engagement issues (Johnson et al., 2014).

Previous studies have suggested that organizational climate does have an impact on student experience and learning outcomes. Now, it is significant to study how institutional climate is related to student engagement.

2.3 Measuring Institutional Climate

Institutional climate information can be gathered by varying means, including qualitative methods, such as focus groups and interviews, and quantitative measures, such as formally designed surveys. Commercial publishers have also constructed instruments that collect climate information from faculty, staff, and students (Baird, 1990). There is a quite long history of attempts to assess the climates of colleges and universities (Baird, 1988). The first formal proposal for measuring college climate was by Pace and Stem (1958), who developed the College Characteristics Index (CCI) questionnaire to assess students' perceptions of campus climate, particularly the college "press" (the environmental pressures that students perceive to be exerted by a given school). Pace (1969) adapted the CCI to reflect consensus and consensual differences among campus climates, using the college rather than the individual

as the unit of analysis. The result was the University Environment Scales (UES), which eventually included scales on seven dimensions: pragmatism; community; awareness, reflecting an active cultural and intellectual life; propriety; scholarship or academic rigor; campus morale; and quality of teaching (faculty-student relationships). The UES had been used in many studies, as reviewed in Feldman and Newcomb (1969) and Baird (1988).

The next climate measure, the Institutional Functioning Inventory (IFI), was developed to identify the major dimensions of how colleges function (Peterson et al., 1970). The IFI consists of eleven scales that represent the climate aspects relevant to institutional functioning: intellectual-aesthetic curriculum, human diversity, concern for the improvement of society, concern for undergraduate learning, democratic governance, self-study and planning, concern for advancing knowledge, concern for innovation, and intellectual esprit.

Peterson and Uhl (1977) developed the Institutional Goal Inventory (IGI) based on the rationale that the climate of a university or college is formed partly by institutional goals, and if its goals are a large part of its climate, then it is meaningful to assess the perception of those goals by students, faculty, staff, and administrators. The IGI consists of twenty scales. Respondents rate each of ninety statements of goals according to how those goals are currently emphasized in their institution and how they believe the goals should be emphasized. The differences between these "is" and "should be" ratings show how closely present institutional goals match the goals that people prefer. Furthermore, differences among groups of respondents on their preferred goals show how much agreement exists around institutional

purposes. The goal statements form scales that comprise substantive objectives and institutional process goals that a college or university may seek to achieve, including intellectual orientation, individual personal development, humanism/altruism, cultural/esthetic awareness, vocational preparation, research, meeting local needs, public service, social egalitarianism, freedom, democratic governance, community, intellectual/esthetic environment, and innovation. Thus, colleges with different missions and goals will differentiate from one another on these scales (Baird, 1990).

During the 1980s and 1990s, a variety of instruments for measuring institutional/campus climate have been developed and used. Some of the instruments are institution-specific, whereas others are commercially designed (Shenkle et al., 1998). These instruments run the gamut from general surveys, such as academic/social environment or institutional performance, to those that measure perceptions of very specific aspects of campus climate, such as the perceived climate for academic advising or campus climate for diversity. One example of the general climate survey is the university version of the Charles F. Kettering (CFK) School Climate Profile by Johnson and colleagues (1999). The CFK scales have been a popular climate instrument purposed to measure the psychological dimensions of school climate, and many school districts in the United States have used the instrument for program development and curriculum revision (Johnson et al., 1995). The authors made an effort to revise and adapt the public school version of the CFK scale for university assessment, resulting in the University Charles F. Kettering Climate Profile. The university version of the CFK consists of eight subscales, with the number of items in each subscale being: (a) Respect (Items 1-5), (b) Trust

(Items 6-10), (c) High Morale (Items 11-15), (d) Opportunity for Input (Items 16-20), (g) School Renewal (Items 31-35), and (h) Caring (Items 36-40). Based on data from 707 university students, the scale was validated and showed good reliability. Evidence of psychometric integrity for item and scale scores was observed. The authors claimed the CFK scale to be a useful instrument for assessing campus climate (Johnson, Johnson, Kranch, & Zimmerman, 1999). However, this scale has not been widely used in university climate studies.

2.4 Unit of Analysis in Climate Study

In studying institutional climate and its relationship to institutional effectiveness and individual performance, although researchers often study climate at the institutional level, climate is also usefully studied at the subunit level (i.e. departments or programs). But which unit of analysis is more appropriate? The answer to this question is related to the methodological issue of data aggregation. For example, when we need to average people's responses to climate questions in a certain college, which group of employees or students should the researcher select to represent a social unit? To date, the answer to the question regarding an appropriate unit of aggregation has depended upon the uses to which the data will be put and the way in which survey items are worded (Schneider et al., 2013). Entwistle (1989) suggests that explorations of the relationship between approaches to studying and perceptions of the learning environment may be more productive at the faculty or departmental level, given that the findings at this level may be more likely to lead directly to the review and modification of course design and teaching practices. There have been findings supporting Entwistle's suggestion (e.g. Moran &

Volkwein, 1988; Solem et al., 2009; Solem et al., 2005; Schulz, 2013; Volkwein & Carbone 1994; West et al., 1998).

Moran & Volkwein (1988) performed a study to examine organizational climate in nine fouryear public colleges, utilizing data from 2,937 respondents. One of their most significant findings was that climate has relevance at the organizational level in that it distinguishes campuses from one another, but subunits, particularly academic departments, account for the largest proportion of variance. Moreover, subunit effects related to work groups were more significant than organizational effects. Analyses on subunits across two organizations revealed that there are significant main effects for organization, role, and work group. Therefore, in institutions of higher education, climate appears to be a construct that may operate to a greater degree at the intra-organizational level than at the organizational level. The authors concluded that the work group was more important in explaining organizational climate than were the other factors considered in institutions of higher education, and that the subunit effect is more significant than the organizational level effect (Moran & Volkwein, 1988).

In the abovementioned West and associates' (1998) study on the relationship between departmental climate and research excellence in UK universities, the unit of analysis is solely at departmental level, collecting departmental climate data with questionnaires from 78 departments. Their major findings include that 1) departmental climate correlates with research outcomes, and that 2) within the context of university departments, the grades awarded for research excellence predict departmental climate change (West et al., 1998).

Solem, Smeby and Try (2005) examined the relationship between departmental context and faculty research activities at universities in Norway. They argued that the department level is important to understand why research activity varies between faculty members. With research activity being measured by research input, in terms of time spent on research activities, and research output, in terms of publications, their findings indicate that contextual factors have greatest impact on the indicator that is considered to be most essential when assessing research performance: published scientific articles. Department climate is one of the factors that is related to and has significant impact on research output (Solem et al., 2005).

Solem, Lee, and Schlemper (2009) explored how graduate students enrolled in master and Ph.D. geography programs perceived the social and academic climate of their departments, and whether these students' self-assessed professional abilities, values, and goals differed across demographic and institutional contexts. T-tests, ANOVA, and regression analyses identified significant differences among graduate students and their perceptions of departmental climate when compared on the basis of gender, citizenship, race/ethnicity, disciplinary subfield, and institutional type. The authors believed that these differences result from the varying social and academic dynamics of graduate programs, illustrating the importance of the local environment in shaping student experiences. They concluded that "factors related to the departmental environment are at least as important as individual aptitude for understanding the quality of student experiences in graduate programs. In other words, context matters when understanding the experiences of graduate students and their perceptions of departmental climate" (p. 288).

Schulz (2013) conducted a survey of academics in 20 research-intensive universities in the UK and explored their perceptions of organizational climate, role conflict, role ambiguity and job satisfaction. The participants of the study were drawn from academic staff in Russell Group universities in the UK, which is a collaboration of 20 of the high-ranked research-intensive universities. Ten of the major academic operational units – usually schools or departments (depending on the university's nomenclature) – from each university were randomly selected, and then 10 active research staff members were selected from each of these units. A total of 448 academics participated in the survey. The results suggested that these universities had multiple organizational climates, with different types of climates having different effects on academic staff's work-related attitudes and behaviour. For example, a strong collegial climate is associated with higher level job satisfaction and lower level of role stress, because a collegial climate emphasizes basic beliefs that people behave appropriately when they have trust in, loyalty to, and membership in the organization, which then lead to collegial behaviours of teamwork, participation, involvement, and open communication. A strong adhocracy climate was also associated with low levels of role conflict and role ambiguity, while a strong market climate is associated with high levels of role conflict, as it places the multiple roles of an academic in competition with one another. The findings suggest that despite changes in the styles of management in universities due to financial pressure and market competition, the collegial climate is still a very important contributor to the satisfaction of academic staff.

The literature evidently shows that it is appropriate and more relevant to study institutional climate at the subunit level (i.e. departments or programs). The present study will adopt the unit of analysis of the program level.

2.5 Climate Dimensions of Research Interest

What climate dimensions should be employed in measuring climate in educational institutions? Some early reviews have made it clear that studies share an assumption that a large, varied group of work and social environments can be characterized by a limited number of dimensions (Kopelman et al., 1990), although it is noted that the relatively small number of factors implies that a great deal of environmental variation remains uncovered. Kopelman et al (1990) proposed five dimensions as common elements of climate. These dimensions are goal emphasis, means emphasis, reward orientation, task support, and socio-emotional support. Turnipseed (1990) nominated dimensions such as cohesion, autonomy, job involvement, innovation, general job orientation, work pressure, management control, supervisory support and job structure. In another study, Koys and DeCotiis (1991) developed a 40-item instrument for measuring the eight-dimension universe of psychological climate. Their proposed eight common climate dimensions are: A) autonomy, B) cohesion, C) trust, D) pressure, E) support, F) recognition, G) fairness, and H) innovation. In the literature of climate studies, a large number of investigations have adopted the idea of a common core of organizational climate dimensions in practice (Koys & DeCotiis, 1991).

More recently, there have been efforts to develop new all-encompassing instruments to measure climate. For example, Thumin and Thumin (2011) developed and validated the Survey of Organizational Characteristics (SOC), which consists of eight subscales: A) organizational flexibility; B) consideration; C) job satisfaction; D) structural clarity; E) future with the organization; F) organizational honesty; G) community involvement; and H) reward system. Reliability coefficients analysis revealed a high degree of internal consistency for all the subscales, and the authors believed that the SOC could be a useful instrument. However, the primary limitation of this study was the rather small sample size of 171 participants from three validation groups at a medical school. Another questionable practice is to include a subscale of job satisfaction in the survey, as this will potentially make climate fall under the general rubric of attitude research (Schneider & Reichers, 1983). To date, the SOC has not been used widely by researchers.

In contrast, researchers argue that that organizational climate should be context-specific, and that different dimensions or different measures of dimensions should be required for different contexts (Sani, 2012; Schneider et al., 2013). Schneider and Reichers (1983) argued that climate should refer to an area of research, rather than a construct with a particular set of dimensions, and what to study in climate research depends upon the purpose of the study, as the generic nature of the climate measured was not useful for the prediction of specific outcomes. Schneider and Reichers further argued that climate is not an omnibus construct conceptually, and those non-specific measures of climate cannot be expected to make fine distinctions between units in an organization, nor to correlate with any specific organizational

criterion (such as turnover) across units. So, the key question for determining the content of climate is "climate for what?", and global conceptualizations of the construct of climate are not likely to have much relevance to understanding specific phenomenon. Climate is not an "it," but rather a set of "its," each with its own "referent" (Schneider & Reichers, 1983). They call for climate measures to be tailored to the study's criterion of interests. This approach has been accepted and successfully applied in such referents as climate for service and climate for safety. The table below lists some of such context-relevant studies in literature:

Focused Climates	Examples of Published Studies
Service climate	Dietz et al. 2004; Gracia et al., 2010; Greenslade &
	Jimmieson, 2011; Jayasuriya et al., 2014; Mayer et al., 2009;
	al., 2010 schneider et al., 2013; Walumbwa et al., 2010
Climate for creativity and	Anderson & West, 1998; Baer & Frese, 2003; Ekvall, 1996;
innovation	Hsu & Fan, 2010; Isaken & Lauer, 2002; Lee et al., 2014;
	Lin & Liu, 2012; Michaelis et al., 2010; Shirahada &
	Hamazaki, 2013; Remneland-Wikhamn & Wikhamn, 2011;
	Turnipseed & Turnipseed, 2013; Zhang & Begley, 2011
Safety climate	Beus et al., 2010; Brondino, et al., 2012; Christian et al.,
	2009; Clarke, 2006; Clarke, 2010; Clark et al., 2014; Colly et
	al., 2013; Flin, et al., 2000; Kines et al., 2011; Laio et al., 2014; Mumbu et al., 2014; Neuerre et al., 2012; Neel &
	2014; Murphy et al., 2014; Navarro et al., 2015; Neal &
	Griffin, 2006; Neal et al., 2000; O Connor et al., 2011; Zonar
	& Luria, 2005; Zonar & Tenne-Gazit, 2008
Supportive climate	Chang & Wu, 2013; Luthans et al., 2008; Zohar, 2000
Justice climate	Colquitt et al., 2002; Ehrhart, 2004; Li & Cropanzano, 2009;
	Liao & Rupp 2005; Lin & Leung, 2014; Mahajan & Benson,
	2013; Naumann & Bennett, 2000; Suliman, 2013; Spell &
	Arnold, 2007; Walumbwa et al., 2010

Table 1.1. Examples of Context-Relevant Climate Studies

Ethical climate	Arnaud, 2010; DeConinck, 2011; Borhani et al., 2014; Filipova, 2011; Martin & Cullen, 2006; Mayer et al., 2009; Roch et al., 2014; Schminke et al., 2005; Shafer et al., 2013; Stachowicz-Stanusch & Simha, 2013; Suhonen et al., 2014; Verdorfer, 2012,
Diversity climate	Boehm et al., 2014; Brimhall et al., 2014; Buttner et al., 2010; Gonzalez & DeNisi, 2009; Groggins & Ryan, 2013; McKay et al., 2009; Pugh et al., 2008;

More relevant to institutional climate studies in higher education is research specific to ethical climates (Putranta & Kingshott, 2011), organizational research climates (Crain, Martinson, & Thrush, 2013), institutional climates (Ismail, 2005; Gormley & Kennerley, 2010, McMurray & Scott, 2013), departmental academic climates (Wolkwein & Carbones, 1994; West et al, 1998), institutional retention climates (Osequera & Rhee, 2009), students supportive climates (Zhang & Chan, 2007), campus racial climates (Cabrera et al, 1999; Jayakumar et al, 2009), climates for diversity (Mayhew, Grundwald, & Dey, 2006; Yi, 2008), and campus climates (Stebleton et al, 2014; Salter, Junco, & Irvin, 2004). These studies all made an effort to establish procedures for the development of measures that correlate with criteria of interest, and the utility of specific kinds of climate measures for the prediction and understanding of various forms of organizational behavior or outcomes have been proven to be more useful, as shown in the areas of service, innovation, employee commitment, safety, and ethical practice. The present study accepts the same approach to focus on the climate of academic quality, as reflected with the students' perceptions on the teaching practice of their programs.

2.6 Instruments for Measuring Institutional Climate

In a review of the study of measurement of campus climate, Shenkle and colleagues (Shenkle et al., 1998) grouped the measuring instruments into six primary categories, namely A) academic or social environment, B) diversity, C) residence hall environment, D) satisfaction, E) substance use, and F) miscellaneous, to collect climate data from employees, current students, alumni, and students who dropped out. With the purpose of studying the impact of the teaching/learning environment on student engagement, the present study will be focused on the measurement of academic environment. There would be meaningful results if we could see how learning engagement and learning outcomes are facilitated by students' perception of the academic environment. In another review on the research evidence concerning the use of formal instruments to measure students' evaluations of their teachers, students' satisfaction with their programmes, and students' perceptions of the quality of their programmes, Richardson (2005) highlights two types of instruments: students' evaluations of teaching, and students' perceptions of academic quality. The instruments in the first category are related to students' evaluation of teaching. One instrument that has been most widely used in published work is Marsh's (1982) Students' Evaluations of Educational Quality (SEEQ). In completing this questionnaire, students are asked to judge how well each of 35 statements (for instance, "You found the course intellectually stimulating and challenging") describes their teacher or course unit, using a five-point scale from 'very poor' to 'very good'. The statements are intended to reflect nine aspects of effective teaching: learning/value, enthusiasm, organization, breadth of coverage, group interaction, individual rapport, examinations/grading, assignments, and workload/difficulty. The evidence using this and other similar questionnaires has been summarized in a series of reviews (Marsh, 1982, 1987; Arubayi, 1987; Marsh & Bailey, 1993).

The instruments in the second category in Richardson's review are related to students' perceptions of academic quality. Among a variety of instruments, the Course Perceptions Questionnaire (CPQ) developed by Ramsden and Entwistle (1981, 1991) is highlighted as the most widely used in the United Kingdom and Australia. The CPQ was devised as a research instrument to identify and to compare the perceptions of students on different programmes, and can be used to reveal the impact of contextual factors on students' approaches to learning and learning outcomes. In its final version, the CPQ contained 40 items in eight scales that reflected different aspects of effective teaching. This instrument has been tested in UK, Australia, and New Zealand, and measures of validity and reliability have been reported as satisfactory (e.g. Marsh et al., 2011; Ramsden, 1999; Wilson & Lizzio, 1997). Today, the CPQ is still the most widely used measure in the United Kingdom and Australia.

Ramsden (1991) developed a revised instrument, the Course Experience Questionnaire (CEQ), as a performance indicator for monitoring the quality of teaching on particular academic programmes. The revised CEQ consisted of 30 items in five scales which had been identified in previous research as reflecting different dimensions of effective instruction: good teaching (8 items); clear goals and standards (5 items); appropriate student workload (5 items); appropriate assessment (6 items); and emphasis on independence (6 items). Evidence concerning the psychometric properties of the 30-item version of the CEQ was obtained from

the Australian national trial (Ramsden, 1991). Since 1993, the CEQ has been used as a measure of perceived teaching quality in degree programmes in national annual surveys of all graduates in the Australian higher education system (Institute for Teaching and Learning, 2014). All graduates of degree programmes have been asked to complete the CEQ as part of the Australian Graduate Survey (AGS), which comprises the Graduate Destination Survey (GDS) and, depending on the graduate, either the Course Experience Questionnaire (CEQ) or Postgraduate Research Experience Questionnaire (PREQ), with reports being published annually and results being accessible to the general public (Institute for Teaching and Learning, 2014; Graduate Careers Australia, 2014). Most Australian universities have used their CEQ data as an integral part of broader quality assurance programmes, including benchmarking relationships with other universities, and programme improvement (Barrie, Ginns, & Prosser, 2005; Grebennikov & Shah, 2013; Watty et al., 2013). Moreover, a similar instrument to the annual National Student Survey (NSS) in the UK has been administered to final-year students of degree programmes in England, Wales and North Ireland since 2005, in order to collect feedback from undergraduate students in the UK on their experiences in various aspects of their courses (Richardson et al., 2007). The NSS's current multiple purposes include: 1) Informing prospective student choice; 2) Enhancing the student academic experience within higher education institutions; and 3) Ensuring public accountability (Higher Education Funding Council for England, 2014). These are very similar to those in Australian practice, and both have the link to educational quality assurance.

The CEQ has evolved from theory and research on student learning in higher education over the past few decades, and is supported by research findings that the information obtained from the CEQ can highlight issues in the student learning experience to address, which is necessary for better learning outcomes desired at the tertiary level (Webster et al, 2009). Research efforts using the CEQ to address the impact of students' perceptions can be readily framed within Biggs's (1989, 1993) three-stage model, also known as the 3P model, which conceptualizes the learning process as an interacting system of three sets of variables: presage (the learning environment), process (students' approach to learning), and product (learning outcomes). In basic terms, the 3P model proposes that, first, situational factors influence a student to adopt a particular approach to learning, which in turn mediates or influences the types of outcomes achieved, and second, that presage factors (e.g. perceptions of the learning environment) can also directly influence learning outcomes (Biggs, 1993). The key element in the practical application of the 3P model is the proposition that it is the students' *perceptions* of their learning environment that determine how situational factors influence approaches to learning and learning outcomes (Biggs, 1993; Lizzio, Wilson, & Simons, 2002; Rasman, 1991). Since the 1990s, the CEQ has undergone extensive and rigorous cross-validation of its structure across several large multidisciplinary samples, using a combination of exploratory and confirmatory factor analysis, as well as predictive and discriminatory validity procedures (Lizzio, Wilson, & Simons, 2002; Wilson, Lizzio, & Ramsden, 1997). To determine the criterion validity of the CEQ, a series of correlational analyses were conducted to assess the degree of relation between scores on the scales of the CEQ and a number of key external criteria related to teaching and learning effectiveness. Correlational analyses were conducted between students' *perceptions* of the learning environment (measured by the scales of the CEQ) and reported approaches to learning (measured by deep and surface subscales of the Approaches to Studying Inventory). The results indicated that all CEQ scales evidenced significant positive correlations with a "deep" approach (emphasis on understanding and deriving meaning), and significant negative correlations with a "surface" approach (emphasis on reproducing facts), to learning. A deep approach to student learning was related most strongly to good teaching, appropriate assessment, and independence in learning. In contrast, a surface approach to student learning workload and inappropriate assessment. The findings of a number of support research studies confirmed the stability and validity of the instrument as a measure of the learning environment at the degree level (Broomfield & Blish, 1998; Kreber, 2003; Lizzio, Wilson, & Simons, 2002; Richardson, 1994; Richardson, Slater, & Wilson, 2007; Wilson, Lizzio, & Ramsden, 1997).

Wilson, Lizzio, and Ramsden (1997) proposed that for research purposes, the original version of the CEQ should be augmented with the Generic Skills scale (6 items) to measure the reported acquisition of transferable skills. This resulted in a 36-item instrument. Empirical evidence also demonstrated that students' scores on the 36-item version of the CEQ significantly correlated with their cumulative grade point averages. The correlation coefficients were highest for the Good Teaching scale and the Clear Goals and Standards scale, and they were lowest for the Generic Skills and Appropriate Workload scales.

Since the utilization of the original scales, there have been several CEQ versions, including the versions with 30 items (the original version that comprises five subscales), 36 items (the original version plus the generic skill scale of 6 items), and 23 items. The most widely used version is the 23-item short form (CEQ23), as validation showed that the CEQ23 offered a stable factor structure equal to that of the 36-item CEQ, with the advantage of the shorter form to showing clearer relationships between the scales (Wilson et al, 1997). With CEQ23, the strongest loading items from Ramsden's (1991) analysis of the original CEQ30 item scale were retained to define the scales of Good Teaching (6 items), Clear Goals and Standards (4 items), Appropriate Workload (4 items), and Appropriate Assessment (3 items). However, the original Emphasis on Independence scale (given its comparatively weaker scale structure) was not included in this short form, and a new scale measuring Generic Skills (6 items) was added, resulting in a 23-item scale. The CEQ23 has been used in the Graduate Careers Council of Australia (GCCA) national survey of graduates since 1993. There has also been a 25-item version (CEQ25), which is similar to the CEQ23, with the Clear Goal and Standards scale having five items and the addition of a single item addressing overall satisfaction with the quality of the course (McInnis et al., 2001).

The CEQ has been increasingly employed as a measure of the quality of teaching in universities, and it has been shown that CEQ scores continue to be related to the student's learning approaches, satisfaction, and learning outcomes by researchers in Australia (Grace et al., 2012; Trigwell & Prosser, 1991) and the United Kingdom (Ashby, Richardson, & Woodley, 2011; Broomfield & Bligh, 1998; Richardson, 1994, 2003; Sun & Richardson, 2012). The majority of the research findings are in line with the fundamental finding that students tend to adopt deep approaches to learning with intention to understand the materials when teaching is perceived as good, learning goals as clear, and students' independence in learning as being encouraged. On the other hand, students tend more to adopt surface approaches to learning with intention to rote-learn the materials when workload is perceived as heavy, and assessment as encouraging content reproduction. Research findings also typically show that deep approaches are positively, and surface approaches negatively, related to students' academic achievement, although the correlations are often rather weak.

In recent years, the CEQ has also been adapted and validated in other countries and regions with different higher education systems, such as Canada (Kreber, 2003), China (Price et al., 2011), Denmark (Richardson, Gamborg, & Hammerberg, 2005), Greece (Karagiannopoulou & Christodoulides, 2005; Stergiou & Airey, 2012), Hong Kong (Law & Meyer, 2011a, 2011b; Ning & Downing, 2010; Webster et al., 2009), Japan (Fryer et al., 2012), Pakistan (Ullah, Richardson, & Hafeez, 2011), the Netherlands (Jansen, van der Meer, & Fokkens-Bruinsma, 2013), and the United Kingdom (Broomfield & Bligh, 1998; Richardson, 1994, 2003).

Kreber (2003) conducted a study to validate CEQ with a Canadian sample. That study investigated the relationship between student perception of their learning environment with learning approaches and learning outcomes, using a large sample of 1,080 Canadian undergraduate science students from a university in Alberta. The results indicated that the factor structure Ramsden (1991) reported on the CEQ was largely confirmed, though some small changes were noted and previous findings of significant correlations between student learning approaches and CEQ scales were supported. So, we have reason to believe that when the factor structure of a scale is confirmed with a Canadian sample, it can be considered suitable to be used in Canadian institutions. The present study will also conduct validation analysis with the data from sample Canadian college students, with the hope that this will help further confirm the CEQ factor structure with another Canadian sample (Kreber, 2003).

Price (2011) and colleagues used the CEQ to investigate approaches to studying and perceptions of the academic environment among university students in China. A total of 356 students completed both the Course Experience Questionnaire (CEQ) and the Revised Approaches to Studying Inventory (RASI). The results revealed that their responses to the CEQ yielded two factors concerned with student support and course demands, which positively correlated with the students' overall level of satisfaction with their courses. Their responses to the RASI yielded two factors: a deep/strategic approach and a surface approach. Students who rated their courses positively in terms of student support were more likely to adopt a deep/strategic approach. In broad terms, the students' perceptions and approaches to studying were similar to those of Western students, though with some specific differences. The findings provided evidence for the CEQ as a measure of perceived academic quality in mainland Chinese students.

The CEQ has also been administered to students at Danish institutions of higher education. Students in the fourth semester of basic training programmes in occupational therapy at seven different institutions of higher education in Denmark were surveyed using the Course Experience Questionnaire and the Revised Approaches to Studying Inventory (RASI). The CEQ proved to be reasonably robust in this setting, as most of the scales demonstrated satisfactory reliability, and a factor analysis confirmed its intended constituent structure. The CEQ also discriminated among students at the seven institutions in their patterns of scores (Richardson, Gamborg, & Hammerberg, 2005).

Karagiannopoulou & Christodoulides (2005) conducted a study on the impact of Greek University students' perceptions of their learning environment on approaches to studying and academic outcomes. In this study, the relationship between university students' perceptions of their academic environment, their approaches to study, and their academic outcomes was investigated for first- and fourth/final-year students. The responses of 88 first- and 92 fourthyear students were analysed using a path analysis model. Students' perceptions of the learning environment were measured by the Course Experience Questionnaire (CEQ) inventory. The Approaches to Studying Inventory (ASI) was used to assess students' approaches to studying. Results showed that there was a pattern of relationships between deep approaches, perceptions of learning environment that encouraged this approach, and outcomes. Assessment methods of a program were the best predictor of satisfaction for all of the students. For the first year students, university grade was not associated with any of the explored variables, but the level of satisfaction was predicted by relationships with tutors and fellows. For the fourth year students, the factor of good teaching predicted achievement both directly and indirectly through the deep approach to studying, and the fourth year students' perceptions of the current learning environment were a stronger predictor of academic achievement than prior academic ability (Karagiannopoulou & Christodoulides, 2005).

The CEQ has also been used at a university in Hong Kong in the investigation of the validity in adopting the CEQ as a key performance indicator, and for using the data to benchmark with other universities internationally. The intention was to use the evidence obtained from the survey to support and monitor the 4-year undergraduate curriculum that would have been implemented in the following few years (Webster et al., 2009). This research examined the construct validity of the Course Experience Questionnaire (CEQ) in Hong Kong and investigated the similarities and differences in the process of learning among students in different disciplinary studies (humanities versus sciences), using a sample of 1,563 undergraduate students of mainly Chinese ethnicity. Findings from exploratory and confirmatory factor analysis support the scale structure of the four subscales of a modified version of the CEQ (good teaching, clear goals and standards, appropriate work, and appropriate assessment) in a non-Western context, and could provide a basis for cross-cultural research and international benchmarking. While there was variation across subgroups, there was a genuine pattern of relationships between the perceptions of learning environment and learning strategies, as shown by structural modeling. The researchers concluded that with the evidence on construct validity and stable baseline structures among different subgroups of Hong Kong Chinese undergraduate students, the CEQ could be a reliable instrument for the evaluation of effectiveness of higher education in Hong Kong, in terms of teaching quality, the clarity of goals and standards, and the appropriateness of assessment and workload (Webster et al., 2009). The results of this study support the relationship between perceptions of learning environment and learning strategies. Another study in Hong Kong explored the reciprocal relationship between learning experience and study behaviour, and examined their relative impact on university students' academic performance. Ning and Downing (2010) used the Course Experience Questionnaire (CEQ) and the Learning and Study Strategies Inventory (LASSI) on a two-waved cross-lagged structural model to examine the reciprocal effects between learning experience and study behaviour measured over a 12-month period. Their findings indicated that after controlling for previous academic achievement, student learning experience measured at Time 1 exerted significant influence on study behaviour measured at Time 2, and that study behaviour measured at Time 1 also exerted significant impact on learning experience at Time 2. Both constructs were significantly predictive of students' current academic performance (Ning & Downing, 2010).

While both of these studies in Hong Kong used the original English version of the CEQ, Law and Meyer (2011) adapted and partially validated a Chinese translation of the CEQ for application in the context of postsecondary education in Hong Kong. The authors used the data, with a sample of 1,572 undergraduate participants from six postsecondary institutions in Hong Kong, to validate the CEQ Chinese version. The psychometric properties of the translated CEQ constituent scales and their underlying factor structure were tested with item-correlation analysis and exploratory factor analysis. It was shown that the alpha values of the translated

CEQ scales in this study are generally lower than those of other reported studies using the original English scales (Ramsden, 1991; Richardson, 1994; Lizzio, Wilson, & Simons, 2002). The results of exploratory factor analysis also indicated that the degree of overlap among the constructs, as measured by the CEQ scales, is more extensive than most other reported studies, resulting in only four, instead of six, factors being explicitly indicated, with some constructs being overshadowed by other more salient constructs and failing to exhibit in the factor structure. The authors suggested the need for further development of the CEQ for application in the Chinese context in general, and in the context of Hong Kong post-secondary education in particular (Law & Meyer, 2011).

The CEQ has also been validated in the tertiary context in the Netherlands. Jansen and colleagues (2013) recently conducted a study to examine the CEQ in a Dutch context by administering it at a Dutch university to assess its validity. The CEQ23 was translated into Dutch and administered to a sample of 956 master students. Confirmatory factor analysis provided a good fit for the CEQ's five-factor structure, and the scales showed good reliabilities. Validation with external criterion and discriminant validation between faculties with different teaching environments demonstrated the CEQ's potential for use in Dutch universities. The results of this adaption and validation exercise suggest that the use of the CEQ in Dutch universities could be useful.

As it is shown in the literature, research findings reinforce the confidence with which the CEQ can be used as an educational evaluation tool, and there is broad acceptance of the instrument.

Additionally, the CEQ would appear to measure constructs directly relevant to students' reported approaches to, satisfaction with, and expect outcomes of their learning in university contexts. The CEQ's sensitivity to differences, along theoretically predictable lines, between traditional and problem-based and experiential programmes suggests its useful application in research studies seeking to establish the comparative educational efficacy of learning environments. The CEQ can thus be regarded as a valid, reliable and stable instrument. In his review, Richardson (2005) proposed that,

"Experience with Students' Evaluations of Educational Quality (SEEQ) and the Course Experience Questionnaire (CEQ) in America and Australia suggests that it is feasible to construct questionnaires that have a very wide range of applicability......In addition, many institutions that use the SEEQ to obtain feedback from students about teachers or course units, and many institutions that use the Course Experience Questionnaire (CEQ) to obtain feedback from recent graduates about their programmes seem to accept these surveys as sufficient sources of information and do not attempt to supplement them with other instruments. It is clearly necessary that such a questionnaire be motivated by research evidence about teaching, learning and assessment in higher education and that it should be assessed as a research tool. The only existing instruments that satisfy these requirements are the SEEQ (for evaluating individual teachers and course units), and the CEQ (for evaluating programmes)" (p. 403). Based on the review above, we can assume that the CEQ is a widely used quantitative instrument for collecting data of student perception on program quality and learning environment. The present study will adopt the CEQ to evaluate students' perception of their learning environment, as the CEQ has been specially designed as a performance indicator of teaching effectiveness at the level of the whole course or degree program. Thus, all items have been designed to measure aspects of the learning environment across disciplines and institutions. Therefore, it is currently the most suitable instrument for measuring aspects of the learning environment at the general or individual level (Lizzio, Wilson, & Simons, 2010). The present study will use the CEQ36 to measure students' perception of their learning environment.

2.7 The Conceptual Framework for the Present Study

Research efforts addressing the impact of students perceptions of learning environment can be framed within Biggs's (1989, 1993) 3P (presage, process, and product) model, which conceptualises the learning process as an interacting system of three sets of variables: the learning environment and student characteristics (presage), the students' approach to learning (process), and learning outcomes (product). In basic terms, the model proposes that, first, personal and situational factors influence a student to adopt a particular approach to learning, which in turn mediates or influences the types of outcomes achieved; and second, that presage factors (e.g. perceptions of the learning environment) can also directly influence learning outcomes. This model is represented in Figure 2.1.

Presage factors are those that exist prior to learning and relate to the student and the teaching context. They comprise two broad types: the enduring personal characteristics brought to the learning situation by the student (e.g. prior knowledge, academic ability, motivation, and personality), and situational characteristics that define the learning environment (e.g. teaching methods, workload, and course structure). '*The teaching context contains all those factors which are under the teacher's or the institution's control: course structure and content, methods of teaching and assessment, all of which also generate a "climate" for learning, which has important motivational consequences*' (Biggs, 1989, p.12). As Biggs (1985, 1989) and others (e.g. Lizzio, Wilson, & Simons, 2010; Ramsden, 2005) have argued, the key element in the practical application of this model is the proposition that it is the students' *perceptions* of their learning environment, in light of their motivations and expectations, which determine how situational factors influence approaches to learning and learning outcomes.

Figure 2.1. Presage, Process, and Product in Student Learning (Biggs, 1989, p. 11)



Process factors describe how students approach their learning. Students interpret this teaching context in the light of their own preconceptions and motivations, giving rise to metacognitive activity, which is the awareness and understanding of the phenomenon of learning itself as opposed to subject knowledge. Implicit here is the learner's perception of the learning context. This activity of "metalearning" enables students to determine their approaches to learning (Biggs, 1989). It is proposed that students adopt three basic approaches to learning. "Deep" learning involves striving for improved understanding by applying and comparing ideas. A

student adopting a deep approach sees the task as interesting and personally involving, focuses on underlying meaning rather than on the literal aspects, and seeks integration between components and with other tasks. Conversely, "surface" learning involves reproductive strategies with little attempt to integrate information. Students adopting this approach need to balance avoiding failure against working too hard. The strategy appropriate to meeting that intention is to limit the target to essentials that are reproducible through rote learning. The third approach is the "achieving approach," which is based on a particular form of extrinsic motive: the ego enhancement that comes out of visibly achieving, in particular through high grades. A student adopting an achieving approach is neat and systematic, and plans ahead, allocating time to tasks in proportion to their grade earning potential. A deep approach will be associated with the most complex and most satisfying learning outcomes, whereas a surface approach is the most susceptible to situational pressure, is associated with highly directive teaching, and leads to factually specific outcomes that are often associated with negative affect, with little or no transfer to other tasks. The outcome of learning is determined by the approach adopted.

Product factors describe the learning outcomes that students derive from the learning process, which are traditionally measured through assessment scores, expressed satisfaction towards a course, and generic skills, competencies (the process skills which help students to effectively apply the content) or subject skills learned during higher education that are applied to work environments (Biggs, 1985, 1989, 1993).

Researchers have suggested that the relationships between the components in the 3P model are best conceived as an interactive system (Biggs, 1989, 1993; Trigwell & Prosser 1997). However, most recent studies are not concerned with systematically testing all possible relationships among the elements. Instead, they focus more on the students' perceptions of their learning environment systematically influencing learning approaches and outcomes, using the CEQ to measure the teaching context (e.g. Ashby, Richardson, & Woodley, 2011; Diseth, et al., 2010; Dorman, 2014; Grace et al., 2012; Harris & Kloubec, 2014; Law & Meyer, 2011; Lizzio; Wilson; & Simons, 2005; Marsh et al., 2011; Ning & Downing, 2010; Richardson, 2006; Webster et al., 2009). For example, Lezzio and associates (2005) conducted an investigation into the relationship between university students' perceptions of their academic environment (measured with CEQ), their approaches to study, and academic outcomes at both the university and faculty levels, using higher order path and regression analyses. Results confirmed that students' perceptions influence both 'hard' (academic achievement) and 'soft' (satisfaction, development of key skills) learning outcomes, both directly and mediated through their approaches to study. Multiple regression results showed that four out of the five aspects of the university learning environment (good teaching, appropriate assessment, emphasis on independence, and clear goals and standards) were significant positive predictors of the deep approach to learning, with the Good Teaching scale being the strongest predictor. This implies that the learning environments that would most strongly influence students toward deeper processing are those that are characterised by reciprocal transactions, involving both the giving (of clear and useful explanations, helpful feedback) and seeking (interest in students' opinions and difficulties) of information, within

an intrinsically motivating context. Fundamentally, this is a process of active engagement, and one can say that good teaching practices, as perceived by students, would strongly motivate student engagement in their learning. The results of this research also indicate that perceptions of teaching environments influence learning outcomes both directly (perceptions to outcomes) and indirectly (perceptions to learning approaches to outcomes). Thus, changes in teaching environments may have an impact on students' learning outcomes without necessarily affecting their learning approaches. Also, positive perceptions of the teaching environment not only directly influence academic achievement, but also qualitative learning outcomes. Generic academic and workplace skills are perceived to be best developed in learning environments characterised by good teaching and independence (Lizzio, Wilson, & Simons, 2005).

Overall, the evidence to date seems to indicate that there are clear relationships between students' perceptions, learning approaches and learning outcomes. However, it is less clear whether a deep approach of learning is facilitated by perceptions of the academic environment or the teaching quality, or whether this consistently leads to improved academic outcomes (Lizzio; Wilson; & Simons, 2005). Also, it remains unclear the extent to which students' perceptions of their learning environment directly impact their academic outcomes, or whether the process involves a more indirect or mediated path of perceptions influencing approaches, which in turn influence academic outcomes.

The next chapter will detail the methodology of the present study, including the adoption of the conceptual framework, the research hypothesis, the sample, the procedure of data collection, and the measures of the variables.

Chapter 3: Methodology

The present study adopts Biggs's (1985, 1989) 3P model as the conceptual framework; however, instead of using the learning approach, the present study will use student learning engagement as the process variable. The rationale for this is that, first, student learning engagement is widely recognized as an important influence on achievement and learning in higher education, and as such, is being widely theorized and researched. Investigating factors affecting engagement can provide insights into student performance, progression and retention. Assessment of engagement is potentially useful when evaluating the quality of student learning experiences and making decisions about resource provision, course content and delivery (Casuso-Holgado et al., 2013). Second, the engagement premise is straightforward and easily understood: the more students study a subject, the more they know about it; and the more students practice and get feedback from faculty and staff members on their writing and collaborative problem solving, the deeper they come to understand what they are learning and the more adept they become at managing complexity (Kuh, 2009a). Third, the construct of engagement is a combination of behaviour, cognition and emotion, thus it can better reflect the process components in the 3P Model, which consist of a combination of student metalearning activity, task process analysis, and approach to task. The design of the present study will be developed to test the relationship between the students' perception of the learning environment (presage), student learning engagement (process), and student learning outcomes (product).

3.1 Research Hypothesis

Based on the literature, it is hypothesized in the present study that: 1) Students' learning engagement is related to their perception of the learning environment; 2) Learning outcomes are related to students' perception of the learning environment; and 3) Student learning engagement is related to learning outcomes. These hypotheses will be tested by the present study based on a quantitative design.

This study employs a quantitative approach, and the research conclusions will be drawn from the results on analyses of quantitative data gathered by a survey. Paper-based questionnaires were administered during class time and every student who volunteered in a participating class was included in the survey. The survey was conducted at an Ontario community college in the summer semester of 2011. The research procedure is described below:

3.2 Community Consent

The researcher applied for and obtained permission to conduct the research from both the University of Toronto (U of T) Ethics Review Board (Appendix A: Ethics Approval, U of T) and the Ontario community college where the research was conducted. In order to obtain college consent, the researcher submitted the research application for conducting the proposed study among the students and faculty participants at the college. This was feasible, as the researcher is a full-time faculty member of the college. The research application was then approved by the college's Research Ethics Review Board, and consent was obtained from the college (Appendix B: Letter of Approval from Research Ethics Review Board of the College).

The next step was to meet with the Deans of the selected schools at the college to invite them to participate in the study. Copies of the letter of informed consent were also presented to the Deans (Appendix C: Letter of Informed Consent to the Deans). The purpose of the present research and the data collection procedure were fully explained to them. One of the selected schools agreed to participate in the research, and the Dean was willing to cooperate and provide the necessary supports. The researcher discussed the process of sampling the participating programs within the school with the Dean and the Manager of Staff and Student Relations of that school.

3.3 The Sample

The sample of the present study consists of college students (N=348) from the School of Business at an Ontario community college. The sampled students were asked to respond to a questionnaire that consisted of two parts, namely the learning environment component and the student engagement component. The questionnaires took approximately 20 minutes to complete. To ensure that the data was maximally representative of the college, the total population of the School of Business was targeted, and students were sampled from different academic programmes within the School, because the learning environment that the questionnaire intends to assess is program-based. All sampled students were full-time students enrolled in daytime courses during the summer semester of 2011.
To ensure representation of program types and student background diversity, this study uses a non-probability sampling method of *quota sampling* to select a sample of respondents. The criteria for selecting participating programs included a balance between diploma and post-diploma programs, and a balance between the number of domestic and international students. This sampling procedure took the following steps:

First, the present researcher obtained enrollment data from the School of Business office and divided the student population into specific groups. They were first divided into the following two groups according to cultural background: domestic and international.

Second, it was assessed that a total sample size of 300 respondents would form an adequate sample. This represented 12% of the students enrolled in the 2011 summer semester, which included a substantial number of representatives from both the domestic and international student groups. Of the 348 sampled students who successfully completed the survey (response rate 87%), 189 participants were domestic students who were Canadian citizens or landed immigrants, while 159 of them were international students. Table 3.1 shows this distribution of residential status.

Third, the researcher aimed to represent both levels of the School's programs, diploma and post-diploma, equally in the sample groups. The sample also needed to reflect the approximate proportions of these two groups in the total student population of the School. In terms of program levels, 187 students were from the School's post-diploma (graduate certificate)

programs, and 161 of them were from diploma programs. Table 3.2 shows this distributions by program level.

To ensure that all sampled students were familiar with the campus environment, new students in their first semester were not included in the survey. Among the 348 sampled students, 201 were in their second semester of study, 78 were in their third, 36 in their forth, 19 in their fifth, and 14 in their sixth

Although the researcher tried to use the method of quota sampling to select approximately equal numbers of both domestic and international, and diploma and post-diploma (graduate certificate) students, the sample did not represent the same proportions of the two groups as the School's total population. This was due to time limits and access restrictions to students during data collection. However, this should not be a major concern because a substantial number of students were selected from each group to form an adequate sample. There may also be the question as to why this study selected to sample only students of the School of Business rather than the college's student population as a whole. This is because the sampling process took advantage of convenience sampling, and due to the access available to the researcher during the data collection stage, it was more manageable to sample just one School rather than multiple schools within the college. The researcher had access to the School of Business at that college, and the business field of study is one of the largest in colleges of this province. Tables 3.1 to 3.4 below summarize the proportional distribution of the sample.

Distributions				
Student groups	Population (#)	Percentage (%)	Sample (#)	Percentage (%)
Total	2645	100	348	100
Domestic	1471	55.6	159	45.7
International	1174	44.4	189	54.3

Table 3.1. Distribution of Respondents by Residential Status in Canada

Table 3.2. Distribution of Respondents by Program Levels

Distributions				
Student Groups	Population (#)	Percentage (%)	Sample (#)	Percentage (%)
Total	2645	100	348	100
Diploma programs	2048	77.4	187	53.7
Graduate certificate programs	597	22.6	161	46.3

Table 3.3. Distribution of Respondents by Semester of Study

Distributions		
Semesters	Frequency	Percentage (%)
Semester 2	201	57.8
Semester 3	78	22.4
Semester 4	36	10.3
Semester 5	19	5.5
Semester 6	14	4.0
Total	348	100

Distributions		
Academic programs	Frequency	Percentage (%)
1= Human Resources, Graduate Certificate	34	9.8
2= International Business, Graduate Certificate	44	12.6
3= Project Management , Graduate Certificate	40	11.5
4= Finance Management Graduate Certificate	42	12.1
5= BU Accounting (2801)	23	6.6
6= BU Admin Accounting (2405)	19	5.5
7= BU Admin. Accounting Coop (2415)	4	1.1
8= BU Microcomputer Acct clerk (2906)	3	0.9
9= BU Finance (2483)	14	4.0
10= Financial Services Fundamental (2473)	0	0
11= BU Admin HR (2709)	22	6.3
12= BU Admin HR Coop (2719)	10	2.9
13= BU Marketing (2805)	29	8.3
14= BU Admin Marketing (2403)	4	1.1
15= BU Admin Marketing Coop (2413)	1	0.3
16= Business (2803)	18	5.2
17= BU Admin (2406)	10	2.9
18= BU Admin Coop (2416)	8	2.3
19= Business Operations (2506)	13	3.7
20= BU Admin Operations (2507)	4	1.1
21= BU Admin Operations Coop (2517)	0	0
22= BU Admin International Busi (2409)	3	0.9
23= BU Admin International Busi Coop (2419)	3	0.9
Total	348	100

Table 3.4. Distribution of Respondents by Academic Programs

3.4 The Pilot Study

The questionnaire was piloted to a group of twenty students before the survey was administrated to the sampled students. Twelve students of the pilot group were from postdiploma programs, and eight from diploma programs. Also, to ensure that questionnaire items did not cause any difficulty in language to international students whose first language is not English, half of the pilot group were international students. The result was that all participating students expressed that the survey was easy to understand and there was no concern in terms of the data to be collected, the wording, or language level. All participating students could complete the questionnaire in 12-18 minutes.

3.5 The Procedure

With help from the administrative staff of the school, the researcher met with instructors whose classes were sampled to participate in the survey. Again, the purposes of the present research and the data collection procedure were fully explained, and an information letter was given to the instructors (Appendix D: Information Letter to Faculty). Participation in the survey was fully voluntary. Once an instructor agreed to participate in the survey, the researcher would explain to them how to administer the survey during class time. Instructors who volunteered to participate administered the questionnaires during their classes and returned the completed questionnaires to the school office inside confidential envelopes provided by the researcher.

During the process of data collection, all students who participated in the survey were given an information letter before the questionnaire was distributed. The letter clearly explained how the participants' consent and confidentiality would be handled. An explicit statement in the letter emphasized that the individual's participation was entirely voluntary, and that the individual may refuse to participate, may withdraw at any time, and may decline to answer any questions, all without negative consequences, penalty, or judgement (Appendix E: Informed Consent Letter to the Participants). Responses to the paper questionnaire were anonymous. Before distributing the questionnaires to students in class, the participating instructors were required to inform students of the study's purpose, that their participation was entirely voluntary, and that the instructors themselves were not the researchers. After sharing this information, the instructors distributed the information letter/consent form to the students. It was also announced at the beginning of each questionnaire administration session that participants could simply hand back a blank questionnaire if they did not wish to participate, and could do their own work during the time that questionnaires were being administered. Students were deemed to have given informed consent if they answered the questionnaire.

It was anticipated that some student participants speak English as a second language. However, participants were all college students taking college courses, and the level of English used in the informed consent letter and the questionnaire were suitable to their language level. The instructors who administered the questionnaires helped explain any questions if a participant was unsure.

Participants were also given the option to withdraw their data before the questionnaire was submitted. However, an individual was not able to withdraw their data once the answered questionnaires were collected, because the questionnaires excluded any personally identifiable data. It took 15-20 minutes for students to complete the questionnaire.

3.6 Measures

The College Learning Environment and Student Learning Activity questionnaire was used. This questionnaire consists of two parts. The first part is for assessing the students' perception of the college learning environment (the college institutional climate), and the second part is for measuring student engagement and self-reported academic outcomes. The data collected by these two sections of the questionnaire were analyzed to test the relationship between the students' perception of college climate (a type of institutional climate) and student engagement, a learning behaviour/approach that has been proven to be a good indication of student learning performance and outcomes.

3.6.1 Measure of Institutional Climate

The first part of the questionnaire adopted Ramsden's Course Experience Questionnaire (CEQ). The proposition underlying the CEQ is that it is the students' *perception* of their learning environment, in light of their motivation and expectations, which determines how situational factors influence approaches to learning and learning outcomes (Ramsden, 1991; Wilson, at al., 1997; Lizzio, Wilson, & Simons, 2002). As mentioned in the literature review above, the CEQ was designed as a performance indicator of teaching quality, at the level of whole courses or degrees, in the aspects of teaching about which students have direct experience and are therefore validly able to comment (namely, quality of teaching, clear goals and standards,

workload, assessment, and emphasis on independence). The higher order structure of the CEQ has been established, using confirmatory factor analysis, to comprise two factors — a teaching quality factor (defined by the good teaching, clear goals and standards, appropriate assessment, and emphasis on independence scales) and a level of workload factor (defined by the appropriate workload scale alone). Based on this structure, perceptions of the teaching environment were measured by separately summing the students' course ratings across the scales related to teaching quality and workload. While the two-factor higher order structure of the CEO was used in the path analysis, supplementary regression analyses using the five scales as separate predictors were conducted to enable a more precise examination of relationships between perception and both learning approaches and outcomes (Wilson et al., 1997). The CEQ yields a global index of the perceived learning environment that can be used in a Canadian setting, and it is a suitable instrument for collecting data that can be used to predict student learning behaviour and learning performance. Thus, the present study employed the original 36-item CEQ (CEQ36) for the measure of institutional climate as perceived by students. These 36 items are organized into six scales, which had been identified in previous research to reflect various dimensions of effective instruction:

- Good teaching (8 items)
- Clear goals and standards (5 items)
- Appropriate workload (5 items)
- Appropriate assessments (6 items)
- Emphasis on independence (6 items)
- Generic skills (6 items)

Regarding the copyright, the researcher obtained written permission from the author of the CEQ36, Kaithia Wilson (Appendix G: Letter from the CEQ Author). One issue should be noted: the language in the original CEQ refers to students' experiences within a "course," which is a British term that is equivalent to the North American term, "program." This means that, in the CEQ, a "course" indeed refers to a *program* of study comprised of several semester-long seminars and lectures taught by several different instructors, culminating in a degree or diploma. However, in the North American interpretation, a "course" usually refers to a single semester-long seminar or lecture taught by one instructor. So in the present study, the term "course" in the questionnaire was replaced by "program" to appropriately convey the original meaning of the questionnaire within Canadian settings. Also, when referring to "faculty," the original CEQ uses the terms "teaching staff," "lecturer," and "staff" interchangeably. To avoid vagueness, the researcher changed all of these terms to the term "faculty," again, to convey the original meaning of the questionnaire in Canadian settings (Appendix F: The College Learning Environment and Student Learning Activity Questionnaire).

The participants were required to rate their own programs on each item. A participant's score on each scale is the total of the item scores. Internal reliability was examined among the items within each of the six scales of the CEQ based on the data from the present sample.

It has been suggested that the CEQ is 'psychometrically correct' because of its use of a scale structure, but that it achieves this at the cost of being able to provide only a limited coverage of the student experience (McInnis et al., 2001; Yorke, 1995). The perceived quality of

facilities (computing, library) and support services (enrolment information and financial support), in particular, are identified as omissions. To address this omission, the measure of institutional climate in the present study included a Support for Learners scale. This scale consisted of seven items and was designed to provide a measure by which institutions can assess the extent to which students perceive their programs as providing support services in terms of time needed, interaction with students of different backgrounds, non-academic responsibilities, financial support, and educational technology (Appendix F: The College Learning Environment and Student Learning Activity Questionnaire). This scale was compiled using select items adopted from the Ontario College Student Engagement Survey (Dietsche, 2007). As a result, the measure of institutional climate (the students' perceptions of college environments) contains seven scales: good teaching (8 items); clear goals and standards (6 items); appropriate workload (5 items); appropriate assessment (6 items); emphasis on independence (5 items) and generic skills (6 items); and Support for Learners (7 items). Overall, completed questionnaires were received from 348 students, which represented a response rate of 87%. Internal reliability of each scale of the CEQ, as well as the additional Support for Learners scale, was examined using Cronbach's (1951) coefficient alpha. The names of each scale, their internal reliability, and their number of items are presented in Table

3.5.

Scale	Ramsden's (1994)	The Present	No. of Items
Good teaching	.88	Study	8
Clear goals and standards	.82	.80	5
Appropriate workload	.75	.69	5
Appropriate assessment	.74	.79	6
Emphasis on independence	.73	.74	6
Generic skills	.67	.60	6
Support for Learners	—	.83	7
		.76	

Table 3.5. Coefficient Alpha Values from Ramsden's (1994) and the Present Study

N =348

As shown in Table 3.5, alpha coefficients for each scale of the present study indicate moderate to high levels of internal consistency for all scales. This result is consistent with those from the previous studies (Ramsden, 1991; Richardson, 1994; Wilson et al., 1997). There is reason to believe that when the reliability of a scale is confirmed with a Canadian sample, it can be considered suitable to be used in Canadian institutions.

To test the construct validity of the CEQ measures with the current sample, the scale items were subjected to principal component factor analysis, using a varimax rotation, from which eight factors with eigenvalue > 1.0 were found. The eight factors account for 57% of the total variance. The first six factors that gather the corresponding items of the six CEQ scales account for 50.8% of the total variance. Those six factors are: factor 1, Good Teaching Practice (21.1%); factor 2, Generic Skills (10.2%); factor 3, Appropriate workload (6.5%); factor 4, Appropriate assessment (4.9%); factor 5, Emphasis on independence (4.2%); and factor 6,

Appropriate assessment (3.9%). Basically, the factor analysis results are consistent with the original six CEQ sub-scales, and the construct validity of the CEQ measures with the current sample is confirmed. Table 3.6 shows the scale items and the factor loading on each item. Table 3.5 shows the results of the factor analysis on the items of CEQ.

Table 3.6. Factor Loadings of CEQ Items

Clusters of Items Loaded in the Factors	Item Factor Loading
Factor 1: Good teaching	
1) Faculty here work hard to make subjects interesting	.72
2) Our faculty are very good at explaining things to us	.78
3) The faculty of this program motivate students to do their best work	.71
4) The faculty make a real effort to understand difficulties students may be	.55
having with their work	
5) Faculty here show no real interest in what students have to say	.10
6) This program really tries to get the best out of all its students	.63
7) Faculty here put a lot of time into commenting on students' work	.62
8) Faculty here normally give helpful feedback on how you are going	.66
Factor 2: Generic skills	
1) I As a result of doing this program, I feel more confident about tackling	.60
unfamiliar problems	
2) This program has helped me to develop my problem-solving skills	.69
3) This program has sharpened my analytic skills	.65
4) This program has improved my written communication skills	.61
5) This program has helped me develop the ability to plan my own work	.79
6) This program has helped develop my ability to work as a team member	.73

1)	The workload is too heavy	.85
2)	There is a lot of pressure on you as a student here	.86
3)	I The sheer volume of work to be got through in this program means you	
	cannot comprehend it all thoroughly	.74
4)	We are generally given enough time to understand the things we have to	.38
	learn	
5)	It seems to me that the syllabus tries to cover too many topics	.64
Factor	4: Appropriate Assignments	
1)	To do well on this program all you really need is a good memory	.55
2)	Faculty seem more interested in testing what you've memorized than what	.65
	you've understood	
3)	It would be possible to get through this program just by working hard about	.66
	exam times	
4)	Too many faculty ask us questions just about facts	.69
5)	Feedback on student work is usually provided ONLY in the form of marks	.65
	and grades	
6)	Faculty here frequently give the impression they have nothing to learn from	.52
	students	
Factor	5: Emphasis on independence	
1)	I Students are not limited in choosing how they are going to learn in this	.52
	program	
2)	Students here are given a lot of choice in the work they have to do	.58
3)	There's very little choice in this program in the ways you are assessed	
4)	I There are few opportunities to choose the particular courses you want to	.12
	study	.12
5)	We often discuss with our instructors or tutors how we are going to learn in	.75
	this program	
		.40

6)	The program has encouraged me to develop my own academic interests as
	far as possible

Factor	6: Clear goals and standards	.16
1)	It's always easy here to know the standard of work expected	.51
2)	It is often hard to discover what's expected of you in this program	.42
3)	You usually have a clear idea of where you're going and what's expected of	
	you	.35
4)	The faculty here make it clear right from the start what they expect from	
	students	.63
5)	The aims and objectives of this program are NOT made very clear	

N=348

3.6.2 Measures on Student Engagement

The second part of this questionnaire measured student engagement. Extensive research on student engagement consistently suggests that student engagement is tied to desired educational outcomes, such as increased learning, persistence in college, and graduation (Pascarella & Terenzini, 2005). There are numerous engagement survey instruments in use by institutions around the world. Among these instruments, the US-based National Survey of Student Engagement (NSSE) has been the most popular, with more than 1,200 colleges and universities in the US and Canada having participated in NSSE since it was first administered in 2000. Results of the NSSE are intended to provide an estimate of how undergraduates spend their time and what they gain from attending university. The NSSE has been proven to be a successful measurement in student learning involvement, student effort, and student integration into the academic environment of university life (Ahlfeldt, Mehta, & Sellnow, 2005; Carey, 2007; Carini, Kuh, & Klein; 2006; Gasiewski et al., 2012; Hu, 2010; Kuh, 2001; Kuh et al.,

2007; Pascarella & Terenzini, 2005; Pike, 2006, 2013; Pike, Kuh, & McCormick, 2011; Zhao & Kuh, 2004). The emphasis that the NSSE places on student engagement and good practice was intended to shift the focus of the conversation around academic quality away from reputation- and resource-based rankings, and toward issues that truly matter to undergraduate learning and outcomes (Lipka, 2007).

The Community College Survey of Student Engagement (CCSSE)

The Community College version of NSSE is the Community College Survey of Student Engagement (CCSSE), which is being applied to more than 800 community colleges in the United States, as well as a small number of community colleges in other countries. In order to provide practitioners with benchmarks that could be used to identify key areas in regards to student engagement, Marti (2009) developed the Model of Effective Educational Practices (MEEP), which captures the key dimensions of student engagement and is able to provide highlighted student engagement areas when data is used to compare institutions. The MEEP consists of five latent factors or constructs: 1) Active and Collaborative Learning; 2) Student Effort; 3) Academic Challenge; 4) Student-Faculty Interaction; and 5) Support for Learners.

The MEEP has been proven to be a good model fit to the US college student population (Marti, 2009). One recent study also investigated its validity with an Ontario College, and results revealed that the MEEP exhibits good model fit when applied to the Ontario student sample (Mandario & Mattern, 2010). In addition to assessing the validity of CCSSE, this Ontario CCSSE study also examined the relationship between CCSSE benchmarks and academic

outcomes. The analysis indicates that two CCSSE benchmarks, Active and Collaborative Learning and Level of Academic Challenge, are significantly correlated with all five outcome measures. This supports the view that the CCSSE is a valid tool to measure student engagement, as found in US literature, and that it is a valid tool in the Ontario context (Zhao, 2011).

The Ontario College Student Engagement Survey (OCSES)

Beginning in 2006, Ontario colleges used the Ontario College Student Engagement Survey (OCSES) to measure student engagement. The OCSES was managed by Mohawk College, with funding provided by the Ministry of Training Colleges and Universities. The OCSES was developed based upon the "person-environment fit" model brought forth by Tinto, which suggests that student integration into the academic and social systems of an institution is key to student persistence, and when both academic and social systems are in support of each other, they reinforce integration within the institution (Tinto, 1987). Data from the OCSES can be used to link student characteristics and student experiences with outcomes such as grades or exit decisions (Dietsche, 2007). The OCSES is a two-part web-based survey. The first survey contains questions related to student backgrounds and entry characteristics, while the second survey focuses on student perceptions and experiences during the college term. Part two of the OCSES contains approximately 197 questions, with topic areas that mainly surround financial concerns, perceived skills self-assessment and academic behaviour, college academic experience, confidence, commitment and certainty, interaction with others, extracurricular involvement, and service use, (Dietsche, 2007).

Colleges can use the data from the OCSES to better understand their students, as the OCSES provides institutions a comprehensive profile of student characteristics. Additionally, data from the OCSES can be used to provide benchmarks for institutional performance and to highlight areas for improvement in learning processes, faculty development, and engagement strategies. The inclusion of student success and persistence data in the form of first-term grades and enrolment status allows for the examination of the predictive value of this instrument for student success and persistence (Dietsche, 2007; CCI Research Inc., 2009). No information regarding the overall reliability or validity of the OCSES has been made publicly available at this time. However, it has been noted that research has supported the validity of the constructs underlying Tinto's theoretical model (Dietsche, 1990).

A close examination of the OCSES indicates that it is associated with the second perspective, which is transactional engagement. To meet the purpose of the present study, with the help of the developer of the OCSES, Dr. Peter Dietsche, items from the OCSES were selected to compile a new questionnaire for measuring student engagement. These selected items were reorganized to fit into the format of the questionnaire used in the present study. This newly compiled engagement measure comprised six scales, which are similar to the Model of Effective Educational Practices (MEEP) and are in line with these activities categorized into transactional engagement: learning effort (6 items), community involvement (4 items), learning obligation (3 items), learning persistence (8 items), relation with others (6 items), and community engagement (10 items). Study participants addressed each item by selecting their response. A participant's score on each scale is the total of their item scores.

As mentioned above, no information regarding the overall reliability or validity of the Ontario College Student Engagement Survey (OCSES) has been made publicly available at this time, so it was necessary to test the construct validity of the above-mentioned six scales. Measures with the current sample were subjected to principal component factor analysis, using a varimax rotation, from which 8 factors with eigenvalue > 1.0 were found. The 8 factors account for 55% of the total variance. The first six factors that gather the corresponding items of the six engagement dimensions account for 46% of the total variance. They are: factor 1, Community Participation (12.95%); factor 2, Good Relationship with Others (10.22%); factor 3, Learning Persistence (6.87%); factor 4, Collaboration with others (5.18%); factor 5, Learning Effort (4.75%); factor 6, Interest in Courses (4.52%), factor 7, (3.5%), and factor 8, (3.2%). Since factor 7 and factor 8 each gather only two items and does not present a clear factor dimension, they are not included in further analysis. Table 3.7 presents these factors with their respective eigenvalues, percentage of variance, and cumulative percentage of variance.

For each factor, only the items in the questionnaire with factor loadings no less than 0.5 were kept for further analysis. For example, in Factor 2 (Relationship with Others), the first item (with factor loading 0.32) will not be included in calculating the subtotal scores for this factor; that is, only the scores for Items 2, 3, 4, 5, and 6 were calculated for further analysis. This threshold was applied to all six factors. Basic descriptions of the items clustering in each factor and their factor loadings are shown in Table 3.8.

		Rotation Sums of Squared Loadings		
Factors		Eigenvalue	% of Variance	Cumulative %
1	Community participation	4.66	12.95	12.95
2	Relationship with others	3.68	10.22	23.17
3	Learning persistence	2.47	6.87	30.04
4	Collaboration with others	1.86	5.18	35.22
5	Learning Effort	1.71	4.75	39.97
6	Interest in Courses	1.63	4.52	45.50
N	N =348			

Table 3.7. Internal Consistency Reliability of the Scales Formed by Items Constituting the Engagement Factors

Table 3.8. Results of Factor Analysis on Engagement Items

Clusters of Items Loaded		
in the Factors	Loading	
Factor 1: Community Engagement		
1) Ethnic/cultural group	.65	
2) Intramural or varsity sports	.70	
3) Interacting with a peer mentor	.73	
4) Involved in Student Association activities or events	.65	
5) Academic advising/counselling (e.g. course choice, load, etc.)	.71	
6) Information on college and/or university courses/programs	.69	
7) Learning skills service (e.g. help in study skills etc.)	.78	
8) Peer-Tutoring Service (students help students in courses)	.70	
9) Library facilities and services (studying, researching, borrowing books, on-	.17	
10) Career resource centre (info on careers, job postings etc.)	.45	
Factor 2: Relationship with Others		
1) I have developed a good relationship with at least one faculty member	.32	
2) Student friendships in college have helped me cope with stress of college life	.81	
3) The friendships I have developed at this college are enjoyable	.84	
4) At this time I feel like I "fit in" at this college	.78	
5) Since coming to this college I have become close friends with several students	.77	
6) Students I know in my program are willing to help each other with problems	.77	

Factor.	3: Learning Persistence	
1)	I find it hard to pay attention in most of my classes	.10
2)	I feel undecided about what my career will be after I finish college	.15
3)	I always try to do the best I can in my course work	.59
4)	I may quit my studies before I finish my program	.50
5)	My current studies are one of the most important things in my life	.51
6)	I think I am well prepared to be a successful student in college	.80
7)	I have the ability to succeed in college-level studies	.80
8)	If I had a chance to have a full-time job I would take it and leave college	.04
Factor	4: Collaboration with Others	
1)	On average, how many times per week do you study with one or more students?	.50
2)	How many times have you had face-to-face interactions with program faculty outside the classroom for ten minutes or more during this school year ?	.63
3)	How many times have you interacted with program faculty during this school year using email, text or instant messaging, Web CT/Blackboard or other learning management system?	.74
Factor	5: Learning Effort	
1)	Have you dropped or withdrawn from one or more courses during the current school year?	.73
2)	About how many hours in a typical 7-day week did you spend preparing for class (studying, reading, doing homework) during the current school year?	.50
3)	On average, how often did you skip classes during the current school year?	.51
4)	How often did you complete homework/assignments on time during the current school year?	.65
5)	Since starting college, how many hours did you spend taking part in a workshop, program or course designed to help you adjust to college-level studies?	.50
Factor	6: Interest in Courses	
1)	I did as little work as possible; I just wanted to get by.	.07
2)	I was interested in what I was learning in class	.80
3)	I got along well with faculty/instructors	.52
4)	I felt like an outsider or that I was left out of things	.10

N=348

A cluster of nine items have high loadings (> 0.5) in Factor 1. These items reflect the extent to which a student participates in college group activities or used college services since he/she began studies at the college. These activities or services include interacting with a peer mentor,

being involved in student association activities or events, academic advising/counselling, information on college and/or university courses/programs, learning skills service, peer-tutoring services, career resource centre, and ethnic/cultural group activities. This factor was labelled "Community Participation."

Factor 2, which has high loadings in five items, reflects a student's experience around relationships with other students at the college. This factor was labelled "Relationship with Others."

Factor 3 describes a student's willingness and intention to complete the college education. This factor is designated as "Learning Persistence." Five items had high loadings on this factor. Factor 4 had high loadings on three items, which reflects a student's collaborative interaction with faculty and other students. This factor is labelled "Collaboration with Others."

Factor 5 describes a student's learning effort. This factor was labelled "Learning Effort." Five items had high loadings in this factor.

Factor 6 expresses a student's interest in the courses they takes. This factor is labelled "Interest in Courses," and had high loading on two items.

The items clustering in each factor were then put together to form a new operational scale, and the total score measured by each new operational scale was taken as each respondent's student engagement score for that engagement area. Internal reliability was examined among the items within each of the six scales, based on the data from the present sample. The names of the scales, their internal reliability, and the numbers of items are presented in Table 3.9.

Scales	Reliability (Cronbach's Alpha)	No. of Items
1. Community participation	.84	9
2. Relationship with others	.85	5
3. Learning persistence	.66	5
4. Collaboration with others	.60	3
5. Learning effort	.39	5
6. Interest in courses	.53	2
N. =348		

Table 3.9. Internal Consistency and Reliability of the Scales of the Engagement Measure

As shown in Table 3.9, the coefficients indicate moderate to high levels of internal consistency for most of the scales, except the Learning Effort scale. These scales can be considered suitable for use in this initial investigation, though further scale development may be desirable before more advanced modeling is employed.

3.6.3 Measure of Learning Outcomes

The outcome domain was presented by three variables: self-reported academic achievement, course satisfaction, and generic skills development.

Academic Achievement — academic achievement was represented by calculating the students' self-reported grade point average (GPA), measured on a scale from 1.0 to 4.5. The information is collected by a single item on the questionnaire.

Overall Satisfaction — course satisfaction was measured by the students' responses to the item, 'Overall, how satisfied are you with your learning at this college?", rated on a 5-point scale from 1, Not satisfied at all, to 5, Very satisfied.

Generic Skills — generic skills development was measured by averaging the students' responses to the six items of the generic skills scale of the CEQ. This scale measures process skills relevant to employability and lifelong learning, such as written communication, problem-solving, analytic skills, teamwork, ability to plan one's own work, and confidence in tackling new situations (Wilson & Lizzio, 1997; Lizzio, Wilson, & Simons, 2010).

Data analysis and results of the measurements are presented in the next chapter.

Chapter 4: Analysis and Results

The overall sample includes 348 respondents. Results are presented as follows:

4.1 Statistical Analysis

Statistical analysis (using SPSS 21) on the data includes:

- 1. Correlation analysis between the learning environment factors (as measured by the CEQ) and student engagement (as measured by the engagement scales).
- 2. Multiple linear regression analysis of the learning environment factors on the student engagement variables. This is to identify the learning environment factors that might influence student engagement, and to what extent student engagement can be predicted on the basis of those identified learning environmental factors.
- 3. Multiple linear regression of the learning environment factors on students' overall satisfaction score and self-reported GPA, which are measured by designated items on the questionnaire. This is to test the direct impact of the learning environment factor on student performance.

4.2 Institutional Climate Dimensions and Student Engagement

To test the present study's first hypothesis, which is that students' learning engagement is related to their perception of the learning environment (the institutional climate), students' perceptions of the learning environment were associated with their learning engagement by subjecting the individual climate scores and engagement scale scores to Spearman productmoment correlation. Means (M) and standard deviations (SD) for the dimensions of institutional climate and student engagement are presented in Table 4.1, and the correlations in Table 4.2.

Measures	Min.	Max.	М	SD
Good teaching practice (measure range 8-40)	9.00	40.00	27.26	4.65
Clear goals and standards (measure range 5-25)	10.00	23.00	16.01	2.25
Appropriate workload (measure range 5-25)	8.00	25.00	17.19	3.21
Appropriate assessment (measure range 6-30)	7.00	30.00	18.35	4.27
Emphasis on independence (measure range 6-30)	9.00	29.00	19.30	2.98
Support for learners (measure range 7-35)	7.00	28.00	16.98	4.42
Learning persistence (measure range 5-25)	5.00	25.00	17.70	2.58
Learning effort (measure range 5-25)	9.00	24.00	16.35	3.13
Collaboration with others (measure range 3-21)	3.00	21.00	10.54	4.01
Community participation (measure range 0-60)	0.00	48.00	13.34	11.06
Relation with others (measure range 5-25)	5.00	25.00	18.93	4.15
Interest in courses (measure range 2-10)	2.00	10.00	7.84	1.64

Table 4.1. Descriptive Statistics

N=348

e n Good teaching practice .201*** .134* .100 .116* .297*** .205 Clear goals and standards .004 .007 .026 .221*** .119* .095	ses
Good teaching practice .201*** .134* .100 .116* .297*** .209 Clear goals and standards .004 .007 .026 .221*** .119* .09	
Clear goals and standards .004 .007 .026 .221*** .119* .09	9***
) 1
Appropriate workload .003 .124* .225*** .229*** .083 .06	51
Appropriate assessment .038 .028 .121* .106* .164** .10)6*
Emphasis on .071 .110* .149** .163** .236** .24	10**
independence	
Support for learners .176** .097 .069 .126* .266*** .255	5***

Table 4.2. Correlation between Climate Dimensions and Student Engagement

N=348 *P<.05 **P<.01 ***P<.001

As shown in Table 4.2, the climate dimension of Good Teaching Practices is significantly and positively correlated with all student engagement areas except Collaboration with Others. Clear Goals and Standards are significantly correlated with students' Community Participation and Relation with Others in the institution. Appropriate Workload is significantly associated with students' Learning Effort, Collaboration with Others, and Community Participation. Appropriate Assignment is related to students' engagement areas of Collaboration with Others, Community Participation, Relation with Others, and Interest in Courses. Emphasis on Independence is also significantly correlated with all engagement areas except Learning Persistence. Lastly, the climate dimension of Support for Learners is significantly correlated with students' Learning Persistence, Community Participation, Relation with Others, and Interest in Courses. Based on these results, we can see that all dimensions of the learning environments, as perceived by the students, do correlate with student learning engagement.

4.3 Predicting Student Engagement by Institutional Climate Factors

Further understanding of the correlation between institutional climate and student engagement can be gained by analyzing which climate factors contribute most to the student engagement level. To do this, a standard multiple linear regression analysis is conducted at the individual level of analysis (Astin & Dey, 1996; Licht, 2001). Overall engagement scores, which consist of each participant's total score from the six engagement scales, are regressed on the six climate factors (dimensions). It was found that the climate dimension of Emphasis on Independence significantly predicted student engagement ($\beta = .182$, p<.001), as did Appropriate Workload ($\beta = .228$, p<.001), and Support for Learners (β = .210, p<.001). Results of the regression indicated that these three significant predictors explained 15% of accountable variation (R^2 = .148, F (3, 344) = 19.884, p<.001). Based on this, we can see that about 15% of the variance in the overall student engagement can be predicted on the basis of the three predictors. Table 4.3 shows these results (factors without significant regression weights are not included in the table).

		Mode	1		Mode	12	Model 3			
Predictors	В	SE B	β	В	SE B	β	В	SE B	β	
Emphasis on independence	1.445	.299	.251***	1.291	.295	.224***	1.047	.295	.182***	
Appropriate workload				1.113	.274	.208***	1.220	.269	.228***	
Support for learners							.814	.198	.210***	
R ²		.063			.106			.148		

 Table 4.3. Predicting Overall Student Engagement Level from Climate Factors

N=348 ***P<.001

As noted in Table 4.3, three climate factors are significant predictors of student engagement levels. These predictors are Emphasis on Independence, Appropriate Workload, and Support for Learners. In other words, we can say that changes in student engagement level can be, to a certain extent, attributed to these institutional climate factors.

In order to further test the relationship between institutional climate and student engagement dimensions, additional regression analyses were conducted using the climate factors as predictors. The results indicate that most of the engagement dimensions can be predicted by at least two climate factors, except for the dimension of Learning Persistence, which can be weakly predicted by the climate factor of Good Teaching Practice ($R^2 = .041$, Beta = .201, p<.05). Table 4.4 to Table 4.8 below show the results of regressing student engagement on the institutional climate dimensions. Factors without significant regression weights are not included in the tables.

4.3.1 Climate and Learning Effort

The engagement scores for Learning Effort were regressed on the institutional climate dimensions, and the multiple regression model with two significant predictors produced $R^2 = .032$, F (1, 346) = 5.767, p<.001). It was found that the climate dimension of Good Teaching Practice significantly predicted student engagement ($\beta = .130$, p<.05), as did Appropriate Workload ($\beta = .120$, p<.05). Table 4.4 shows these results.

		Mode	el 1	Model 2				
Predictors	В	SE B	β	В	SE B	β		
Good teaching practice	.090	.036	.134*	.087	.036	.130*		
Appropriate workload				.117	.052	.120*		
R ²		.018			.032			

Table 4.4. Predicting Students' Learning Effort from Climate Factors

N=348 *P<.05

4.3.2 Climate and Collaboration with Others

When we use climate factors to predict students' collaboration with others in learning, three factors are found to be good predictors. These factors are Appropriate Workload (β = .269, p<.001), Appropriate Assessment (β = .215, p<.001), and Emphasis on Independence (β = .141, p<.01). These three predictors explained 11% of the variance (R^2 = .108, F (3, 344) = 13.832, p<.001). Table 4.5 shows these results.

		Mode	1		Mode	12	Model 3		
Predictors	В	SE B	β	В	SE B	β	В	SE B	β
Appropriate workload Appropriate assessment	.284	.066	.225***	.375 .192	.068 .051	.283*** .202***	.339 .204	.067 .051	.269*** .215***
Emphasis on independence							.191	.070	.141**
R ²		.051			.088			.108	

Table 4.5. Predicting Students' Collaboration with Others from Climate Factors

N=348 **P<.01 ***P<.001

4.3.3 Climate and Community Participation

When we use the climate factors to predict students' community participation, the climate factors of Appropriate Workload (β = .215, p<.001), Clear Goals and Standards (β = .215, p<.001), and Support to Learners (β = .215, p<.001) are shown to be significant predictors. These three predictors explained 10% of the variance (R² = .097, F (3, 344) = 12.317, p<.001). Table 4.6 shows these results.

	Model 1				Mode	12	Model 3		
Predictors	В	SE B	β	В	SE B	β	В	SE B	β
Appropriate workload	.788	.180	.229***	.673	.180	.196***	.714	.180	.207***
Clear goals and standards				.913	.257	.186***	.797	.262	.162**
Support for learners							.270	.132	.108*
R ²		.063			.106			.148	

Table 4.6. Predicting Students' Community Participation from Climate Factors

N=348 *P<.05 **P<.01 ***P<.001

4.3.4 Climate and Good Relationship with Others

When we use the climate factors to predict students' good relation with others, it is found that all institutional climate factors, except for Clear Goals and Standards, are significant predictors. These five significant predictors are Good Teaching Practice ($\beta = .157$, p<.01), Emphasis on Independence ($\beta = .174$, p<.001), Appropriate Assessment ($\beta = .172$, p<.001), Appropriate Workload ($\beta = .112$, p<.05), and Support for Learners ($\beta = .123$, p<.05). The multiple regression model with these five predictors produced R² = .158, F (5, 342) = 12.832, p < .001. Table 4.7 shows these results.

	Model 1 Model 2		Model 3				Model 4			Model 5					
Predictors	В	SE B	β	В	SE B	β	В	SE B	β	В	SE B	β	В	SE B	β
Good teaching practice	.265	.046	.297***	.223	.047	.250***	.198	.047	.222***	.194	.047	.217***	.140	.054	.157**
Emphasis on independence				.228	.074	.164**	.266	.074	.191***	.254	.074	.183**	.242	.074	.174**
Appropriate assessment							.155	.050	.160**	.184	.051	.189***	.167	.052	.172**
Appropriate workload										.136	.068	.105*	.145	.067	.112*
Support for learners													.115	.056	.123*
R ²		.088			.113			.137			.148			.158	

N=348 *P < .05 **P < .01 ***P < .001

4.3.5 Climate and Interest in Courses

Regression analysis results show that only two climate factors are significant predictors of students' interest in courses. These two factors are Support for Learners ($\beta = .218$, p<.001) and Emphasis on Independence ($\beta = .199$, p<.001). The multiple regression model with all four predictors produced R² = .103, F (2, 345) = 19.886, p<.001. Table 4.8 shows these results.

		Mode	el 1	Model 2				
Predictors	В	SE B	β	В	SE B	β		
Support for learners	.095	.019	.255***	.081	.019	.218***		
Emphasis on independence				.110	.029	.199***		
R ²		.065			.103			

Table 4.8. Predicting Students' Interest in Courses from Climate Factors

N=348 ***P<.001

4.4 Institutional Climate Dimensions and Student Learning Outcomes

The present study's second hypothesis, that students' learning outcomes are related to their perception of the learning environment, was tested by associating students' perceptions of the learning environment with their learning outcomes. Specifically, individual climate scores and the scores on Generic Skills, the students' self-reported GPA, and their overall satisfaction were analyzed through Spearman product-moment correlation. Means and standard deviations for the dimensions of institutional climate and student learning outcomes are presented in Table 4.9, and the correlations in Table 4.10.

Table 4.9. Descriptive Statistics

Measures	Min.	Max.	Μ	SD
Good teaching practice (measure range 8-40)	9.00	40.00	27.26	4.65
Clear goals and standards (measure range 5-25)	10.00	23.00	16.01	2.25
Appropriate workload (measure range 5-25)	8.00	25.00	17.19	3.21
Appropriate assessment (measure range 6-30)	7.00	30.00	18.35	4.27
Emphasis on independence (measure range 6-30)	9.00	29.00	19.30	2.98
Support for learners (measure range 7-35)	7.00	28.00	16.98	4.42
Overall satisfaction (measure range 1-5)	1.00	5.00	3.15	1.13
GPA (measure range 1- 4.5)	1.00	4.50	3.36	0.63
Generic skills (measure range 5-30)	8.00	30.00	22.71	3.80

N=348

Generic Skills Self-Reported GPA **Overall Satisfaction Climate Dimensions** Good teaching practice .495*** .532*** .001 Clear goals and standards .146** .055 .047 Appropriate workload .029 .284*** .141** Appropriate assessment .166** .192** .306*** Emphasis on independence .259** .033 .197*** Support for learners .006 .480*** .534***

Table 4.10. Correlation between Climate Dimensions and Student Learning Outcomes

N=348 **P<.01 ***P<.001

The results in Table 4.10 show that Generic Skills was positively correlated with all climate dimensions except for Appropriate Workload. Overall Satisfaction was also significantly correlated with five climate dimensions, not including Clear Goals and Standards. However, Self-Reported GPA was associated with only two climate dimensions, namely, Appropriate Workload

and Appropriate Assessment. These results provide us with evidence that there is significant correlation between the institutional climate and students' learning outcomes.

4.5 Predicting Student Learning Outcomes by Institutional Climate Factors

The correlation between institutional climate and student learning outcomes has been shown through the analyses above. Further understanding can be gained by analyzing how climate factors contribute differently to student learning outcomes. To do this, three multiple regression analyses were conducted, using the climate dimension scales, measured by the CEQ, as predictors for the student learning outcomes of students' self-reported GPA, satisfaction and generic skills development. Table 4.11 to Table 4.13 below show the results of regressing student learning outcomes on climate factors. Factors without significant regression weights are not shown in the tables.

4.5.1 Climate and Generic Skills

When we use climate factors to predict students' generic skills, it is shown that climate factors Support for Learners ($\beta = .346$, p<.001), Good Teaching Practice ($\beta = .321$, p<.001), and Emphasis on Independence ($\beta = .102$, p<.05) are significant predictors. Based on results, we can see that these three climate factors can predict about explained 38% of the variance ($R^2 = 0.382$, F (3, 344) = 29.923, p < .001) in students' generic skill development gained in their program. Table 4.11 shows these results.

	Model 1				Mode	12	Model 3		
Predictors	В	SE B	β	В	SE B	β	В	SE B	β
Support for learners	.456	.057	.534***	.341	.064	.351***	.296	.066	.346***
Good teaching practice				.220	.064	.348***	.797 270	.262	.321***
independence							.270	.152	.102
\mathbf{R}^2		.285			.373			.382	

Table 4.11. Predicting Students' Generic Skills from Climate Factors

N=348 *P<.05 **P<.01 ***P<.001

4.5.2 Climate and Student Satisfaction

When we use the climate factors to predict students' self-reported overall satisfaction in their programs, we find that the climate factors of Good Teaching Practice ($\beta = .332$, p<.001), Support for Learners ($\beta = .263$, p<.001), and Appropriate Assessment ($\beta = .214$, p<.001) are significant predictors. The multiple regression model with these three predictors produced R² = .356, F (3, 334) = 61.74, p<.001. Table 4.12 shows these results.

Based on these results, we can see that about thirty-six percent ($R^2 = 0.356$) of the change in students' overall satisfaction can be predicted on the basis of Good Teaching Practice, Support for Learners, and Appropriate Assessment.

	Model 1			Model 2			Model 3		
Predictors	В	SE B	β	В	SE B	β	В	SE B	β
Good teaching practice	.120	.011	.495***	.081	.013	.335***	.080	.012	.332***
Support for learners				.078	.014	.304***	.067	.013	.263***
Appropriate assessment							057	.012	.214***
R ²		.243			.312			.356	

Table 4.12. Predicting Students' Overall Satisfaction from Climate Factors

N=338 ***P < .001

4.5.3 Climate and Self-Reported GPA

Table 4.13 shows the results of regressing students' self-reported grade point averages on the climate factors. The results in Table 4.13 demonstrate that only Appropriate Workload ($\beta = .251$, p<.001), and Appropriate Assessment ($\beta = .124$, p<.05), are significant predictors of students' self-reported GPA. These two predictors together account for about 10% of the total accountable variation of students' self-reported GPA (R² = .095, F (2, 317) = 16.657, p<.001).

Table 4.13. Predicting Students' Self-Reported GPA from Climate Factors

	Model 1			Model 2			
Predictors	В	SE B	β	В	SE B	β	
Appropriate workload	.055	.010	.284***	.049	.011	.251***	
Appropriate assessment				.018	.008	.124*	
\mathbb{R}^2		.081			.095		

N=319 * P<.05 **P<.01 ***P<.001
4.6 Student Engagement and Student Learning Outcomes

The third hypothesis of the present study postulates that students' learning engagement is related to their learning outcomes, which are measured using Generic Skill, Self-Reported Grade Point Average (GPA), and Overall Satisfaction. To test this hypothesis, students' learning outcomes were associated with their learning engagement by subjecting the learning outcome scores and the engagement scale scores to Spearman product-moment correlation. Means and standard deviations for the dimensions of student engagement and student learning outcomes are presented in Table 4.14, and the correlations in Table 4.15.

The results in Table 4.15 indicate that students' self-reported generic skill level is significantly correlated with all learning engagement dimensions. This relationship is also true with students' general satisfaction with their academic programs. With respect to self-reported GPA, while it is positively correlated with the learning engagement dimensions of Learning Effort, Collaboration with Others, and Good Relation with Others, it is not associated with Learning Persistence or Collaboration with Others. It is notable that self-reported GPA shows significant but negative correlation with Community Participation. These results suggest that students' learning outcomes are associated with their learning engagement, where the higher level of engagement, the better learning outcomes will be.

Table 4.14. Descriptive Statistics

Measures	Min.	Max.	Μ	SD
Overall satisfaction (measure range 1-5)	1.00	5.00	3.15	1.13
GPA (measure range 1- 4.5)	1.00	4.50	3.36	0.63
Generic skills (measure range 5-30)	8.00	30.00	22.71	3.80
Learning persistence (measure range 5-25)	5.00	25.00	17.70	2.58
Learning effort (measure range 5-25)	9.00	24.00	16.35	3.13
Collaboration with others (measure range 3-21)	3.00	21.00	10.54	4.01
Community participation (measure range 0-60)	0.00	48.00	13.34	11.06
Relation with others (measure range 5-25)	5.00	25.00	18.93	4.15
Interest in courses (measure range 2-10)	2.00	10.00	7.84	1.64

N=348

Learning Engagement	Generic Skills	Self-reported GPA	Overall Satisfaction
Learning persistence	.250***	.089	.201***
Learning effort	.187**	.149**	.114*
Collaboration with others	.165**	.018	.137*
Community participation	.190***	156**	.166**
Good relation w. others	.337***	.148**	.304***
Interest in courses	.316***	.225***	.332***

Table 4.15. Correlation between Student Engagement and Student Learning Outcomes

N=348 *P < .05 **P < .01 ***P < .001

4.7 Predicting Student Learning Outcomes by Student Engagement Dimensions

The correlation between student engagement and student learning outcomes has been shown by the results above. Further understanding can be gained by analyzing how engagement dimensions contribute differently to learning outcomes. Again, multiple regression analyses were conducted, using the six engagement dimensions as predictors to students' self-reported GPA, satisfaction, and generic skills development. Table 4.16 to Table 4.18 below show the results of regressing learning outcomes on engagement dimensions. Factors without significant regression weights are not included in the tables.

4.7.1 Engagement and Generic Skills

When we use the engagement dimensions to predict students' Generic Skill development in their programs, we find that four dimensions are significant predictors. They are Good Relation with Others (β = .216, p<.001), Interest in Courses (β = .200, p<.001), Community Participation (β = .141, p<.01), and Learning Persistence (β = .129, p<.05). These four predictors together make up about 20% of the total accountable variation of students' self-reported generic skill development (R² = .195, F (4, 343) = 20.796, p < .001). Table 4.16 shows the results.

	Model 1		Model 2			Model 3			Model 4			
Predictors	В	SE B	β	В	SE B	β	В	SE B	β	В	SE B	β
Good relation with others	.309	.046	.337***	.239	.048	.261***	.220	.048	.240***	.199	.048	.216***
Interest in courses				.530	.121	.229***	.530	.120	.229***	.464	.122	.200***
Community participation							.049	.017	.144**	.048	.017	.141**
Learning persistence										.190	.076	.129*
R ²		.111			.160			.180			.195	

Table 4.16. Predicting Students' Generic Skills from Engagement Dimensions

 $\overline{N=348}$ *P < .05 **P < .01 ***P < .001

4.7.2 Engagement and Student Satisfaction

When we regress students' self-reported overall satisfaction with their programs on engagement dimensions, we find that the engagement dimensions of Good Relation with Others (β = .242, p<.001), Interest in Courses (β = .244, p<.001), and Community Participation (β = .117, p<.05) show to be significant predictors. These results are similar to those found in regressing engagement dimensions on Generic Skills, as shown above, with the dimension of Learning Persistence being excluded. The multiple regression model with these three predictors produced R² = .183, F (2, 336) = 25.00, p < .001. Table 4.17 shows the results.

	Model 1				Model	2	Model 3			
Predictors	В	SE B	β	В	SE B	В	В	SE B	β	
Relation with others	.093	.014	.340***	.070	.014	.258***	.064	.014	.242***	
Interest in courses				.171	.037	.246***	.170	.037	.244***	
Community participation							.012	.005	.117*	
R ²		.116			.169			.183		

Table 4.17. Predicting Students' Satisfaction from Engagement Dimensions

N=338 *P < .05 **P < .01 ***P < .001

4.7.3 Engagement and Self-Reported GPA

Table 4.18 shows the results of predicting students' self-reported grade point average from engagement dimensions. Results in demonstrate that three engagement dimensions, namely, Interest in Courses ($\beta = .197$, p<.001), Community Participation ($\beta = -.209$, p<.001), and Learning Effort ($\beta = .166$, p<.01) are shown to be significant predictors of students' self-reported GPA. As noted from the outcomes of correlation analysis above, the self-reported GPA is negatively correlated with Community Participation. Again here, Community Participation shows a negative association with self-reported GPA. The multiple regression model with these three predictors produced R² = .101, F (3, 316) = 11.88, p<.001.

	Model 1				Mode	12	Model 3			
Predictors	В	SE B	β	В	SE B	β	В	SE B	β	
Interest in courses	.085	.021	.225***	.087	.020	.230***	.074	.021	.197***	
Community participation				009	.003	163**	012	.003	209***	
Learning effort							.034	.012	.116***	
R ²		.051			.077			.101		

Table 4.18. Predicting Students' GPA from Engagement Dimensions

N=319 **P < .01 ***P < .001

The results above from correlation and multiple regression analysis show the association between institutional climate, student engagement, and student learning outcomes. These results support the research hypothesis put forward in the present study. The next chapter provides further discussions on the theoretical and practical implications of these findings.

Chapter 5: Discussion and Conclusion

Discussion on the data analysis results will be presented in four parts: 1) major findings of the study, 2) theoretical implications of the findings, 3) practical implications of the findings, and 4) limitations of the study.

5.1 Major Findings of the Study

The present study set out to investigate the relationship between institutional climate, student engagement and learning outcomes in an Ontario Community College. Institutional climate was measured using the climate questionnaire, Course Experience Questionnaire (CEQ). The measure of student engagement employed was the adapted Ontario College Student Engagement Survey (OCSES). The measure of student learning outcomes was measured using three scales: 1) Academic achievement was represented by calculating students' self-reported grade point average (GPA), measured on a scale from 1.0 to 4.5, and was collected by a single item on the questionnaire; 2) Student overall satisfaction was measured through the students' responses to the item, "Overall, how satisfied are you with your learning at this college?", rated on a 5-point scale from 1 (Not satisfied at all) to 5 (Very satisfied); and 3) Generic skills development was measured by averaging students' responses to the six items of the generic skills scale in the CEQ. The CEQ measures process skills relevant to employability and lifelong learning, such as written communication, problem-solving, analytic skills, teamwork, ability to plan one's own work, and confidence in tackling new situations (Wilson & Lizzio, 1997; Lizzio, Wilson, & Simons, 2010).

Primarily, it was found that institutional climate is related to student engagement and to student learning outcomes, as measured by generic skills, self-reported GPA, and overall satisfaction (Table 4.2 and Table 4.10). Study results also show that student engagement is significantly correlated with academic outcomes, as indicated in Table 4.15. The results are essentially consistent with evidence from previous studies that support Biggs's (1989) 3P model, which conceptualises the learning process as an interacting system of three sets of variables: the learning environment and student characteristics (presage), students' approach to learning (process), and learning outcomes (product). The findings also support Pascarella's (1985) general causal model for assessing the effects of differential college environments on student learning and cognitive development, which hypothesized that five independent variables, including structural organizational characteristics, student background, interaction with faculty and peers, and instructional environment, have direct or indirect impact on student learning and cognitive development, as well as quality of student learning effort. The findings of the present study also reinforce the adoption of the Course Experience Questionnaire (CEQ) to investigate the relationship between learning environment and student learning approaches and learning outcomes in community college settings.

5.2 Institutional Climate and Student Engagement

The findings of the present study show that climate dimensions were significantly associated, to different extents, with the student engagement factors of *learning persistence*, *learning effort*, *community participation*, *relationship with others*, *and interest in courses*. This indicates that students who perceive their learning environments as ones that reflect good teaching practices

report themselves as more likely to engage in learning activities. That is, as measured by the engagement dimensions, they will put effort into coursework, spend more time reading and doing assignments, interact more with peers and teachers, participate more in college community activities, and are less likely to drop out of their courses. Of the abovementioned institutional climate dimensions, the dimension of *Good Teaching Practice* is significantly correlated with all engagement areas, except the area of *collaboration with others*. It is particularly meaningful that students will devote more time and energy to educationally purposeful activities (Hu & Kuh, 2002) when they perceive that faculty members use active and collaborative learning techniques, engage students in experiences, emphasize higherorder cognitive activities in the classroom, interact with students, challenge students academically, and value enriching educational experiences (Umbach & Wawrzynski, 2005). Another climate factor that should be singled out here is *Support for Learners*. This factor is not among the original measures of the Course Experience Questionnaire (CEQ) but has been included in the present study to address the omission in the CEQ regarding the perceived quality of facilities and support services, which are believed to be important facets of institutional climate. As mentioned previously, this scale was designed to provide a measure by which institutions can assess the extent to which students perceive their programs to provide support in the areas of time needed, interaction with students of different backgrounds, nonacademic responsibilities, financial support, and educational technology. This study shows that the climate dimension of Support for Learners is significantly associated with four student engagement areas, which are Learning Persistence, Community Participation, Good *Relationship with Others, and Interest in Courses.* First, we can see that students' probability

of persistence towards diploma completion increases when students perceive the institution to be supportive of their study. This finding reinforces the association confirmed by previous studies (Kreber, 2003; Oseguera & Rhee, 2009; Rhee, 2008; Stebleton et al., 2014). Second, students' interest in courses is also significantly associated with their perceived *Support for Learners*. Previous studies usually connected students' interest in their courses to factors such as rewards, curriculum, teaching methods, and so on. The identified association between supports for learners and students' interest in their courses suggests that if the institution provides supports in areas such as time, student community, non-academic responsibilities, financial support, and educational technology, students will have higher interest in their coursework, which in turn will lead to higher learning and development outcomes.

5.3 Further Analysis on How Climate Variables Affect Student Engagement

While the correlational analysis has identified a number of general associations between characteristics of the learning environment and student engagement and learning outcomes, further understanding is afforded by analysis of the relative contribution of individual climate dimensions that measures more specific aspects of the environment. Thus, multiple regression analysis was conducted to elaborate on the relationship of climate dimensions and student engagement and learning outcomes.

5.3.1 Predicting Student Overall Engagement Level from Climate Factors

The results in Table 4.3 demonstrate that three climate factors are significant predictors of student engagement levels. These predictors are *Emphasis on Independence*,

Appropriate Workload, and Support for Learners. In other words, we can say that the change in student engagement levels can be, to a certain extent, attributed to these three institutional climate factors. This implies that if institutions can improve in these climate dimensions, they can expect to see improvements in student engagement. It is notable that the climate factor of Emphasis on Independence is the most significant predictor of student engagement. The scale of Emphasis on Independence measures the extent to which the academic program allows students to choose courses and how they are going to learn in the program, to have choice in the coursework they have to do and how they are assessed, and to develop their own academic interests. When college students perceive independence and flexibility in their study, they will engage more in learning. In college educational environments, the student population is very diverse, and students from a wide range of backgrounds and age groups will demand greater flexibility and autonomy in learning. For example, many of the students are nontraditional students, specifically adults returning to school either full- or part-time while maintaining their responsibility towards family, employment, and other adult-life tasks. Adult learners tend to be more independent because they juggle multiple life roles and require flexibility in instructional and advising schedules to maintain the balance between educational, work, and family responsibilities (Pascarella, 1997; Saunders & Bauer, 1998). Therefore, perceived independence and flexibility will encourage, and actually facilitate, their engagement in learning, because students will find it easier to plan their time for readings, assignments, and other relevant learning activities. Interestingly, a similar relationship was not found

in previous studies (e.g. Karagiannopoulou & Christodoulides, 2005; Wilson, Lizzio, & Ramsden, 1997). This newly identified relationship is worthy of further analysis.

Advancements in information and communications technology during recent years have changed the nature and mode of the presentation and delivery of teaching and learning resources, and students have the ability and tools to participate in learning activities and to be connected to a community of learners anytime and anywhere, without time, place, or situation boundaries (Garrison & Kanuka, 2004). This implies that our college programs should be designed to be more learner-centered and more capable of accommodating a diverse student population. The relationship between Emphasis on Independence and overall engagement identified by the present study supports previous studies. According to the Self-Determination Theory (Deci & Ryan, 1985; Ryan & Deci, 2000), individuals have inherent growth tendencies and innate psychological needs that are the basis for their self-motivation and personality integration, as well as for the conditions that foster those positive processes (Ryan, Kuhl, & Deci, 1997). Also, "the fullest representations of humanity show people to be curious, vital, and self-motivated. At their best, they are inspired; striving to learn; extend themselves; master new skills; and apply their talents responsibly" (Ryan & Deci, 2000, p. 68). People have a sense of purpose and can self-regulate their behaviour, including their learning behaviour, and this has derived the concept of self-regulated learning. Self-regulated learning proposes that students will be able to self-regulate their learning when they can choose when, what, and where to learn, and educators should create situations where students are given

learning tasks and allowed to self-regulate the learning process involved in doing the tasks (Steffens, 2006). Knowing that students will engage more in learning if the course context supports independence, how might our teaching strategies and practices allow more independence and flexibility? As society and technology fundamentally change the manner in which we communicate, interact, and learn, this inevitably alters how we think. Also, forms of communication and our ability to manage information challenge our cognitive abilities and the traditional classroom paradigm (Garrison & Kanuka, 2004). Research findings have suggested that recent advances in information and communication technologies have made it possible to develop powerful Technology Enhanced Learning Environments (TELEs), which may facilitate self-regulated learning, and may at the same time optimally fit a student's strengths and weaknesses, thus improving learning (e.g. Delfino, Dettori, & Persico, 2008; Lenne et al., 2008; Ryan & Deci, 2000; Steffens, 2006). The interactive capabilities of Internet communication technology have facilitated the increasingly prevalent practice of converging text-based asynchronous Internet learning with face-to-face approaches, which is also referred to as blended learning. Blended learning integrates face-to-face instruction and e-learning, or online learning, to facilitate a simultaneously independent and collaborative learning experience. That is, learners can be independent of space and time, yet learn together (Garrison & Kanuka, 2004). In reality, most colleges have provided adequate technical support services for their students' online learning. Instructors can use technology effectively to enhance and support independence and self-regulated learning. For example, students should have access to course materials and assignments online, and be able to submit assignments and project

reports online. These practices, in addition to the conventional paper-based approach, will surely support independence in learning. Some teaching/learning initiatives can be simple but still supportive, such as using online quizzes to replace the traditional in-class hardcopy quizzes, as students will have more flexibility and control in when and where to complete quizzes. Online quizzes can also be set to allow multiple attempts, to encourage students to engage more in learning and to have opportunities to receive better outcomes. In contrast to in-class hardcopy quizzes, online quizzes can also be set to provide immediate feedback, so combined with the multiple attempts option, students are encouraged to study further and have more time to complete quiz questions correctly and receive better marks. Another example is to allow students to have remote access to the applied software related to their courses. College programs often involve various types of applied software in their courses, such as SPSS (Statistical Package for the Social Sciences), SAP (Systems, Applications, and Products in Data Procession), or other management information systems (MIS) for different business functions of marketing, accounting, operations, and so on. Traditionally, students needed to attend classes to be able to use computer labs to learn how to use the software and do their assignments. However, this conventional way of course delivery does not allow learning independence, and therefore limits students' learning engagement, as students can only work on their coursework when they are on campus. With remote access to software, students will be able to practice or complete software-related assignments without time or location limitations. Again, this allows students to spend more time and effort on their coursework, thus involving more deep-learning activities, and will result in more favourable learning

outcomes, which in turn, will motivate students to attend face-to-face classes with more passion and desire to learn. These are only some practical examples of blended learning that emphasize learning independence.

The literature on the potential of blended learning to support meaningful educational experiences and learning outcomes has been well documented, with evidence that blended learning has the potential to be more effective and efficient when compared to a traditional classroom model (Garrison & Kanuka, 2004). For example, it was found that it is possible to reduce underachievement in higher education through an adequate use of e-learning technology, supported by a moderate constructivist instructional model and a blended learning approach (Alonso et al., 2011). In an experimental study that investigated the effect of e-learning, blended learning, and classroom learning on student achievement, results showed that there was a significant difference between the three methods. The blended learning method of face-to-face learning combined with e-learning appeared to have provided a clear advantage in terms of student achievement due to its flexibility and emphasis on independence in learning (Al-Qahtani & Higgins, 2013). As discussed above, colleges can explore the use of blended learning to support independence in learning and expect the result of higher student learning engagement and achievement. It is essential that researchers begin to explore the impact of blended learning in achieving more meaningful learning experiences.

The second climate factor identified to be a predictor of student learning engagement is Appropriate Workload. This finding is consistent with the findings in previous studies that suggest that appropriate workloads are correlated with academic achievement, reported satisfaction, and self-reported development of generic skill (e.g. Kyndt et al., 2011; Lizzio, Wilson, & Simons, 2002; Chambers, 1992). The scale items for this factor assessed the students' perception of appropriate workload in their coursework. Student workload can be interpreted as the number of working hours, which could consist of attending lectures, seminars or tutorials (contact hours), plus independent and private study, preparation of projects, examinations, and so forth (Kember, 2004). From a practical point of view, college students usually take four to six courses each semester, with the entire program being completed in two or three years. During a semester, a student will typically be involved in coursework such as individual assignments, quizzes or tests, presentations, group projects, and exams in each course. In our example, attending six courses means it would be necessary to complete at least six individual assignments, participate in the completion of six group projects, writing six mid-term tests and six final exams, plus other additional tasks assigned by different instructors. This has proven to be too heavy of a workload for many college students, with many then simply trying to cope with course requirements by concentrating on routine facts memorization. To make things more difficult, due to the independence between course instructors, students often find that several course instructors will require them to submit individual assignments or group project reports within the same week. Students may also need to confront the overlapping of two or more courses with the high number and demand of examinations. Coursework overload might also be related to the nature of college programs that are applied-oriented and designed to meet demand in economics and technology. This expectation of the programs might push program developers to consistently add new and necessary material to curricula, for example, in subject-related computer software and global business administration, resulting in further increased workloads for students. There might also be, however, a reluctance to remove an equivalent amount of less useful or out-of-date material from the curriculum, partly because of staff conservatism and the perceived or actual need to retain fundamental material in order to satisfy requirements of external professional organizations, such as for course accreditation purposes (Kember et al., 1996). All these possibilities place stress onto students, which results in surface learning and a surface strategy that is reproductive, limits targets to bare essentials, and reproduces rote learning (Biggs, 1993). Ultimately, this leads to low student engagement. The situation becomes worse for students who are working part-time and who have the responsibility of supporting their families, as they may have even less time to handle heavy learning workloads, and may have little choice but to skim along on the surface of things. In order to apply a deep approach to learning, students should have a stimulating learning environment in which the workload is manageable and there is sufficient time to study and understand course contents (Blumberg, 2005; Chambers, 1992; Kamber & Leung, 2006; Kyndt et al., 2014; Parkinson, Gilling & Suddaby, 2006). Knowing that workload affects learning engagement, we need to design college curriculums and deliver courses in ways so that the course work is demanding but not overloading. In practice, we can enhance curriculum planning,

emphasize cooperation within courses in the same programs, schedule the distribution of assignments more reasonably, renew and update course contents, and measure student workloads more objectively. We should take notice that the workload measurement in the present study measured only the students' perceived workload, not the actual workload using objective measurements such as credit hours or number of assignments and exams. That is, it is the students' perception of the elements of the learning and teaching environment (the college climate in this case) that affect their learning engagement. This is because research findings have shown that it is not the actual workload, but the students' perceived workload, that affects their learning approaches and effort (Kamber & Leung, 1998, 2006; Kyndt et al., 2011, 2014; Ramsden, 1992). When students perceive their course workload to be reasonable, they will spend more time and effort on the coursework; otherwise, they will adopt surface learning and engage less in their learning.

How might institutions help students have a positive perception of their learning workload? In the work of constructing a theoretical model for the investigation of perceived workload, Kamber and colleagues proposed that seven elements of the teaching and learning environment could impact perceived workload (Kamber, 2004; Kamber & Leung, 2006). It was argued that:

To produce a curriculum which students perceive as having an acceptable workload, while at the same time inspiring them to work hard and long towards high quality learning outcomes, attention needs to be given to the following aspects:

1. A coherent programme of courses or subjects with a transparent relationship between components;

2. Teaching which concentrates on key concepts and promoting understanding;

3. Assessment which tests understanding;

4. An approach to teaching which requires active engagement of students—projects seem to be particularly effective;

5. Teachers accepting responsibility for motivating students and stimulating interest;

6. Developing warm supportive teacher-student relationships;

7. Promotion of a climate in which student-student relationships and class coherence can develop—particularly through group discussion, assignments and projects (Kember, 2004, pp. 181–182).

The seven core elements above characterize coordination between courses in a program, meaningfulness of materials and coursework, student engagement, and corporative learning. These elements should be considered in curriculum design and curriculum review or evaluation.

The third significant predictor of student engagement is *Support for Learners*, as shown in Table 4.3. The items of this factor scale measured the institutional supports for students, including financial support, social support, and support in educational technology. When students receive the support they need from their institutions, they will be more engaged in learning. This association can be explained by looking at characteristics of the colleges, the students, and the demands of academic programs and courses. With open admission policies, community colleges typically serve a very diverse population of students who generally commute to campus. This student population comprises many subgroups, including non-traditional students and new immigrants who seek further education and Canadian credentials. These students naturally need institutional supports in areas such as orientation, academic advising, tutoring services, counselling, career planning, jobreadiness advising, and so on. On the other hand, community colleges also offer a broad

range of programs that are designed to meet the economic needs and technology development of society. These programs include the two-year or three-year diploma programs, transfer programs, short-term certificate programs tailored to meet the demands of business and industry for specialized training, and post-diploma programs designed to qualify students for professional designation examinations. New programs and courses will create new demands for additional supports, and the diversity of student populations and breadth of programs and courses at community colleges make student support an important factor that impacts college student engagement. This association between perceived supports for students and learning engagement is consistent with previous findings. For example, Lundberg (2014) used a national sample of 647 Native American students who took the National Survey of Student Engagement to test a path model to predict learning. The results of the regression analysis revealed that institutional support for student success and a positive interpersonal environment contributed both to engagement and learning. Students who perceive their learning environment as supportive are likely to be engaged with learning. Support for student success was the strongest predictor for learning in all three NSSE domains tested, namely, self-reported learning in general education, practical competence, and personal and social development. It is worth noticing that this study highlights the effect of a supportive campus climate on student effort in coursework, and proposes strategies for providing institutional support for student success (Lundberg, 2014).

Research findings on the impact of student supports on student persistence and course completion are well documented (e.g. Boyle et al., 2013; Jacklin & Riche, 2009; Kolenovic et al., 2013; Lundberg, 2014; Mckiney & Novak, 2012; Meeuwisse, Severiens, & Born, 2010; Tout et al., 2014; Yorke & Thomas, 2003; Zevallos & Washburn, 2014). With the importance of student support for student engagement and success in the community college context, it is worth discussing further. Tait (2000) defines student support as "the range of services both for individuals and for students in groups which complement the course materials or learning resources that are uniform for all learners" (p. 289). Student supports have three primary functions, all of which are essential and interdependent: cognitive, affective, and systematic. The cognitive function supports and develops learning through the mediation of standard and uniform elements of course materials and learning resources for individual students. Typical services within the cognitive function include tutoring, guidance and counselling services, assessment of prior learning and credit transfer, individualized teaching, and so on. Next, the affective function provides an environment which supports students, creates commitment, and enhances self-esteem. Services within the affective function include enquiry, admission and pre-study advisory services, study skills development, program planning or career development, and differentiated services for students with various types of special needs, for example, disability or geographical remoteness. Finally, the systematic function establishes administrative processes and information management systems, with support services such as library services, study and examination centres, record keeping, and information management. Tait proposes a framework for developing a student support

system that comprises six elements, namely, student characteristics, course or program demands, geography, technology, scale, and management systems. He highlights the elements of student characteristics and course or program demands, asserting that the specific demands made by a course or program will often make up the first element of student support, while characteristics of the student body make up an essential, and indeed central, element in the development of a student support system (Tait, 2000). This is particularly relevant and instructive to student supports in the community college context.

As mentioned above, the diversity of the student population and the breadth of programs and courses at community colleges make student support an important factor that impacts college student engagement and learning outcomes. With open admission policies, the work of student supports can be very demanding in order to meet the diverse needs of students of diverse background. How might a college provide effective student support services to meet students' needs? Smith (2007) proposed a continuum, which at one extreme presents a technical solution (e.g., a student success seminar, a writing lab plan), and at the other, a communicative response (which adopts a more holistic approach to support the student, not just academically, but in terms of other issues that may present barriers to achievement). He further argues that communicative responses involve a supportive interaction between teacher and student. Meaningful, holistic support proceeds from a position that education contains constituent elements of nurturing. This is opposite to the technical solution: "the metaphor of de-naturing attempts to signify the technicist response to student support, in which mechanistic, depersonalized and 'off-theshelf' support products, rather than necessarily meeting student need, fail to address them in a differentiated way, and ultimately become technologies of compliance that instead 'train' students, attempting to manipulate them into 'preferred' modes of identity" (p. 689).

With all the efforts needed to meet the diverse needs of students, as faculty, we should be addressing issues that are central to learning and teaching, rather than just focusing on the therapeutic needs of students. Research findings have revealed that academic staff should be more involved in providing student supports, as informal non-class contact between academic staff and students may lead to positive outcomes such as student satisfaction with the university experience, performance, educational aspirations, intellectual and personal development, academic achievement and first-second year persistence (Astin, 1993; Tinto, 1997; Yorke, 1999). In a study conducted by Walsh, Larsen, & Parry (2000), a sample of 248 students were asked about the support services that they had accessed generically, and then those specifically related to academic and non-academic issues during the previous year of study. Students reported that they contacted academic tutors more frequently than any other university-provided support, and their preferred support mechanisms for academic issues were academic tutors and peers in their course. The authors argue that the sign-posting role played by academics requires that they have a complete knowledge of the support services available at their institution, and for greater integration of these services (Walsh, Larsen, & Parry, 2009).

However, it can be demanding to meet the diverse needs and expectations of the student population. From a cost-effective managerial point of view, it is very probable that colleges will adopt the technical solution instead of the communication solution in providing student supports. It is noticeable that recent years have witnessed declined tutorial support from academic staff, as it is more expensive to use teaching faculty's time to provide support services. This has been coupled with increasing casualization of the teaching workforce (Percy & Beaumond, 2008) in community college settings. Temporary faculty are usually compensated with an hourly wage based on their number of assigned teaching hours, regardless of whatever extra work they do in supporting students. This does not encourage temporary faculty to provide support to students outside of class. Another concern is that most temporary faculty members might take on more than one job at a time and may only be partially involved in their teaching job at a particular college, thus reducing the availability to students outside of class. Casualization of the teaching workforce will not help provide academic support to students. Also, casual faculty may not be as familiar with institution-wide support services as full-time faculty. To support students, faculty members need to have adequate contact with them. The reality is, however, that support services have usually been assigned to specialist support staff who usually do not have any direct link to the courses that the individual students are studying, nor expertise in the subject matters related to students' academic requirements. The supports provided by non-academic staff will mainly focus on the services of affective and systematic functions. For part-time students who attend class in the evenings, some of these support services may not be available,

and their only contact may be with their classroom teachers. At the institutional level, services typically include financial services, employment services, information services, technology and facility services, health services, and services for students with a disability. At a program and course level, supports typically include matters such as course registration, course dropout, timetable adjustment, grade appeal, conflict resolution, counselling, and so on. So instead of providing supports that carry on all three primary functions (cognitive, affective, and systematic), these types of support services usually fail to provide academic or cognitive supports. These practices might also lead to and entrench a deficit notion of the student, "a tendency to position the students as having the problem, of needing support, and of higher education services as providing that support: problems are thus perceived as located *within* the individual student and support understood as the institutional mechanism for relieving that problem" (Jacklin & Riche, 2009, p. 736). This could be problematic, as the more student support is relied upon as the default solution to student "problems," the more likely that an ineffective, reactive cycle of problem-support will continue, especially in the context of increasing diversity, rapid development in educational technology, globalization, and accountability. New understanding of student supports is needed. Clegg, Bradley, and Smith (2006) have argued that in order to deliver effective student supports, we need to understand the ways students cope and what resources they draw upon, by thinking about how students achieve and the personal and institutional resources they deploy, rather than the negative or therapeutic question of what problems students face. The authors appeal for a shift in thinking away from psychologistic or counselling models of individual help, and towards a more situated understanding of what is currently helping students succeed. We also need to create an environment within which students can be properly supported in their learning (Clegg, Bradley, & Smith, 2006). This implies that in order to understand and provide student supports, we need to also understand the institutional factors and contexts within which support operates.

Jacklin and Riche (2009) suggest that "one of the challenges for understanding 'support' and its significance for students is recognizing the potential value of diverse student populations, rather than positioning this as problem-focused. Recognizing diversity as a resource does not deny that 'problems' may occur, but responding to 'problems' with the creation of additional systems and structures of support can continue to emphasize a broadly individualistic response that can become overwhelming for the staff of the higher education institution, often those who are the most conscientious" (p. 774). Further, to attempt to respond to large numbers of such requirements can lead to pressures on staff. Therefore, Jacklin and Riche (2009) proposed a reconceptualization of student supports that suggests a shift from 'support' as a mainly reactive response to perceived student problems, to 'supportive' (and proactive) cultures and contexts. The proposed model of conceptualization of new supports represents the relationship between supportive cultures of higher education institutions and contexts of higher education, and student roles and responsibilities. The model proposes a more developed, diverse and inclusive institutional culture and higher education context to meet the diverse needs of students. A supportive culture and context will help decrease the amount of additional support,

because on one hand, the more supportive approaches in pedagogy and course design allow flexibility and independence in learning, and on the other hand, they allow sources of support, both formal and informal, to emanate from the students themselves (for example, peer support and cooperative learning). A supportive context will also encourage students to take on supportive roles and engage in providing supports (such as becoming student mentors). All this will eventually encourage students to use supportive resources effectively and to become more independent and autonomous learners (Jacklin & Riche, 2009).

The supportive institutional context engages students. One recent related research study was reported by Tout, Pancini, and McCormack (2014). Their paper presents findings from an on-campus work-based learning program in which student mentors are employed and deployed within the university's academic support program to provide 'just-in-time' and 'just-in-place' learning support to other students. Student rovers are paid not to perform a quasi-staff role, but to help other students learn and, in this process, to model both learning to learn and collaborative learning behaviours. The authors propose that by framing the work of student rovers as 'learningful' workers operating within the liminal institutional contact zone between staff and students, the program may prove to be not only a successful strategy for helping new students engage in campus life, but also a precursor to an emergent, institutionally recognized, educational role of students paid to support the learning of other students. This type of peer mentoring program will help engage both the mentors and the students being helped (Tout, Pancini, & McCormack,

2014). Some other studies also found that mentoring programs are related to the improvement of students' learning engagement, as well as their level of academic achievements, assistance for at-risk students, and increased retention (Boyle, et al., 2010; Brawer, 1996; Tout, et al., 2014; Zevallos & Washburn, 2014).

Based on the discussion above, we can see that programs that integrate mentoring, support groups, and faculty guidance into their curriculum can assist in increasing students' engagement levels, academic and social involvement with the learning community, and overall institutional commitment (Melius, 2011).

5.3.2 Climate and Learning Effort

The results presented in Table 4.4 show that two of the six institutional climate factors (good teaching practice and appropriate workload) are significant positive predictors of students' learning effort. This implies that first, we can predict that students will exert more effort in coursework when they perceive that their instructors are involved in their learning transactions, provide useful feedback and comments, make subjects interesting, and motivate students to do their best. This finding is consistent with findings from previous studies (Lizzio, Wilson, & Simons, 2002; Price, 2011; Webster et al, 2009; Wilson, Lizzio, & Ramsden, 1997). These studies revealed the common finding that students tend to believe that "the learning environments that will most strongly influence them towards deeper processing are those which are characterized by reciprocal transactions, involving both the giving (clear and useful explanations, helpful feedback) and seeking (interest in students' opinions and difficulties) of

information, within an intrinsically motivating context (work to make subjects interesting and motivate students to do their best work). This is fundamentally a process of active engagement." (Wilson, Lizzio, & Ramsden, 1997, p, 40). This notion is supported by more recent studies. For example, Bryson and Hand (2007) found that learners are more likely to commit to work harder, get more out of a session, and are more willing to express their own opinions if they are supported by teaching staff who engage with students, with the subject, and with the teaching process. In a more recent study, Richardson & Radloff (2014) pointed out that the interaction between teaching staff and students has a significant effect on student engagement, and that the actions of teaching staff and the ways of delivery of courses are critical in motivating, challenging and engaging students. Students will make a greater effort and engage more in learning when they perceive that faculty members are working to help them achieve their academic goals. Similar findings are reported by Lundberg (2014), who used The Community College Student Experiences Questionnaire (CCSEQ) to collect learning environment data from a sample of 239 community colleges students. Self-reported learning outcomes data was collected in five domains: general education, intellectual skills, science and technology, personal development, and career preparation. The results of multiple regression analysis indicated that for each of the five learning outcomes, frequent interaction with faculty was the strongest predictor.

Good teaching practices increase student learning engagement because they encourage interaction between faculty and students, which in turn increases the likelihood that students actively participate and are involved in learning, resulting in higher academic performance, persistence, and retention (Astin, 1999; Biggs, 1989, 1993; Braxton et al., 2008; Michel, Cater, & Varela, 2009; Pascarella & Terenzini, 2005; Pascarella, Seifert, & Whit, 2008; Richardson & Radloff, 2014; Zepke, Leach, & Butler, 2009). This connection reveals that when programs are designed and delivered to get the best out of students, in return, students feel valued and challenged to learn by the expectations of the faculty and the coursework they are required to complete. The nature of teaching and learning is the interaction of teachers and students. This finding is also consistent with one of the influential and much-studied seven principles for good practice in undergraduate education, as proposed by Chickering and Gamson (1987, 1991, 1999), which state that "good practice encourages student-faculty contact. Frequent student-faculty contact in and out of classes is the most important factor in student motivation and involvement. Faculty concern helps students get through rough times and keep on working. Knowing a few faculty members well enhances students' intellectual commitment and encourages them to think about their own values and future plans" (Chickering & Gamson, 1991, p. 65).

Good teaching practices also involve proving timely feedback to students. Students need to know the outcomes of their performance to maintain their learning interest and engagement. The relationship between feedback and work motivation and performance has been extensively studied and well documented in literature. According to the Job Characteristics Model (Hackman & Lawler, 1971, 1976; Humphrey, Nahrgang, & Morgeson, 2007; Oldham & Hackman, 2010; Pierce, Jussila, & Cummings, 2009; Wall, Clegg, & Jackson, 1978), feedback is one of the five core characteristics that affects employee job motivation, performance, and

satisfaction. Feedback from work refers to the degree to which employees can tell how well they are doing based on direct sensory information from the job itself; it helps workers obtain knowledge of the results of their work, which in turn helps increase job motivation, performance and satisfaction. This link applies to student learning as well. If students always receive timely constructive feedback from course instructors, they will have knowledge of their learning results, which in turn will motivate them to make a greater effort in learning, potentially resulting in improved academic performance. This identified link is again in accordance with another principle of Chickering and Gamson's (1987, 1991) seven principles for good practice in undergraduate teaching, which states that "good practice gives prompt feedback. Knowing what you know and don't know focuses learning. Students need appropriate feedback on performance to benefit from courses." (Chickering & Gamson, 1991, p. 66).

Good teaching practices encourage teacher and student interaction and provide timely feedback. Timely feedback from instructors is particularly important in community college teaching/learning activities. Community college education emphasizes providing hands-on experience to students, and most courses will consist of group projects, with the additional purpose of cultivating students' ability to engage in teamwork and cooperation with others. In many college courses, group projects usually contribute to a large portion of the final grade a student will receive for a particular course. However, many students experience difficulty in doing group projects, both with respect to project completion and cooperation with others. This is, to some extent, due to the lack of timely feedback. It is not uncommon that students are given a group project at the beginning of the semester, and then are left alone until the deadline

for submitting the project near the end of the semester. In such a situation, students will not know if their work is on track or meets the requirements of the instructor. They may then not be motivated or make any real effort to complete the project, as they might not even know what learning outcomes they are expected to achieve if they do not receive timely feedback to their work. Without continuous encouragement or feedback, students may procrastinate and lag behind schedule, only to rush to finish the project before the deadline, thus employing a surface approach to learning and resulting in low levels of learning outcomes. A better way to increase instructor-student interaction and feedback could be the process of a scheduled progress plan, in which the project is divided into several parts, say, Parts A, B, C, and so on, with each part or parts being due for submission as an interim sectional paper. Interim papers will not be graded, but feedback will be provided from the instructor for the students' better understanding and performance. Students are then expected to incorporate the feedback to improve their work and writing. One critical condition for the success of this type of scheduled progress plan is that the instructor needs to provide feedback in a timely manner and allow the students time to digest and incorporate the comments. The students are also encouraged to discuss their work with the instructor, their understanding of the comments from the instructor, and any concern they might have related to the project. So instead of leaving students on their own during the entire length of the project, scheduled progress planning ensures instructor-student interaction and continuous feedback, thereby supporting student engagement and high levels of learning outcomes. As early studies showed, positive performance feedback enhances intrinsic motivation (Deci, 1981), and intrinsic motivation for competence will engage students in learning.

The results show that *Appropriate Workload* also contributes to student learning effort. Again, this finding is consistent with previous findings (Kyndit et al., 2011; Lizzio, Wilson, & Simons, 2002; Wilson, Lizzio, & Ramsden, 1997). Students put in high levels of effort in doing their coursework when they perceive that the course workload is appropriate, neither too heavy nor too light. However, this may also result in too heavy of a workload for some students, due to a lack of communication and cooperation among instructors who are teaching different courses in the same program, since students typically take four to six courses per semester. Heavy workloads might drive students to adopt surface learning and find ways to submit assignments by deadlines without truly making the effort to achieve high level learning outcomes.

5.3.3 Climate and Collaboration with Others

The Collaboration with Others scale consists of items that measure the number of times, or frequency, that students interact with faculty members and peers, and the extent to which students are involved in collaborative learning. The results of the present study reveal that three climate factors are found to be good predictors for students' collaboration with others in learning. These factors are Appropriate Workload, Appropriate Assessment, and Emphasis on Independence, as shown in Table 4.5. It is not surprising that appropriate workloads and appropriate assessments encourage students to collaborate more with faculty members and peer students, because these two factors directly affect how much work is required and how the assignments are to be completed and assessed. For example, a group project that takes into account teamwork and cooperation will directly contribute to the interaction and collaboration with peer students.

What is notable is the finding that the factor of *Emphasis on Independence* also predicts collaborative behaviour. This implies that when students perceive that the learning environment allows them to have more autonomy and independence in their learning, and that their teachers are supportive and flexible regarding how they should complete the coursework, they will be more willing to communicate with faculty members, participate in active and collaborative learning in groups, maintain peer relationships, and develop social skills. In other words, this means that emphasis on independence autonomy will increase collaboration in learning. Again, this can be explained and supported by the theoretical points and findings from the study field of Self-Determination Theory (Deci & Ryan, 1985; Ryan & Deci, 2000), as discussed previously.

Self-Determination Theory (SDT) postulates three innate psychological needs of human beings: competence, autonomy, and relatedness, which, when satisfied, yield enhanced intrinsic motivation and mental health and well-being (Ryan & Deci, 2000). Intrinsic motivation, being inherent, will be catalyzed when individuals are in conditions that are conducive of its expression; it will flourish when social environments support people's innate psychological needs. Social-contextual events that are conducive to feelings of competence, autonomy, and relatedness can enhance intrinsic motivation. For example, supportive learning environments, positive and reinforcing feedback, emphasis for independence and autonomy in learning, and being free from discrimination will facilitate intrinsic motivation. When the learning environment facilitates intrinsic motivation, students will engage more in their learning. However, although intrinsic motivation is an important type of motivation, in reality, people are driven by various extrinsic motivators to act toward different outcomes, for example, rewards, recognition, reputation, achievements, and so on. To understand the motivations for these activities, Cognitive Evaluation Theory (CET), a sub-theory within SDT, argues that people will be intrinsically motivated only for activities that hold intrinsic interest for them, namely, activities that have the appeal of novelty, challenge, or aesthetic value. Individuals internalize and integrate values and regulations of the required or expected behaviour so that those values and regulations will align with intrinsic motivation (Ryan & Deci, 2000). The three innate needs for autonomy, competence, and relatedness work together to facilitate the internalization and integration of extrinsically motivated activities. This implies that college students tend to internalize learning activities that support the development of academic competence, activities that are modeled or valued by one's reference groups (peer students and faculty members), and activities that are autonomysupportive. To internalize and integrate an extrinsic motivation, such as a desire to obtain high marks from a group project or graduate with honours, students must grasp its meaning and synthesize that meaning with respect to their other goals and values. This process of integration "is facilitated by a sense of choice, volition, and freedom from excessive external pressure toward behaving or thinking a certain way. In this sense, support for autonomy allows individuals to actively transform values into their own" (Ryan & Deci, 2000, p. 74).
Applying Self-Determination Theory, we can explain the association between the climate factor of *emphasis on independence* and learning engagement. That is, to meet the innate needs for competence and relatedness, students will internalize the coursework requirements and related activities in collaborative learning, communication with faculty, and group projects that are appreciated by peer students and instructors. However, authentic internalization and integration of these extrinsic requirements will most likely happen only if the learning environment is perceived to be autonomy-supportive, thus allowing the students to feel competent, related, and autonomous. In accordance with this point of view, Zepke and Leach (2010) propose a principle, as one of their ten proposals, for improving student engagement, which states, "Enable students to work autonomously, enjoy learning relationships with others and feel they are competent to achieve their own objectives" (p.170). This has significant practical implication for curricula development and course delivery. That is, when the learning environment supports both learning autonomously and with others, and the curricula helps develop competence, students will more likely be motivated and engaged in learning.

5.3.4 Climate and Learning Community Participation

Students' learning community participation consisted of involvement in both academic and non-academic programs, including ethnic/cultural groups, campus sports, interacting with mentors, student association activities, academic advising and counseling, learning skill services, library facilities and services, career resource center, and so on, and was measured by the learning community participation scale used in the present study. These activities represent both students' academic participation and social participation, which indicates students' willingness to spend time and effort into those activities on campus, even though some of these activities might not be directly related to their coursework requirements. In the language of Astin's (1999) student involvement theory, these on-campus activities represent student involvement, which is the amount of physical and psychological energy that students devote to their learning experience. According to this theory, the most precious resource may be student time, and the extent to which students can achieve particular developmental goals is a direct function of the time and effort students devote to activities designed to produce gains. The highly involved student is one who devotes considerable energy to studying, spends much time on campus, actively participates in extracurricular activities, and interacts frequently with faculty and other institutional personnel. The greater the student's involvement in the college, the greater the amount of student learning and personal development (Astin, 1999).

When we use climate factors to predict students' community participation in the present study, three climate factors show to be significant predictors. They are *Appropriate Workload, Clear Goals and Standards*, and *Support for Learners*. Table 4.6 shows these results. The results imply that, first, when students perceive their workload to be appropriate, they will be more willing to participate in various types of relevant activities at the college community. In other words, we can see that too heavy a workload might hinder students' campus community engagement because they will just not have time to participate, or they might not be willing to participate due to heavy coursework. The

discussion on the impact of appropriate workload in the previous section also helps explain the connection here. Second, the climate factor of clear goals and standards also contributes to college community engagement. This tells us that when goals and standards of the academic programs are clearly communicated to students, they will know the expectation of and the requirements on them, and they will engage more in learning community activities. This also suggests that it is important for colleges to implement good orientation programs for new students and set up effective communication channels to help students have a good understanding of goals and standards in their studies.

The third significant climate dimension that predicts students' learning community participation is *support for learners*. As mentioned above, students who perceive their learning environment as supportive are likely to be engaged in learning. This is because institutional student support has both the cognitive and affective function that provides an environment that supports students, creates commitment, and enhances self-esteem. Services within the affective function could include enquiry, admission and pre-study advisory services, study skills development, program planning or career development, and differentiated services for students with various types of special needs, for example, disability or geographical remoteness (Tait, 2000). A supportive context will also encourage students to take on supportive roles and engage in providing supports, such as becoming student mentors, joining student association activities, and participating in varsity sports. It can assist in increasing students' engagement levels, academic and social involvement with the learning community, and overall institutional commitment

(Melius, 2011). Support from faculty and peers also help increase students' intrinsic motivation and facilitate the internalization of learning activities that support development of academic competence, activities that are modeled or valued by one's reference groups (peer students and faculty members), and the activities that are autonomy supportive (Ryan & Deci, 2000). It is through learning community activities that the students' innate needs will mostly be satisfied, as students will show and utilize their knowledge and skills (competence) in interacting with peers, and faculty and staff, who will recognize, support, appreciate, or reinforce their attitudes and behaviour (relatedness). Again, this will be most likely to happen when students participate in those activities. The more support the student perceives, the more community activities they will engage in.

5.3.5 Climate and Good Relationship with Others

When we use the climate factors to predict students' good relations with others, it is found that all institutional climate factors, except for *Clear Goals and Standards*, show to be significant predictors. Table 4.7 shows these results. This result implies that good learning environments will help create good interpersonal relationships among students and between students and faculty. This will help students develop a sense of inclusion and involvement, which will improve student retention.

5.3.6 Climate and Interest in Courses

Two climate factors have been shown to be significant predictors of students' interest in courses. These factors are *Support for Learners* and *Emphasis on Independence*. Table 4.8 shows these results. The results tell us that, in college learning environments, support for learners and an emphasis on independence are more significant predictors of students' interest in courses than the more conventional factors, such as good teaching practices, appropriate workload, appropriate assessment, or grade level.

5.4. Climate and Student Learning Outcomes

The present study also tests the hypothesis that students' learning outcomes are correlated with their perception of the learning environment. This hypothesis was tested by subjecting the individual climate scores and the scores on Generic Skills, their self-reported GPA, and overall satisfaction to Spearman product-moment correlation. The results of this correlation support the hypothesis and indicate that all institutional climate dimensions included in the measurement are associated with learning outcomes. Table 4.10 shows these results. This finding is in line with numerous previous studies related to the Course Experience Questionnaire, which also identified a similar association between the perceived learning environment and academic outcomes (Diseth et al., 2010; Harris & Kloubec, 2014; Karagiannopoulou & Christodoulides, 2005; Lizzio, Wilson, & Simons, 2002; Ning, & Downing, 2010; Richardson, 2006). This finding is also consistent with well-documented findings in the literature of the relationship between student learning outcomes and teaching practice and the learning environment in postsecondary

educational settings. In the last three decades, ever since Chickering and Gamson (1987, 1991) took the initiative to synthesize the influential seven principles of good practice in undergraduate education, extensive research has been conducted to examine this relationship between good teaching practice and student learning outcomes, and rich findings have supported the predictive validity of these seven principles of good practices (e.g. Cabrera et al., 2002; Gurin, Nagda, & Lopez, 2004; Pascarella et al., 2001; Pascarella et al., 2006; Pascarella, Seifert, & Blaich, 2010; Seifert et al., 2014).

In general, the identified correlation pattern presented in Table 4.10 can be illustrated again here in Figure 5.1 (all correlation is significant at the p<0.001 or p< 0.01 level). Further discussion is provided below.

Figure 5.1: The Relationship between Institutional Climate and Learning Outcomes



5.4.1 Climate and Generic Skills

Generic skills have been emphasized in all courses in college education because in general, generic skills require students to be able to apply a systematic approach and a variety of thinking skills to: anticipate and solve problems; analyze, evaluate, and apply relevant information from a variety of resources; manage the use of time and other resources to complete assignments and projects; take responsibility for one's own actions, decisions, and consequences; and so on. Also, generic skills are more transferable and help make students more employable and successful in career development, and more successful as members of society. All these reasons make generic skills an integral element of the learning outcome for college students. It is very meaningful for educators to know what learning environment factors will help support the development of generic skills. The results of correlational analysis in the present study show that all climate measures, except for Appropriate Workload, are positively correlated with students' self-

First, good teaching practices help students develop generic skills (positive correlation 0.532, p<.001). As measured by the Good Teaching Practice scale of the CEQ, supportive interactions between faculty and students, the faculty's good efforts to help students, concern about students, show of interest in students' comments, motivation of students, and provision of helpful feedback to students' work will help students obtain generic skills. This finding is consistent with previous findings (Choi & Rhee, 2014; Kember, 2009; Lizzio, Wilson, & Simons, 2002; Rahman & Mokhtar, 2012; Riebe et al., 2010).

To develop generic skills such as critical thinking, analytic skills, problem solving skills, and creative thinking, students need support from and interaction with faculty members both in class and outside of class. Good teaching practices should involve frequent interaction between faculty and students, including faculty's timely feedback, instructive comments, availability to students beyond class, and support for students' learning activities. Usually, students will only know some concepts and some related facts about a particular topic after attending a lecture. They need help from instructors for further understanding on what they read and what they do in their assignments. Students also need instructors to provide timely constructive feedback to reinforce or improve what they have learned from class. Good teaching requires the assignment of coursework that encourages the application of theories and models to the real-life situations. Teaching practices that support learning activities such as active learning, collaborative learning, and experiential learning will help students develop generic skills because those practices encourage students to go beyond classes and textbooks and connect what they are learning to real-life situations (Kember, 2009). As it is pointed out by Lizzio, Wilson, and Simons (2002), teaching and learning are two-way interactions "that are characterized by reciprocal transactions, involving both the giving (clear and useful explanations, helpful feedback) and seeking (interest in students' opinions and difficulties) of information, within an intrinsically motivating context (work to make subjects interesting and motivate students to do their best work). This is fundamentally a process of active engagement and the essentially conversational character of the teaching-learning process" (p. 40).

The climate dimension of *Clear Goals and Standards* also facilitates generic skill development. When students know the academic goals and standards of their programs and the expectations of faculty, they will understand what types of career-related and personal development skills are needed, and they will try to develop those skills in their learning. In practice, this implies that course requirements and expected learning outcomes should be clearly stated in the course outlines of each course and communicated to students at the very beginning of a course. In course design, it would benefit students if the course requirements and stated learning outcomes could be linked to requirements of the particular professional fields students are studying to enter, such as engineering, nursing, accounting, medicine, and so on (Willcoxson, Wynder, & Laing, 2010).

Appropriate Assessment is the third climate dimension associated with generic skill development. Discussion in previous sections has shown that the nature of assessment affects students' learning engagement, and positively correlates with generic skills (0.166, p < .01). This is also in line with previous findings (Lizzio, Wilson, & Simons, 2002). It is found that assessment relies on reply and memorizing materials that will encourage students to take a surface approach to learning, which involves reproductive strategies with little attempt to integrate information and various aspects of a particular course, but limit the target to essentials, reproducible through rote learning, resulting in poor performance and little transferable knowledge and skills. It is readily understandable that too heavy a workload will force students to adopt surface learning (Biggs, 1989). In addition, the surface approach is the most susceptible to situational pressure as it leads to

factually specific outcomes with little or no transfer to other tasks. As a result, surface learning will result in little generic skill development. On the other hand, appropriate assessment allows students to manage the use of time and other resources to complete individual assignments and group projects, and develop critical thinking and problem solving skills. Appropriate assessments are related to academic tasks, such as reading, writing, and doing group projects. These academic tasks will encourage students to take responsibility for their own actions, decisions, and consequences. To put it simply, in order to learn well and develop transferrable and employable skills, students must believe the assessment to be meaningful and helpful to their personal development. This is especially relevant to community college students, many of whom are adult students needing to balance responsibilities of family, work, and school learning. These students are less likely to be able to devote time to extracurricular activities. They need be motivated to digest, organize, and integrate what they have learned from attending classes and reading the text, so that the subject matter related knowledge and skills become the integral parts of their own knowledge domains.

The fourth climate dimension that is correlated with generic skill development is *Emphasis on Independence*. This climate dimension was also shown to be one of the predictors of student learning engagement, as per the discussion in the previous sections. Again, this finding is consistent with previous studies (e.g. Kember, Leung, & Ma, 2009; Lizzio, Wilson, & Simons, 2002). This is also in accordance with the proposals of the Self-Determination Theory of human motivation, in that humans have inherent growth

tendencies and innate psychological needs that are the basis for their self-motivation and personality integration, as well as for the conditions that foster those positive processes. According to the Self-Determination Theory, people are self-motivated, inspired, and striving to learn to extend themselves, to master new skills, and apply their talents responsibly (Ryan & Deci, 2000; Ryan, Kuhl, & Deci, 1997). People have a sense of purpose and can self-regulate their behaviour, including their learning behaviour, which enables students to self-regulate their learning and choose when, what, and where to learn (Steffens, 2006). When students understand that the development of generic skills is important for their career development in the future, they will internalize those requirements and make an effort to follow the requirements to develop generic skills (Chirkov, 2011). Student perceptions of emphasis on independence will encourage them to establish, in a self-determined fashion, their own developmental goals and criteria for generic skill development. Their intrinsic motivation to be competent will drive them to gain those skills and competencies that are proven to be useful and necessary for their future development.

5.4.2 Climate and Self-Reported GPA

It is found that two climate factors are significantly correlated with students' self-reported grade point average (GPA). These factors are *Appropriate Workload* and *Appropriate Assessment*. It is understandable that workload directly contributes to the quality of student assignments and other types of tasks by which student earn their marks. As mentioned above, the reality in college education is that full-time students usually take

four to six courses in one semester, and if each course assigns a certain amount of work to students, the total workload can be overwhelming and might directly affect the quality of the student's assignment, which in turn negatively impacts student grades. Early research findings reveal that, among other things, heavy workload forces students to take a surface approach to learning, which in turn results in poor performance in exams (Chambers, 1992; Entwistle & Tait, 1990).

Appropriate assessment is correlated with higher student grades. This implies that teachers need to assess student learning outcomes at different cognitive levels, not just test what the students have memorized. Following Bloom's taxonomy for the cognitive domain (Bloom, 1956), most college course outlines emphasize learning outcomes that address higher levels of cognitive activities in teaching and learning, including application, analysis, synthesis, and evaluation. Thus, we need to use appropriate measurements when we assess students' leaning outcomes.

5.4.3 Climate and Student Satisfaction

The results of correlational analysis show that all climate measures, except Clear Goals and Standards, are positively correlated with students' overall satisfaction. That is, students will experience satisfaction when they perceive the learning environment to be encouraging and involving (good teaching), with appropriate workload, appropriate assessment, organizational supports to their learning, and allowing autonomy and independence in learning. This again is consistent with previous findings (Huang, 2012; Lizzio, Wilson, & Simons, 2002; Rahman & Mokhtar, 2013) that reported direct influence of the learning environment on overall satisfaction.

5.5 Further Analysis on How Climate Variables Directly Affect Student Learning Outcomes

Three multiple regression analyses were conducted using the scales of the climate dimensions, as measured with the CEQ, as predictors to the student learning outcomes of student self-reported GPA, satisfaction, and generic skills development. This analysis helps us identify those climate factors that will contribute most to changes in learning engagement.

5.5.1 Climate and Generic Skills

When we use the climate factors to predict students' generic skills, it is shown that the climate factors of *Support for Learners*, *Good Teaching Practice*, and *Emphasis for Independence* are significant predictors. These three climate factors can predict about thirty-eight percent (combined $R^2 = 0.382$, p < 0.001) of the change in students' generic skill development gained through their program. Table 4.11 shows that the strongest predictor of students' generic skills development is the climate factor of Support for Learners, which essentially describes the supports the college provides to help students succeed in their learning. These supports include financial, social, cultural, and emotional supports, as well as supports to students contribute significantly to student generic

skill development. As discussed in earlier sections, to understand this connection, we need to look at general characteristics of the college student populations. Community colleges are one of the sectors of the two-tier Canadian post-secondary education system. Many students enroll in community colleges for job training or retraining, whether for career-oriented diplomas, post-diploma certificates, or for individual courses. Others may enroll with the intention of transferring to four-year institutions to earn bachelor's degrees. Open access policies and lower fees make community colleges especially important to students who, for a variety of reasons, may not have the academic preparation or economic resources to enter four-year university programs directly out of high school, and to students who return to colleges to obtain training for further career development. Also, community college programs are a vital entry point, with openadmission policies, for many international students and foreign trained/educated adult students, or new immigrant students, who typically come from developing countries and whose first language is not English. Recently, international students and new immigrant students have become a larger portion of the student population at Ontario community colleges (Lu & Hou, 2015). Low tuition, small class size, individualized attention, and student support services are among some of the obvious reasons that can draw large numbers of international students to community colleges (McVeigh, 2007). The majority of these students are highly motivated to succeed in their college studies, as they study to earn Canadian credentials, improve their English language abilities, and upgrade their profession-related skills and knowledge in order to gain employment in a new country, or complete courses with good academic grades to transfer to a Canadian or American university in the future.

The student characteristics mentioned above make the climate factor of Support for Learners especially important for new immigrant students, students who are not academically ready for universities, and students from lower-income backgrounds. These students are more likely to rely on institutional supports to guide them to obtain generic skills that are common to various workplaces and different occupations, including the skills to work in teams, communicate clearly, interact with other people effectively, solve problems, use technology, and use mathematical concepts efficiently. According to a report by the Colleges Integrating Immigrants to Employment Committee (Buller, et al., 2004), internationally trained immigrants often face difficulty finding knowledgeable persons to advise them about program choices, application and admission processes, and in-program academic concerns. Areas where internationally trained immigrants need advice include obtaining recognition for educational credentials or prior experience, applying for course exemptions or advanced standing, identifying language training needs, and selecting the most appropriate college programs, including bridging programs or language programs. On the other hand, employers have expressed a strong preference for hiring internationally trained immigrants who are familiar with the social and cultural context of the Canadian workplace, so generic or sector-specific programs that provide this knowledge should be made widely available in Ontario colleges. In addition, counselling services that are targeted to the special needs of internationally trained

immigrants and that are focused on conducting an effective job search in the Canadian labour market should be commonly offered. To support the immigrant student, community colleges should make sure that internationally trained immigrants have access to information, advice, and services tailored to their specific education and employment needs, to assessments of their academic credentials, prior learning, and language skills in a standardized, effective, efficient, transparent and timely manner, and to college programs and services that build on their existing skills and add only the components they require, such as workplace communication and other supports, as needed (Buller, et al., 2004). In general, student supportive services include programs to address students' financial difficulties, tutoring or mentoring programs to guide and encourage success, social interaction programs to help develop communication skills, information technology to help academic success, orientation and advising programs to help set clear expectations and goals, career training and counseling programs that help students develop career-related skills, and faculty referrals to encourage and support students in seeking opportunities beyond campus. The findings in the present study are relatively consistent with findings from previous investigations on generic skill development and institutional student support services. For example, a study by Rahman and Mokhtar (2012) found that the learning environment factors of workload and learning community have a direct correlation with generic skills, and that the factors of good teaching, learning resources, clear objectives, and assessment have indirect correlation with generic skills through learning approaches. Twenge (2006) contends that the current generations of college students tend to expect others to figure things out for them, and student-life professionals are in prime positions to assist students in this regard. Murphy and colleagues argued that career-related consultation services might help make college seniors and recent graduates aware, in advance, of the common challenges and difficulties that they might encounter as they move into the working world (Murphy et al., 2010). To develop generic skills, on one hand, students need to apply what they have learned from their programs and engage in learning activities to understand what applications of theory, uses of evidence, and forms of argument are particularly relevant and appropriate to an academic domain (Chambers, 1992). On the other hand, students need academic support from faculty to reinforce their generic skill development. They need their instructors to provide guidelines on what skill sets are important in career development, and how to develop those skills. Frequent interactions with those who teach them lead to higher levels of student engagement and satisfaction and lower attrition rates as well (Richardson & Radloff, 2014). This implies that academic staff should be more involved in providing student supports, as informal non-class interactions between academic staff and students will lead to positive outcomes, including generic skills development, educational aspirations, intellectual and personal development, and academic achievement (Astin, 1993; Tinto, 1997; Yorke, 1999). Research findings have also identified faculty/instructors as primary sources of social capital both in and out of the classroom, transmitting valuable information to students, and that interactions with faculty are more pivotal for social capital transmission than exchanges with advisors or counselors. The guidance of proactive faculty who extended themselves to help or inform

students afforded students a degree of agency within the organization that allowed them to surmount procedural obstacles (Deil-Amen, 2011; Tinto, 1997).

Together with Support for Learners, the climate dimensions of Good Teaching Practice and Emphasis on Independence are also significant predictors of generic skills. The association between generic skills and these two climate dimensions has been discussed in previous sections. However, the combined effect of good teaching practices and emphasis on independence of perceived skill development is worth discussing further. Sierens and colleagues (2009) found that teachers' support for student autonomy and structure (communicating clear expectations with respect to student behaviour, providing help for engaging in coursework, and giving competence-relevant feedback) were found to be positively correlated, suggesting that support of student autonomy generally goes hand in hand with the provision of structure and order in the learning environment. The authors stated that the interaction between autonomy support and structure suggests that when teachers want their students to engage in self-regulated learning and develop expected learning outcomes, they are encouraged to provide help, instructions, and expectations in an autonomy-supportive way (Sierens et al., 2009). This suggests that if we wish to help students develop generic skills, or job-ready skills to meet career requirements, we need to combine conventional classroom teaching and educational technology. As discussed earlier, technology-enhanced learning and the application of advanced technology in teaching and learning is an integral part of college education. Appropriate and meaningful use of technology provides increased access and flexibility, and at the same time, allows learners to collaborate and learn from each other. Technology enhances and expands the ways we deliver material, design learning activities, and structure an engaging and supportive learning environment inside and outside of the classroom. As educators, we have the responsibility to remain current and responsive to industry trends and workplace expectations. The relationship revealed by the present study shows that technology-enhanced learning will help

5.5.2 Climate and Student Satisfaction

The results of this study show that student perceived overall satisfaction significantly correlates with all measured climate dimensions except for Clear Goals and Standards. When we use the climate factors to predict students' self-reported overall satisfaction in their programs, we find the climate factors of *Good Teaching Practice, Support for Learners*, and *Appropriate Assessment* show to be significant predictors. Table 4.12 shows these results. Based on the results, we can see that about 36% (combined $R^2 = 0.356$, p < 0.001) of the change in student's overall satisfaction can be predicted on the basis of Good Teaching Practice, Support for Learners, and Appropriate Assessment. This finding is consistent with previous studies. For example, findings by Lizzio, Wilson, and Simons (2002) indicate that students' evaluations of all aspects of the academic environment (measured using the CEQ) were significant predictors of their reported levels of overall satisfaction, and accounted for 49% of the variance in their levels of satisfaction being a learning environment that is perceived to involve clear expectations and that allows a

degree of choice to pursue individual interests. Similar findings are also reported by more recent studies (Huang, 2012; Lundberg, 2014; O'Driscoll, 2012). The results of the present study indicate that students will experience a higher level of overall satisfaction when they perceive that the instructors are applying good teaching practices, including communicating clear expectations with respect to student behaviour, providing help for engaging in coursework, and giving competence-relevant feedback, together with support from the various supports provided by the college. Again, the combination of good teaching practices and supports to the students plays a significant role, as students who feel supported are most likely to persist with their studies and to achieve academic success (Tinto, 1998; Meeuwisse, Severiens, & Born, 2010). The factor of Appropriate Assessment measures the students' perception on the meaningfulness, significance, and relevance of course assessment. We can see that students want the faculty to use assessments that require deep thinking and understanding, demand efforts, provide constructive feedback, and allow faculty-student interaction. Assessments that test only simple facts and what students have memorized will not contribute to satisfaction, and may even cause dissatisfaction.

5.5.3 Climate and Self-Reported Grade Point Average (GPA)

Table 4.13 shows the results of predicting students' self-reported grade point average from climate factors. The results reveal that only two climate factors, *Appropriate Workload* and *Appropriate Assessment*, are significant predictors of students' self-reported GPA. These two factors together account for about 10% ($R^2 = .095$, p < 0.001)

of the total accountable variance of students' self-reported GPA. These results indicate that, first, students will be able to perform better when they perceive that they have the time available for understanding the course aspects that they have to learn. Also, students will perform better when they perceive their coursework to be appropriate, both in quantity and quality. This finding is also consistent with previous studies (Chambers, 1992; Kember & Leung, 2006; Kyndt et al., Dochy, 2011; Kyndt, 2014; Pomfret, 1996; Ruiz-Gallardo et al., 2014; Ruohoniemi & Lindblom-Ylänne, 2009). Student workloads have been recognized as a major factor that influences learning outcomes in the teaching and learning environment. As discussed above, research finds that heavy workloads might drive students to adopt surface learning and just find ways to submit assignments by deadlines but not really make efforts to gain high level learning outcomes, and that this might further lead to low performance in their course work and exams, resulting in lower learning outcomes and lower GPAs (Baeten et al., 2010; Lizzio, Wilson, & Simons, 2002). This relationship between appropriate workload and assessment and learning outcomes has implications for curriculum design and course delivery in the community college environment. As Kember (2004) proposed, we should produce a curriculum that students perceive as having a reasonable and manageable workload, and at the same time, inspires them to engage to work towards high quality learning outcomes.

It is worth mentioning again that when we discuss workload, because of individual student differences, curriculum design, and teaching practices, it is not the actual objective workload, but the perceived workload that has major impact on the students' learning effort, which in

turn affects learning outcomes (Chambers, 1992; Kember, 2004; Kember & Leung, 2006). The course requirements or the coursework that the course designer or instructor believes to be appropriate might be perceived differently by the students, especially students of a diverse background. To ensure appropriate workloads for students, we need to know what workload means to students and what components underlie students' perception of workload. Kember and Leung (2006) proposed that three sets of components influence students' perceived qualitative workload, namely, characteristics of the teaching and learning environment, characteristics of the assignment, and the personal characteristics of the learner. Here, the teaching and learning environment includes elements such as course design, student-student relationship, student-faculty relationship, and teaching itself. Well-designed courses, good relationships among students, frequent contact with instructors, and creative and effective teaching approaches will work together to create a supportive environment that helps students perceive their workload appropriately. The characteristics of the assignments also affect student workloads. Assignments that are relevant, interesting, challenging, and rewarding will be not be perceived as burdens even though they might be more difficult and require more time to complete (Ruohoniemi & Lindblom-Ylänne, 2009). Good assignments invite effort and engage students, but poorly designed assignments create additional workload and stress. This interaction of appropriate workload and appropriate assessment explains the predictive power of these two climate factors on students' self-reported GPA, as shown in Table 4.13 above. Furthermore, we should take into account personal characteristics whenever we discuss the factors that affect perception of workload, as perception is individual. That is, students in the same program or course taught by the same instructor and who have the same amount of assignments might experience different amounts of workload, and this individual experience might affect their learning engagement, learning approach and learning outcomes, including GPA. Students might also use different strategies to handle coursework, and this will influence their learning outcomes. Different workload perceptions might also be influenced by the amount of time a student can offer to their coursework. Full-time students will have more time for their coursework than those who have jobs or those who have more family responsibilities. Motivation for learning, interest in the coursework, and the ability to plan and set priorities play an important role in the perception of workload, as it is revealed by a recent study conducted by Kyndt and colleagues (2014). These three sets of components interact to create an environment that influences students' perception of workload. The major point here is that good teaching will generate interest and motivation and reduce perceived workload at the same time. Chickering and Gamson's (1987, 1999) seven principles for good practice are all relevant to the relationship between teaching and actual and perceived workload.

5.6 Student Engagement and Student Learning Outcomes

The third hypothesis of the present study states that students' learning engagement is related to their learning outcomes, which were measured using the Generic Skills, Self-Reported Grade Point Average (GPA), and Overall Satisfaction scales. The results in Table 4.15 indicate that students' reported generic skill level is significantly correlated with all learning engagement dimensions. This relationship is also true with students' overall satisfaction with their academic programs. With respect to self-reported GPA, it is positively correlated with the learning engagement dimensions of Learning Effort, Good Relations with Others, and

Interest in Courses, It is not associated with Learning Persistence or Collaboration with Others. These results suggest that, in general, students' learning outcomes are associated with their learning engagement; the higher the level of engagement, the better learning outcomes will be. These findings are consistent with previous studies (e.g. Astin, 1996; Casuso-Holgado et al., 2013; Carini, Kuh, & Klein, 2006; Kuh, 2009; Lester et al., 2013; Lizzio, Wilson, & Simons, 2002; Lundberg, 2014; Price & Tovar, 2014). The correlation between student engagement and generic skills reveals that when students spend more time on their learning, make better efforts, show more interest in coursework and are more involved in the learning community, they will develop more generic skills that will help them become more employable and job-ready. Engagement also correlates with overall satisfaction. Higher levels of engagement are associated with higher levels of satisfaction. This helps explain why engaged students are more likely to complete their programs (Price & Tovar, 2014), as a satisfied student will be less absent from class, more persistent, and more committed to their studies. It is important to note that although in general, self-reported GPA shows significant positive correlations with the engagement dimensions of Learning Effort, Good Relationship with Others, and Interest in Courses, it shows a negative correlation with the engagement dimension of Community Participation. This could be explained by the fact that community participation might take students' study time away from coursework, thus too much community participation might result in a lower GPA. On the other hand, this association might also be attributed to the fact that the majority of a students' GPA is usually based on subject-matter-related assessments in which community involvement activities are not factored.

5.7 Further Analysis on How Engagement Variables Directly Affect Student Learning Outcomes

The correlation between student engagement and student learning outcomes has been shown with the analysis above. Further understanding can be gained by analyzing how engagement dimensions contribute differently to learning outcomes. Again, multiple regression analyses were conducted using the six engagement dimensions as predictors to the students' self-reported GPA, satisfaction and generic skills development. Tables 4.16 to 4.18 show the results of regressing climate factors on student outcomes. Factors without significant regression weights are not shown in the tables.

5.7.1 Engagement and Generic Skills

When we use the engagement dimensions to predict students' generic skills, it is shown that the engagement dimensions of Good Relations with Others, Interest in Courses, Community Participation, and Learning Persistence are significant predictors. These four engagement dimensions together can predict about 20% (combined $R^2 = 0.195$, p < 0.001) of the change in students' generic skill development gained, as shown in Table 4.16. First, good relations with others, including peer students and faculty and staff members, will help students develop generic skills. This association can be explained by the fact that students will be involved and participate more in cooperative learning and teamwork activities and receive more feedback and reinforcement from the people around them when they have good relations with their college community. Good relations will encourage interaction, and students will benefit from interactions with faculty members and receive encouragement, validation, and procedural assistance from them (Deil-Amen, 2011). This will help students develop confidence in their abilities to effectively develop skills in critical thinking, intellectual curiosity, problem-solving, logical and independent thought, communication and information management skills, intellectual rigour, and creativity and imagination, which all help make students more job-ready. This is in accordance with findings of a recent study by Richardson and Radloff (2014), which found that 54.8% of those students who reported a very good relationship with teaching staff also regarded their overall educational experience to be excellent. In contrast, only 4% of students who reported very poor relationship with teaching staff regarded their education students at the institutions (Richardson & Radloff, 2014).

In addition to student interaction with faculty, good relations with other students also encourages interaction with peers and helps develop generic skills, as learning is enhanced by student interaction. Studying in group projects and other forms of cooperative learning will contribute to student learning by enabling students to clarify their own understanding by discussing and working together. Shared personal experiences and knowledge in coursework and job searching activities will also help develop generic and employable skills (Deil-Amen, 2011; Lundberg, 2014; Tinto, 1998). This connection is also consistent with the educational principles advocated by the scholars of constructivism. Most social constructivist models stress the need for collaboration among learners, and that learners with different skills and backgrounds should collaborate in tasks and discussions to arrive at a shared understanding of the truth in a specific field (Duffy & Jonassen, 1992; Vygotsky 1978).

This connection between good relationships with others and generic skill development can also be explained with the Self-Determination Theory concept of relatedness, which Ryan and Deci (1997, 2000) associated with belongingness or connectedness. It implies that college students tend to internalize learning activities that are autonomy-supportive, that support development of academic competence, and that are modeled or valued by reference groups to whom the individual feels attached or related (peer students and faculty members). So, good relationships with others will enhance student feelings of relatedness, which in turn will lead to improved student motivation and educational outcomes, specifically, the students' generic skills to communicate effectively, think critically and analytically, and generally being better prepared to enter the workforce (Beachboard et al., 2011). Similar outcomes have been provided by numerous previous studies. Researchers have noted that learning environments promoting a sense of relatedness to teachers and peers, and feelings of relatedness and belongings can strengthen motivation and have a positive effect on learning outcomes (Ryan & Deci 2000; Ryan & Grolnick 1986). Also, feelings of relatedness have been linked to outcomes including self-efficacy, engagement, interest in school, higher grades, and retention (Furrer & Skinner, 2003; Inkelas & Weisman, 2003; Inkelas et al., 2007).

This association between generic skills and good relationships with others is especially significant in community college settings, which consist of a highly diverse student population. The diversity of the college student population suggests rich opportunities for student learning via interactions with students of racial, ethnic, and socioeconomic backgrounds different from their own. Such learning can be a powerful benefit of diverse environments. Course activities that facilitate collaboration and interaction will be strong contributors to social integration and learning. Teaching methods which encourage peer and student-staff interaction and the creation of a socially integrative learning environment are most likely to enhance generic skill development. Some cooperative learning strategies, such as peer learning groups and project-based coursework, will help develop generic skills, because when students work together in groups, they help each other plan projects, solve problems, and coordinate activities. Working in groups provides opportunities for interaction between peers for mutual support and stimulation. In a supportive group, through learning from others' experiences, people explore new meaningful values and skills and become more creative in learning. From the point of view of the theory of Social Learning (Bandura, 1977), cooperative learning is a way of learning through observation and modeling. An effective peer can act as a model of useful strategies and skills, and others in the group can benefit from vicarious reinforcement through group interaction. This will help students learn generic skills from peers. According to Bloom's taxonomy for the cognitive domain (Bloom, 1956), we can see that cooperative learning fosters a higher level of cognitive activities. Cooperative learning techniques include alternating between listening and summarizing or explaining, and the tasks of a successful student in cooperative learning are to question, explain, express opinions and admit confusion. At the same time, the student must listen to their other group members, answer questions, express their opinions, and share information. Completing these tasks requires higher level cognitive activities like analysis, synthesis, and evaluation, which result in learning outcomes that address a higher cognitive domain. All these behaviours help develop generic skills that include problem-solving skills, leadership skills, communication skills, time management skills, research skills, management skills, and teamwork skills.

The second engagement factor that has been shown to be a strong predictor of generic skill development is students' interest in courses. This indicates that students will develop more generic skills when they are interested in what they are taught in their courses. It is a reasonable assumption that people learn, remember, and apply information that matters to them. This implies that if course materials and coursework are not meaningful to the students, they will not care or be interested, and they would not be likely to learn or develop generic skills from such materials. This association between students' interest in the contents of the curriculum and learning outcomes has been traditionally emphasized by studies in education and learning psychology, where it is viewed as the predisposition a person has towards a valued object or activity. We can see this link in the work of John Dewey. In his fundamental works, *Democracy and Education* (Dewey, 1919) and *Experience and Education* (Dewey, 1938), Dewey stated that learning was an experiential and reflective process, that knowledge does not exist independently from knowers, and

that people who know also have feelings about what they know, how to use what they know, and why the knowledge matters. People do not retain information or learn new skills from a course unless they are interested in the contents of the curriculum (Fried, 2013).

The association of generic skills and students' interest in courses can also find theoretical supports in the educational philosophy of Constructivism, which suggests that learners construct knowledge out of their experiences through processes of accommodation and assimilation. Constructivist ideas have been used to inform adult education, advocating that educational methods must take account of differences in learning, due to the fact that adults have many more experiences and previously existing neurological structures. Approaches based on constructivism also stress the importance of mechanisms for mutual planning, cooperative learning climates, sequential activities for achieving objectives, diagnosis of learner needs and interests. Personal relevance of the content, involvement of the learner in the process, and deeper understanding of underlying concepts are some of the intersections between emphases in constructivism and adult learning principles (Duffy & Jonassen, 1992; Vygotsky, 1978).

Knowing the association of generic skills and students' interest in courses, it is important that we make sure that students are in programs that relate to their career interests. We should also find ways to stimulate student interest and care. There are various ways to stimulate care towards subject matters, and there are tested pedagogical principles that can be used as guidelines in course design. For example, Knowles' theory of andragogy, a theory and practice of adult education, advocates that instruction for adults needs to focus more on the process of learning and less on the content being taught. Strategies such as case studies, role playing, simulations, and self-evaluation are more useful than the traditional pedagogy that is teacher-centered. Andragogy makes the following assumptions about the design of learning: (1) Adults need to know why they need to learn something; (2) Adults tend to learn experientially; (3) Adults approach learning as problem-solving; and (4) Adults learn best when the topic is of immediate value (Knowles, 1984). These principles explain that, first, significant learning occurs only when the material and skills to be learned are perceived by the learner as significant, relevant, and valuable to their own purposes and goals. Second, instruction should be task-oriented instead of memorization-based, and learning activities should be in the context of common tasks to be performed. Students develop generic skills or employable skills by doing tasks, simulations, and projects. Experiential learning will help generate and increase students' interest in learning and developing the required skills that are relevant and transferable to their career development.

In order to help generate and increase students' interest in learning and developing required skills, it is important for college instructors to realize that although a curriculum may be prescribed, it is their way of teaching that enables student learning to become meaningful, experiential, and significant. The emotion, attitudes, experience, and life contexts of the students must be considered as an integral part of learning, as students' interest in courses are directly associated with generic skill development.

The third engagement factor that is shown to be an effective predictor of generic skill development is community engagement, which indicates the extent to which students participate in community activities on campus, including ethnic/cultural groups, intramural or varsity sports, interacting with a peer mentor, involvement in student association activities or events, academic advising/counselling (e.g. course choice, load, etc.), information on college and/or university courses/programs, learning skills services, peer-tutoring service (students helping students in courses), library facilities and services (studying, researching, borrowing books, on-line resources), and career centre resources (info on careers, job postings etc.). This association shows that engagement in various forms of community activities on campus helps to cultivate and develop generic skills. This finding is also consistent with previous findings. According to social constructivism, learning is an active social process of interaction among people, and knowledge is first constructed in a social context and then appropriated by individuals. Learners make meanings through interactions with each other and with the environment they live in, and knowledge is thus a product of humans and is socially and culturally constructed (Bruning, Schraw, & Ronning, 1999; Eggan & Kauchak, 2004; Prawat & Floden 1994; Vygotsky, 1978). Through the process of collaborative elaboration, learners share individual perspectives and construct understandings together that wouldn't be possible alone (Van Meter & Stevens, 2000). This also implies that learning is not a process that only takes place inside our minds, nor is it a passive development of our behaviors that is shaped by external forces, and that meaningful learning occurs when individuals are engaged in social activities (Vygotsky, 1978). These social activities take form in various community events and activities on college campuses for college students. When students participate in community service, volunteer work, or work on research projects with faculty members and peer students outside of course or program requirements, they will be able to practice and develop skills related problem solving, analytical reasoning, communication, and interpersonal relationships. Research reviewed by Pascarella and Terenzini (1991, 2005) indicates that involvement in intellectual and cultural activities may be more important than other campus activities, and that the nature and quality of social interactions with academics and student peers impact intellectual skill development. Teaching and program quality are not the only important determinants of students' learning outcomes. The interactive, social and collaborative aspects of students' learning experiences, captured in the notion of the learning community, are also very important determinants of graduate outcomes, and should be included in the focus of attempts to enhance the quality of student learning (Smith & Bath, 2006).

5.7.2 Engagement and Student Satisfaction

Student satisfaction is the pleasant or positive emotional response that a student perceives from his or her courses or work experience. It is an important indicator of institutional outcomes because it affects the recruitment of additional students, and because it is related to retention and academic achievement (Astin, 1993; Huang, 2012; Tinto, 1987, 1998). It is important for us to know what engagement factors will be good predictors of

student satisfaction. When we regress students' self-reported general satisfaction in their programs on engagement dimensions, it is found that the engagement dimensions of Good Relations with Others, Interest in Courses, and Community Participation show to be significant predictors. These results are similar to those found in regressing engagement dimension on Generic Skills shown above, with the dimension of Learning Persistence Table 4.17 shows these results. The squared multiple correlation being excluded. coefficient (adjusted \mathbf{R}^2) is 0.183, indicating that about 18% of the variance in student satisfaction was accounted for by the combination of these three engagement aspects. This would suggest that, first, good relationships with faculty members and peer students contribute to students' overall satisfaction with the courses they are taking. This is because they feel relatedness and belongingness in a learning community where the welfare and social support offered by teachers and fellow students serve as an important source of internal satisfaction. Previous studies have identified the positive impact of interactions with faculty members on student learning and development. For example, Pascarella and Terenzini's (2005) comprehensive review indicates that student-faculty interaction leads to enhanced cognitive development, aspirations, persistence and career preparation. These findings have also been supported by a range of other studies, which indicate that students who have good relationships with faculty members and who interact with teaching staff the most are most likely to feel that their institutions are supportive, both academically and socially, and are the most likely to achieve academic success (Delaney 2008; Huang, 2012; Richardson & Radloff, 2014; Rugutt & Chemosit, 2009). This finding is significant to our understanding of student satisfaction, as it indicates that

relationships between faculty members and students have a significant impact on student satisfaction. Instructors should know how to create this good relationship, which requires not only the knowledge and skill to deliver courses but also the supportive beliefs and attitudes toward students. A teacher should respect their students if they want their students to respect them. The mutual respect in the learning/teaching environment will help increase student satisfaction. Students also like teachers who strive to create a challenging and supporting environment, where students can interact and support one another and experience more satisfaction in learning, or as Senge put it, "Great teachers create space for learning and invite people to that space" (Senge, 1992, p.329). When students experience a sense of inclusiveness and belonging, they will experience more satisfaction within a course.

The second engagement factor that contributes to student satisfaction is their interest in the courses. When students have interest in their courses, they will be more willing to perceive the positive aspects of the courses and will feel motivated and satisfied with their learning. This finding tells us that in college education, in order to increase student satisfaction, we should ensure that the curriculum and course contents meet the student's employment goals and career aspirations. The third engagement factor that predicts student satisfaction is Community Participation, which is also a significant predictor of Generic Skills.

Based on these findings, strategies for increasing student satisfaction toward their courses include (1) promoting faculty–student interaction and relationships, (2) providing greater

support for students' emotional development, and (3) encouraging and supporting students to participate in community activities. It also suggests that, to increase students' overall satisfaction with their programs and the college, essential strategies could include enriching educational technology resources, improving program designs that allow more students to have self-control over their learning process, and providing stronger support for student services.

5.7.3 Engagement and Self-Reported GPA

Table 4.18 shows the results of predicting students' self-reported grade point averages from engagement dimensions. The results in Table 4.18 demonstrate that three engagement dimensions, namely, *Interest in Courses, Community Participation*, and *Learning Effort* are shown to be significant predictors of students' self-reported GPA. Together, these three engagement dimensions account for about 10% ($R^2 = .095$) of the total accountable variance in students' self-reported GPA. This shows that students who have a higher level of interest in their courses and who put more effort into their learning will obtain higher GPAs. This finding is consistent with previous studies (e.g. Carini, Kuh, & Klein, 2006; Casuso-Holgado et al., 2013; Pandey & Nagesh, 2013). What is notable here is the engagement dimension of *Community Participation*, which is negatively related to self-reported GPA. With the hypothesis of the present study, it was expected that students' community participation would be positively related to all students' learning outcomes. However, this relationship was not confirmed. The results of this study show that *Community Participation* is a significant predictor of both students'
generic skill development and satisfaction, however it shows negative association (-0.156, p<0.01) with the self-reported GPA. This result implies that students' involvement in community activities may have a negative impact on their GPA. Community participation includes activities such as ethnic and cultural groups, intramural or varsity sports, student association activities and events, and so on (see Appendix F). Since many community college students are nontraditional students, specifically adults who are returning to school while maintaining responsibilities for family, employment, and other adult-life tasks, community participation is not always feasible. Involvement in community activities could result in less time for coursework, thus affecting their GPA. This result also indicates that the relationship between student engagement and learning outcomes might not be consistent across student groups; rather, the magnitude and direction of the relationships could be varied by student characteristics. The literature suggests that the ability patterns, locus of control, variety and quality of certain non-school experiences, and extent and kind of motivation all seem to be involved in the development of students' learning and study processes in institutional settings, as well as their awareness of their motives and control over their strategy selection and deployment, and that this in turn will affect learning outcomes (Biggs, 1985, 1993; Brown, 1984; Watkins, 1982).

5.8 Conclusion

The present study set out to investigate the relationship between institutional climate and student engagement and learning outcomes in Ontario community colleges. Primarily, the research findings revealed that, first, institutional climate is related to student engagement, as well as to student learning outcomes, as measured by generic skills development, overall satisfaction, and self-reported GPA. Second, student engagement is also related to learning outcomes. Findings from the present study provide empirical confirmation of the research hypothesis, and they are essentially consistent with previous studies undertaken in other post-secondary contexts. In summary, these findings provide empirical support for a number of related theoretical propositions:

- 1. A good institutional climate influences students' learning engagement. The institutional climate dimensions of *Emphasis on Independence, Appropriate Workload,* and *Support for Learners* are significant predictors of overall student engagement. This implies that if we improve these institutional climate dimensions, we can expect to see improvements in student engagement.
- 2. The climate dimensions of *Good Teaching Practice* and *Appropriate Workload* are significant predictors of the engagement dimension *Learning Effort*. This result shows that students will a make greater effort and engage more in learning when they perceive that faculty members are working to help them achieve their academic goals, and when workload is perceived to be appropriate.
- 3. Institutional climate also directly correlates with student learning outcomes, which are measured by generic skill development, overall satisfaction, and self-reported

GPA. This confirms the research hypothesis that states this relationship. Thus, student perceptions of the college learning environment make a clear contribution to student learning outcomes.

- 4. The results of multiple regressions indicate that generic skills may best be developed in an institutional climate characterized by support for learners, good teaching practice, and emphasis on independence. When we use the climate factors to predict students' self-reported overall satisfaction within their programs, we find that the climate factors of *Good Teaching Practice, Support for Learners*, and *Appropriate Assessment* show to be significant predictors.
- 5. When we regress students' self-reported GPA on the institutional climate factors, it is shown that the climate factors of *Appropriate Workload* and *Appropriate Assessment* are the significant predictors. This result indicates that students will be able to perform better when they perceive that they have the time available for understanding the course aspects. Also, students will perform better when they perceive their coursework to be appropriate both in quantity and quality.
- 6. The results of the present study show that student engagement directly impacts student learning outcomes, in terms of generic skills, learning satisfaction, and self-reported GPA. The higher the level of engagement, the better the learning outcomes will be.
- Students' perception of good learning environments foster engagement, which leads to better learning outcomes.

5.9 Theoretical Implications

The findings of the present study help to identify the relationship between institutional climate and student engagement and learning outcomes in postsecondary educational institutions, and this contributes to the body of knowledge regarding student engagement at Canadian postsecondary institutions, as well as to the study of organizational climate in general. A theoretical significance of the findings of this study is that college students' perception of their learning environments affects their engagement in learning. This identified relationship shows the feasibility of combining the measurement of college learning environment (perceived by students as institutional climate) and the measurement of student engagement, which to date have been measured separately from each other. Based on this, we can view student engagement as a type of organizational behaviour that can be studied in relation to the social psychological context of an organization/institution. This will help broaden the research on engagement. The study of institutional climate is well established and supported by a large amount of empirical studies, and the findings of the present study have shown that institutional climate is well suited to explain the learning environment needed for engagement.

The findings of the present study also contribute to the study of organizational climate. The significance is, now that one measurement of institutional quality can be defined from evaluating student outcomes, the research interest in institutional climate can also be of student-anchored climate dimensions, as opposed to only employee-anchored climate dimensions. The present study accepts the common practice of focusing on the climate of academic quality, as reflected by the students' perceptions on the teaching practice

within their programs. Although not specifically designed for this purpose, the Course Experience Questionnaire (CEQ) can be used to measure student perceptions of their learning environment, with emphasis on good teaching practices and appropriate course workload. The outcomes of the present study suggest that, for purposes of studying student engagement and other learning outcomes, such as retention and satisfaction, other appropriate alternative measures can be developed and applied in measuring institutional climate, such as retention climate, academic integrity climate, learning-centered climate, and so on. This can help establish procedures for conducting the study of climate measures that correlate with criteria of interest in an institutional quality study, and the utility of specific kinds of climate measures for the prediction and understanding of various forms of students' institutional behavior or outcomes.

In comparison with previous studies on engagement, a major initiative of the present study is the distinction between engagement and its antecedents, as it measures the learning environments and student engagement separately. Currently popular engagement measures, such as the US-based annual National Survey of Student Engagement (NSSE), the Community College Survey of Student Engagement (CCSSE), the Model of Effective Educational Practices (MEEP), and the Australasian Survey of Student Engagement (AUSSE), were developed as tools for institutional improvement and comparison. For example, the Model of Effective Educational Practices (MEEP) consists of five latent factors or constructs: 1) Active and Collaborative Learning; 2) Student Effort; 3) Academic Challenge; 4) Student-Faculty Interaction; and 5) Support for Learners. It aims to capture the key dimensions of

student engagement and provides highlighted student engagement areas when data is used to compare among institutions. However, we can see that much of the focus is on institutional practices such as good teaching practices and support for learners. While these are important influences on engagement, they do not represent the psychological state or actual behaviour of engagement. As Hardy (2010) suggested, engagement is both a process and an outcome - that the former is what institutions do and should be labelled as 'engaging students,' whereas the latter is what students do and should be labelled as 'students engaging.' A clearer distinction would be to recognize that what is considered the process is not engagement. Instead, it is a cluster of factors that influence student engagement (usually the more immediate institutional factors), whereas the outcome is student engagement – an individual psychological state with the three dimensions of affect, cognition, and behaviour (Hatch, 2012; Kahu, 2013; Wefald & Downey, 2009). The findings of the present study are in accordance with these points of view and have shown that measures of engagement can be clearly differentiated from its antecedents and consequences, and that this can contribute to improving the value of future research.

5.10 Implication for Practice

First and fundamentally, the results of the present study confirm that elements of the institutional climate, as perceived by college students, can positively influence both student engagement and the learning outcomes students may achieve. Thus, the results of this study should be able to provide clear indications for college management and teachers about appropriate policies for encouraging and supporting optimal student outcomes. Also,

good teaching practices, if appropriately conceived and implemented, can make a difference and result in improved educational quality. In specific terms, the research findings suggest several implications as shown below:

1. The results of correlation and regression analysis indicate that three climate factors are significant predictors of student engagement. These predictors are emphasis on independence, appropriate workload, and support for learners. This implies that we can expect more engagement when we improve policies and practices in these three areas. First, college programs may need to redesign their courses to allow students to have more independence and flexibility in their learning. When programs allow students to choose courses, how they are going to learn in the program, the coursework they must do, and to develop their own academic interests, they are more likely to be motivated and engaged. As discussed above, colleges can explore the use of blended learning to support independence and autonomy in learning and expect this to result in higher student learning engagement and achievement. Blended learning combines face-toface instruction and e-learning or online learning to facilitate a simultaneously independent and collaborative learning experience. That is, learners can be independent of space and time, yet learn together (Garrison & Kanuka, 2004). It is essential that college faculty and staff begin to explore the impact of blended learning in achieving more meaningful learning experiences. Another area in which colleges can improve is to provide physical learning spaces that support independence and flexibility in learning. For example, community colleges can, like most universities do, allow students to use library spaces, computer labs, and cafeterias twenty-four hours a day, seven days a week. Unlimited access to these types of spaces will encourage learning engagement, as this better fits college students with various learning, work, and family responsibilities. This will encourage students to create their own physical learning spaces on campus for individual or collaborative learning.

2. Workload affects engagement. Appropriate workloads encourage learning engagement, while inappropriate workloads or overload hinders engagement. This could be even more true for community college students compared to university students, as many of them are working part-time, have responsibilities to support their families, and may have less time overall to handle heavy learning workloads. It is suggested that college educators pay attention to this area in designing programs and courses. Knowing that workload affects learning engagement, we need to design college curricula and deliver courses in such ways to ensure that the coursework is demanding but not overloading. In practice, we can enhance our curriculum planning, emphasize cooperation within courses in the same programs, schedule the distribution of assignments more reasonably, renew and update course contents, and measure student workload more objectively. It has been suggested that making changes in these aspects of the learning environment would appear to offer a greater likelihood of initial success than other areas, by virtue of what is required to make the change; improvements in workloads and assessment processes can be implemented with comparatively

fewer training and resource implications than other climate dimensions, such as teaching practices and institutional supports (Lizzio, Wilson, & Simons, 2002).

5.11 Limitation of the Study

Several limitations of the present study should be noted. First, due to the cross-sectional nature of this study, relationships confirmed by the findings are correlations; no causal relationships were tested, and the attribution of causality cannot be made. The question regarding to what extent is institutional climate a cause or consequence of student engagement remains to be tested by longitudinal measures in future investigations.

Second, the study findings are based on data collected from a single college, thus one should be cautious regarding generalizing the findings, as multi-institutional studies may deliver different results compared to single-institution studies with the same research questions. Future studies are suggested to use multi-institutional samples to obtain more representative outcomes.

Third, the present study relies on quantitative data collected by questionnaires with little qualitative data. This may result in the lack of in-depth understanding of participant opinions and input on how the learning environment may influence their learning engagement. In the future, studies should apply a combined research design of quantitative and qualitative measures to gain a better understanding of the relationship between institutional climate, learning engagement, and learning outcomes.

Forth, although the present study uses Biggs' 3P model (Biggs, 1989, 1993) in conceptual framing, it is not concerned with systematically testing all possible relationships among the elements in the 3P model. Instead, this study focused on how student perceptions of the teaching/learning context (institutional climate) influence student engagement and outcomes. It was not the intent of this specific study to examine if *presage* (which, for this study, included domestic vs international students, and diploma vs post-diploma students) also impacts the relationships in question. It is suggested that, in future studies, further study design and statistical analyses should systematically test all possible relationships between *presage* (student characteristics), *process* (student engagement), and *product* (learning outcomes).

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PROTOCOL REFERENCE # 26580

June 16, 2017

Dr. Angela Hildyard UNIVERSITY: SC DIVN OF V-P ADMIN. & HR

Dear Dr. Hildyard and Wenlu Feng,

OFFICE OF THE VICE-PRESIDENT, RESEARCH AND INNOVATION

Wenlu Feng UNIVERSITY: SC DIVN OF V-P ADMIN. & HR

Re: Your research protocol entitled, "Relationship between institutional climate and student engagement in Ontario Community Colleges" ETHICS APPROVAL Original Approval Date: June 21, 2011

Original Approval Date: June 21, 2011 Expiry Date: June 20, 2018 Continuing Review Level: 1 Renewal: Data Analysis Only

We are writing to advise you that you have been granted annual renewal of ethics approval to the above-referenced research protocol through the Research Ethics Board (REB) delegated process. Please note that all protocols involving ongoing data collection or interaction with human participants are subject to re-evaluation after 5 years. Ongoing research under this protocol must be renewed prior to the expiry date.

Any changes to the approved protocol or consent materials must be reviewed and approved through the amendment process prior to its implementation. Any adverse or unanticipated events should be reported to the Research Oversight and Compliance - Human Research Ethics Program as soon as possible. If your research is funded by a third party, please contact the assigned Research Funding Officer in Research Services to ensure that your funds are released.

Please ensure that you submit an Ethics Renewal Form or a Study Completion/Closure Report 15 to 30 days prior to the expiry date of your protocol. Note that ethics renewals for studies cannot be accepted more than 30 days prior to the date of expiry as per our guidelines.

Please note, all approved research studies are eligible for a routine Post-Approval Review (PAR) site visit. If chosen, you will receive a notification letter from our office. For information on PAR, please see http://www.research.utoronto.ca/wp-content/uploads/documents/2014/09/PAR-Program-Description-1.p df.

Best wishes for the successful completion of your research.

Yours sincerely,

Matthew Brower, Ph.D. REB Chair

Research Oversight and Compliance Office - Human Research Ethics Program McMurrich Building, 12 Queen's Park Crescent West, 2nd Floor, Toronto, ON M5S 1S8 Canada Tel: +1 416 946-3273 • Fax: +1 416 946-5763 • ethics.review@utoronto.ca • http://www.research.utoronto.ca/for-researchers-administrators/ethics/

Appendix B: Ethics Approval, Centennial College

Mr Wenlu Feng Centennial College PO Box 631, Stn A Scarborough, ON M1K5E9 June 2, 2011 **REB** application 108: The Relationship Between College Learning **Environment and Student Engagement** LI m Dear Mr. Feng; The Centennial College Research Ethics Board involving Human Subjects has reviewed your ethics review application and documentation and grants approval for the above-named study. The approval is based on the following: 1) The Centennial REB must be informed of any protocol modifications as they arise 2) Any unanticipated problems that increase risk to the participants must be reported immediately 3) You have one year approval for the study: if needed, an annual renewal form will be required at that time 4) A study completion form is submitted upon completion of the project. These forms can be downloaded from the Centennial College ethics website: http://www.centennialcollege.ca/applied/ethics/submitapplication On behalf of the committee at Centennial, I'd like to wish you every success with your project. Sincerely, Lynda Atack, R.N., Ph.D Chair Research Ethics Board involving Human Subjects Centennial College Email: latack@centennialcollege.ca Tel: 416. 289-5000 x 4003

Appendix C: Letter of Informed Consent to the Deans

OISE

ONTARIO INSTITUTE FOR STUDIES IN EDUCATION UNIVERSITY OF TORONTO

Informed Consent Letter to the Deans

July 20, 2011 Professor David Johnson Dean, School of Business Centennial College

Dear Professor Johnson,

I am a faculty member of School of Business and I am currently working on my Ph. D thesis at the University of Toronto. I am conducting a study on the relationship between institutional climate and student learning engagement. The major purpose of this study is to identify the factors that may influence student engagement and learning outcomes within college settings. The findings of this study should assist in identifying aspects of effective learning environments that will encourage student engagement and promote enhanced learning outcomes.

The Research Ethics Board of Centennial College has approved the ethics review application and given permission for this study to be conducted at the College. Data will be collected collegewide from approximately 500 students who will be asked to complete a survey consisting of questions relating to the students' perception of their learning environment and their learning activities. The participants will be informed that no value judgments will be placed on their responses, and they will at no time be judged or evaluated and at no time will be at risk of harm. The questionnaire will take approximately 20 minutes to complete. Also, academic program coordinators who agreed to invite students within their programs to participate in the study will be invited to participate in an interview regarding their understanding of the underlying assumptions, beliefs and values that affect the college learning environment.

I am writing to invite your school to participate in this study. If you are interested in this study, I will meet with you to further discuss on the selection of some programs within your school to participate in the study. The criteria for selecting participating programs include the class size, a balance between diploma and post-diploma studies, and a balance between the number of domestic and international students. With your permission, I will also ask the administrative assistants from your office to help distribute the information letters and the questionnaires to the instructors whose classes have been selected to administer the questionnaire.

Your participation in this study is entirely voluntary. The data is being collected mainly for the purposes of a PhD thesis and perhaps for subsequent research articles and public presentation. Only

aggregated data will be made publicly available and we will undertake strict measures to protect the confidentiality of all participants and the institution in any publication arising from the research. A copy of the thesis will be available in the U of T library.

This research project is supervised by Angela Hildyard, Professor of Higher Education and Vice-President of Human Resources and Equity, University of Toronto. The collected data will be accessed by the researchers only. All records will be retained in a locked cabinet in my home for four years after the completion of this project, and will then be shredded.

Thank you for your cooperation and support. If you agree to participate in this study, please sign this letter below and return it to me in the envelope provided. Please let me know if you have any questions about this study. This study has been approved by the Research Ethics Boards of the University of Toronto. If you have any questions related to your rights as a participant in this study, or if you have any complaints or concerns about how you have been treated as a research participant, please contact the Office of Research Ethics, <u>ethics.review@utoronto.ca</u> or 416-946-3273.

Professor Angela Hildyard, the thesis supervisor can be reached at: <u>angela.hildyard@utoronto.ca</u> 416-978-4865, Suite 112, Simcoe Hall, 27 King's College Circle, Toronto, Ontario. M5S 1A1

The researcher can be reached at: <u>wenlu.feng@utoronto.ca</u> 416-289-5000 Ext. 2134 School of Business, Centennial College, P.O. Box 631, Station A, Toronto, ON M1K 5E9

Yours sincerely,

Wenlu Feng, Ph. D Candidate Department of Theory and Policy Studies OISE/University of Toronto

By signing below, you are indicating that you are willing to participate in this study, you have received a copy of this letter, and you are fully aware of the conditions above.

Name: ______

Signed: ______

Date:

Please initial if you would like a summary of the findings of the study upon completion:

Please initial if you agree to have your interview audio taped: _____

Please keep a copy of this letter for your records.

Appendix D: Information Letter to Faculty

OISE

ONTARIO INSTITUTE FOR STUDIES IN EDUCATION UNIVERSITY OF TORONTO

Information Letter to Participating Faculty

July 12, 2011

Dear Faculty,

My name is Wenlu Feng and I am currently working on my Ph. D thesis at the University of Toronto. I am conducting a study on the relationship between institutional climate and student learning engagement. The major purpose of this study is to identify the factors that may influence student engagement and learning outcomes within college settings. The findings of this study should assist in identifying aspects of effective learning environments that will encourage student engagement and promote enhanced learning outcomes.

Your institution has given permission for this study to be conducted. Data will be collected college-wide from approximately 500 students who will be asked to complete a survey consisting of questions relating to the students' perception of their learning environment and their learning activities. The questionnaire will take approximately 20 minutes to complete. The criteria for selecting participating programs include the class size, a balance between diploma and post-diploma studies, and a balance between the number of domestic and international students. The participating classes are selected by your school office. I am writing to ask if you could help distribute questionnaires to collect data from the students in your class.

If you are interested to participate in this study, you can decide whether the questionnaires are administered at the beginning or at the end of the class. You can also decide to administer the survey session in any one of your classes in June and July. You are also being asked to share information with the students about the study purpose, that their participation is entirely voluntary, that you are not one of the researchers and then distribute an information letter to the students. If they have any questions, they should be encouraged to ask. After that process is completed, you can distribute the questionnaires. After the questionnaires are completed please have a student place and seal them in the confidential envelope provided.

Your participation in this study is entirely voluntary and the data collected with the questionnaire is on academic programs rather than individual courses or subjects.

Students' participation in this survey is also entirely voluntary. Participants may decline to answer any questions on the questionnaire and they may also decide to withdraw from

participation at any time without any negative consequence. The participants will be informed that no value judgments will be placed on their responses and they will at no time be judged or evaluated and at no time will be at risk of harm. The data is being collected mainly for the purposes of a PhD thesis and perhaps for subsequent research articles and public presentation. However, only aggregated data will be made publicly available and we will undertake strict measures to protect the confidentiality of all participants and the institution in any publication arising from the research. All records will be destroyed in four years after the completion of this study. A copy of the thesis will be available in the U of T library.

This research project is supervised by Angela Hildyard, Professor of Higher Education and Vice-President of Human Resources and Equity, University of Toronto. The collected data will be accessed by the researchers only. Data relating to individuals and programs will be treated confidential and only aggregated data will be used for any publication or presentation related to this search.

Thank you for your participation. Please contact me to let me know if you are interested in participating in this study. I can be reached at <u>wfeng@centennialcollege.ca</u> 416-289-5000 Ext. 2134 Mailing address: School of Business, Centennial College, P.O. Box 631, Station A, Toronto, ON M1K 5E9

This study has been approved by the Research Ethics Boards of the University of Toronto. If you have any questions related to your rights as a participant in this study please or if you have any complaints or concerns about how you have been treated as a research participant, please contact the Office of Research Ethics, <u>ethics.review@utoronto.ca</u> or 416-946-3273.

Professor Angela Hildyard, the thesis supervisor can be reached at: <u>angela.hildyard@utoronto.ca</u> 416-978-4865 Mailing address: Suite 112, Simcoe Hall, 27 King's College Circle, Toronto, Ontario. M5S 1A1

Yours sincerely,

Wenlu Feng, Ph. D Candidate Department of Theory and Policy Studies OISE/University of Toronto

PS: Please keep a copy of this letter for your records. Please initial if you would like a summary of the findings of the study upon completion: Appendix E: Informed Consent Letter to the Participants

OISE

ONTARIO INSTITUTE FOR STUDIES IN EDUCATION UNIVERSITY OF TORONTO

Informed Consent Letter to Student Participants

July 12, 2011

Dear Participant,

My name is Wenlu Feng and I am currently working on my Ph. D thesis at the University of Toronto. I am conducting a study on the relationship between institutional climate and student learning engagement. The major purpose of this study is to identify the factors that may influence student engagement and learning outcomes within college settings. The findings of this study should assist in identifying aspects of effective learning environments that will encourage student engagement and promote enhanced learning outcomes.

I would like to invite you to participate in this study. Your support is highly valued and appreciated. As a student at this college community, your opinions will provide the most valuable input to help complete this study. Data will be collected college-wide from approximately 500 students. If you choose to participate, you will complete a survey. This survey will take you approximately 20 minutes to complete. Please see the attached questionnaire which asks for your opinions on the learning environment and your learning activities.

Your participation with this survey is strictly voluntary and you may decline to answer any questions on the questionnaire. You may also decide to withdraw from participation at any time without any negative consequence. No value judgments will be placed on responses. You will at no time be judged or evaluated and at no time will be at risk of harm. The data is being collected mainly for the purposes of a PhD thesis and perhaps for subsequent research articles and public presentation. However, only aggregated data will be made publicly available and we will undertake strict measures to protect the confidentiality of all participants and the institution in any publication arising from the research.

This research project is supervised by Angela Hildyard, Professor of Higher Education and Vice-President of Human Resources and Equity, University of Toronto. The collected data will be accessed by the researchers only. All records will be kept in strict confidence and stored at a secure location for four years after the completion of this project, and will then be shredded. A copy of the thesis will be available in the U of T library.

Thank you for your participation. This study has been approved by the Research Ethics Boards of the University of Toronto. If you have any questions related to your rights as a participant in this study please or if you have any complaints or concerns about how you have been treated as a research participant, please contact the Office of Research Ethics, ethics.review@utoronto.ca or 416-946-3273.

Professor Angela Hildyard, the thesis supervisor can be reached at: angela.hildyard@utoronto.ca 416-978-4865 Mailing address: Suite 112, Simcoe Hall, 27 King's College Circle, Toronto, Ontario. M5S 1A1

The researcher can be reached at: wenlu.feng@utoronto.ca 416-289-5000 Ext. 2134 Mailing address: School of Business, Centennial College, P.O. Box 631, Station A, Toronto, ON M1K 5E9

Yours sincerely,

Wenlu Feng, Ph. D Candidate Department of Theory and Policy Studies OISE/University of Toronto

PS: Please keep a copy of this letter for your records.

Appendix F: The College Learning Environment and Student Learning Activity Questionnaire

College Learning Environment and Student Learning Activity Questionnaire

1

1

Responses are entirely voluntary and all answers will be treated as confidential

Please provide the following background information:

- 1. You are a student of (please check the appropriate box):
 - A. Diploma programs []
 - B. Graduate certificate programs []
- 2. You are:
 - A. An international student [
 - B. A domestic student [
- 3. Your school at this college_____
- 4. Your academic program _____
- 5. Which semester are you in (Please check the box)?
 - A. First semester []
 - B. Second semester []
 - C. Third semester []
 - D. Fourth semester []
 - E. Fifth semester []
 - F. Sixth semester []
 - G. Other (Please specify) :

Instructions:

In answering this questionnaire, please think of the program as a whole rather than identifying individual subjects. The questions relate general issues about your program, based on comments that students have often made about their experiences of university and college teachings and studying. Your responses are strictly confidential.

PART 1: THE COLLEGE LEARNING ENVIRONMENT

TEACHING PRACTICE

The following statements are about your experience of the teaching practice in your program. For each statement, please circle the alternative which best describes your opinion.

		Neither Strongly agree nor disagree Disagree disagree As			A = = = =	Strongly		
		disagree	Disagree	disagree	Agree	agree		
1.	Faculty here work hard to make subjects interesting	1	2	3	4	5		
2.	Our faculty are very good at explaining things to us	1	2	3	4	5		
3.	The faculty of this program motivate students to do their best work	1	2	3	4	5		
4.	The faculty make a real effort to understand difficulties students may be having with their work	1	2	3	4	5		
5.	Faculty here show no real interest in what students have to say	1	2	3	4	5		
6.	This program really tries to get the best out of all its students	1	2	3	4	5		
7.	Faculty here put a lot of time into commenting on students' work	1	2	3	4	5		
8.	Faculty here normally give helpful feedback on how you are going	1	2	3	4	5		

GENERIC SKILLS

The following statements are about your experience of the generic skills you might have gained from your program. For each statement, please circle the alternative which best describes your opinion.

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1.	As a result of doing this program, I feel more confident about tackling unfamiliar problems	1	2	3	4	5
2.	This program has helped me to develop my problem-solving skills	1	2	3	4	5
3.	This program has sharpened my analytic skills	1	2	3	4	5
4.	This program has improved my written communication skills	1	2	3	4	5
5.	This program has helped me develop the ability to plan my own work	1	2	3	4	5
6.	This program has helped develop my ability to work as a team member	1	2	3	4	5

WORKLOAD

The following statements are about your experience of your workload in your studies. For each statement, please circle the alternative which best describes your opinion.

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1.	The workload is too heavy	1	2	3	4	5
2.	There is a lot of pressure on you as a student here	1	2	3	4	5
3.	The sheer volume of work to be got through in this program means you cannot comprehend it all thoroughly	1	2	3	4	5
4.	We are generally given enough time to understand the things we have to learn	1	2	3	4	5

5. It seems to me that the syllabus tries to	1	2	3	4	5
cover too many topics					

ASSESSMENT

The following statements are about your experience of the course work assessment in your program. For each statement, please circle the alternative which best describes your opinion.

_		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1.	To do well on this program all you really need is a good memory	1	2	3	4	5
2.	Faculty seem more interested in testing what you've memorized than what you've understood	1	2	3	4	5
3.	It would be possible to get through this program just by working hard about exam times	1	2	3	4	5
4.	Too many faculty ask us questions just about facts	1	2	3	4	5
5.	Feedback on student work is usually provided ONLY in the form of marks and grades	1	2	3	4	5
6.	Faculty here frequently give the impression they have nothing to learn from students	1	2	3	4	5

CLEAR GOALS

The following statements are about your experience of your goals in your studies. For each statement, please circle the alternative which best describes your opinion.

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1.	It's always easy here to know the standard of work expected	1	2	3	4	5
2.	It is often hard to discover what's expected of you in this program	1	2	3	4	5
3.	You usually have a clear idea of where you're going and what's expected of you	1	2	3	4	5

4.	The faculty here make it clear right from the start what they expect from students	1	2	3	4	5
5.	The aims and objectives of this program are NOT made very clear	1	2	3	4	5

INDEPENDECE

The following statements are about choice and independence you have experienced in your study. For each statement, please circle the alternative which best describes your opinion.

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1.	Students are not limited in choosing how they are going to learn in this program	1	2	3	4	5
2.	Students here are given a lot of choice in the work they have to do	1	2	3	4	5
3.	There's very little choice in this program in the ways you are assessed	1	2	3	4	5
4.	There are few opportunities to choose the particular courses you want to study	1	2	3	4	5
5.	We often discuss with our instructors or tutors how we are going to learn in this program	1	2	3	4	5
6.	The program has encouraged me to develop my own academic interests as far as possible	1	2	3	4	5

SUPPORT FOR LEARNERS

Please indicate how much this college emphasizes each of the following

		Very Much	Quite a bit	Some	Very little
1.	Encouraging you to spend significant amounts of time studying	4	3	2	1
2.	Providing the support you need to help you succeed	4	3	2	1

3.	Encouraging contact among students from different economic, social, and racial or ethnic backgrounds	4	3	2	1
4.	Helping you cope with your non-academic responsibilities (work, etc.)	4	3	2	1
5.	Providing the support you need to thrive socially	4	3	2	1
6.	Providing the financial support you need to afford your education	4	3	2	1
7.	Using educational technology in academic work	4	3	2	1

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PART 2: STUDENT LEARNING ACTIVITIES

The following statements are about your current learning activities <u>at this college</u>. For each statement, please select the alternative that best describes your opinion or situation by circling the number on the scale.

	Have co	dropped urses	ا pro	No, but bably w	ill	No cours droppe	es d
 Have you dropped or withdrawn from one or more courses during the current school year? 		1		2		3	
	Less than 1 hour	1-5 hours	6-10 hours	11-15 hours	16-20 hour៖) 21-25 s hours	More than 25 hours
2. About how many hours in a typical 7-day week did you spend preparing for class (studying, reading, doing homework) during the current school year?	1	2	3	4	5	6	7
	Once a week o more	Tw or three a m	vo or e times ionth	Approx tely on month	ima ce a	Almost never	Never
3. On average, how often did you skip classes during the current school year?	1		2	3		4	5

	Never	Rarely	Sometimes	Usually	Always
4. How often did you complete homework/assignments on time during the current school year?	1	2	3	4	5
	None	One hour or less	2-5 hours	6-10 hours	More than 10 hours
5. Since starting college, how many hours did you spend taking part in a workshop, program or course designed to help you adjust to college-level studies?	1	2	3	4	5

6. Since beginning your studies here, how often were the following statements true for you?

			Ν	lever	Rarely	Someti mes	Often	Always
1) ge	I did as little work as possible; I just t by.	wanted t	0	1	2	3	4	5
2)	I was interested in what I was learning	ng in class	5.	1	2	3	4	5
3)	I got along well with faculty/instruct	ors		1	2	3	4	5
4)	I felt like an outsider or that I was let things	ft out of		1	2	3	4	5
7. On	average, how many times per week	None	1 2 times	3 4 times	56 times	78 times	910 times	More than 10 times
do yo	u study with one or more students?	1	2	3	4	5	6	7
8 Ho	w many times have you had face-to-	None	1 2 times	3 4 times	56 times	78 times	910 times	More than 10 times
face in outsic more	the classroom for ten minutes or during this school year ?	1	2	3	4	5	6	7
		None	1 2 times	3 4 times	56 times	78 times	910 times	More than 10 times

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9. How many times have you interacted with program faculty during this school	1	2	3	4	5	6	7
year using email, text or instant messaging, Web CT/Blackboard or other learning							
management system?							

10. The following statements describe your experience regarding your studies **at this college**. Based on your experience so far, please indicate whether you agree, disagree or are undecided about each statement according to the scale below. For each statement, please select the alternative that best describes your experience by circling the number on the scale.

		Strongly Disagree	Disagree	Undecided	Agree	Strongly agree
1)	I find it hard to pay attention in most of my classes	1	2	3	4	5
2)	I feel undecided about what my career will be after I finish college	1	2	3	4	5
3)	I always try to do the best I can in my course work	1	2	3	4	5
4)	I may quit my studies before I finish my program	1	2	3	4	5
5)	My current studies are one of the most important things in my life	1	2	3	4	5
6)	I think I am well prepared to be a successful student in college	1	2	3	4	5
7)	I have the ability to succeed in college- level studies	1	2	3	4	5
8)	If I had a chance to have a full-time job I would take it and leave college	1	2	3	4	5

11. The following statements describe your experience with faculty and other students **at your college**. Based on your experience so far, please indicate whether you agree, disagree or are undecided about each statement according to the scale below. For each statement, please select the alternative that best describes your experience by circling the number on the scale.

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		Strongly disagree	Disagree	Undecided	Agree	Strongly agree
1)	I have developed a good relationship with at least one faculty member	1	2	3	4	5
2)	Student friendships in college have helped me cope with stress of college life	1	2	3	4	5
3)	The friendships I have developed at this college are enjoyable	1	2	3	4	5
4)	At this time I feel like I "fit in" at this college	1	2	3	4	5
5)	Since coming to this college I have become close friends with several students	1	2	3	4	5
6)	Students I know in my program are willing to help each other with problems	1	2	3	4	5

12. Please indicate the number of times you participated in college group activities or used college services listed below since beginning your studies <u>at this college</u>. Enter your estimate of the number of times for each activity or service by circling the number on the scale below.

		None	One time	Two times	Three times	Four times	Five times	More than five times
5)	Ethnic/cultural group	0	1	2	3	4	5	6
6)	Intramural or varsity sports	0	1	2	3	4	5	6
7)	Interacting with a peer mentor	0	1	2	3	4	5	6
8)	Involved in Student Association activities or events	0	1	2	3	4	5	6
9)	Academic advising/counselling (e.g. course choice, load, etc.)	0	1	2	3	4	5	6
10)	Information on college and/or university courses/programs	0	1	2	3	4	5	6
11)	Learning skills service (e.g. help in study skills etc.)	0	1	2	3	4	5	6

12)	Peer-Tutoring Service (students help students in courses)	0	1	2	3	4	5	6
13)	Library facilities and services (studying, researching, borrowing books, on-line resources))	0	1	2	3	4	5	6
14)	Career resource centre (info on careers, job postings etc.)	0	1	2	3	4	5	6

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	Not satisfied at all	Somewhat satisfied	Undecided	Satisfied	Very satisfied
13. Overall, how satisfied are you					
with your learning at this college?	1	2	3	4	5

14. (Answer to this question is optional): <u>At this college</u>, in what range is your overall grade point average (GPA)?

- a) A+ (4.5)----90-100%
- b) A (4.0)-----80-89%
- c) B+ (3.5) ----75-79%
- d) B (3.0) ----70-74%
- e) C+ (2.5) ----65-69%
- f) C (2.0) ----60-64%
- g) D+ (1.5) ----55-59%
- h) D (1.0) ----50-54%
- i) Do not have a GPA yet

Thank you for your participation.

Appendix G: The Letter from the CEQ Author (Copied from Email)

Dear Wenlu,

Very happy for you to use it. It is not my instrument, but Prof Paul Ramsden, who has now

retired. It is in the public domain, so I am sure it is OK to use it.

Warm regards, Keithia

Keithia Wilson PhD Professor ALTC National Fellow Chair- Educational Excellence Committee Program Director First Year Experience Health IDEAS Senior Fellow First Year Experience GIHE School of Psychology Mt Gravatt Campus 176 Messines Ridge Road Griffith University Q 4122 AUSTRALIA

phone: +61 7 3378 9267 or 3735 3389 email: k.l.wilson@griffith.edu.au

I acknowledge the Traditional Custodians of the Country on which I work and pay my respects to Elders past and present.

From:	WenLu Feng <wfeng@centennialcollege.ca></wfeng@centennialcollege.ca>
To:	k.l.wilson@griffith.edu.au
Date:	16/06/2011 03:38 AM
Subject:	Request for Permission to Use the CEQ

Dear Professor Wilson,

My name is Wenlu Feng and I am a faculty member of School of Business, Centennial College in Toronto, Ontario, Canada. I am currently working on my PhD thesis at the University of Toronto. I plan to conduct a study on the relationship between college learning environment and student engagement. The major purpose of this study is to identify the factors that may influence student engagement, learning outcomes and retention within college settings. It is participated that the findings of this study should assist in identifying aspects of effective learning environments that will encourage student engagement and promote enhanced learning outcomes.

My proposed study is to be conducted at an Ontario community college. Data will be collected from approximately 500 students of different academic programs who will be asked to complete a survey consisting of questions relating to the students' perception of their learning environment and their learning activities.

In my search for the survey tools, I found that the Course Experience Questionnaire (CEQ) developed by you and your colleagues (Ramsden, 1991; Wilson, at al, 1997) will be the best measurement for me to use in my proposed study.

I am writing to ask for your permission to use the CEQ in my study. With your permission, I will use the long (CEQ36) form of the CEQ, which is published with your paper *Wilson*, *Keithia L., Lizzio, Alf and Ramsden, Paul (1997) 'The development, validation and application of the Course Experience Questionnaire', Studies in Higher Education, 22: 1, 33 — 53.*

I have also read some CEQ-related papers and know that in Australia, the CEQ has been employed as a measure of perceived teaching quality in degree programs in national annual surveys of graduates in the higher education system and it is increasingly being used as a measure of the quality of teaching in universities in the UK (Wilson, Lizzio, and Ramsden, 1997). The instrument has also been tested on students of different counties, and measures of validity and reliability have been reported as satisfactory (Wilson, Lizzio, and Ramsden, 1997). Resent research on the CEQ includes the validity and reliability investigation conducted in Canada (Creber, 2003), in the UK (Lizzio, Wilson, & Simons, 2002, Broomfield & Bligh, 1998; Richardson, 1994), in Demark (Richardson, Gamborg, & Hammerberg, 2005), and in Hong Kong (Ning & Dowing, 2010; Webster, et al. 2009). Results show that the CEQ yields a global index of a perceived learning environment that can be used in a Canadian setting, and it is a suitable instrument for collecting data that can be used to predict student learning behaviour and learning performance.

In my proposed study, the data collected with the CEQ will be analyzed with SPSS statistical software Analysis will include:

1. Factor analysis to test the validity and reliability of the questionnaire as used in this sample of Canadian community college settings.

2. Correlation analysis between the data of learning environment (as measured by the CEQ scale) and student engagement (as measured by a student engagement questionnaire).

3. Multiple regression analysis of the learning environment factors on the student engagement variables. This is to identify those learning environment factors that might influence student engagement, and to see to what extent student engagement can be predicted on the base of those identified learning environmental factors.

4. Multiple-regression of the learning environment factors on the students' overall satisfaction score and self-reported GPA, which are measured by designated questions the survey questionnaire. This is to test the direct impact of the learning environment factor on student performance.

5. Analysis of variance to compare student engagement based on differences in learning environment scores from different academic programs at the college, in order to further explain the impact of learning environment on student engagement.

6. Further analysis on the relationship between learning environment, engagement, and retention within programs could be possible if the information about retention is available.

Your generous permission for me to use the CEQ in the proposed study describe above will be a great support to my completion of my PhD thesis. Thank you for your support and time. I can be reached at <u>wfeng@centennialcollege.ca</u> 1- 416 -289 -5000, Ext. 2134 (Mailing address: School of Business, Centennial College, P.O. Box 631, Station A, Toronto, ON M1K 5E9).

My research project is supervised by Angela Hildyard, Professor of Higher Education and Vice-President of Human Resources and Equity, University of Toronto. Professor Angela Hildyard can be reached at: <u>angela.hildyard@utoronto.ca</u> 1-416-978-4865 (Mailing address: Suite 112, Simcoe Hall, 27 King's College Circle, Toronto, Ontario. M5S 1A1) If you have questions about this research, please contact the Office of Research Ethics, University of Toronto at: <u>ethics.review@utoronto.ca</u> 1-416-946-3273.

I look forward to your reply. Thank you.

Best regards,

Wenlu Feng Department of Management Studies School of Business, Centennial College