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BEYOND COMPETENCY: THE ROLE OF PROFESSIONAL ACCOUNTING EDUCATION IN THE DEVELOPMENT OF META-COMPETENCIES

BY

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The future of learning.

Approval of Dissertation

The undersigned certify that they have read the dissertation entitled

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Mark Morpurgo

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Dedication

I want to dedicate this work to my father, Maximilian Morpurgo. I thank him for helping me develop a strong work ethic and for showing me what it means to persevere. His patience and quiet generosity have helped me become a better dad and teacher. There isn't a man who loves his children, and grandchildren, more than he. Thanks, dad, for putting me to hard work, never letting me quit, and encouraging me to do the best that I could.

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Abstract

The accounting profession is one of many that have adopted a competency-based framework for professional certification and in which professionals must demonstrate a minimum level of proficiency in a set of requisite competencies. However, little research has been done on the manner in which they are developed in the context of the Canadian professional accountant. Prior academic works have identified a set of overarching skills, or meta-competencies (MCs), necessary to effectively apply other competencies. MCs are a set of cognitive, personal, and interpersonal skills, abilities, and capacities that an individual may develop and which are closely tied to the application of professional "judgment, intuition and acumen" (Brown, 1994, p. 292). Thus, MCs are a central consideration in the development of professionals and the maintenance of their status as such.

Professional associations have traditionally focused on developing employer-specified knowledge or technical competencies through formal programs of rigorous study, but have, to date, paid little attention to understanding what influences the development of MCs, especially in the context of formal versus workplace-based experiential learning. This research examines the role of one such professional association — the Certified Management Accountants (CMA) of Canada — in the development of eight key MC: influencing and persuading, teamwork and relationship building, critical and analytical thinking, self and time management, leadership, ability to see the bigger picture, presentation, and communication.

Four key findings emerged from the study. First, by building on prior research related to the identification and measurement of a university MC expectations gap, the

study shows CMA professional education program (PEP) does appear to bridge the university graduate MC expectations gap for some MCs; however, CMAs may overestimate their ability to see the bigger picture. Second, it was found that the most significant influences on the development of various MCs were demographic factors and learning environments. Third, the study showed that meta-level quality indicators linking education and employment, as identified by Azevedo et al. (2012), may not be robust enough to establish the same linkage to professional education and employment. Fourth, the study raises questions regarding the role and efficacy of professional education in MC development.

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List of Symbols, Abbreviations

Abbreviation	Full meaning
AB	Alberta
ANOVA	Analysis of Variance
CA	Chartered Accountant
CBE	Competency-based education
CGA	Certified General Accountant
CMA	Certified Management Accountant
CMBA	CMA for MBA program
CPA	Chartered Professional Accountant
CPLD	Continuous Professional Learning and Development
ECMA	Prairie Region Executive CMA Program
EI	Emotional Intelligence
K-W	Kruskal-Wallis (*k*-independent samples) test
MB	Manitoba
MC	Meta-Competency
M-W	Mann-Whitney *U* test
PEP	Professional Education Program
SDR	Social Desirability Response bias
SLP	Strategic Leadership Program
SK	Saskatchewan

Symbol	Full meaning
CI	Confidence Interval
df	Degrees of Freedom
H	Critical value for Kruskal-Wallis test
M	Mean
N	Population size
n	Sample size
SD	Standard Deviation
χ^2	Chi-square test
U	Critical value for Mann-Whitney *U* test
p	*p*-value

List of Terms and Definitions

Term	Definition
CMA Strategic Leadership Program (SLP)	The Certified Management Accountant Strategic Leadership Program consists of 24 months of part-time study concurrent with full-time employment…. It teaches candidates the practical theory needed to succeed in the strategic management profession and how to apply the theory to their daily job activities. Through its focus on business processes, the program equips candidates with the strategic management capabilities and the CMA competencies demanded by today's leading enterprises. (Certified Management Accountants of Alberta (CMA Alberta), n.d.)
CMA for MBA Program (CMBA)	The CMA for MBA program "is for MBA graduates who are working full time. The program provides a condensed version of the SLP and takes one year to complete" (Certified Management Accountants of Alberta (CMA Alberta), 2010, p. 3).
CMA-Supervisor matched sample (paired sample; n_p)	The unpaired sample represents the total number of CMAs sampled that were paired with a supervisor; $n_p = 39$.
Competency and competencies	The demonstrated ability to apply knowledge and/or skills, and where relevant, demonstrated personal attributes; "the ability to do something successfully or efficiently" (Oxford British & World English Dictionary, 2013a).
Competency-based education (CBE)	Development of educational programs, curricula, and objectives based on outcomes related to desired competencies; a.k.a. *competency-based training (CBT)* and *performance-based teacher education (PBTE)* (Hodge, 2007).
Competency framework	A list of the behaviours and skills that are needed in order to perform a set of tasks to a required standard of performance.... A framework is derived by looking at the outputs of the role and the skills and behaviours needed to produce these—typically this is achieved by evaluating existing high performers to see what makes them effective. Competency frameworks can be devised for a single role, a group of jobs, or even the whole organization—although in the latter case the competencies identified must be very broadly defined. (Heery & Noon, 2013) The CMA Competency Map is an example of a competency framework (CMAC, 2011).
Experiential learning (environment) a.k.a. workplace-experiential learning	The development of knowledge, skills, and competencies through formal study in a practical context such as the workplace and emphasizes horizontal development. (Guile & Griffiths, 2001).
Formal learning (environment)	The development of knowledge, skills, and competencies through formal study in an educational context such as a school or university and emphasizing vertical development (Guile & Griffiths, 2001)..

Term	Definition
Kruskal-Wallis (K-W) ANOVA test	A one-way analysis of variance of ranks of *k*-independent samples (i.e. greater than two) and is an acceptable extension of the χ^2 test for ordinal or interval data proven to not be normally distributed (Cooper & Schindler, 2011). For each test conducted, the K-W test null presumed that, for each of the eight MCs or seven CMA program elements, the population medians were equal across each demographic variable.
Mann-Whitney U (M-W) test a.k.a Wilcoxon ranked sum test	The nonparametric counterpart to the two-sample *Z* or *t*-test and is used to compare the location of the distribution of two independent sample populations (based on medians) conducted on ordinal data when the *t*-test cannot be used due to a non-normal distribution (Bowerman, O'Connell, Aitken Schermer, & Adcock, 2008; Cooper & Schindler, 2011). For each M-W test conducted, the null hypothesis presumed that, for each of the eight MCs, or seven CMA program elements, the probability distributions were identical across each demographic variable.
McNemar test	A statistical test that presumes that the distributions of different values across each of the recall variables are equally likely.
Meta-competencies (MC and MCs)	A set of over-arching competencies that contribute to a professional's capability to develop, utilize, and refine the other specific competencies professionals are expected to possess; a.k.a. *generic competencies*, *meta-skills*, *meta-qualities*, *soft skills* (Brown, 1994; Hall, 1986 as cited in Grzeda, 2005; Reynolds & Snell, 1988).
Occupation	A category of jobs whereby workers possesses certain skill sets, have responsibilities, are remunerated, must qualify for entry, and enjoy an associated level of prestige (Greenwood, 1966).
Profession	A paid occupation or vocation that involves prolonged training and formal qualification and exhibits the following attributes: specialized or superior skills, recognized authority, community sanction, ethical codes of conduct, and an inherent culture (Greenwood, 1957; Oxford British & World English Dictionary, 2013b).
Prairie Region Executive CMA Program (ECMA)	The ECMA is for senior-level executives who would like to earn a CMA designation. It is centred around the concepts of The Strategic Leadership Program. The CMA Executive Program takes 10 months to complete and involves writing/presenting a board report at the end of the program (Certified Management Accountants of Alberta (CMA Alberta), 2010, p. 3).
Regulated profession	A professional vocation or occupation in which practitioners must "meet certain licensing requirements and, typically, be members of a regulatory body or association in order to legally

Term	Definition
	do their job" (The Edmonton Mennonite Centre for Newcomers (EMCN), Trinity Western University, & Government of British Columbia, 2010, p. 4).
Situated learning	A learning approach whereby "knowledge and skills are learned in the contexts that reflect how knowledge is obtained and applied in everyday situations" (Stein, 1998).
Total sample (n)	The total sample represents the total number of CMAs sampled, including those who were matched with a supervisor (n_p) and those who were not (n_u); $n = n_p + n_u = 185 + 39 = 224$.
Unpaired sample (n_u)	The unpaired sample represents the total number of CMAs sampled that were not paired with a supervisor; $n_u = 185$.
Wilcoxon matched-pair test	Wilcoxon matched-pair tests determine whether or not the mean CMA and supervisor situation satisfaction ratings are equal by ranking the absolute value of the differences between CMA and supervisor ratings.

Chapter 1: Introduction to the Study

The aim of this thesis, and the exploratory research study described herein, was to obtain a deeper understanding of the development of eight higher-order competencies, also known as *meta-competencies* (MCs), in professionals, and to determine the extent to which post-graduate professional education programs (PEPs) contribute to the development of these MCs. The purpose behind obtaining such an understanding is to provide some insight into how professional associations tasked with educating and certifying practitioners might ensure their graduates possess, and can demonstrate the use of, MCs expected within the professions by identifying whether or not a PEP provided recent graduates with the MCs deemed important and not previously acquired in undergraduate business and MBA education. Given that major professions, and the general public, expect professionals to possess key MCs, and that the university graduate population they draw upon appear to lack these MCs, it falls upon the professions themselves to ensure their graduates possess the requisite MCs. One of the methods by which this is achieved is through PEPs developed and delivered by the professions themselves. But are the PEPs actually getting the job done and graduating meta-competent professionals? To that end, a quantitative study was conducted in which a group of graduates from a Canadian professional accounting education program, as well as their supervisors, were surveyed. Responses from the surveys were analyzed to determine four key outcomes: (a) to determine whether or not a professional accounting program might contribute to bridging the MC expectations gap, (b) to obtain a better understanding of formal versus experiential learning on MC development, (c) identify personal and demographic factors that might influence MC development, and (d) to

observe the extent to which perceptions between professional accountants and employers differ regarding the importance of MCs.

The findings of the study make the following contributions to the academic literature and to practice. First, by building on prior research related to the identification and measurement of a university MC expectations gap, the study extends beyond MC research at the post-secondary level to the professional level, and specifically, professional accounting. The study shows that at least one professional accounting education program in Canada (the CMA PEP) does appear to bridge (albeit not completely) the university graduate MC expectations gap for some MCs. This study also opens doors for similar studies of educational programs in other professions. Second, the study showed that the development of MCs was influenced most by various demographic factors and learning environments; however, prior education, industry, job tenure, and extracurricular activities did not have as significant an influence on MC development. These findings support results from previous empirical studies relating to personal and demographic factors, and break new ground for other factors not previously studied in a similar manner. The results of this study could potentially inspire additional focused research on the influence of specific factors, such as learning environments, on MC development. Third, the study identified that meta-level quality indicators linking education and employment, as developed by Azevedo, Gomezlj Omerzel, Andrews, Higson, Caballero, and Frech (2012), may not, on their own, be robust enough to establish the same linkage to professional education and employment. Fourth, the study raises questions regarding the role and efficacy of professional education in MC development, which may spur additional research. In addition, given the emphasis on

competency-based instruction and learning in the accounting education community, this study becomes all the more useful and relevant.

Chapter 1 provides an overview of this study, beginning with competencies in professions and moving towards MCs of the individual practitioner, specifically the Canadian Certified Management Accountant (CMA), and how the CMA's national PEP contributes to the development of MCs. The CMA PEP was selected as an example for four reasons. First, the CMA competency map (Appendix A) specifically requires a designated professional to possess key higher-level *enabling* competencies (which are essentially MCs). Second, in comparison to the other Canadian PEPs offered by the Chartered Accountants (CA) or Certified General Accountants (CGA), the CMA PEP was the most dedicated to developing MCs such as presentation, teamwork, and leadership. Third, as a designated CMA with involvement in the CMA PEP, the researcher has knowledge of the programs, has had professional relationships with leaders of the provincial offices, and is acquainted with many CMA program graduates, all of which would increase the likelihood of success in gathering sufficient data for the study. Fourth, with the unification of the accounting profession in Canada to the new Chartered Professional Accountant (CPA) designation, elements of the CMA PEP are being included in the new national CPA PEP; therefore, findings from this study may apply directly to both programs. Chapter 1 also includes a statement of the problem this study addresses as well as associated research outcomes, specifies the focus of the research, and provides an overview of the research design. The chapter then concludes with a discussion of the significance of the research.

1.1. Defining Competency and MC

To provide context and foundation to this study, it is necessary to develop an understanding of competencies and their importance to regulated professions. This section briefly identifies the emphasis on competency in regulated professions and establishes firm definitions of competency and MC that will be adopted for this study.

1.1.1. Competencies in regulated professions.

An *occupation* is defined as a category of jobs in which workers possesses certain skill sets, have responsibilities, are remunerated, must qualify for entry, enjoy an associated level of prestige, and is an important and enduring element of an individual's life (Greenwood, 1966). A *profession* is defined as "a paid occupation, especially one that involves prolonged training and a formal qualification" (Oxford British & World English Dictionary, 2013b). This is a broad definition which could include any vocation or trade requiring formal training, from accounting to project management to water well drilling (Government of Alberta, 2013b), and is not that different from Greenwood's (1966) definition of an occupation. However, there is a difference between a profession and an occupation.

Greenwood (1957) undertook a review of sociological literature and identified five key attributes that distinguish a profession from an occupation: (a) specialized or superior skills, (b) recognized authority to which clients subordinate, (c) community sanction, (d) strict ethical codes of conduct, and (e) an inherent culture. Greenwood's (1957) list of professions, based on U.S. Census Bureau (1950) classifications, includes: accountants, clergymen, judges, social workers, teachers, inter alia. In jurisdictions where professions require oversight or regulation, what Greenwood (1957, 1966) terms a profession may also be referred to as a *regulated profession*. Regulated professions in the

province of Alberta, for example, include, but are not limited to, law, medicine, nursing, social work, and accounting (Government of Alberta, 2013a), where the latter is regulated by the Alberta Regulated Accounting Professions Act (RAPA). Regulated professions and their members have worked to establish themselves as trustworthy and competent in their craft, whether it be saving a life, protecting a client's legal interests, or auditing a company's financial statements.

In a business context, demonstration of competency may be related to functions performed in an organization, such as accounting, finance, marketing, operations, or human resources. These competencies might be appropriately termed *functional* or *technical* competencies. Successful demonstration of functional competencies might depend on the application of technical skills related to each particular business function. Examples of functional or technical competencies include performing a net present value analysis, computing the firm's weighted average cost of capital, conducting market research, forecasting material requirements, or interviewing job candidates. However, to ensure the right person is hired for a position, or that the right questions are asked when conducting market research, requires more than functional and technical skills. Professionals must rely on other, overarching skills to drive the effective application of technical and functional competencies. Such overarching skills may include critical and analytical thinking, working with teams, leading, or communicating. These skills are concerned with more abstract concepts than those of functional competencies, such as professionalism and ethics. These overarching skills will henceforth be referred to as *meta-competencies* (which will be further defined and discussed in Chapter 2) and, in the context of the development of professional accountants, are the focus of this study.

The reputation of regulated professions and professionals can depend on the level of competence demonstrated by each individual practitioner. The importance of competency is underscored by the movement of many professions around the world, including but not limited to nursing, teaching, law, and accounting, to adopt a competency-based approach to professional certification (Canadian Nurses Association, 2010; College of Alberta Psychologists, 2013; International Federation of Accountants Education Committee, IFAC, 2003; The Law Society of Alberta, 2013). Each regulated profession has its own set of competencies (based on their own interpretations of what the competencies for their profession need to be) that practitioners must demonstrate to obtain and maintain certification and issues of developing, maintaining, and assessing competence is faced by a number of professions including nursing (Redfern, Norman, Calman, Watson, & Murrells, 2002), psychology (Kaslow et al., 2007; Leigh et al., 2007), and law (McGaghie, 1991). This raises the question: *What are competencies?*

1.1.2. Competency.

At its most basic level, competency can be defined as "the ability to do something" (Lysaght & Altschuld, 2000, p. 96). Boritz and Carnaghan (2003) provide a more robust definition and describe competence "in terms of outcomes, or what an individual can accomplish, rather than in terms of an individual's knowledge or capabilities" (p. 7). Some of an individual's abilities can be learned through some form of direct instruction, through observation, or practical experience (Guile & Griffiths, 2001). For example, children develop the competency to read by formally learning basic fundamentals (such as the alphabet, phonetics, basic grammar, etc.), by directly observing a teacher or parent reading to them, and/or by practicing reading independently. Guile and Griffiths (2001) characterize formal and experiential learning, respectively, as

vertical development and *horizontal development*. Vertical development generally "occurs through formal study in an educational context such as a school or university" (Guile & Griffiths, 2001, p. 2), whereas horizontal development refers to the shift from a more formal learning environment to a less formal one; for example, moving from school to work (Guile & Griffiths, 2001). Guile and Griffiths' (2001) interpretation of experiential learning differs from that of Kolb (Boyatzis & Kolb, 1995; Kolb, 1984), which takes a more holistic approach to learning and theorizes that experience, which can be gained in the classroom or the workplace, is the main source of development. For the purposes of this study, the term *experiential learning* will herein refer to the workplace, and will emphasize horizontal development, as described by Guile & Griffiths (2001).

Professional competencies may be developed in the manner described by Guile and Griffiths (2001). For example, doctors develop the competence to perform surgeries by formally learning anatomy and procedures in medical school (vertical learning), then shifting to working with an experienced surgeon, and ultimately performing surgeries independently (horizontal learning) (American Medical Association, 2013). Accountants develop the competence to prepare income tax returns through formal learning of income tax rules and procedures, observation of income tax preparation by others, and direct preparation of tax returns by the accountant (Canadian Institute of Chartered Accountants, CICA, 2013).The preceding two examples illustrate how technical competencies might be developed; however, they do not explain how the doctor or accountant learns to apply the appropriate techniques and tools in various contexts. This contextual filtering requires the application of professional judgment and raises the question of how the higher-order MCs are developed.

1.1.3. From competency to MC.

Based on the preceding discussion, it is clear that competence is recognized as an integral component of regulated professional practice. However, the number of potential competencies necessary to satisfy the requirements of any given profession is vast. For example, CMA Canada's (CMAC, 2011) competency map identifies 124 specific competencies. The Canadian Institute of Chartered Accountants (CICA, 2011) competency map identifies 132 distinct competencies. The Canadian Nurse Practitioner Core Competency Framework (2010) identifies 61 different competencies. The Mutual Recognition Agreement of Canada's Psychological Associations (2001) identifies 30 distinct competencies required of practicing psychologists.

Each profession groups its required competencies to suit its specific needs; however, some professions, such as accounting (Chartered Professional Accountants of Canada, 2012; Canadian Institute of Chartered Accountants, 2014; Certified General Accountants of Canada, 2009; Society of Management Accountants of Canada, 2011), consulting (Canadian Association of Management Consultants, 2014), and law (The Law Society of Alberta, 2013), distinguish technical (*hard*) competencies from more personal (*soft*) competencies. This is not to suggest that there are only two groups of competencies. On the contrary, as Chapter 2 will show, there are many different ways of identifying and classifying competencies. However, the professional associations, in their respective competency frameworks, generally make the aforementioned hard-soft distinction. Examples of *hard competencies* might include the collection of requisite financial data to meet the needs of internal and external users, analysis and appraisal of financial information and data, and production of financial statements (Brown & McCartney, 1995). Examples of *soft skills* (Bhanot, 2009; Caudron, 1999; Rao, 2012)

might include critical thinking, interpersonal sensitivity, group management, and tenacity (Bethell-Fox, 1982, as cited in Brown, 1994). Brown (1994) suggests further delineation of competencies into those that represent task-specific skills and "those abilities, skills and capacities which exist above and beyond any competences which an individual may develop" (p. 292). The former are considered technical competencies and the latter are termed MCs (Brown, 1994). For the purposes of this study, MCs are defined as higher-order skills that contribute to a professional's capability to develop, utilize, and refine the other functional and technical competencies professionals are expected to possess (Cheetham & Chivers, 1996). The classification of MCs as higher-order skills can be justified based on Bloom's taxonomy of educational objectives (Anderson et al., 2001; BS Bloom, 1956), in which higher levels of learning are associated with analysis and application (Level II) and synthesis and evaluation (Level III) (Plack & Greenberg, 2005).

1.2. The Evolving Role of the Professional Accountant and the Importance of Meta-Competencies

The accounting profession has traditionally been separated into two distinct fields: Financial Accounting (FA) and Managerial Accounting (MA). The former primarily focuses on providing accounting information to external decision makers, whereas the latter focuses on internal decision making. Paulsson's (2012) literature review distinguishes between two distinct archetype roles of accountants: the first of which has often been labeled as "'bean counter', 'watch dog', 'corporate policeman', or 'number cruncher'; while the second is often labeled 'business partner', business advocate', or 'controller'" (Paulsson, 2012, p. 381). Paulsson (2012) classifies these two archetypes as

(a) bean counters, and (b) business partners, each associated, respectively, with FA and MA.

The evolution of accounting into separate fields is what fractured the accounting profession in Canada into three professional designations, with the CA designation primarily focused on FA, the CMA designation on MA, and the CGA designation straddling both. However, recent years saw the roles between these designations being blurred, thus providing the catalyst for the three designations to unite in Canada under the CPA designation. The MA role, predominantly played by the CMA, has evolved or expanded from the traditional FA role and may be explained by a number of factors including globalization, technology, accounting scandals (Burns & Baldvinsdottir, 2007, as cited in Paulsson, 2012), degree of centralization of accounting, reporting systems, corporate culture (Järvenpää, 2007, as cited in Paulsson, 2012).

In essence, the role of the management accountant has evolved from that of a passive bean counter (that is, a preparer of financial statements) to active business partner and decision maker. Each role requires different skill sets: the bean counter requires more technical skills and critical/analytical, self/time management MCs. Meanwhile, the business partner requires a more broad set of interpersonal skills including teamwork and communication (Byrne & Pierce, 2007; Paulsson, 2012), presentation, leadership, seeing the bigger picture, and influencing/persuading MCs. As a result of these two sets of skills and MCs, the MA role has become an expanded or hybrid role (Paulsson, 2012).

While Paulsson's (2012) research is related specifically to management accountants, which in Canada are predominantly CMAs, the role of the public accountant has evolved in the same way as firms expanded beyond audit, assurance, and taxation

(purveyors of financial information) into management consulting (i.e. strategic business partner) and the growing emphasis in the legacy CA designation towards strategic thinking contributing to the overlapping roles of the three professional designations in Canada. Thus this study is relevant, not only to the CMA profession, but to the Canadian accounting professional as a whole. The evolving role of the professional accountant from purveyor of financial information to active business partner requires professionals to develop key MCs to fulfill their expanded roles, thus underscoring the importance of MCs in professional accountants and supporting the need for research related to MC development in professional accountants.

1.3. MC Development Through Formal Versus Experiential Learning

As discussed in Section 1.1.2, learning, competency, and MC development in professionals can take place in formal classroom-based environments, as well as experiential learning environments such as the workplace. The former emphasizes teaching, while the latter emphasizes learning from experience. These environments are not mutually exclusive in contributing to competency development, and each has its own set of inherent inadequacies (Wright, 2003). Experiential learning environments may also be situated. Situated learning approaches learning as a social practice that emphasizes "human activity in society as participation in the practices of social communities [and where] knowing and learning are integral and inseparable aspects of all human activity" (Hardless & Lindgren, 2005, p. 4). The workplace can be considered such a social community.

Over the past 40 years, post-secondary institutions have come to accept that traditional approaches to teaching and learning have some limitations and "concern for the quality of teaching and learning in . . . colleges and universities escalated dramatically

after the mid-1970s" (Rice, 2006, p. 18). Increasingly, higher education has shifted priorities from teaching to learning through outcome-based approaches emphasizing collaboration, experiential learning, and integration of technology (Rice, 2006). Other academics, including Cheetham and Chivers (1996, 1998), Chivers (2007), Dreyfus and Dreyfus (1980), Jonnaert (2001, as cited in Jonnaert et al., 2006), and Schön (1983, 1987), all emphasize the importance of experience in the learning and cognitive development process, but do university graduates sufficiently develop the requisite MCs to apply what they have learned? This is a loaded question given the various interpretations of competency and the differences in employer expectations. Nor is it well understood how each learning environment contributes to the development of specific competencies and MCs in undergraduate and graduate business and professional education.

1.4. The MC Expectations Gap

While the influence of learning environments on the development of specific MCs in business graduates is not known, it has been determined that there is a perceived gap between the MCs undergraduates possess and the MCs employers expect them to possess (Albrecht & Sack, 2000; Bui & Porter, 2010; De Lange, Jackling, & Gut, 2006; Fortin & Legault, 2010; Hardy & Deppe, 1995; Hancock, Howieson, Kavanagh, Kent, Sturt, Tempone, & Segal, 2009; Jackling & De Lange, 2009; Kavanagh & Drennan, 2008; Sin, Jones, & Petocz, 2007; Willcoxson, Wynder, & Laing, 2010). The literature suggests that undergraduates do not, overwhelmingly, possess the required MCs, not because undergraduate students do not value MCs (Kavanagh & Drennan, 2008; Warn & Tranter, 2001), but because of the heavy emphasis on technical competencies related to functional areas such as accounting, finance, management science, or marketing (Kavanagh &

Drennan, 2008). MBA students, on the other hand, are somewhat more capable of demonstrating the requisite MCs than undergraduate students. In addition, Camuffo and Gerli (2004) and Rubin and Dierdorff (2009) determined that MCs are valued by MBAs and that the MCs developed in the MBA program generally matched employer expectations. The higher MC capability and perceived value by MBAs and greater match to employer expectations could partially be explained by Vygotsky and Cole's (1978) *Zone of Proximal Development (ZPD),* which they describe as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers [represented by other experienced MBA students]" (p. 86) and augmented by Perry's (1968) stages of intellectual maturity.

1.5. The Role of PEPs in Addressing the MC Expectations Gap

Thus far, the literature suggests that a gap exists between MCs possessed by both business undergraduates and MBAs compared to the MCs employers expect them to have. It has also been discussed that learning and development can take place in both formal classroom and experiential learning environments (Guile & Griffiths, 2001). Finally, the literature review suggests that experience-based learning is considered important to MC and skill development. Given the consensus in the literature that an expectations gap exists, that experiential learning is important, and that the formal learning environment emphasizes development of functional skills, one possible explanation for the MC expectations gap could be the result of students' limited exposure to practical work experience during their formal education/professional education programs.

Regulated professional programs such as accounting, medicine, and law require pre-professionals to enrol in some type of PEP that combines formal learning with work experience upon graduation from an undergraduate program. Medical students attend medical school and require a period of residency. Law students attend law school and then must article in a firm. Accounting students enrol in a professional accounting program and, at the same time, gain experience either in industry or by articling with a public accounting firm. In Canada, the formal education programs for medicine and law are delivered by universities (i.e. medical school and law school), and the medical associations and law societies grant certification. The formal education program for accounting students, however, is typically developed and delivered by the accounting bodies, which also work in close collaboration with post-secondary institutions to ensure prerequisite courses meet entry-level technical competency requirements. Exceptions include Quebec and Saskatchewan, which have university programs that replace the accounting professional programs altogether. Each of the aforementioned professions, however, includes a requirement for professional training, which is typically on-the-job (residencies for doctors, articling for lawyers and public accountants, and practical experience for non-public accountants). This suggests that professionals require a complex mix of university education, professional training, and practical experience.

Section 1.2 described the changing role of the professional accountant and underscored the importance of MCs to professional accountants. Section 1.4 identifies a gap in the MCs developed by university business school graduates in their programs and those required by professional accountants. Thus, the three Canadian accounting designations—CA, CMA, and CGA—have relied on their own professional accounting

education programs to ensure that designated accountants possess the requisite competencies (including MCs) that are outlined in each designation's respective competency frameworks. These professional accounting programs, by design, are intended to supplement the skills pre-professionals developed during their formal university education. But how do professional accounting education programs fare with respect to bridging the MC expectations gap? Limited research has been conducted in this area to date, and this is one of the questions this study aimed to explore.

1.5.1. MC development and the CMA PEP.

The CMA competency framework (a.k.a. CMA Competency Map; Appendix A) was developed through consultation with employers, professionals, and academics. The framework identifies 346 competency-related outcomes required of a practicing CMA centred around the designation's three learning pillars of strategy, accounting, and management (CMAC, 2011). The CMA Competency Map also identifies the roles and responsibilities of a management accountant in contributing to "creating, enabling, preserving, and reporting of sustainable value" (CMAC, 2011, p. 7), the fulfillment of which requires a comprehensive set of competencies, both *functional* and *enabling* (CMAC, 2011). The functional competencies represent the *hard* cognitive skills professionals draw upon to do the work required of them. The enabling competencies, on the other hand, refer to the *softer* skills that are required to determine which functional skills and tools should be employed to perform certain tasks, make decisions, lead, communicate and exercise professional and ethical judgment (CMAC, 2011). It is the development of these higher-order enabling competencies to which this study was dedicated.

1.6. Statement of the Research Problem

The preceding sections (1.1-1.3) defined MCs and identified a clear business graduate-employer MC expectations gap resulting from the emphasis on functional competencies delivered in formal classroom learning environments at the post-secondary/university level. Section 1.4 positioned PEPs as potentially able to bridge that gap through mixed classroom (formal) and workplace (experiential) learning environments. The challenge to the accounting profession is to ensure that professional accountants possess, and are capable of demonstrating, the requisite MCs that are expected of them by employers and the profession. Professional accounting bodies have attempted to achieve this goal through the development and delivery of PEPs. The research problem to which this study is addresses *whether professional education programs, and specifically CMA PEP, contribute to professional accountants' acquisition of, and capability to demonstrate, the requisite MCs that are expected of them by employers and the profession*. Since it is incumbent upon the profession, which ultimately awards the professional credential, to ensure graduates possess the necessary MCs, it is important to understand what factors may influence MC development so that the most effective educational program can be developed. To date there has been limited research that attempts to develop a better understanding of how factors such as age, learning environment, or organization size, affect MC development. Thus, there is an excellent opportunity to learn more about MC development through a case example such as the CMA PEP. Through that better understanding, existing and future programs can be enhanced and modified to maximize the development of MCs resulting in a win-win-win scenario for employers, professional accountants, and the profession.

The CMA PEP was designed to provide entry-level accountants with opportunities to develop the required technical and MC skill sets through both formal and experiential learning environments, with each contributing differently to the development of MCs. To stay relevant and meet the needs of industry, students, the profession, and the general public, the CMA program has evolved its content and delivery. However, the literature review has identified a need to address the following questions: *Does the CMA program contribute to the development of MCs? And if so, how?* For example, one of the required meta-competencies of a CMA is to lead teams. The CMA program can provide various tools and techniques and create a simulated environment in which to apply them, but is that enough to adequately develop the MC of team leadership when a candidate works in a smaller organization and may not be in a position to lead teams in the workplace? Can a MC be appropriately developed if the candidate does not have the opportunity to apply the tools and techniques taught in the classroom? Alternatively, if the CMA candidate is in a management position in a larger organization and leads a team, but does so without any formal training in team leadership, can the candidate adequately develop the MC of team leadership without formal instruction? In an attempt to answer these questions, pointed research is required. The preceding examples illustrate the interrelationships of only three factors that influence MC development: learning environment, size of organization, and level of responsibility. What about other factors?

If the objective of a PEP is to augment and/or develop MCs required by the profession and employers, then the design of such a program should be optimized to do so. If designers of the CMA program (and new CPA program) have a better understanding of how different factors interrelate with each other and affect MC

development, then efforts can be made to better match the content delivered within the formal portion of the program to the contextual outcomes related to MCs. This may also potentially allow for some customization of the program to students given an underlying mix of factors.

The key problem to be resolved may depend on the perspective of each individual stakeholder—the profession, the CMA candidate, and the employer. CMA Canada is tasked with delivering a program that contributes to the development of MCs and graduates professionals that can contribute sustainable value in their organizations. The CMA candidate must develop a requisite set of MCs to achieve certification. The employer's challenge is to find a competent professional that possesses, and can develop or enhance, MCs. The solution is likely not to be found in one particular learning environment, such as the classroom or the workplace, or in one particular size of organization, but rather an appropriate balance between various factors. In order to understand how the CMA PEP contributes to MC development, it is first necessary to understand the role played by both the program itself and various underlying factors.

1.7. Research Questions

This section outlines the foundational objectives for this study, and identifies the primary research question along with the three investigative research questions. The investigative questions will be answered through the testing of ten hypotheses identified in chapter 3.

1.7.1. Foundational objectives.

Based on the research problem defined in section 1.6, this study is based on four major objectives:

1. Identify whether or not the CMA PEP contributes to bridging the MC expectations gap.
2. Obtain a better understanding of where certain MCs are more likely to be developed: through prior undergraduate or graduate education, the formal education elements of the CMA programs, work experience, or participation in extracurricular activities.
3. Identify the impact of demographic factors, such as age, level of responsibility, or size of organization on the development of MCs.
4. Identify whether or not significant differences were observed in CMAs' and employers' perceptions of the importance of MCs for CMAs' current jobs and future careers.

These four objectives are grounded in existing research related to what MCs are, their importance to business school graduates and employers, and how MCs might be developed. Each of these objectives is discussed separately.

1.7.2. Primary research question.

It has been argued that university business students are not graduating with the MCs that employers expect them to possess, or that if students possess MCs, they are not at the level of proficiency expected by employers. Regulated professional organizations such as the accounting bodies in Canada acknowledge that recent graduates require more training and experience, which is why professional education programs such as the CMA program exist. The CMA program is intended to contribute to the development of

functional competencies and MCs in pre-professional accountants to the level required to achieve professional certification. It can be reasonably inferred, then, that the CMA program is intended to bridge the MC expectations gap. But how is this achieved? This line of discussion leads to the primary research question for this study: *What role do professional accounting programs play in the development of MCs?*

1.7.3. Investigative research questions.

Trying to understand the role professional accounting programs play in MC development is complicated, as many underlying conditions and factors can affect MC development. Therefore, the following three investigative questions were developed:

1. Do professional accounting programs contribute to bridging the MC expectations gap? (Chapter 5)
2. What factors influence the development of MCs in recently designated professional accountants? (Chapter 6)
3. Are there differences in perceptions between employers and professional accountants regarding the importance of MCs to recently designated professional accountants? (Chapter 7)

To answer these questions, a quantitative study was undertaken to observe and identify any potential interrelationships between various factors that may affect MC development. These interrelationships were tested against ten null hypotheses described further in chapter 3.

1.8. Focus of the Study

This study did not focus on the specific technical competencies required of a professional, nor was this study intended to suggest that technical competencies are not important. This study did, however, seek to understand more fully the development of

higher-order MCs, which encompass, and enable effective application of, the more technical competencies and are key to addressing the crisis of confidence in professionals (Schön, 1987). The study used the CMA PEP as a case example of a professional accounting program. The CMA program was selected over programs offered by other designations because it includes evaluation components (such as a group based board report and presentation) that relate specifically to the MCs that will be studied. This study builds on MISLEM, a study of four European countries conducted by Azevedo et al. (2012). MISLEM focused on the presence of MCs in university undergraduates, especially on "developing meta-level quality indicators for establishing a systematic linkage between educational institutions and the labour market" (Andrews & Higson, 2007, p. 1). The exploratory work for the MISLEM project also aided in identifying and conceptualizing the eight MCs (termed *employability competencies* in the MISLEM project) adopted for this study.

1.9. Significance of the Research

This research is both unique and practically important to a number of potential stakeholders, including professional accountants, employers, professions offering PEPs (including CMA and CPA Canada), university and professional program instructors, institutions emphasizing competency-based education (CBE), and academics interested in research pertaining to competency and MC development. No work has been done to explicitly explore MC development in professional accountants and the role professional accounting programs play in MC development. However, MC development is not influenced solely by an education program; other factors come into play as well. Demographic and personal factors such as gender, age, income, satisfaction (Uma & Manonmani, 2013), experience (Khomeiran, Yekta, Kiger, & Ahmadi, 2006), prior

education, and size of organization, to name a few, may also influence MC development. No apparent work has been done to identify factors that may influence the development of MCs in professional accountants. In addition, the results of the study may provide some insight into the general tendency of professional accountants to reflect on their MC development.

This study may be of particular interest to the Canadian accounting profession, especially as the profession moves to unify all three accounting designations under the CPA banner with a new competency framework that includes MCs (CPA, 2012). Even though this research is focused on the CMA program as a working example of a PEP, the results could be relevant to developers of the new professional program, which will have both in-class/online and workplace learning components. By understanding at which point(s) in the program CMAs developed their MCs, the structure and content of PEP, or its successor program for the CPA designation, can be modified to allow for optimal development of MCs in pre-professional candidates. Other professional, competency-based accounting designations in the US, UK, New Zealand and Australia may benefit from this knowledge as well, since they face the same challenges as their counterparts in Canada to ensure their members are competent. This research is important to Alberta's university system to highlight where graduate MC development might need to be enhanced and suggest ways curriculum and/or course delivery methods could be improved to better meet expectations of employers.

1.10. Overview of the Thesis

This paper is organized into nine chapters:

- Chapter 1 introduced this study.
- Chapter 2 provides a review of the literature related to competency and MCs, competency development, and identification of the MC expectations gap that exists between employers and university business graduates. Chapter 2 lays the groundwork for how PEPs may contribute to bridging the MC expectations gap.
- Chapter 3 outlines the research methodology employed for the study, including determination of sample size, methods of data collection and research protocol, as well as potential research biases.
- Chapter 4 summaries the characteristics of the data collected for the study, and discusses representativeness of the sample to the population for the purposes of assessing generalizability.
- Chapters 5 through 7 are each devoted to one of the three investigative research questions and their related hypotheses. Chapter 5, through testing of four hypotheses, presents the findings of the study in relation to professional accounting program contributions to bridging the MC expectations gap.
- Chapter 6 also tests four hypotheses focused on identifying factors that may influence the development of MCs in professional accountants.
- Chapter 7 tests two hypotheses directed at identifying differences in perceptions between CMAs and employers about the importance of MC development.
- Chapter 8 synthesizes the findings in Chapters 5 through 7 in relation to the literature review by identifying what the study reveals about MC development

and any CMA MC expectations gap, as well as the contribution of the CMA program to bridging any gaps identified. Chapter 8 also introduces a comprehensive MC development framework.

- Finally, Chapter 9 concludes the thesis by identifying the empirical, methodological, theoretical, and practical implications of the study. Chapter 9 also outlines some considerations for further research and ends with the final reflections of the researcher.

1.11. Conclusion

Chapter 1 provided the foundation for this exploratory research study by defining MCs and the expectations gap that exists between the MCs possessed by business school graduates and those that employers expect them to have. It further discussed how PEPs might play a role in bridging that gap. A statement of the research problem was identified, as were the primary and investigative questions. Finally, the scope of the study was identified followed by a statement of the significance of the research, and an overview of the structure of this thesis. Chapter 2 presents a literature review that frames the underlying theoretical and empirical applications of this study.

Chapter 2: Literature Review

This literature review builds the underlying theoretical and empirical framework relating to MCs for this study. The review consists of five sections. Section 2.1 highlights previous research and literature, which defines competencies and MCs and distinguishes between them, and also acknowledges the multiple perspectives and ambiguities that exist in MC research, and the complexity that observing or measuring such abstract and largely subjective constructs involves. Section 2.2 identifies prior empirical research on formal and experiential learning environments, describes how each environment contributes to the development of MCs, and discusses the relationship of learning environments to competency-based post-secondary education. Section 2.3 draws on over 20 years' worth of empirical research to compare and contrast the MCs demonstrated by business students and those expected by employers, and thus identify the gap between acquired MCs and expected MCs. Section 2.4 discusses the potential role of postgraduate PEPs in addressing this expectations gap and lays the foundation for research into MC development, using a Canadian professional accounting program as a working example. Section 2.5 provides the conceptual foundation relating to the influence of personal and organizational factors on MC development, and section 2.6 provides the empirical foundation for research on the importance of MCs to CMAs and their supervisors.

2.1. Defining Competence and Competency

Competency can be broadly defined as "the ability to do something successfully or efficiently" (Oxford British & World English Dictionary, 2013a). Appendix B identifies other definitions published in academic and vocational literature spanning five decades, including works by Albanese (1989); Boyatzis and Kolb (1995); Boyatzis, Stubbs, and Taylor (2002); Brown and McCartney (1995, 2004); Hayes (1979); the

International Federation of Accountants (IFAC, 2002); the International Project Management Association (IPMA, 2006); Jonnaert, Barrette, Masciotra and Yaya (2006); Pastré (2004); and Prahalad and Hamel (1990). The common theme amongst these various definitions of competency is their emphasis on outputs: that possessing competencies enables individuals to perform their jobs effectively and achieve desired outcomes.

What the literature also reveals is that various definitions of competencies differ across multiple dimensions. Boritz and Carnaghan (2003) identified the following six dimensions of competency: (a) skills and abilities alone versus inclusion of personal traits, (b) solely outcome-based versus inclusion of knowledge, (c) activities and skills versus results of activities and skills, (d) defective performance versus superior performance, (e) generally holistic versus atomistic, and (f) observable versus hidden and inferred. These competency dimensions illustrate that there are many different interpretations and approaches to competency, resulting in an "extensive and confusing range of definitions assigned to individual competencies" (Jackson, 2009b, p. 29). Jonnaert et al. (2006) assert that a "genuine theory of competence remains to be constructed" (p. 12), since the many definitions proposed thus far range

> from cognitive skills to workplace outcomes to personal attributes. Indeed, the competency label has been applied to such a wide range of concepts that it is hard to define the meaning of this label and to make useful comparisons among competency-based approaches. (Boritz & Carnaghan, 2003, p. 8)

Jackson (2009a) reaches the same conclusion as Jonnaert et al. (2006) and suggests that key stakeholders such as governments, industry, higher education institutions, and

graduates combine efforts to develop an instrument commonly referred to as a competency profile (Jackson, 2009a).

In the context of regulated accounting professionals, IFAC (2003) defines competencies for professional accountants as content knowledge; technical, functional, and behavioural skills; intellectual abilities, professional judgment and values; and ethics and attitudes. These definitions of competency are accepted by participating international accounting bodies and are also broad enough to include some MCs, as discussed in the next section. For the purposes of this study, which focuses on regulated accounting professionals, competence is defined as the demonstrated ability to apply knowledge and/or skills and, where relevant, demonstrated personal attributes. This competence definition is relatively simple, captures personal attributes that can be the basis for MCs, and is derived from the ISO/IEC 17024 standard "General requirements for bodies operating certification of persons" (International Organization for Standardization, ISO, 2003).

2.1.1. From competencies to MCs.

Anderson and Krathwohl (2001) suggest that *metacognitive knowledge* plays an important role in learning. An example of metacognitive knowledge is students' understanding and control of their own cognition. In the context of cognition, "the prefix *meta* is added to extend metacognition 'above' or to 'transcend' cognition" (Anderson et al., 2001, p. 43). In the same way, the prefix *meta* was added to competencies to suggest that MCs are above or transcend other competencies pertaining to technical knowledge and skills. This assertion of a higher level of competencies supports Brown's (1994) definition of MCs as

> knowledge in all its multi-layered strands while competences are skills which are task specific. . . . Meta-competences are those abilities, skills and capacities which exist above and beyond [i.e. overarch] any competences which an individual may develop, guiding and sustaining them, and from which they originate. (p. 292)

The MCs to which Brown (1994) refers encompass a "range of general education skills that are not domain- or practice-specific, which include communication and interpersonal skills, problem-solving skills, conceptual/analytical and critical skills, visual, oral and aural skills, and judgment and synthesis skills" (Boyce, Williams, Kelly, & Yee, 2001, p. 37). Brown's (1994) notion of MCs as overarching other competencies is eloquently reflected in Cheetham and Chivers' (1996) model of professional competence (see Figure 1) which illustrates how MCs such as problem solving, analysis, creativity, self-development, and communication – which were the focus of this study – influence the development and application of other functional, cognitive, personal, and ethical competencies.

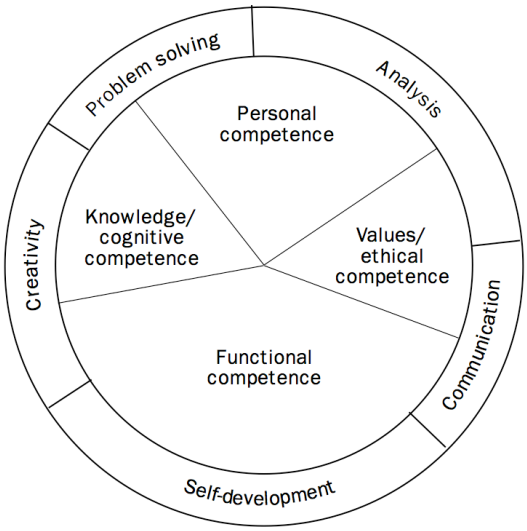

Figure 1. "Towards a Holistic Model of Professional Competence," by G. Cheetham and G. Chivers, 1996. *Journal of European Industrial Training, 20:5,* p. 28. Copyright 1996 by Emerald.

The earliest work related to MC development appears to be that of Bethell-Fox (as cited in Bolton et al., 1999), who identified 20 generic competencies that differentiate between average and superior performers, and grouped them into four broad categories (see Table 2.1).

Table 2.1

Bethell-Fox's Generic Competencies

Category	Generic Competencies	
Cognitive	Analytical thinking	Technical expertise
	Pattern recognition	Use of concepts
Managing	Group management	Developing others
	Directing others	Concern for order
Influencing	Interpersonal sensitivity	Use of influence strategies
	Concern with personal impact	Organizational awareness
	Direct persuasion	
Personal	Initiative	Self-confidence
	Tenacity	Self-control
	Flexibility	Desire to achieve

Note: Adapted from "The capacity spiral: Four weddings and a funeral," by A. Bolton, R. Brown, and S. McCartney (1999), *Journal of Vocational Education*, p. 587. Copyright 1999 by Routledge.

Others (Brown, 1994; Brown & McCartney, 1995; and Bolton, Berman, Brown & McCartney, 1999) have based their competency development research on Bethell-Fox's (as cited in Bolton et al., 1999) categorization of generic competencies and reframed them as MCs. The term *generic competencies* has been used in other recent studies, including Azevedo et al. (2012); Clanchy and Ballard (1995); Fortin and Legault (2010); Jackson (2009, 2010); Quek (2005); Wallace and Hunt (1996); and Willcoxson, Wynder, and Laing (2010). Other terms used to describe MCs include *generic skills, soft skills* (Boyce et al., 2001), *meta-skills* (Hall, 1986 as cited in Grzeda, 2005), or *meta-qualities* (Reynolds & Snell, 1988). The term MCs is, therefore, synonymous with *generic competencies* and is becoming more commonly used. MCs is the term that was adopted

for this study and, following Cheetham and Chivers' (1996) interpretation, will be defined as those competencies which *contribute to a professional's capability to develop, utilize, and refine the other specific competencies professionals are expected to possess.* Section 2.2 will explore what is known about how MCs are developed.

Jackson (2010) reviewed literature to summarize the nature and extent of the graduate skills gap in the UK, Australia and the US for competencies identified as important for graduates to possess, and highlight the ambiguity in definitions assigned to graduate competencies. Jackson's (2010) extensive review identified 39 different MCs categorized into a four-level hierarchy, beginning at graduate-level and progressing through higher-level, threshold, and finally distinguishing (see Appendix C). Graduate-level MCs refer to "the task requirements of graduate positions" (Jackson, 2010, p. 32). Higher-level MCs refer to task requirements of more experienced employees, perhaps at the management level. "Threshold [meta]-competencies, often referred to as key or core competencies, are those considered to be the minimum required of graduates to perform their job adequately" (Jackson, 2010, p. 32). Finally, distinguishing competencies are those that differentiate average performers from high performers. Distinguishing competencies were also identified as a competency dimension by Boritz and Carnaghan (2003). Jackson's (2010) MC classifications suggest that MCs are developed over time and with experience as an individual's intellectual maturity (Perry, 1968) develops. What has yet to be determined (and one of the objectives of this study) is which factors, besides experience and intellectual maturity, contribute to the development of MCs. Jackson's (2010) list of MCs further showcases another approach to classification that is more atomistic than the more generic classifications by Azevedo et al. (2012) or Bethell-Fox

(as cited in Bolton et al., 1999). This is not to suggest that Jackson's (2010) classification is better or more accurate; it is simply different.

It is evident from the research that there are many MCs classified in a number of different ways, and these contribute to a high degree of ambiguity in the definition and classification of MCs. This MC conflation makes it more difficult to align graduate MC development to the expectations of employers and the workplace. However, it appears that there are commonalities amongst the different MCs and the challenge is to classify the MCs, based on their commonalities, in a meaningful manner to allow for effective and focused research. Table 2.2 lists 20 different MCs identified by researchers over the past two decades (Arnold & Davey, 1992; Azevedo et al., 2012 (Austria, Romania, Slovenia, UK); Berman & Ritchie (US), 2006; Cheetham & Chivers 1996, 1998 (UK); Evers, Rush & Berdrow, 1998 (Canada, US); Mayer, 1992 (Australia) as cited in Warn & Tranter (Australia), 2001; O'Neil & Onion (UK), 1994; and Rainsbury, Weil, & Oyelere (New Zealand), 2002).

With the exception of Arnold and Davey (1992), at least five of the MCs identified by all the other authors in Table 2.2 match the eight MCs identified by and studied by Azevedo et al. (2012) in their European MISLEM Project used in this study. The Rainsbury, et al. (2002) study, which is the only known study relating MC development to professional accounting education, is the most closely aligned to the MCs studied by Azevedo et al. (2012), with only self/time management excluded. Arnold and Davey (1992) show the least consistency amongst the other authors because Arnold and Davey focused on competencies that were primarily functional or knowledge-based, and did not distinguish between, or otherwise attempt to classify, the competencies they

studied into functional and MCs. The eight MCs identified by Azevedo et al. (2012) were derived from an exploratory qualitative study of four European countries and there is no way to know if the results would be the same if employees and employers from AB, SK, and MB were interviewed. However, given the commonalities among the studies identified in Table 2.2 spanning over 20 years, there is strong empirical support to suggest that Azevedo et al.'s (2012) eight MCs are important to employers around the world. The Azevedo et al. (2012) MISLEM study is important to both this study and MC research in general because its findings included: the identification of eight key MCs that were considered to be valuable and relevant to employers; and the development of meta-level indicators to measure the value of MCs to graduates' current job activities, the relevance of MCs for graduates' future career development, and how capable graduates were in demonstrating MCs.

Table 2.2

MC Examples Mapped to MCs Studied in the MISLEM Project (Azevedo et al., 2012)

MCs	Azevedo et al. (2012) MISLEM	Rainsbury et al. (2002)	Berman & Ritchie (2006)	Cheetham & Chivers (1998)	Evers et al. (1998)	O'Neil & Onion (1994)	Arnold & Davey (1992)	Mayer (1992)
Communication skills	X	X		X	X	X		X
Team working and relationship building	X	X	X		X	X	X	X
Self and time management	X		X		X	X		X
Ability to see the bigger picture	X	X			X	X		
Influencing and persuading abilities	X	X	X			X		
Analysis		X		X				
Problem-solving abilities	X	X	X	X		X		X
Leadership abilities	X	X	X					
Presentation skills	X	X			X	X		X
Mobilizing innovation and change					X			
Ability to conceptualize					X			
Mental agility				X				
Creativity, innovation, and change				X	X			
Risk taking					X			
Learning				X	X			
Demonstrating ethical awareness		X						
Reflection				X				

2.2. Competency and MC Development

Learners develop skills and competencies predominantly through instruction (formal learning) and/or experience (practical application), and the learner normally passes through five developmental stages: novice, competence, proficiency, expertise, and mastery (Dreyfus & Dreyfus, 1980). Instruction could be considered enough to attain

proficiency at a novice level; however, progressing through higher levels of proficiency requires experience. As one becomes more proficient or competent, dependence on principles falls while dependence on concrete experience increases (Dreyfus & Dreyfus, 1980). The emphasis on concrete, real experience is precisely why trades and professions require work experience prior to certification. For example, bakers, welders, plumbers, and electricians participate in apprenticeship programs either concurrently or after completing formal instruction; public accountants and lawyers article in firms after graduating from university; doctors, nurses, and teachers participate in practicums concurrently with their studies. It is through this combination of instruction and experience that competence is developed, as "competence comes only after considerable experience actually coping with real situations" (Dreyfus & Dreyfus, 1980, p. 12).

2.2.1. MC development through formal versus experiential learning.

As discussed, learning and competency development takes place through instruction and/or through experience. In the context of professional education, this translates to developing knowledge, skills, and competencies in the classroom or in the workplace through practical experience. This is not to suggest that experiential learning does not take place in the classroom or that formal instruction does not take place in the workplace. On the contrary, experiential learning is achievable in the classroom through activities that include discussions and simulations (McBride, Hannon, & Burns, 2005). Likewise, employers provide formal instruction to employees, typically for specialized training and "in-depth learning is regularly expected to take place in co-op settings and on student internships" (Rice, 2006, p. 20). Learning and competency development do not stop when a student exits the classroom and enters the workplace. However, it is generally understood that formal instruction in the classroom is predominantly theoretical

and principles-based in nature and augmented by experiential activities. Learning in the workplace, on the other hand, is generally experiential and augmented by additional formal training or instruction. Students realize the importance of experiential learning and are calling on universities to build more work experience into their education (Bradshaw, 2013).

None of this suggests that formal learning and practice are highly effective or mutually exclusive in maximizing knowledge and competency development. Wright (2003) identifies a number of inadequacies of existing learning models and practices employed in the workplace. Post-secondary institutions have come to accept that traditional approaches to teaching and learning have become antiquated. Higher education has shifted priorities from teaching to learning through outcome-based approaches with intentions to emphasize collaboration, experiential learning and integration of technology (Rice, 2006). For example, the Northern Alberta Institute of Technology (NAIT) is in the process of implementing a new academic plan with foundations in outcomes-based learning (NAIT, 2012) and continues to emphasize its focus on applied research. According to Blackler (1995), knowledge is an active process enhanced through practice and thus, rather than being concerned with different types of knowledge, "attention should be focused on the . . . systems through which people *achieve* [emphasis added] their knowing, on the changes that are occurring within such systems, and on the processes through which new knowledge may be generated" (p. 1021). If MCs are, in essence, "knowledge in all its multi-layered strands" (Brown, 1994, p. 292), and competencies are knowledge-based skills (Brown, 1994), then shifting the

focus to how knowledge and MCs are developed or achieved in practice is necessary for improved program development and delivery.

Jonnaert (2002, as cited in Jonnaert et al., 2006) favours experience over instruction by asserting that competency development is situational because "it is only in situation that a learner can construct, modify or disconfirm his/her situated knowledge and develop competencies that are equally situated" (p. 4). However, Jonnaert does not suggest that such learning takes place only in the workplace, leaving open the possibility of combining experiential learning in a classroom environment. Schön's (1987) work challenges the traditional approach to learning known as *technical rationality* whereby problems can be resolved through the application of scientific or specialist knowledge. Instead, Schön (1983) suggests an approach based on *knowing-in-action* and *reflection*. The former refers to tacit, cognitive knowledge and the latter to "the ability to learn through and within practice" (Cheetham & Chivers, 1996, p. 22) and which Cheetham and Chivers (1996) characterize as a *super-meta-competency*.

So why is this important? This is the allure of managerial competence: if we can identify which MCs are important and better understand how they are developed, then we can train potential managers and professionals to acquire and perfect them (Brown, 1993) either by education, training or some combination of both. It would also be desirable to instil these competencies into students as soon as possible, ideally prior to entering the workplace. But how is this accomplished? The Association to Advance Collegiate Schools of Business (AACSB, as cited in Waldman & Korbar, 2004) suggested the use of behavioural simulations of the real world. This, then, suggests that MCs are less likely to be learned through traditional higher education and more likely through practical training.

It further raises the question of whether or not MCs are taught or learned. Tubbs and Schulz (2006), in their analysis of leadership competencies and MCs, identified two questions frequently asked of leadership scholars: (a) "what competencies and MCs comprise leadership [and (b)] can leadership, in fact, be taught and learned?" (p. 29). In their discussion of *deep smarts* (essentially their own description of MCs), Leonard and Swap (2005) echo Tubbs and Schulz (2006) and believe that, in the context of knowledge transfer, MCs are mostly tacit and experience-based, and thus cannot be taught in the traditional sense, but rather through guided practice, guided observation, guided problem solving, and guided experimentation.

Finally, there is also the question of when students are able to develop MCs given their level of intellectual maturity, which progresses through four stages: dualism, multiplicity, relativism, and commitment (Perry, 1968). The implications here are that the intellectual maturity of students can act as a constraint on their ability to develop MCs, and that experience affects intellectual maturity. This suggests that intellectual maturity may be a contributing factor to MCs and may help explain when individuals develop MCs. Given that intellectual maturity is difficult to assess or measure, additional factors such as age, prior education, level of responsibility, years of experience, and participation in extracurricular activities, all of which are factors to be explored in this study, could be accepted as reasonable indicators for intellectual maturity and experience. Thus, this study provides the opportunity to observe a potential relationship between intellectual maturity, experience, and MC development.

If graduates, managers, and professionals possess all of the attributes described in Appendix C, the necessary knowledge, capabilities and competencies must be developed

somewhere, such as through formal instruction or *in situ* (in the workplace) learning. On-the-job learning is an example of the concept of *situated learning* (Lave & Wenger, 1991, as cited in Wright, 2003), which "stands in contrast to 'traditional cognitive theory' by emphasizing the practical and social dimensions of learning" (Fox, 1997, p. 25). Situated learning, however, is not intended to separate learning from doing (Wright, 2003). On the contrary, working and learning "are interrelated and compatible and thus potentially complementary, not conflicting forces".(Brown & Duguid, 1991, p. 40).

In relation to the development of a professional, the following question arises: *How do formal and experiential environments each contribute to the development of professional competencies and, more specifically, MCs?* Prior research has made it clear that higher-order MCs are important to employers, undergraduate students, and graduate students, to enhance students' employability and career success. However, another question arises as to whether or not universities are producing graduates with the necessary skills required to meet employer needs. In other words: *Do post-secondary business graduates' skills meet employer expectations?*

2.2.2. Competency-based post-secondary education.

Higher education can be defined as a process in which students develop competencies to prepare them for the workplace and, in doing so, enables students to be "adaptive, adaptable, and transformative" (Warn & Tranter, 2001, p. 191). This suggests that education is based on inputs. Thus, CBE is basically the process of turning knowledge (inputs) into competency (outputs); it has been widely used in very practical hands-on vocations such as nursing and medicine (Winskill, 2000). CBE, also known by other terms such as *competency-based training* (CBT) or *performance-based teacher education* (PTBE), has its societal origins in the US in the 1950s (Hodge, 2007) and its

technical foundations in the 1920s. CBE was originally used for training and development in the medical profession; it has since been adopted at the state level to implement federal initiatives such as reformation of primary and secondary education. In the UK, CBE is used primarily for vocational training (Boritz & Carnaghan, 2003), and in Australia, CBE "underpins the National Training Framework" (Hodge, 2007, p. 197). For example, a CBE framework has recently been adopted internationally by many professional accounting bodies in Canada, the UK, the US, Australia, and New Zealand (Boritz & Carnaghan, 2003; Lawson et al., 2014). The common assumption in the literature is that graduates require competencies and that universities help students acquire them.

Building on Evers et al.'s (1998) work, Berman and Ritchie (2006) conducted a study among business students at a US college to observe whether or not "relationships exist between personal characteristics, student background characteristics, and their self-perceived competencies" (p. 207). Berman and Ritchie used a survey instrument developed by Evers et al. (1998), which breaks down the MCs into 17 more specific competencies and skills, ranging from the ability to conceptualize to the ability to manage time. Berman and Ritchie's results indicated "that competence is acquired partially as a result of personal characteristics and experiences outside of the school environment" (2006, p. 208), which included extracurricular activities and work experience. This speaks to the importance of experiential learning on MC development, and also supports the structure of the CMA PEP as having both formal classroom and work experience components. The result of combining competency development, MC development, and learning is an "occupational competence mix" (Cheetham & Chivers, 1996, p. 28) that

comprises the educational and competency profile of each university graduate. The next question that arises is: *do the universities adequately contribute to graduates' occupational competence mix?* As the next section will point out, it appears that they may not.

2.3. The MC Expectations Gap

Universities and other higher-education institutions worldwide are increasingly under pressure to produce highly skilled graduates capable of responding to the constantly changing and complex needs of the workplace (Azevedo et al., 2012). Additional studies that explore the link between MCs and employer expectations, including Gracia (2010), Hardy and Deppe (1995), Jackling and De Lange (2009), and Jackson (2009a, 2010), have reached the general conclusion that MCs are important to employers, who expect university graduates to possess these skills. However, university education has historically emphasized the development of technical competencies over MCs, leading to a gap in MCs, or personal competencies, possessed by graduates versus those MCs expected by employers. The next section explores the empirical evidence that a gap exists between the MCs acquired by undergraduate business students and MBAs, and the MCs that employers expect them to have.

2.3.1. The undergraduate MC gap.

It has been fairly well established that MCs are important to employers (Gracia, 2010; Hardy & Deppe, 1995; Jackling & De Lange, 2009; Jackson, 2009a, 2010). But how important are MCs to the students themselves? This section explores the importance of MC development to undergraduates and identifies the significance of the gap between student developments and employer expectations.

Evers et al. (1998) conducted an earlier empirical study that found four MCs important for success in the workplace after graduation: managing self, communicating, managing people and tasks, and managing innovation and change. Warn and Tranter (2001) conducted a simple quantitative study using a detailed model of MCs and self-assessments "to examine the extent to which the development of MCs in graduates predicted their perceptions of the overall quality of their degree; and fitness for purpose of their degree for entry into the workplace" (p. 191). As Warn and Tranter hypothesize:

> graduates' perceptions of the overall quality of their degree will be influenced by their assessment of the way that their degree developed their own generic competencies; [and] graduates' perceptions of their preparedness for the workplace will be influenced by the development of these generic competencies. (Warn & Tranter, 2001, p. 193)

The study revealed that a limited number of MCs (planning, teamwork, and leadership) do contribute to the graduates' perception of quality of their degree and therefore considered important and valued by undergraduate students, i.e. if possessing these key MCs are perceived to enhance the quality of the degree, then the MCs would be considered important. This raises the question: *Do undergraduate students graduate with the MCs they deem of value and importance?* This question will be further explored through a contextual case of undergraduate accounting students.

2.3.1.1. *MC development gaps in undergraduate accounting education.*

Clearly, both students and employers consider MCs important. Reviewing the literature on accounting education shows that researchers and educators agree on the importance of MCs and have been experimenting with teaching methods to develop MCs. Hardy and Deppe (1995) attempted to address the expectations gap by using a grant from

the Accounting Education Change Commission (AECC) in 1990 to modify university accounting courses to include the "integration of various competencies into the skill base of students as they learn accounting subject material" (Hardy & Deppe, 1995, p. 55). The competencies they integrated included written and oral communication, group work and people skills, critical thinking, and working under pressure—all higher-order MCs. Upon completion of the courses, 80 students were surveyed and the results indicated that, despite reduced emphasis on technical accounting skills, emphasis on the MCs "had a positive impact on student learning and the competencies gained while studying accounting" (Hardy & Deppe, 1995, p. 75). It would seem that Hardy and Deppe's conclusions and recommendations did not catch on in the university teaching community, as the same recommendations were made by Kavanagh and Drennan (2008) 20 years later.

Kavanagh and Drennan (2008) focused on the skills and attributes (including both competencies and MCs) of Australian professional accountants that students perceived to be important, as compared to the actual expectations of employers. Kavanagh and Drennan's findings indicated that, although students are aware of the importance of MCs to employers, employers still expect accounting graduates to possess strong technical accounting and analytical skills. This suggests an MC expectations gap in professional accounting students, which may be the result of a conscious trade-off made by universities to deliver accounting courses – for which the learning objectives are largely technical in nature – that will be recognized by the professional accounting bodies. Kavanagh and Drennan (2008) identified a lag in development of MCs at the university level, an observation that Albrecht and Sack (2000); Bui and Porter (2010); Fortin and

Legault (2010); Hancock et al. (2009); Sin et al. (2007); and Willcoxson et al. (2010) also found in their respective studies. These results show that both employers and students consider non-technical skills and MCs very important. However, as Wilson (2011) observes, it seems that post-secondary institutions have not yet been able to effectively balance preparing students to *become* accountants with preparing them to *be* accountants.

Jackling and De Lange (2009) reached a similar conclusion to Hardy and Deppe (1995) in a study of Australian university graduates and employers indicating that, despite being identified a long time ago, the MC expectations gap problem has yet to be resolved. Jackling and De Lange surveyed 174 graduates about their perceptions of skills emphasized in their undergraduate accounting degrees. The data was compared against the perceptions of 32 employer organizations. Jackling and De Lange's study revealed "differences between what graduates feel is taught in their university course and the skills required for career progression when compared with the skills employers are seeking in graduates" (p. 381). Wells, Gerbic, Kranenburd, and Bygrave (2009) conducted a similar, but smaller and more limited study in New Zealand and came to the same conclusion as well. Other studies, such as those of Cranmer (2006); De La Harpe, Radloff and Wyber (2000); Guile and Griffiths (2003); Mason, Williams, Cranmer, McQuaid and Lindsay (2005); and Wilton (2008), achieved similar results. Clearly, the problem has persisted for over 30 years in the accounting realm.

Of even greater significance to universities and to the accounting profession is Jackling and De Lange's (2009) conclusion that graduates are presumed to possess technical skills and that there now needs to be:

> greater emphasis on generic skills as preparation for employment in accounting [because]…existing undergraduate programs are failing in attempts to provide a broad-based general education together with a specialised professional education to meet the needs of employers of accounting graduates…[and that] it is the generic skill development in graduates that are the more veiled quality for employability and career enhancement (p. 381).

Even more recently, the case for a competency crisis in accounting education is still being made (Brewer, Sorensen, & Stout, 2014; Lawson et al., 2014), and researchers still push for competency-based frameworks to bridge "the gap between the competencies needed for professional success and those taught in our college classrooms today" (Brewer et al., 2014, p. 29). Thus, the general consensus amongst researchers of undergraduate competencies spanning over two decades indicates that: (a) technical competencies are no less important today than they have been in the past, and (b) graduates still leave universities without all the soft skills they need to meet employer requirements.

2.3.2. The MBA MC gap.

Research relating to MC development is not limited to undergraduates. Two recent studies (Camuffo & Gerli, 2004; Rubin & Dierdorff, 2009) provide insights that are valuable for shaping this research study. Each of these is reviewed here in some detail.

Camuffo and Gerli (2004) assessed the impact of competency-based learning methods on MC development of a class of Italian MBAs. Their research question focused on how competency-based analysis could "be developed and integrated throughout all stages of a management education process in order to maximize its effectiveness and,

consequently, to improve its capability of creating value for people and organizations" (Camuffo & Gerli, 2004, p. 241). The Camuffo and Gerli study, grounded in competency-based management education research conducted by Boyatzis (1994), Ballou, Bowers, Boyatzis, and Kolb, (1999), and Boyatzis, Stubbs and Taylor, (2002), took a multi-constituency approach, with students and employers being the primary participants in the study and beneficiaries of its outcomes.

The study focused on two sets of competencies: functional and managerial. The functional competencies include such skills as marketing, logistics, finance and others. The managerial competencies include a number of MCs, including sense-making, information analysis, goal setting, action, initiative, leadership and relationship skills. Camuffo and Gerli (2004) made two observations: (a) that there were consistencies between the targeted MCs and those that were actually developed in MBAs, and (b) that those MCs that were developed in MBAs generally matched employer expectations. Camuffo and Gerli determined that a gap between MBA MCs and employer expectations still exists, although it is less significant than the gap between undergraduate MCs and employer expectations, as described by DeLange and Jackling (2006), Hardy and Deppe (1995), Jackling and DeLange (2009) and others. However, Camuffo and Gerli do not suggest that MBA programs directly contribute to MC development, and identify other potential contributors, including work experience, internships, and projects.

Camuffo and Gerli's study focused on observing whether or not MBA programs contribute to the development of competencies that employers consider important. Rubin and Dierdorff (2009), on the other hand, were concerned with the relevance of management education and conducted a study designed to assess the alignment of MBA

curricula and managerial competencies required by employers. Rubin and Dierdorff focused on a broad set of competency categories, which also included both functional and managerial skills (capturing softer skills as leadership, communication and interpersonal skills). The study concluded "that behavioral competencies indicated by managers to be most critical are the least represented in required MBA curricula" (Rubin & Dierdorff, 2009, p. 208) suggesting that emphasis within MBA programs has been on functional competency development over MC development. Business schools have finally acknowledged the importance of MBAs "to demonstrate soft skills, such as communication, social awareness, and a strong work ethic" (Lawrence, 2013). In fact, very recently, the University of Guelph has adopted five university-wide MC-based learning outcomes for its graduate programs: "critical and creative thinking, literacy, global understanding, communication, and professional and ethical behavior" (University of Guelph, 2013). This development raises the question of how PEPs contribute to development of MCs and opens the door to further research relating to MC development, which is the aim of this study.

The important insights drawn from the studies by Camuffo and Gerli (2004), Hardy and Deppe (1995), Kavanagh and Drennan (2008), Jackson (2009a, 2010), and Rubin and Dierdorff (2009) include:

- Research on business graduate competencies has been extended beyond the undergraduate level.
- Business education has historically emphasized functional competency development over MC development.
- MCs are important and highly valued by employers.

- Undergraduates and MBAs are expected to possess a relatively common set of MCs to be effective and to add value to their organizations.
- A multi-constituency approach for MC research is important.

These insights reinforce the existence of a MC expectations gap between employers and graduates. The preceding discussion raises some potential questions regarding what the *current* role of universities are in meeting employers' MC expectations versus what role the universities *should* play. At this point, the literature makes it clear that the universities do not appear to be doing enough to develop meta-competencies in graduates; ergo, the MC expectations gap. However, for graduates to enhance their own employability, that gap must be bridged, but the question is how? The answer may lie with PEPs. This reason provides some of the motivation to examine the role of PEPs in the development of MCs.

2.4. Bridging the Expectations Gap: The Role of Professional Accounting Education in MC Development

Based on the previous discussion of experiential learning in section 2.2.1, one possible explanation for the MC gap between undergraduate performance and employer expectations could be the lack of supervised work experience (SWE) made available to the student. The MISLEM project conducted by Azevedo et al. (2012) highlighted the importance of work-based learning "in equipping graduates with many of the necessary skills and competencies required in the workplace. Work-based learning in the form of formal work-placements and internships was noted as being particularly valuable" (Andrews & Higson, 2008, p. 45), supporting Jackson's (2009a) conclusion, based on overwhelming empirical evidence, of the importance of work experience. Some desired work experience might be obtained from PEPs, which typically include some type of formal learning, work experience, and a "final examination to determine professional

competence" (Gammie & Joyce, 2009, p. 443). In addition, professions have established competency-based standards (Hagar & Gonczi, 1996). The accounting profession is a prime example of a competency-based profession that relies on a PEP to augment what pre-professionals have learned from their undergraduate business and/or MBA.

Gracia (2010) examined the expectations and conceptions of accounting students vis-à-vis workplace learning and how those expectations and conceptions translated into SWE. Gracia distinguishes between two broad conceptions of workplace learning: technical and experiential. Specifically, students with a technical conception consider SWE an opportunity to develop technical, knowledge-based expertise and competencies, whereas students with an experiential conception see SWE as an opportunity to develop "personal skills and abilities beyond technical expertise . . . using process-based or socio-cultural learning transfer" (Gracia, 2010, p. 51) not unlike the learning transfer process described by Leonard and Swap (2004). Gracia's study supports the assertion that higher-order MCs are developed through experiential learning, echoing Elias and Purcell's (2004) observations in a study of university graduates that expertise and skills developed in higher education are, and can be, amplified by postgraduate education, continuous professional development, and work experience. Elias and Purcell's findings further suggest that professional postgraduate education can play a significant role in bridging the MC expectations gap. In fact, the notion of professional accounting education playing a role in MC development is not new: various studies focused on critical thinking (Baril, Cunningham, Fordham, Gardner, & Wolcott, 1998; Lawson et al., 2014; Wolcott, Baril, Cunningham, Fordham, & St. Pierre, 2002) emphasize that critical thinking is an

important competency for professional accountants to possess, and therefore competency-based accounting education should emphasize the development of this skill.

As discussed above in section 1.2, the role of the professional accountant has expanded beyond that of bean counter to business partner, and that role expansion requires professional accountants to possess the MCs that employers and the profession deem important. However, as noted in section 2.3, post-secondary business education has largely fallen short of developing the required MCs in graduates, which has resulted in a MC expectations gap. Therefore, the responsibility of ensuring that professional accountants possess the requisite MCs falls on the profession itself, through PEPs that include both formal and experiential learning environments. This leads us to a key motivation for this study: considering the efficacy of PEPs in MC development. Are professional accounting education programs successful in helping students develop those MCs they are missing? Do professional accounting programs bridge the MC expectations gap? Given the foundational objectives of the definition of MCs, the environments in which MCs may be developed, the graduate/employer expectations gap, and the potential role professional education may play in bridging that gap, the primary research question for this study arises: *What role do professional accounting programs play in the development of MCs?,* leading to the first of three investigative questions and their associated hypotheses. The first investigative question aims to determine whether or not professional accounting programs contribute to bridging the MC expectations gap; the following four null hypotheses were developed to answer this question:

$H_{1.1}$ There are *no* significant differences in the perceptions of CMAs and employers regarding the capability of CMAs to use MCs in their current jobs.

$H_{1.2}$ There is *not* a gap between the MCs CMAs required for their current jobs and those acquired in the CMA PEP.

$H_{1.3}$ The CMA PEP does *not* enhance MC development.

$H_{1.4}$ Elements of the CMA PEP *do not* contribute to the development or improvement of MCs.

Null hypotheses 1.1 and 1.2 were directly derived from the Azevedo et al. (2012) study which included survey questions delivered to both graduates and employers related to graduate capability to demonstrate the use of MCs. Null hypothesis 1.3 is directed solely at CMA PEP graduates to determine definitely if the program is perceived to enhance MC development. Finally, since the CMA program consists of a number of evaluative elements, null hypothesis 1.4 aims to identify whether or not they contribute to the development or improvement of MCs in CMA candidates.

2.5. Factors Influencing MC Development

It has thus far been established that MCs are complex, subjective constructs that may be developed in many ways. Extending from the identification of the MC university expectations gap in section 2.3, section 2.4 suggests that professional accounting education may be a potential contributor to bridging the gap and an investigative question has been devised to determine if that is indeed the case. However, it is conceivable that other demographic factors may also contribute to the development of MCs. Numerous studies have examined the relationship between certain demographic factors and the

development or presence of certain competencies or MCs. Azevedo et al. (2012) included participation in extracurricular activities in their study. Wickramasinghe and De Zoyza (2008) determined that gender, age, and the number of subordinates (which could reasonably be represented by level of responsibility) were independently related to managerial competency. Huang, Chen, and Lai (2013) were able to show a positive link between job tenure and perceived level of experience. Wallace and Hunt (1996) examined managerial competency elements across hierarchical levels and industry sectors. Singh, Garg, and Deshmukh (2008) were able to determine that "[competency] development by large organizations differ[s] significantly from SMEs" (p. 308). Finally, Pierce and Sweeney (2010) studied the relationship between ethical judgement (which could be considered to be a MC) in accounting trainees and the following five demographic factors: age, gender, education, organization size, and work area (i.e. field of practice).

Given the empirical background suggesting potential relationships between demographic factors and competency development, research related to such factors on the development of MCs in professional accountants is worth pursing. Thus, the second investigative question for this study was derived: *what factors influence the development of MCs in recently designated professional accountants?* To answer this investigative question, the following four null hypotheses were devised:

$H_{2.1}$ The learning environment *does not* influence the development of MCs in CMAs.

$H_{2.2}$ Specific job tasks or responsibilities *do not* influence the development of MCs in CMAs.

$H_{2.3}$ Personal factors *do not* influence the development of MCs in CMAs.

$H_{2.4}$ Organizational factors *do not* influence the development of MCs in CMAs.

Null hypothesis 2.1 seeks to determine if either the formal or experiential learning environments influence the development of specific MCs. Hypothesis 2.2 focuses specifically on job-related impacts on MC development. Finally, null hypotheses 2.3 and 2.4 emphasize potential demographic factor influences (personal and organizational) on MC development.

2.6. MC Importance (Value and Relevance)

In addition to their work that influenced this study of the role of professional accounting education on MC development, Azevedo et al. (2012) also studied differences in employers' and business-school graduates' perceptions of the importance of MCs. Azevedo et al. (2012) identified two important factors in their study: (a) value of MCs to graduates' current jobs, and (b) relevance of MCs to graduates' future careers. They determined that a significant proportion of both employees and graduates perceived MCs to be valuable and relevant. The studies conducted by Azevedo et al. (2012), Jackling and De Lang (2009), Jackson (2010), Kavanagh and Drennan (2008), Wells et al. (2009), and many others suggest a strong empirical foundation for studying differences in employee and employer perceptions of MCs. This observation leads to the third investigative question to be asked in this study: *Are there differences in perceptions between employers and professional accountants of the importance of MCs to recently designated professional accountants?* The following two null hypotheses were used to test this question:

$H_{3.1}$ There are *no* significant differences in the perceptions of CMAs and employers of the *value* of MCs for CMAs to perform their jobs.

$H_{3.2}$ There are *no* significant differences in the perceptions of CMAs and employers of the *relevance* of MCs for future CMA career development.

Both hypotheses 3.1 and 3.2 were derived from the Azevedo et al. (2012) study, which included survey questions delivered to both graduates and employers related to differences in perceptions regarding the value of MCs to graduates' current jobs and relevance to future career development.

2.7. Conclusion

This literature review examined prior empirical and non-empirical works spanning 40 years to define and conceptualize MCs as distinct from other functional competencies, knowledge and skills. After 40 years, there remain more questions than answers regarding the role of educational programs in MC development. Many overlapping, yet consistent and complementary, definitions and interpretations exist, but all of them make use of generally synonymous terms such as *MCs, generic competencies, soft skills,* or *enabling competencies*. The review also identified that MCs are highly valued by employers and are expected to be possessed by business graduates, MBAs, managers, and pre-professionals, including accountants. However, the research has also identified a gap between the MCs possessed and demonstrated by graduates and those that employers expect graduates to have. Additional research has suggested that part of this gap can be explained by the lack of work experience obtained by the graduates. This then leads to the supposition that MCs may be developed both in the classroom and through work experience. Accepting that undergraduate and MBA business education

may not adequately develop required MCs expected by employers, it is conceivable that other post-graduate professional programs may contribute to bridging this gap.

Prior research has taken a broad approach to MC development in business graduates, but some studies have also focused on accounting education, albeit still at the university level. To date it appears that no empirical research has been done to observe the impact of work experience or PEPs on MC development of professionals, especially for professional accounting and the Canadian CMA. The lack of such research represents an opportunity to conduct focused research to examine MC development through a combination of classroom learning and work experience and to determine if professional accounting programs fill in the MC gaps. The examination began with a focus on a specific professional accounting program (the CMA PEP) that both requires and attempts to develop MCs, by adapting the approach of the MISLEM project (Azevedo et al., 2012), to a professional education context. Focusing on the CMA program in particular provided a contextual example of a specific leadership development program and its role in developing requisite MCs. However, given the number of different MCs and classifications identified in section 2.1, any further research must be limited to a manageable set of MCs that are generally accepted as important by employers yet broad enough to capture a range of skills, such as the eight MCs studied in the MISLEM project (Azevedo et al., 2012): communication skills, teamwork and relationship building abilities, self and time management, the ability to see the bigger picture, influencing and persuading abilities, problem-solving abilities, and leadership abilities. Given the foundational themes around MCs, learning, management and accounting education, and the development of a CMA, this research focuses on the following primary research

question: *What role do professional accounting programs play in the development of MCs?* This led to three other related investigative questions:

1. Do professional accounting programs bridge the MC expectations gap?
2. What factors influence the development of MCs in recently designated professional accountants?
3. Are there differences in perceptions of the importance of MCs to recently designated professional accountants?

These questions are explored using the CMA PEP as a case example. The next chapter places this project into a research context and outlines the methodology that the study will follow.

Chapter 3: Research Context and Methodology

Chapter 2 provided a review of the literature pertaining to MCs and their development, and identified an expectations gap between employers and business graduates. From the review of the literature, it appears that post-secondary institutions need to increase their focus on enhancing the development of higher-level MCs that employers and graduates deem important. It also seems that PEPs may play a role in bridging the MC expectations gap by emphasizing MC development in their programs. The suggestion that professional programs could play a role in MC development prompted the formation of research questions that were explored in this empirical study focusing specifically on one professional education program: the CMA PEP.

This chapter is organized into seven sections. Section 3.1 briefly defines the underlying conceptual foundation of the study, including research paradigm, to support the proposed research approach and methodology. Section 3.2 details the purpose of the research and identifies why emphasis on the CMA program was appropriate. Section 3.3 discusses the proposed research objectives and questions to be answered through data collection, analysis, and interpretation. Section 3.4 outlines the research design. Sections 3.5 and 3.6 address potential participant biases and validity. Finally, Section 3.7 identifies the role of the researcher and addresses potential ethical issues associated with the study.

3.1. Research Paradigm

This research study employed a positivist perspective in an attempt to understand the epistemology of MC development of a CMA. While epistemology in general is concerned with knowledge and how it is acquired, there is nothing to suggest that the concept cannot be extended to competencies (which can encompass knowledge), and to MCs to observe how they are acquired. Positivism is based on the belief that all things

are measurable; it employs scientific method to investigate phenomena, identify new knowledge, correct and integrate previous knowledge (Goldhaber & Nieto, 2010), and reveal interrelationships, all of which can form the basis and development of new theories. Positivism is commonly regarded by management and organizational researchers as the dominant philosophical position of management research (Johnson & Duberley, 2000); it assumes that "the only legitimate knowledge can be found from experience" (Eriksson & Kovalainen, 2008, p. 17). Positivism has become one approach to unify management research, given the fragmentation and diffuseness of the science of management (Eriksson & Kovalainen, 2008):

> An additional explanation for the dominance of positivism lies in the nature of management and business knowledge. This knowledge is often functional by nature, and there is a desire for universal truths that would hold across industries, businesses, cultures, and countries. Often managerial implications in research are seen as important value added. (Eriksson & Kovalainen, 2008, p. 17)

It is important to note that the positivist paradigm adopted for this study was intended to drive an exploratory quantitative study, the results of which may lay the foundation for future qualitative work in the fields of MC development in professionals. The positivist approach was not employed to measure MCs, but rather to explore factors contributing to their development, mainly because the MCs studied cannot yet be reliably measured.

This study is modelled after Azevedo et al.'s (2012) MISLEM study, which also adopted a positivist approach. However, the MISLEM study was based on an interpretivist qualitative exploratory study that interviewed unmatched graduates and employers and focused on three key questions, the latter two of which provided the

foundation for the first and third investigative questions in this study. These questions are: (a) Why do students choose to study business at the undergraduate level? (b) What skills and competencies do business graduates lack? (c) What skills and competencies are valuable in assisting graduates make a successful transition to employment? (Andrews & Higson, 2007). The MISLEM project (Azevedo et al., 2012), a qualitative exploratory study, also identified and conceptualized the eight MCs used in their quantitative study; those MCs will also be used in this study.

MC development is a contemporary and growing field of study that has traditionally focused on higher education. The literature review identified many interpretations of competencies and MCs (the so-called soft skills). Numerous studies have been conducted on MCs in relation to education, accounting, and employer expectations. The review also identified theories pertaining to mental development, proficiency, and experiential learning. However, thus far, no studies have emerged regarding the development of MCs of professional accountants and what impact, if any, experiential learning and other factors have on MC development. Conducting a scientific, exploratory study grounded in the positivist research paradigm may yield interesting results and lead to development of new interventions relating to MC development in professionals. Eriksson and Kovalainen (2008) discuss positivism as an appropriate position to take for research such as this study, since the objective is to discover potentially generalizable results of MC development of CMAs over industries, businesses, and experience levels. In addition, accountants (including the researcher) by nature may exhibit more positivistic tendencies given their affinity for numbers, details, and evidence. Where qualitative studies typically capture evolutionary and

transformational development dynamics, quantitative studies capture snapshots of post states (Patton, 2002), further enforcing the choice of research approach for this study. A qualitative longitudinal study focused on the evolution or development of MCs in professionals over a longer term could represent a future stream of research, but is beyond the scope of this study.

3.2. Research Purpose: Contributing to Optimal MC Development in a Professional Accounting Education Program

The accounting profession in Canada is competency-driven (CGAC 2009; CMAC, 2011; CICA, 2012). Achievement of any accounting designation requires the professional to demonstrate a minimum level of competency among a broad set of competencies, including MCs. The notion behind competency-based education, which focuses on professional attributes and outcomes as opposed to individual knowledge or capabilities (Boritz & Carnaghan, 2003), makes sense from a professional perspective because competencies comprise a more broad skill set that is independent of specific jobs, whereas job-specific knowledge can typically be acquired more easily and on an ad-hoc basis. A question that could be asked of the Canadian accounting profession is: *Does the current approach to competency-based accounting education contribute to the development of the MCs required of professionals to competently perform their jobs and to meet the expectations of their employers?* This question led to one of the objectives of this study, which was to focus on the CMA professional accounting program and identify interrelationships between various underlying factors (i.e. learning environment, age, field of practice, experience, etc.), specific elements of the professional development program (i.e. residency sessions, activities, evaluations, etc.) and MC development.

These outcomes may assist developers of PEPs in creating programs that ensure the advancement of the very MCs deemed to be of importance by the profession.

3.2.1. Why focus on CMA?

All three professional accounting programs in Canada (as well as the new unified CPA program) are competency-based and were developed to satisfy a number of stakeholders, including students, employers, regulatory bodies, government, and the public at large. All Canadian accounting designations identify problem solving, decision making, professionalism, ethical behaviour, and written communication skills as requisite competencies. However, the three legacy accounting education programs, and the new CPA program, differ substantially.

At this writing, the CMA, CGA and CA programs are being phased out in favour of the new CPA program; however, this study bridges the time between the existence of the three legacy programs and the development of the new CPA program. Therefore, an understanding of the older programs, and how they were encapsulated into the new one, is necessary to gauge the impact of the research. The CMA program is a nationally developed and regionally delivered program, with three streams: (a) the Strategic Leadership Program (SLP), (b) the CMA for MBA (CMBA) program, and (c) the Prairie Region Executive Program (ECMA). A candidate who holds, at minimum, a baccalaureate degree, has completed the necessary prerequisite courses, and has either successfully challenged or been exempted from the national entrance exam, could enter the two-year SLP. A candidate with an MBA who has successfully challenged or been exempted from the entrance exam could enter the CMBA program, which was an accelerated version of the SLP. Finally, a candidate with a baccalaureate degree and significant experience at a higher management or executive level could enrol in the

ECMA program. Regardless of the program completed, all candidates must pass both the National Board Report and the Presentation to the Board, which together constitute the final evaluations required to achieve the CMA designation. Each stream would generally draw candidates with different levels of experience, with the SLP geared towards younger, entry-level, less experienced candidates; the CMBA, more experienced, mid-level professionals, and the ECMA, executive/senior level professionals with practical experience.

The CGA program was nationally developed, and was delivered through courses that can be taken via distance and/or through accredited post-secondary institutions, with a series of examinations as well as a set of comprehensive final examinations. The CA program was regionally developed and thus differs across the country, but all CA programs relied upon a national Uniform Final Exam (UFE). The CMA program was a nationally developed and delivered program comprised of an entrance examination, mid-point case examination, blended in-residence and distance learning, and group-based outcomes. The CA program drew primarily from younger professionals with an undergraduate or accredited MBA, MPacc, or MAcc program in Canada. However, MPAcc and MAcc programs are essentially versions of the western Canadian CA School of Business (CASB), which are approved as academic credentials. Thus, MPAcc and MAcc graduates are likely to be younger and have less experience than students in conventional MBA programs, who generally have had more work experience.

The new CPA program combines some elements of the CMA program, but is structured similarly to the CA program. The CPA program does not include an entrance examination and culminates in a national Common Final Exam (CFE). Of the three

legacy professional accounting programs, only the CMA program specifically focused on developing leadership and group dynamics, teamwork, and presentation skills. These factors made the CMA a program with explicit emphasis on MCs, and therefore it is the most appropriate program to examine in an empirical study of MC development.

At the beginning of this study, development of the PEP had been halted as all three designations are moving towards unification across the country to adopt the CPA designation, which will result in a new national PEP and include elements of all three existing programs (CPA Canada, 2012). The CMA program is expected to continue through 2015 as the last groups of CMA students complete their programs. Despite the eventual end of the CMA programs, the new CPA program will continue to emphasize MCs and adopt some of the team-based elements of the existing CMA program. Therefore, the results of this study may be relevant to the development of the new CPA program. The study also reveals which elements of the CMA programs should be retained or expanded in the new CPA program.

3.3. Proposed Research Design

This study addressed the primary question: *What role do professional accounting programs play in the development of MCs?* This question was augmented by the following three investigative questions:

1. Do professional accounting programs bridge the MC expectations gap?
2. What factors influence the development of MCs in recently designated professional accountants?
3. Are there differences in perceptions of the importance of MCs between recently designated professional accountants and their employers?

To explore these research questions, the researcher adapted survey instruments from the MISLEM project (Azevedo et al., 2012) that were pre-tested, revised and deployed in a four-country study focused on eight MC clusters. The approach for this study was to independently survey paired samples of CMA program graduates and their supervisors in the provinces of Alberta (AB), Saskatchewan (SK), and Manitoba (MB). The paired-sample approach was intended to mitigate the potential for biased responses that are commonly associated with self-report measures. Surveys were conducted electronically and analyzed statistically for possible trends or commonalities related to MC development in formal and experiential learning environments. Other demographic factors such as field of practice, level of responsibility, and size of organization were examined in order to identify potential interrelationships between demographic factors and MC development. From there, potential new observations and interventions related to MC development, particularly in the context of professional development, emerged. This section provides the details of the research design employed for this study. It includes a description of the objectives of the study, clarification of the research questions, and specifics on research design and sampling. Finally, the approach to data collection, analysis, interpretation, and reporting is outlined.

3.3.1. Objectives and desired outcomes of the study.

This study builds on the MISLEM project (Azevedo et al., 2012) but is focused on the contribution of the CMA PEP to the development of eight MCs in new CMA graduates. Given the emphasis in this study on MCs of the Canadian CMA, the overarching objective is to work with employers and CMA graduates to identify if, and if so, how, the CMA program contributes to filling in the university graduate MC expectations gap described in Chapter 2. Figure 2 presents a provisional MC

development framework derived from the literature review in chapter 2 that provides the foundation for this research by identifying nine potential factors that may affect MC development: learning environment (formal or experiential), prior education, participation in extracurricular activities, age, gender, level of responsibility, organization size, industry, and years of experience.

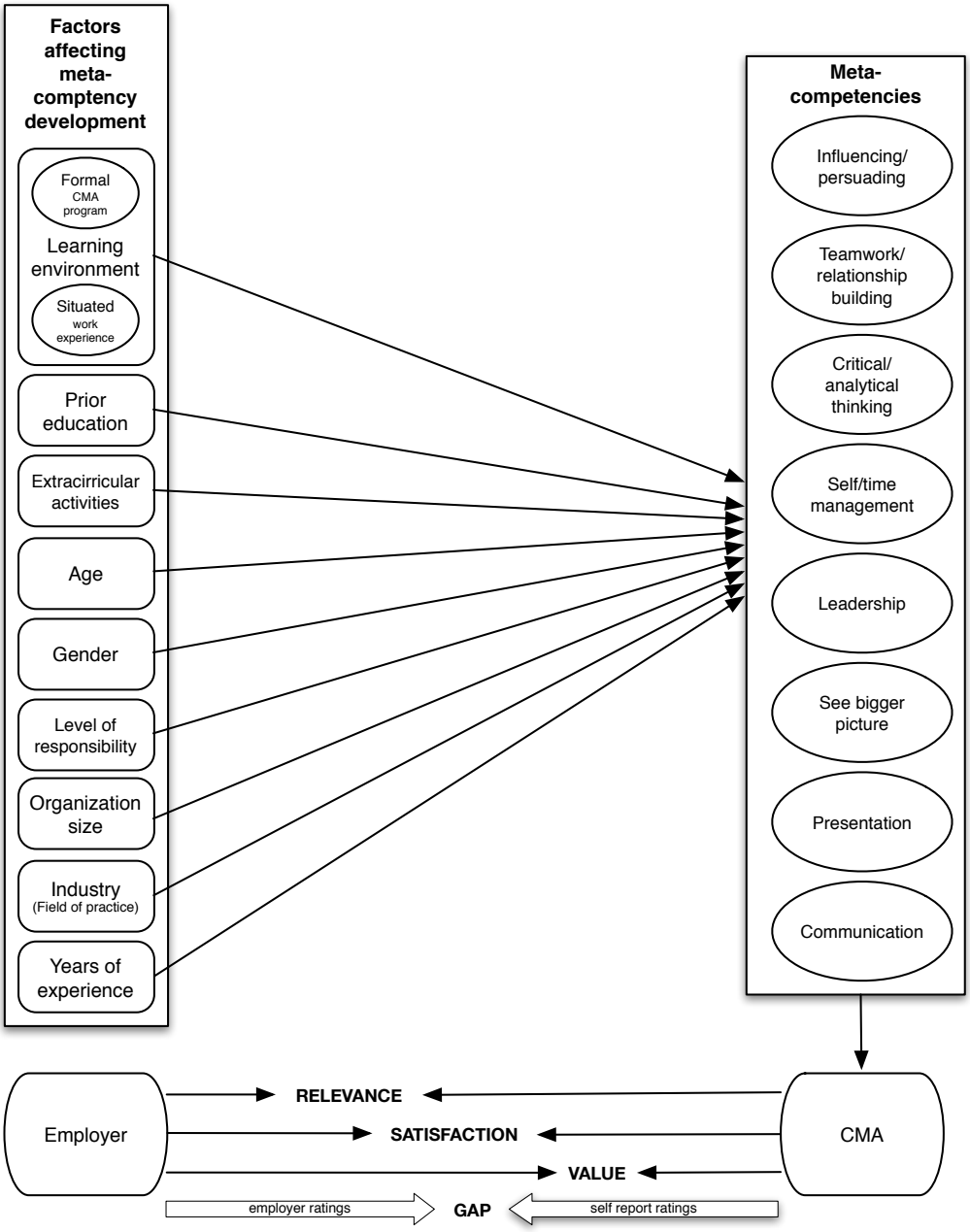

Figure 2. Provisional MC development framework.

All nine factors were incorporated into the CMA survey because they were deemed to be reasonably obtained through an electronic survey, are common among professionally employed CMAs employed in many different industries and levels of responsibility, and have been previously studied. The two learning environment factors were included in the survey because certification requires completion of both the formal CMA program and practical work experience, and each represents a different learning environment. Furthermore, numerous studies (Lave & Wenger, 1991; Lave, 1993, as cited in Guile & Griffiths, 2001; Jonnaert et al., 2006) have focused on situated learning. Prior education was selected as a factor to observe any potential differences in MC development based on degree and educational institution because the CMA designation requires a university degree. The literature (Azevedo et al., 2012; Camuffo & Gerli, 2004; Cranmer, 2006; De La Harpe et al., 2000; Evers et al., 1998; Gracia, 2010; Hardy & Deppe, 1995; Jackling & De Lange, 2009; Jackson, 2009a, 2010; Kavanagh & Drennan, 2008; Lawrence, 2013; Mason et al., 2003; Rubin & Dierdorff, 2009; Warn & Tranter, 2001; Wells et al., 2009; Wilson, 2011) also suggests there were differences between undergraduate and MBA degree graduates. Participation in extracurricular activities was included as a factor to be tested because it was also a factor in the MISLEM (Azevedo et al., 2012) study. Wickramasinghe and De Zoyza (2008) determined that gender, age, and the number of subordinates (which could reasonably be represented by level of responsibility) were independently related to managerial competency. Huang, Chen, and Lai (2013) were able to show a positive link between job tenure and perceived level of experience. Wallace and Hunt (1996) examined managerial competency elements across hierarchical levels and industry sectors. Finally, as Singh, Garg, and Deshmukh (2008) state, “[competency]

development by large organizations differ[s] significantly from SMEs" (p. 308). In addition, Pierce and Sweeney (2010) studied the relationship between five demographic factors: age, gender, education, organization size, and work area (i.e. field of practice), and ethical judgement (which could be considered to be a MC) in trainee accountants.

This study explored potential interrelationships between these factors and also sought to identify potential gaps between the MCs possessed by the CMA and those expected by the employer.

Associated with this objective are the following four desired outcomes:

1. Identify whether or not the CMA PEP contributes to bridging the MC expectations gap.
2. Obtain a better understanding of where certain MCs are more likely to be developed, i.e. through prior undergraduate or graduate education, the formal education elements of the CMA programs, work experience, or participation in extracurricular activities.
3. Identify whether or not demographic related factors such as age, level of responsibility, size of organization, etc. impact the development of MCs.
4. Identify whether or not significant differences were observed in CMA and employer perceptions of the importance of MCs for CMAs' current jobs and future careers.

3.3.2. Research questions.

This section breaks this study down into three components: (a) the primary question to assess the CMA program contribution to MC development; (b) a set of three investigative research questions to determine whether the CMA PEP helps bridge the MC expectations gap, to link MC development to specific factors, to assess the importance of

MCs; and (c) a set of ten hypotheses to be tested to identify significant relationships between data variables collected. The purpose of this study, evolving from the professional question identified in Section 3.2, is to answer the following primary research question: *What role does the CMA professional accounting program play in the development of MCs?* Stemming from this primary research question are the three investigative research questions that will be explored using the CMA PEP as a case study. These questions, identified in the introduction to this chapter, are presented in Table 3.1, along with ten null hypotheses that emerged from those questions. Each null hypothesis is matched with questions in the survey instruments to illustrate the data collected to test these hypotheses.

3.4. Research Design

This research study was built on earlier work by Rainsbury et al. (2002) and the Azevedo et al. (2012) MISLEM Project. It was adapted from a business graduate perspective to a CMA graduate perspective. Based on a review of the literature, the MISLEM Project is the most comprehensive, and most recent, research related to MC development to date. The Rainsbury et al. study of the New Zealand Chartered Accountant Professional Accounting School (PAS) is the only known study to relate MC development and professional accounting education covering seven of the eight MCs in the Azevedo et al. study. However, Rainsbury et al. did not take a multi-constituency approach by including employers in their study. This section outlines the MCs that were studied, describes the instruments used to collect empirical data, and details how the data was collected and analyzed.

Table 3.1

Table of Data Analysis

Primary research question / Null hypothesis		Survey Questions: CMA	Survey Questions: Supervisor
1. Do professional accounting programs contribute to bridging the MC expectations gap?			
$H_{1.1}$	There are *no* significant differences in the perceptions of CMAs and employers regarding the capability of CMAs to use MCs in their current jobs.	10, 11, 14, 15	5, 6, 9, 10
$H_{1.2}$	There is *not* a gap between the MCs CMAs required for their current jobs and those acquired in the CMA PEP.	13	7
$H_{1.3}$	The CMA PEP does *not* enhance MC development.	2, 3, 5, 7, 8, 9, 21, 25, 26, 27, 28, 30	n/a
$H_{1.4}$	Elements[a] of the CMA PEP *do not* contribute to the development or improvement of MCs.	7, 22, 26, 27, 28, 30	n/a
2. What factors influence the development of MCs in recently designated professional accountants?			
$H_{2.1}$	The learning environment[b] *does not* influence the development of MCs in CMAs.	2, 3, 4, 5, 7, 8, 9, 19, 21, 23, 24, 25, 26, 27, 28, 30, 32	n/a
$H_{2.2}$	Specific job tasks or responsibilities *do not* influence the development of MCs in CMAs.	21,10, 14	n/a
$H_{2.3}$	Personal factors[c] *do not* influence the development of MCs in CMAs.	13, 2, 3, 5, 6, 7, 8, 9, 18, 23, 26, 27, 28, 30	n/a
$H_{2.4}$	Organizational factors[d] *do not* influence the development of MCs in CMAs.	21, 11, 15, 31, 32	n/a
3. Are there differences in perceptions between employers and professional accountants of the importance of MCs to recently designated professional accountants?			
$H_{3.1}$	There are *no* significant differences in the perceptions of CMAs and employers of the *value* of MCs for CMAs to perform their jobs.	12	6
$H_{3.2}$	There are *no* significant differences in the perceptions of CMAs and employers of the *relevance* of MCs for future CMA career development.	16	10

[a]Specific elements of the CMA SLP include management reports and assignments, facilitated residency sessions, residency session activities, moderators, case examination, written board report, and board report presentation. [b]Applicable learning environments are either formal or experiential. [c]Personal factors include post-secondary institution attended, previous degree(s) obtained, work experience, possession of an MBA, participation in extracurricular activities, age, gender, and level of responsibility. [d]Organizational factors include size of organization and industry.

3.4.1. MCs studied.

This study sought to observe how the CMA professional accounting education program contributes to the development of eight MCs (Table 3.2) identified in the literature. Since this study relied on an adapted version of the MISLEM project's (Azevedo et al., 2012) survey instruments, the same MCs were studied and the questions in this study matched those in the MISLEM project almost exactly.

Table 3.2

Generic Competencies Studied in the MISLEM Project (Andrews & Higson, 2007, p. 19)

Generic [meta] competencies	Definition
Communication skills	The ability to communicate clearly and concisely, using a range of verbal and written message.
Team-working and relationship building abilities	The ability to work in teams and to utilize appropriate interpersonal skills to build relationships with colleagues, team members, and external stakeholders.
Self and time management	The ability to organize oneself, one's time and one's schedule effectively in any given work-related situation.
Ability to see the 'bigger picture'	The ability to see how things are interconnected to approach work related issues in a strategic and innovative manner.
Influencing and persuading abilities	The ability to communicate at all levels using influencing techniques and negotiation skills to positively influence others.
Problem-solving abilities	The ability to analyze problems and situations in a critical and logical manner and to apply workable and logical solutions to such problems.
Leadership abilities	The ability to lead a team while taking responsibility for a task, giving direction, providing structure, and assigning responsibility to others.
Presentation skills	The ability to prepare and deliver effective presentations to different audiences in a wide range of circumstances.

The eight MCs were studied in relation to CMA capability to demonstrate their use, their perceived value to CMAs' current jobs, and their perceived relevance to CMAs' future careers, and were measured on a 7-point Likert scale.

3.4.2. Workplace situations studied for recall and satisfaction.

CMAs and supervisors were asked whether or not they could recall eight different work situations in which the CMA would have to demonstrate the use of each MC (Table 3.3). Both CMAs and supervisors were then asked to identify how satisfied they were with how the CMA handled each situation on a 7-point Likert scale, ranging from 1.0 (*very dissatisfied*) to 7.0 (*very satisfied*).

Table 3.3

Workplace Situations and Corresponding MCs

Workplace Situation	Corresponding MC
Influence someone's point of view	Influencing and persuading
Work closely with a team	Teamwork and relationship building
Critically analyze a difficult problem in order to identify causes and offer alternative solutions	Critical and analytical thinking
Organize a project or event by yourself	Self and time management
Take a leading or coordinating role on a team	Leadership
Demonstrate knowledge of the company at a strategic level	Ability to see the bigger picture
Deliver a presentation in front of a group	Presentation
Write a business report in a clear and concise manner	Communication

Note. The workplace situations used in this study are exactly the same as those used in the Azevedo et al. (2012) MISLEM study.

3.4.3. Survey instruments.

Data for this study were collected from two sources of primary data: (a) a competency evaluation survey instrument completed by the CMA adapted from the MISLEM study to focus specifically on generic MCs; and (b) a similar survey, completed by the CMAs' direct supervisor.

3.4.3.1. *MC evaluation survey instrument – CMA.*

The survey instrument was deployed over the internet via SurveyMonkey to CMAs (Appendix D) who had successfully completed one of three CMA PEP streams: Strategic Leadership Program (SLP), the CMA for MBA (CMBA), or the Prairie Region Executive CMA (ECMA), between 2008 and 2013. The survey consisted of 33 questions that enabled the respondent to assess the value of the eight key MCs to the CMAs' current job and future career as well as their capability to use the MCs. Additional questions attempted to identify which learning environments (i.e. the SLP, practical experience, and extracurricular activities) and which elements of the SLP (assignments, exams and evaluations, residency sessions, moderators, and activities) may have contributed to the development of specific MCs. Finally, general demographic data were collected to provide opportunities for other potentially meaningful analysis pertaining to MC development based on specific demographic factors.

3.4.3.2. *MC evaluation survey instrument – employer.*

The survey instrument (Appendix E) deployed over the internet using SurveyMonkey to direct supervisors of the recently designated CMAs consisted of 22 questions that enabled the respondent to identify perceptions of the value of the eight key MCs to the CMA's current job and future career as well as the CMA's capability to use the MCs. Additional questions were included to identify which learning environments (i.e. the SLP, practical experience, and extracurricular activities) may have contributed more to the development of specific MCs. Finally, general demographic data were collected to provide opportunities for other potential future analysis pertaining to MC development.

3.4.4. General methodology of the study.

The study essentially followed a six-step process:

1. The MISLEM project (Azevedo et al., 2012) survey instruments for both the CMA and employers were adapted by eliminating questions related to business knowledge (which was not the focus of this study) and adding questions to gather additional demographic data. The questions relating to MC analysis remained largely unchanged, included the same 7-point Likert response scales, and were presented in the same order.
2. The surveys were pilot tested with a convenience sample of ten CMA program graduates with whom the researcher was acquainted. Five supervisors participated in the pilot testing as well. Feedback from the pilot testers was collected and the surveys were modified slightly prior to finalization and full deployment. The following changes six modifications were made:
    - All references to the SLP were expanded to include the CMBA and ECMA programs.
    - An initial question asking if the CMA had successfully completed the SLP within the past five years was determined to be redundant (based on participant screening) and removed.
    - A questions asking which program the respondent completed was added.
    - A question asking if the CMAs had been employed in their current jobs for the last three months was eliminated and replaced with a question asking how long they have been employed in their current position.

- Questions asking CMAs to identify whether or not they were satisfied with how they handled situations requiring the use of MCs were modified from a bimodal to 7-point Likert scale response.
- The question relating to whether or not a gap exists between the MCs the CMA possesses and those acquired in the SLP was eliminated.

3. Ethics approval was obtained from the Athabasca University Faculty of Business Research Ethics Review Committee (Appendix H).
4. Using direct email, LinkedIn, and Facebook, contact was initiated with CMAs who completed one of the three PEPs (SLP, CMBA, and ECMA) between 2008 and 2013. Interested participants replied to the researcher and were issued unique participation codes and links to the survey. Participants were also asked if their supervisors would be willing to participate. If they indicated that the supervisor would participate, the CMAs were instructed to provide direct contact information to the supervisor to confirm and to provide a unique participation code and link to the supervisor survey. A flowchart of the protocol followed for data collection is found in Appendix F.
5. Once the survey was closed, the data was imported into SPSS for statistical analysis to identify significant relationships between the MCs, the learning environment and various demographic factors identified in Figure 2.
6. The results were interpreted and reported.

The original MISLEM Project (Azevedo et al., 2012) could not utilize paired samples due to ethical complications in the UK where graduates were uncomfortable participating “in a study in which their supervisor or employers were also involved. It

was, therefore, decided to separate the two different groups and to conduct two simultaneous, but totally separate surveys" (Andrews & Higson, 2007, p. 21). As a result, the employer had to think of a particular student graduate in his/her employ and whom the employer directly supervised. This study was, to some extent, able to accomplish what Azevedo et al. (2012) were unable to do by establishing a stronger link between the CMAs and supervisors who elected to participate. The potential ethical issue encountered by Azevedo et al. (2012) for the MISLEM was determined to be low in this study, since participation by both the CMA and the employer is voluntary and at the request of the CMA. In addition, only aggregated data will be provided to the participants. Further ethical considerations are addressed in Section 3.7.

3.4.5. Population and sample design.

There are over 10,000 active CMAs in AB, SK, and MB. Of the total membership, 2,234 represented the target population having completed one of the three CMA programs between 2008 and 2013 broken down by province as follows: AB, 1,637; SK, 365; MB, 232. Empirical data was collected through a convenience sample of volunteers drawn from the population of CMAs and their immediate supervisors. The paired sample approach contributed to the validity of the study.

Three tests were conducted to determine a desirable random sample size: (a) cross-tabulation test; (b) population means test; and (c) population proportions test (Appendix G). The cross tabulation estimate population (Table G2; Appendix G) test was based on a maximum cross tabulation of a 7-point Likert scale, to be assessed against a maximum of three other variables, such as the number of provinces. The result yielded a suggested sample size of 210. The proportions means test (Table G3; Appendix G), based on a 95% confidence level, a desired level of accuracy on the 7-point Likert scale of 0.15,

and an estimated standard deviation (*SD*) of 1.5, yielded a sample size of 328. Finally, due to the inclusion of a bimodal question on the survey pertaining to gender, a proportions test (Table G4; Appendix G) was also conducted, yielding a sample size of 92 based on a 95% confidence interval and 10% precision on the 7-point Likert. Based on the results of the population tests, a minimum sample size of 328 (representing 14.68% of the population) was desirable given the structure of the survey instrument.

3.4.6. Sampling strategy and data collection.

The study was undertaken over a 90-day period commencing on September 15, 2013 and ending on December 15, 2013. From a finite population of 2,234 CMAs eligible to participate in the study, the researcher was able to contact and invite 1,276 CMAs to participate, representing 57.1% of the population. Support was obtained from CMA Alberta, CMA Saskatchewan, and CMA Manitoba to appeal for volunteers to participate in the study. Due to strict confidentiality, the provincial offices could make their member lists available directly to the researcher. CMA Saskatchewan and CMA Manitoba were able to extend an invitation to the target population via email on behalf of the researcher; however, CMA Alberta did not, based on their member communication policy. Invitations were also included in each province's monthly member communication newsletters for the months of September to November 2013. Since the provincial CMA offices were unable to provide the researcher with any direct contact information for potential participants, alternate means of contacting potential participants were necessary. The methods used to contact potential participants included direct email, referrals, and social media via Facebook and LinkedIn. Facebook is a popular and well-known personal social media networking service and LinkedIn is a business-oriented social media service. Both Facebook and LinkedIn, among others, are increasingly

becoming useful in academic research (Al-Badi & Hinai, 2013; Hamilton & College, 2011). This popularity is demonstrated by MacQuarrie's (2011) survey of professional accountants in 18 countries. MacQuarrie observes that LinkedIn and Facebook are the two most popular social media services used by accountants, with LinkedIn having become established "as the premier social media site among business professionals" (2011, p. 6).

Ethics approval (Appendix H) was obtained on September 6, 2013 and data collection commenced on September 15, 2013. Data collection ended on December 15, 2013. To increase interest in participation in hopes of achieving the desired 328 paired samples, an appeal to social conscience was made: $2.00 would be donated to World Vision Canada for each completed questionnaire ($4.00 per paired sample) with the potential to raise a total of $5,212. In an attempt to increase the response rate, an additional incentive for a draw to win an iPad Mini was introduced at the halfway point of the data collection period. Each participant was issued a unique code to allow electronic survey data collection via SurveyMonkey.

3.4.7. Recruitment of participants.

In order to maximize participation in the study, participants were recruited via four concurrent methods: (a) direct emails from the CMA provincial bodies, (b) direct contact by the researcher, (c) notifications in the provincial CMA newsletters, and (d) referrals from other participants. The first method engaged the CMA, Saskatchewan, and Manitoba provincial bodies to send emails to the CMA participant population in those provinces to invite them to participate in the study, as well as to post invitations in their respective provincial newsletters. Interested CMA participants were directed to contact the researcher directly by email or telephone. This method could not be used in AB, as

CMA Alberta's member policy did not permit sending members emails on behalf of third parties.

The second data collection method was to recruit participants through direct email by the researcher. The names of all potential CMA graduate participants were publicly available, as they were published in the *Globe and Mail* in the year they graduated and were awarded the designation, as well as in the publicly available provincial annual reports of each provincial affiliate. The researcher attempted to find and contact potential participants through publicly available means, including Google, LinkedIn, Facebook, and referrals from other participants.

The third data collection method included an appeal for participants in the provincial newsletters of CMA AB, SK, and MB. The fourth method of data collection included a request for referrals to potential qualified participants as part of the thank-you script at the end of the CMA survey (Appendix D) and in all other data collection methods previously described.

The research protocol relied on paired samples of both a CMA and his/her direct supervisor. Once CMAs agreed to participate, the researcher requested that the CMA confirm his/her direct supervisor's willingness to participate and provide the researcher with the supervisor contact information including name and email address. A separate email was sent to the supervisor requesting confirmation of his/her willingness to participate. Once confirmation by the supervisor was received, unique codes were created to identify the participants as a pair. An email was sent to each member of the pair containing the unique ID code and a link to the online survey. Neither the survey link nor code were to be shared with, or provided to, the other participant in the pair. Once the

survey links and codes were issued, the participants were able to access their survey and enter their code to proceed. Though paired sampling was desirable to increase the validity of the study, all qualified CMAs interested in participating were accepted regardless of supervisor participation.

3.4.7.1. *Participant inclusion and exclusion criteria.*

CMA participants must have completed one of the three professional programs between 2008 and 2013 inclusive from the provinces of AB, SK, or MB. CMAs, ideally, had been employed in their current role for a minimum of three months. Supervisor participants were to have directly supervised the CMA in his/her current role, or have previously directly supervised the CMA within the past six months. Potential participants not meeting the inclusion criteria were excluded from participating.

3.4.8. Data collection protocol.

As outlined in section 3.3.3.2 of this proposal, three key investigative questions and ten hypotheses were devised (Table 3.1). The questions and hypotheses were explored through data collected via electronic surveys distributed to voluntary participants via SurveyMonkey. Two surveys were used: a 33-question survey for CMAs and a 22-question survey for supervisors. The following procedure was employed:

1. The researcher made contact with the CMA population and invited them to participate.
2. Interested participants were directed to contact the researcher directly.
3. The researcher confirmed eligibility and requested supervisor participation.
4. Once the supervisor agreed to participate, the researcher requested direct contact information for the supervisor and made email contact directly with the supervisor to confirm interest in participating.

5. Once supervisor participation was confirmed, special codes were assigned to the pair with separate links to the SurveyMonkey survey.
6. If a supervisor declined to participate, the CMA was still eligible and a code and link were issued to the single participant.
7. Each participant was directed to either a CMA survey link or Supervisor link, where participants were prompted to enter their unique code to indicate informed consent and begin the survey. The codes were appended to the survey results to allow for anonymous identification and matching of pairs.
8. Surveys were completed by the participants.
9. Data was collected, aggregated and statistically analyzed.

Randomized codes were determined as follows:

1. A 4-digit random number was created using Microsoft Excel.
2. The first 2 digits corresponded to letters in the alphabet (for example A=1, B=2, etc.), which were used as a prefix, strictly for randomization purposes.
3. A letter was appended to the end of the code to indicate participant (A) or supervisor (B).

For example, random number 7434 would result in codes GD7434A and GD7434B for the CMA and supervisor, respectively.

3.4.9. Data analysis and interpretation.

All data collected was imported into SPSS and then subjected to descriptive and statistical tests. To test that the sample was representative of the population, the sample was compared to the population using proportions tests based on the demographic, including CMA program completed, year of program completion, province, and gender. Representativeness is discussed in greater detail in Section 4.3. If the sample was deemed

representative, then the results of the study may be generalizable to the population. The responses of the surveys were statistically tested and analyzed to observe relationships, significant differences in responses, and correlations among various variables.

Data was analyzed using descriptive statistics as well as significance testing. The data was first tested for normality using descriptive statistics and normality plots. All the data proved to not be normally distributed; therefore, only nonparametric tests could be employed. Testing of significant differences between CMAs was conducted using chi-squared (χ^2) tests on nominal data and nonparametric 2-independent Mann Whitney *U* (M-W) and *k*-independent Kruskal-Wallis (K-W) ANOVA tests for the remaining ordinal and interval data. The M-W test, also known as the Wilcoxon rank sum test, is the nonparametric counterpart to the two-sample *Z* or *t*-test and is used to compare the location of the distribution of two independent sample populations (based on medians) conducted on ordinal data when the *t*-test cannot be used due to a non-normal distribution (Bowerman et al., 2008; Cooper & Schindler, 2011). For each M-W test conducted, the null hypothesis presumed that, for each of the eight MCs, or seven CMA program elements, the probability distributions were identical across each demographic variable. The K-W test is a one-way analysis of variance of ranks of *k*-independent samples (i.e. greater than two) and is an acceptable extension of the χ^2 test for ordinal or interval data proven to not be normally distributed (Cooper & Schindler, 2011). For each test conducted, the K-W test null presumed that, for each of the eight MCs or seven CMA program elements, the population medians were equal across each demographic variable.

Testing for significant differences in responses between CMAs and supervisors was conducted using nonparametric 2-related sample sign and Wilcoxon matched-pairs

(a.k.a. Wilcoxon signed-rank) tests. Given the highly positively skewed population and the relatively small paired sample size (n = 39), "the population median might be a better measure of central tendency than the population mean" (Bowerman et al., 2008, p. 504). The data collected were well suited to be assessed using the sign test, which is valid for any sample size and population distribution (Bowerman et al., 2008). The sign test assumed the number of pairs where supervisor responses exceed CMA responses and vice versa. However, the test was limited in its ability to assess the direction and magnitude of differences between the paired samples. To address this deficiency, the Wilcoxon Signed Rank test was applied with the assumption that the probability distributions of supervisor ratings and CMA ratings were identical. The Wilcoxon matched-pairs test is considered to have "excellent efficiency and can be more powerful than the *t*-test in cases where the latter is not particularly appropriate" (Cooper & Schindler, 2011, p. 671).

3.5. Potential Research Biases

This section identifies and address potential research biases that may have affected the study: specifically, self-report, SDR bias, sampling, non-response and non-completion, and hypothesis awareness biases.

3.5.1. Self-response bias.

Given that this study relied on the primary participants (i.e. the CMAs) to self-assess their level of perceived capability for the eight MCs identified, there is an inherent risk of self-response bias; therefore, great care was taken when interpreting any results as "student self-assessments or student self-reports on learning outcomes are only moderate predictors of cognitive learning . . . and . . . weaker students are more likely to over-predict their abilities" (Moskal, 2010, p. 314). This does not suggest that participants

were less than truthful in their responses; participants may truly believe they are more capable at using MCs than they actually are. Alternatively, respondents may have under-estimated their abilities.

Even though participants were assured of anonymity, self-response bias cannot be compensated for completely; there is no way to control how people want to think of themselves and their abilities. However, there were some mechanisms built into the study that may have mitigated or lessened the risk to some extent. First, utilizing the paired sample approach requesting supervisor assessments of CMA competency was an attempt to validate the CMA's self-evaluation. Second, as regulated professionals, CMAs are required to undertake periodic review of their skills and abilities as part of CPLD; thus, they are expected to be self-reflective – though the effectiveness of CPLD in meeting this goal is indeterminate and beyond the scope of this study. Upon analysis and interpretation of the data collected, self-response bias may become evident. For example, if there were significant statistical differences between CMA and supervisor assessments of MC proficiency where CMA respondents rated themselves higher than the supervisors did, then it may be concluded that self-response bias exists, and the rest of the data must be carefully interpreted.

3.5.2. Social desirability response bias (SDR).

In addition to self-response bias, this study carried the potential risk for SDR, in which:

> respondents are often unwilling or unable to report accurately on sensitive topics for ego-defensive or impression management reasons. The result is data that are systematically biased toward respondents' perceptions of what is 'correct' or socially acceptable . . . and has been found to occur in virtually all types of self-

> report measures and across nearly all social sciences literatures (e.g. Levy 1981; Peltier and Walsh 1990; Robinette 1991; Simon and Simon 1975; Zerbe and Paulhus, 1987). Not only is social desirability bias pervasive, but it can lead to the reporting of spurious or misleading research results. (Fisher, 1993, p. 303)

One common technique researchers can use to mitigate SDR risk is asking indirect questions that require respondents to answer from a perspective different from their own (Fisher, 1993). Given the nature of the data being collected, indirect questioning was not possible for this study. However, pairing CMAs and supervisors did provide an opportunity to obtain different perspectives. Paired sampling may have helped to reduce the potential for SDR; however, for responses requiring recollection of specific job situations in which the CMA had to demonstrate MCs, each respondent may have recalled different situations, which could result in response biases, either favourable or unfavourable.

3.5.3. Potential sampling bias.

Similar to Jensen's (2012) study of the critical thinking MC, participants self-selected themselves into this study, thus possibly introducing a potential bias, because a CMA "with particular attributes could either volunteer or abstain from being part of the study" (Jensen, 2012, p. 45). Jensen attempted to compensate for this and other potential biases, as well as attempting to avoid quota sampling with a control group. Utilization of a control group was not possible for this study.

Two other sampling bias risks may also have come into play. First, CMAs satisfied, or dissatisfied, with the CMA program may have self-selected themselves for participation and provided biased responses based on their level of satisfaction or dissatisfaction. Second, CMAs who were more certain that their supervisors would

provide favourable responses of CMA MC capability were more likely to invite their supervisors to participate, potentially resulting in biased or unbalanced supervisor responses.

3.5.4. Potential for non-response and non-completion of the survey instrument.

The demand for survey research is on the rise; however, response rates for surveys have been declining for two main reasons: contacting people is difficult, and more people are refusing to participate (Porter, 2004). Given the manageable length of the survey instruments, the voluntary nature of participation, and appeal to social conscience through a charitable donation for each completed survey, it was expected that participants would fully complete the surveys.

3.5.5. Potential for hypothesis awareness.

When participants become aware of the nature of a study, it is conceivable that they will develop an expectation or hypothesis (which differ from that of the researcher) about the purpose of the study, and this may influence their behaviour (Adair, Sharpe, & Huynh, 1989). This is known as *hypothesis awareness,* and it has the potential to taint the results of the study (Jensen, 2012). Given the nature of this study, invited participants could have inferred a particular hypothesis vis-à-vis MC development and chosen to participate, or not participate, as a result. Alternatively, respondents may have elected to participate but not complete the instruments truthfully, thereby potentially skewing the results to meet a particular bias they may hold. The paired sample approach employed in the study may have assisted in reducing the potential for untruthful responses. In addition, since each CMA is bound to a code of conduct, professional ethics may have acted as a mediator against potential hypothesis awareness bias.

3.6. Validity

Quantitative research embodies a number of inherent issues associated with the measurement of relationships between variables. These issues include replicability, reliability, internal validity, and external validity (Johnson & Harris, 2002). Internal validity is further comprised of content, construct, and criterion-related validity. Content and construct validity cannot be assessed because subjective constructs of capability and satisfaction cannot be reliably measured. Internal and external validity cannot be inferred because causal relationship cannot be established in this study. Each of these remaining issues will be addressed in turn below.

3.6.1. Replicability.

If the results of a research study are not replicable, "then either the original research is of questionable quality or is of limited generalizability" (Johnson & Harris, 2002, p. 102). Given that this proposed study (a) essentially replicated a portion of the MISLEM study (Azevedo et al., 2012), (b) using a survey instrument that has been pre-tested prior to deployment, (c) drew a sample from a known population; and (d) used accepted statistical methods for analysis, replicability, and therefore generalizability to the accounting profession, is expected to be high.

3.6.2. Reliability.

Reliability is based on the premise that the operation of the study or measurement instrument can be duplicated to yield the same results, repeatedly, under similar circumstances (Johnson & Harris, 2002). This study relied on a 7-point Likert scale (ranging from *strongly disagree* to *strongly agree*) to measure subjective constructs of competency and satisfaction related to MCs. If the study were to be repeated with the

same instruments, protocols and participants, the same results could be expected. Therefore, a high level of reliability can reasonably be expected.

3.7. Role of the Researcher and Ethical Considerations

The researcher is a CMA in the province of Alberta as well as a Fellow of CMA Canada (FCMA). The researcher has previously been involved with the SLP as a moderator and marker and in the foundation phase of the ECMA, so ethical concerns may have been an issue in the study. However, at the time the research was conducted, the researcher was no longer involved in the delivery of any CMA programs.

The role of the researcher for the purpose of this study was essentially to recruit participants, gather and statistically analyze the data, and interpret the results. The researcher was independent of the participants, CMA AB, CMA SK, CMA MB, and CMA Canada, and had no vested interest in any results or conclusions drawn from the study. Some of the participants may have been former students of the researcher at a post-secondary institution (NAIT, the University of Alberta, or Athabasca University) or CMA (AB, SK, or MB); however, no authority was exercised over them.

Due to the researcher's status as an FCMA, his teaching history in post-secondary and in CMA programs, and participation in volunteer activities relating to the CMA designation, the researcher was acquainted with some of the participants. The study required recent graduates of the CMA designation, as opposed to other accounting designations in Canada, because of the emphasis placed by the CMA PEP on the MCs studied. The way in which the study was conducted required the researcher to make minimal direct contact with the participants, and the researcher had no formal authority over them.

The research was conducted in three provinces, which make up the prairie region of the CMA membership (AB, SK, and MB). The prairie region was selected for convenience of data collection and manageable population size; as well, the researcher was known by senior executives in each provincial body, so the researcher was able to obtain support to conduct the research.

Despite the possibility of participants being potential acquaintances of the researcher, the study required responses from as many eligible participants as possible, regardless of affiliation with the researcher, in order to achieve the desired sample and rich data. Excluding acquaintances may have potentially affected the data and skewed the results, thus affecting the representativeness of the sample. Conversely, it is acknowledged that including acquaintances may also have potentially affected the data and skewed the results.

3.7.1. Ethics and participant protection.

Formal ethics approval (Appendix H) was obtained through Athabasca University prior to undertaking data collection. Full support of all participants and organizations was imperative to produce the best and most unbiased results possible; therefore, the following elements were incorporated into the study: free and informed consent, voluntary participation, the right to withdraw at any time, privacy and confidentiality.

Survey data collected was imported directly into SPSS once the data collection period was closed, and viewed only by the principal researcher. The data was transferred via a file download from SurveyMonkey. The electronic survey only collected responses and the participant's unique identifier, which was known only to the researcher. No personally identifiable data was collected through the survey instrument. Once the project was complete, the survey and survey data were deleted from SurveyMonkey.

3.7.2. Free and informed consent.

All participants were provided with a letter or email outlining the purpose of the study. The preamble to the surveys also outlined the purpose and scope of the study, how the findings would be used, and the researcher's commitment to the maintenance of confidentiality and identities of the participants. The survey preamble also requested the participant validation code and included the following statement requiring confirmation: "By beginning the survey, you acknowledge that you have read this information and agree to participate in this research, with the knowledge that you are free to withdraw your participation at any time without penalty." Entering the identifier code and clicking to submit constituted informed consent.

3.7.3. Voluntary participation.

All participation was strictly voluntary. Both the CMA and his/her supervisor were willing to participate in the competency surveys; however, each participated independently of the other. The participants received no remuneration for participating and could withdraw from the study at any time. In order to increase the potential number of participants through appeal to social conscience, a donation of $526 was made to World Vision Canada ($2 for each completed survey), and iPad Minis were awarded to a CMA and supervisor through two separate draws. Since participation was voluntary, participation also constituted informed consent.

3.7.4. Right to withdraw.

Since participation in the study was voluntary and the survey instrument was delivered electronically, all participants had the opportunity to withdraw from the study at any point. No CMAs and only two supervisors withdrew from the study.

3.7.5. Privacy and confidentiality.

All data collected during the study were kept in the strictest of confidence. Identities of the participants were not released and the surveys for each paired sample were not shared between participants in the pair. All data and materials were kept in a private and secure location.

3.7.6. Risk to the participant.

The focus of this proposed study was to obtain a greater understanding of where specific MCs required of newly designated CMAs were developed and how the CMA PEP contributes to bridging the graduate/employer MC expectations gap described in Chapter 2. The concept seems simple enough, but no research undertaking is without its risks. A potential risk of the study was that the competency survey completed by the supervisor could potentially raise questions about competence and performance issues of the CMA that the supervisor might not have previously considered, which could negatively affect the CMA's position or employment status. However, since it is incumbent on competent supervisors or employers to periodically evaluate and assess the performance of their subordinates, this survey should not bring to light any performance-related issues that did not already exist or of which the supervisor was not aware. In addition, ensuring that disaggregated data were not reported should mitigate the risk to the CMA. On a more positive note, participating in the survey may have helped the CMA to be self-reflective and identify potential areas for personal improvement or for continuing professional development, and may have helped the employer recognize the competencies of the CMA. In addition, all participants remained anonymous; responses were not shared with the CMA's supervisor, any other participants, or otherwise disclosed except in aggregated form.

These potential risks were explained to the participants in the spirit of full transparency. The intent of the study was not to put any participant at risk, but rather to seek the truth about the CMA profession education program contribution to the development of MCs and to identify potential opportunities to improve and advance the program as part of an overall effort to develop competent and capable professionals.

In the low-likelihood situation in which supervisor re-evaluation may occur, the possibility of psychological/emotional distress to the CMA participant did exist. Due to the confidentiality of the study, there was a very low risk potential for social harm to the participant CMA or supervisor. It is far more likely that any CMA at risk of this kind of re-evaluation from his/her supervisor would self-select out of the sample. It was not likely that low performing CMAs would volunteer to participate in this study, and this potential performance bias was identified in the research design and the interpretation of the results. In addition, the researcher was prepared to suggest appropriate counselling in the very unexpected situation that a CMA participant required emotional/psychological support. This ended up not being required. Finally, the participant had the opportunity to exit the study at any point without any harm.

3.8. Summary

The purpose of Chapter 3 was to describe the research methodology for this study. First, grounding in the positivist paradigm was established to support a scientific approach to observing MC development in CMAs. The purpose of the research was identified and a rationale as to why focusing on the CMA program was provided, followed by an outline of the primary and investigative questions that this study explored. A detailed outline of the research design was provided, as were definitions of the eight MCs to be studied. Details of the determination of the sample size based on a census of

the entire population of CMAs having successfully completed one of three CMA programs between 2008 and 2013 were also provided. Potential biases, which could affect data collection, were identified and issues relating to validity were addressed. Finally, the role of the researcher was disclosed and potential ethical considerations as well as potential risks to the participants were identified. Chapter 4 will discuss the results relating to the data collected including sample characteristics and representativeness.

Chapter 4: Data Collection, Characteristics, and Representativeness Results

This study examined the role of professional accounting education in the development of eight specific MCs. By using the CMA PEP as an example, three research questions were investigated. The research questions, and their associated hypotheses, were analyzed based on survey data collected from CMAs and, in some cases, their supervisors. This chapter outlines the characteristics and quality of the data available for analysis and identifies why assertions made are trustworthy and potentially generalizable over the larger population. Section 4.1 provides details of the target population and the sample drawn from it based on data collection methods, and summarizes CMA and supervisor participation and completion rates. Section 4.2 summarizes the descriptive characteristics of the total and paired samples. Section 4.3 assesses the representativeness of the samples to establish the level of generalizability to the population.

4.1. Data Collected

The study focused on CMAs who successfully completed one of three versions of the CMA professional program between 2008 and 2013 in the provinces of AB, SK, and MB. The following three sections discuss the results of the data collection with respect to participation rates and use of incentives.

4.1.1. CMA participation rates.

Of 2,234 eligible CMAs, 1,276 invitations to participate in the study were extended and a breakdown of total invitations by method of contact is included in Table I1 (Appendix I). Forty-five percent of the participant population had active profiles on LinkedIn. This proved, overwhelmingly, to be the most effective method of garnering participation for this study, with 995 invitations extended (77.9% of all invitations)

through LinkedIn. This is not to suggest, however, that LinkedIn is an ideal source for finding participants for academic research; only that, for this particular study, LinkedIn proved invaluable. Privacy issues were avoided since LinkedIn requires users to opt in to use the service. Facebook generated 180 (14.1%) of the invitations. Direct emails were sent to 95 potential participants with whom the researcher was already acquainted, representing 7.4% of the total invitations extended. Finally, referrals generated only six invitations (0.5%) and proved to be the least effective method of obtaining participants. Invitations were extended to 1,007 (61.5%) AB CMAs, 365 (30.1%) SK CMAs, and 232 (68.5%) MB CMAs. The significantly lower number of invitations extended to SK was due to the lower LinkedIn participation rate of CMAs in that province, and there is no direct evidence to explain the differences in LinkedIn participation between the provinces. Of the 1,276 invitations, 268 CMAs agreed to participate, with 224 actually completing the survey. Table I2 (Appendix I) provides a breakdown of the sample population by province and method of contact.

As expected, the highest number of participants (167) came from the larger AB population. Over 74% of the participants came from contact made through LinkedIn and 19.2% from direct email. Facebook and referrals collectively generated 6.3% of the participants. Sample participation rates, as a percentage of the provincial populations, were 10.2%, 8.2%, and 11.6% for AB, SK, and MB, respectively, with overall participation representing 10% of the population. When compared to the number of invitations extended, participation rates for AB, SK, and MB were 16.6%, 27.3%, and 16.9%, respectively, resulting in an overall response rate of 17.6% of total invitations extended. The higher participation rates in SK and MB are likely due to the participants

being acquainted with the researcher through the ECMA program, resulting in a higher willingness to participate.

As anticipated, not all participants invited completed the survey. Of all CMAs invited to participate, 21.0% indicated their willingness to do so (representing 11.9% of the total population). Table I3 (Appendix I) summarizes the participation and completion rates by province and overall. Of the 268 willing participants, 44 did not end up participating, resulting in an overall net participation rate of 83.6%. MB CMAs showed the highest net participation rate at 90.0%, and AB the lowest at 81.7%. No surveys were started and prematurely exited or abandoned, resulting in an actual survey completion rate of 100%. The average completion time for the CMA surveys was 14.5 minutes.

4.1.2. Supervisor participation rates.

During research planning, it was anticipated that a significant number of supervisor responses would be collected. However, this proved not to be the case and is likely based on a number of factors, including: (a) CMAs were unwilling to ask their supervisor to participate, (b) supervisors were not interested in participating, and (c) a number of CMAs did not have direct supervisors. As summarized in Table I4 (Appendix I), 45 supervisors were initially interested in participating, five of whom did not respond to their direct invitation and two of whom started, but did not complete the survey.
In total, 39 usable surveys were completed, with provincial completion rates of 82.4% for AB and 100.0% for both SK and MB (82.2% overall). Of the 224 CMAs sampled, the participation rate of supervisors was 16.8%, 20.0% and 2.5% for AB, SK, and MB, respectively (16.2% overall). The average completion time for the supervisor survey was 11.1 minutes. The purpose for pairing supervisors and CMAs was to validate the CMAs' self-evaluations (i.e. to determine if any positive bias exists) and to mitigate the potential

for biased responses that are commonly associated with self-report measures. The low supervisor participation rate represents 17.4% of the sample size; therefore, conclusions relating to paired sample results may not be generalizable over the population.

4.1.3. Use of incentives and appeal to social conscience.

The initial research plan included the use of an appeal to social conscience with an allowance for the use of an incentive if the initial response rates were lower than desired. The appeal to social conscience included a donation of $2 to be made by the researcher to World Vision Canada for every survey completed. The incentive included two draws for an iPad Mini for eligible CMAs and supervisors who have completed the survey. The research plan called for measuring the response rate at the halfway point of the survey and introducing the iPad incentive if necessary. The data collection began on September 15, 2013, and by the mid-point of the survey on November 15, 2013, only 87 responses of interest were received. The researcher determined the iPad incentive would be required if the desired sample of 202 was to be reached. Once the invitations were re-sent with the iPad incentive, response rates increased dramatically, resulting in the 224 CMA and 39 supervisor participants. A total of $526 was donated to the charity and the two iPads were awarded in two random draws.

4.2. Total and Paired Sample Characteristics

Data was collected on a number of variables, including personal and work demographics as well as satisfaction and contribution ratings of both the CMA program and work experience. This section briefly summarizes basic descriptive information pertaining to the total and paired samples obtained in relation to the population, where possible.

4.2.1. Personal demographics.

Demographic data collected on CMA participants included age, gender, CMA program completed, province, and year of program completion. Personal demographic characteristics pertaining to the population, total sample, unpaired sample, and paired sample are presented in Table I5 (Appendix I). Data was originally collected in eight age ranges; however, the ranges were recoded into three ranges, which correspond to generations Y (aged 30 years or less), X (aged 31- 50 years), and Boomers (aged 50 and over) to identify any significant differences in responses between generations rather than arbitrary age groupings. Gen X represented the largest grouping in the total sample collected. This is not unexpected given the range of job experience, education, and seniority level represented in CMA education. AB represented the largest portion of the population (76.3%), and this was also observed in the total (74.6%) and paired (79.4%) samples. Finally, 62.6% of the population completed the CMA PEP between 2011 and 2013. This is compared to 75.3% of participants in the total sample, and 79.4% of the paired sample participants completing the program during the same 3-year period. The heavier weighting in the samples is not unexpected based on the recency effect and the social-media approach to data collection. Graduates completing the program in the last three years were the most willing to participate. This demographic data shows that the majority of participants were, on a mutually exclusive basis, from Gen X (31-50 years old), male, graduates of the SLP program, from the province of AB, and completed the CMA program between 2011 and 2013.

4.2.2. Work demographics.

Additional data collected on CMA program graduates included the following work-related demographic variables: organization size, job responsibility level, income, industry, and job tenure. Results are summarized in Table I6 (Appendix I). Work demographic data was not attainable for the population; therefore, comparisons of the sample could not be made to the population. Of the total sample, 52.2% of participants were employed in large organizations, compared to 61.5% in the paired sample. The smallest groups of participants for both samples were employed by micro-organizations (1–4 employees), composing 5.4% and 5.1% of the total and paired samples, respectively.

With respect to job responsibility level, 18.8% and 29.9% total sample participants were employed at junior and intermediate levels, respectively. In the paired sample, 33.3% and 35.9% participants were employed at entry level/junior and intermediate management levels, respectively, resulting in overrepresentation of the lower job levels in the paired sample. This is not unexpected, however, as more senior management and executive employees may not have supervisors, supervisors may not have been available or less willing to participate, or the more senior CMA respondents elected not to ask a supervisor to participate.

Income data was originally collected on eight unequal income bands following the MISLEM study (Azevedo et al., 2012), but was recoded into the five bands to correspond better with job responsibility levels. In addition, recording the income bands helped reduce the variability in the data and allowed for better statistical analysis by combining income bands containing fewer responses. In the total CMA and CMA-supervisor paired samples respectively, 62.5% and 64.7% of the participants earned

between $70,000 and $139,999. Industry demographic data was originally collected on 19 industries; however, analysis of the industry variables were recoded into four main industry sectors with *other* capturing the majority of respondents spread over the remaining uncategorized industries. Of the remaining total sample participants, 21.0% and 19.6% were employed in government/public services and energy/utilities, respectively, and 51.8% were spread over many other industries. Of the paired sample participants, 25.6% were employed in government and 30.8% in energy/utilities. 35.9% of participants were spread over other industry sectors. Finally, the majority of participants in the total sample (75%) and paired sample (87.1%) have been with their current employers for three years or less. Overall, on a non-mutually-exclusive basis, the majority of participants in this study worked for larger organizations, were employed at intermediate and senior management levels, were primarily employed by government/public service and energy/utilities, and have been in their current jobs for three years or less.

4.2.3. CMA program and work-related characteristics.

In addition to personal and work-related demographics, CMA participants were surveyed about additional CMA program and work-related items. With respect to the CMA program, participants were asked whether or not a CMA designation was required for their jobs, whether or not they were satisfied with the CMA program in preparing the individual for their jobs, and whether or not the CMA program contributed to their success at work. In regards to work experience, participants were asked to identify their level of job satisfaction, their perceived level of importance of work experience to completing the CMA PEP, and the contribution of their work experience to success at work. The results are summarized in Table I7 (Appendix I). The majority of participants

did not require a CMA designation for their jobs and were satisfied with the CMA program's contribution to preparing graduates for their jobs. A large proportion of respondents indicated that the CMA program was important in contributing to graduates' success at work. These last two characteristics could indicate a potential sampling bias whereby graduates who were more satisfied with the program may have been more willing to participate than those who were not satisfied with the program and may therefore have chosen not to participate in the study. Overall job satisfaction was relatively high, with 74.6% of total sample participants and 76.9% of paired sample participants indicating so, and a relatively high proportion of respondents indicated that work experience was important to completing the CMA program. Finally, 82.1% of all CMAs surveyed and 84.6% CMAs in the supervisor matched-pair sample indicated work experience contributed most to their success at work.

4.3. Sample Representativeness

Following the discussion of the participant sample characteristics in section 4.2, this section examines the representativeness of the total and paired samples in relation to the population. Table 4.1 summarizes the key descriptive characteristics of the actual sample obtained versus the initial sample from the original research proposal, which was based on estimates provided by CMA AB, SK, and MB for a five-year period between 2008 and 2012.

Table 4.1

Sample Size

	Proposed[a]	Revised estimate[b]	Actual
Population (*N*)	1,303	2,234	2,234
Total sample size (*n*)	151	202	224
Paired sample size (n_p)	151	202	224
Standard deviation (*SD*)	1.5	1.5	1.1
Precision	15.0%	15.0%	14.2%
Proportion of population ($n \div N$)	12.0%	9.0%	10.0%

Note: Detailed calculations of sample size are found in Appendix G.
[a]Estimates for the research proposal were based on information provided by CMA Alberta, Saskatchewan, and Manitoba for five years (2008-2012). [b]Actual population was based on confirmed graduate data provided by CMA Alberta, Saskatchewan, and Manitoba for six years (2008-2013).

The timing of the data collection allowed the researcher to include 2013 graduates as well, resulting in an increased population from 1,303 to 2,234. The desired response rate in the original proposal was 12%. A total sample size of 224 was obtained, representing 10.0% of the population. Ideally, each CMA participant would have been paired with a supervisor; however, as noted in section 4.1.2, this proved not to be the case and only 39 paired surveys were obtained. The initial sample size required was calculated to be 328 participants based on a normally distributed finite population with an estimated standard deviation of 1.5 (based on a 7-point Likert scale range), and desired precision of 15% and 95% confidence (Appendix G). Despite the 95% confidence level, a 5% level of precision would result in an unattainable sample and precision estimates greater or lower than the confidence level are permissible (Cooper & Schindler, 2011). Once the data was collected and analyzed, an average of all 67 7-point Likert scale variables resulted in an average standard deviation of 1.14. Therefore, the desired sample size was recalculated to 202 participants, reflecting the actual standard deviation of 1.14 and 15% desired

precision. The actual sample size collected was 224 with a standard deviation of 1.13980 resulting in a precision level of 14.6%, which was slightly better than estimated. Appendix G includes additional support for the calculations of the estimated and desired samples sizes. Based on the data known about the population, comparisons of the samples to the population for representativeness could only be conducted on the following demographic factors: gender, program completed, province, and year of program completion. The next three sections provide additional details on the representativeness based on these four factors.

4.3.1. Representativeness by province and year.

With 1,637 CMAs completing a CMA program, AB represents the highest proportion of the population (73.3%). SK and MB respectively graduated 365 (16.3%) and 232 (10.4%) CMAs. As shown in Table 4.2, AB and MB are both slightly overrepresented with sample proportion deviations from the population of 1.3% and 1.6%, respectively, while SK is slightly underrepresented by 2.9%. However, based on two-tailed, one-sample *Z*-tests to compare proportions by province, all differences were found to be not statistically significant, thus indicating that the sample obtained is representative of the population with respect to province, and therefore conclusions may be generalized over the provincial populations.

Table 4.2

Population and Sample Proportion Significance: Province and Year of Program Completion

Province / Year	Population (N = 2,234) #	Population (N = 2,234) %	Total sample (n = 224) #	Total sample (n = 224) %	Total sample difference vs. population ($n\% - N\%$) $\%_{diff}$	Total sample difference vs. population ($n\% - N\%$) p	Paired sample (n_p = 39) #	Paired sample (n_p = 39) %	Paired sample difference vs. population ($n_p\% - N\%$) $\%_{diff}$	Paired sample difference vs. population ($n_p\% - N\%$) p
Province										
AB	1,637	73.3%	167	74.6%	1.3%	.24	31	79.5%	**6.2%**	**.00**
SK	365	16.3%	30	13.4%	–2.9%	.13	3	7.7%	–8.6%	–[a]
MB	232	10.4%	27	12.0%	1.6%	.41	5	12.8%	2.4%	–[a]
Year										
2008	189	8.5%	13	5.8%	–2.7%	.19	1	2.6%	–5.90%	–[a]
2009	317	14.2%	12	5.4%	**–8.8%**	**.00**	2	5.1%	–9.06%	–[a]
2010	328	14.7%	30	13.4%	–1.3%	.51	5	12.8%	–1.86%	–[a]
2011	481	21.5%	40	17.9%	**–3.6%**	**.05**	10	25.6%	**4.11%**	**.03**
2012	423	18.9%	59	26.3%	**7.4%**	**.00**	7	17.9%	–0.99%	–[a]
2013	496	22.2%	70	31.3%	**9.1%**	**.00**	14	35.9%	13.70%	**.00**

Note. Percentages represent proportions for each province or year of the total respective population or sample. Differences in proportions were tested for significance using a one-sample, two-tailed z-test at a 95% confidence interval (α = .025). Statistically significant differences in proportions ($p \leq .05$) are presented in boldface.

[a](–) indicates tests for statistically significant differences in proportions could not be conducted due to insufficient number of paired sample respondents from specific province or year.

The paired sample was also compared to the population sample to assess representativeness by province. However, the sample size of 39 was not large enough to test for significance for every province, since the number of respondents from SK and MB were below recommended minimum size thresholds of five (Bowerman et al., 2008). The number of respondents from AB was large enough to test and the difference from the population proportion was found to be statistically significant, indicating overrepresentation of AB in the paired sample. SK appears to be underrepresented, but it could not be determined if the difference was statistically significant. These results suggest that findings related to the total sample may be generalizable over the population

by province, but that findings related to the paired sample may be generalizable only to the AB population.

Data was collected on CMA graduates over a 6-year time frame. Deviations in responses by year were expected, given that the proportion of participants in the sample differed from the population proportion by an absolute deviation of as much as 9.1%. The largest, and statistically significant, difference in sample and population proportions were noted for 2009 (–8.8%), 2012 (7.4%), and 2013 (9.1%), indicating overrepresentation of recent year graduates over past years. When the paired sample was compared to the population, only 2011 and 2013 could be tested for statistically significant differences due to an insufficient number of respondents in other years. The results indicate overrepresentation of 2011 and 2013 CMAs in the paired sample, suggesting that findings from the paired sample may not be generalizable over the entire population if analyzed by year, but may be generalizable to 2011 and 2013 graduates. However, given the nature of the study (recalling impacts of a professional program on MC development and performance), the more recent graduates may be expected to remember more than less recent graduates. Therefore, this bias towards the recent graduates may actually improve recall and accuracy of the results.

4.3.2. Representativeness by gender.

The total sample collected in this study appears to overrepresent male CMAs. Of the 224 participants, 140 (62.5%) were male versus 84 (37.5%) female when compared to the population of 53.8% male and 46.2% female. Table 4.3 summarizes the breakdown of the population, total sample, and paired sample by province, for females.

Table 4.3

Population and Sample Proportion Significance: Province and Year of Program Completion – Females

Province/ Year	Population (N = 2,234)		Total sample (n = 224)		Total sample difference vs. population ($n\% - N\%$)		Paired sample (n_p = 39)		Paired sample difference vs. population ($n_p\% - N\%$)	
	#	%	#	%	$\%_{diff}$	p	#	%	$\%_{diff}$	p
Province										
AB	753	46.0%	60	35.9%	**–10.1%**	**.01**	17	54.8%	8.8%	.33
SK	182	49.9%	13	43.3%	–6.5%	.23	1	20.0%	–29.9%	–[a]
MB	96	41.4%	11	40.7%	–0.6%	.90	3	100.0%	58.6%	–[a]
Total[a]	1,031	46.2%	84	37.5%	**–8.7%**	**.01**	21	53.8%	7.6%	.34
Year										
2008	90	47.6%	6	46.2%	–1.5%	.91	1	100.0%	52.4%	–[a]
2009	142	44.8%	3	25.0%	–19.8%	.17	1	50.0%	5.2%	–[a]
2010	154	47.0%	11	36.7%	–10.3%	.26	1	20.0%	–27.0%	–[a]
2011	200	41.6%	12	30.0%	–6.6%	.41	4	40.0%	–1.6%	.92
2012	198	46.8%	24	40.7%	–9.5%	.14	6	85.7%	**38.9%**	**.04**
2013	247	49.8%	28	40.0%	–9.8%	.10	8	57.1%	7.3%	.58
Total[a]	1,031	46.2%	84	37.5%	**–8.7%**	**.01**	21	53.8%	7.6%	.34

Note. Percentages represent proportions of females for each province or year of the total respective population or sample. Differences in proportions were tested for significance using a one-sample, two-tailed z-test at a 95% confidence interval (α = .025). Statistically significant differences in proportions ($p \leq .05$) are presented in boldface.

[a](–) indicates tests for statistically significant differences in proportions could not be conducted due to insufficient number of paired sample respondents from specific province or year.

Males were overrepresented by 8.7% in the total sample and the differences were determined to be statistically significant, suggesting that sample findings may be more generalizable to male CMAs than to females. In the paired sample, however, females were overrepresented by a statistically different amount in AB (SK and MB samples were too small to test for significance). By year, no significant differences in proportions between the population and total sample were identified in any particular year, only overall indicating male overrepresentation. The paired sample could only be tested for statistical significance for 2011, 2012, and 2013 due to the limited sample size, and

significant female overrepresentation was identified only for 2012. As a result, it can be concluded that there is a definite male bias in the AB sample and that any findings may be generalizable over males in the AB population, and to both genders in SK and MB populations. Findings relating to the total sample may be generalizable in specific years, but not overall. Paired sample findings, however, may be generalizable overall to the population.

4.3.3. Representativeness by program.

As discussed, designated CMAs must complete one of three programs towards fulfillment of their educational requirements to achieve the designation: SLP, CMBA, or ECMA. Table 4.4 provides a summary of population and sample sizes and proportions and the differences between them. The SLP is overrepresented in AB and underrepresented overall in both total and paired samples. The CMBA program is well represented in the total sample and overrepresented in the paired sample by 10.9%, whereas the ECMA program was overrepresented in the total sample by 11.3%. This suggests that total sample findings related to the SLP program are generalizable only to AB and MB, but not to SK or overall. Findings related to the CMBA program are generalizable to all provinces and overall. Finally, findings related to the ECMA program are generalizable to SK, MB, and overall, but not to AB.

Table 4.4 also breaks down proportions by province for each program in the paired sample. However the number of responses from the CMBA and ECMA programs as well as SK and MB were too small to test for significance, and therefore generalizability of the paired sample to the population based on program and province cannot be assumed. As a result, paired sample results related to the SLP are generalizable only to AB and overall. Paired sample findings related to the CMBA are generalizable

only to AB. Finally, generalizability of paired sample findings related to the ECMA could not be determined due to insufficient ECMA response.

Table 4.4

Population and Sample Proportion Significance: Program and Province

Program/ Province	Population (N = 2,234) #	Population (N = 2,234) %	Total sample (n = 224) #	Total sample (n = 224) %	Total sample difference vs. population ($n\%$ – $N\%$) $\%_{diff}$	p	Paired sample (n_p = 39) #	Paired sample (n_p = 39) %	Paired sample difference vs. population ($n_p\%$ – $N\%$) $\%_{diff}$	p
SLP										
AB	1,386	73.3%	130	81.3%	8.0%	**.00**	26	83.9%	10.6%	.41
SK	325	17.2%	16	10.0%	**–7.2%**	**.00**	2	6.5%	–10.7%	–[a]
MB	181	9.6%	14	8.8%	–0.8%	.71	3	9.7%	0.1%	–[a]
Total[a]	1,892	84.7%	160	71.4%	**–13.3%**	**.00**	31	79.5%	–5.2%	**.02**
CMBA										
AB	155	89.1%	19	86.4%	–2.7%	.28	3	100.0%	10.9%	**.02**
SK	2	1.1%			–1.1%	.80			–1.1%	–[a]
MB	17	9.8%	3	13.6%	3.9%	.59			–9.8%	–[a]
Total[a]	174	7.8%	22	9.8%	2.0%	.32	3	7.7%	–0.1%	–[a]
ECMA										
AB	96	57.1%	19	45.2%	–11.9%	**.02**	2	40.0%	–17.7%	–[a]
SK	38	22.6%	13	31.0%	8.3%	.22	2	40.0%	17.4%	–[a]
MB	34	20.2%	10	23.8%	3.6%	.60	1	60.0%	–0.2%	–[a]
Total[a]	168	7.5%	42	18.8%	11.3%	**.00**	5	12.8%	–5.3%	–[a]

Note. Percentages represent proportions of provincial composition of the total respective program population or sample size. Differences in proportions were tested for significance using a one-sample, two-tailed z-test at a 95% confidence interval (α = .025). Statistically significant differences in proportions ($p \leq .05$) are presented in boldface.

[a]Total row represents proportions of each program to the total population or sample size. [b](–) indicates tests for statistically significant differences in proportions could not be conducted due to insufficient number of paired sample respondents from specific program or province.

Finally, Table 4.5 further breaks down the program composition of the population and sample by year. Differences by year for the CMBA program were found not to be statistically significant except for 2013, suggesting reasonable representativeness of the population in the total sample.

Table 4.5

Population and Sample Proportion Significance: Program and Year of Completion

Program	Population (N = 2,234)		Total sample (n = 224)		Total sample difference vs. population ($n\% - N\%$)		Paired sample (n_p = 39)		Paired sample difference vs. population ($n_p\% - N\%$)	
Year	#	%	#	%	$\%_{diff}$	p	#	%	$\%_{diff}$	p
SLP										
2008	157	8.3%	13	8.1%	–0.2%	.94	1	3.2%	–5.1%	–[a]
2009	259	13.7%	8	5.0%	**–8.7%**	**.00**	1	3.2%	–10.5%	–[a]
2010	259	13.7%	22	13.8%	0.1%	.98	4	12.9%	–0.8%	–[a]
2011	432	22.8%	38	23.8%	0.9%	.65	10	32.3%	9.4%	.94
2012	344	18.2%	30	18.8%	0.6%	.79	5	16.1%	–2.1%	–[a]
2013	441	23.3%	49	30.6%	**7.3%**	**.00**	10	32.3%	8.9%	.71
Total[a]	1,892	84.7%	160	71.4%	**–13.3%**	**.00**	31	79.5%	–5.2%	**.02**
CMBA										
2008	18	10.3%			–10.3%	.15			–10.3%	–[a]
2009	30	17.2%	4	18.2%	0.9%	.89	1	33.3%	16.1%	–[a]
2010	42	24.1%	5	22.7%	–1.4%	.83	1	33.3%	9.2%	–[a]
2011	30	17.2%	1	4.5%	–12.7%	.07			–17.2%	–[a]
2012	30	17.2%	6	27.3%	10.0%	.15	1	33.3%	16.1%	–[a]
2013	24	13.8%	6	27.3%	**13.5%**	**.05**			–13.8%	–[a]
Total[a]	174	7.8%	22	9.8%	2.0%	.32	3	7.7%	–0.1%	–[a]
ECMA										
2008	16	9.5%	1	2.4%	–7.1%	.33			–9.5%	–[a]
2009	28	16.7%	1	2.4%	**–14.3%**	**.04**			–16.7%	–[a]
2010	27	16.1%	2	4.8%	–11.3%	.11			–16.1%	–[a]
2011	18	10.7%	3	7.1%	–3.6%	.62			–10.7%	–[a]
2012	50	29.8%	17	40.5%	10.7%	.10	1	20.0%	–9.8%	–[a]
2013	29	17.3%	18	42.9%	**25.6%**	**.00**	4	80.0%	62.7%	–[a]
Total[a]	168	7.5%	42	18.8%	**11.2%**	**.00**	5	12.8%	5.3%	–[a]

Note. Percentages represent proportions of year composition of the total respective program population or sample size. Blank cells indicate no responses. Differences in proportions were tested for significance using a one-sample, two-tailed z-test at a 95% confidence interval (α = .025). Statistically significant differences in proportions ($p \leq .05$) are presented in boldface.

[a]Total row represents proportions of each program to the total population or sample size. [b](–) indicates tests for statistically significant differences in proportions could not be conducted due to insufficient number of paired sample respondents from specific program or year.

The SLP program reported statistically significant differences in sample proportions when compared to the population only for 2009 and 2013, with the former representing 8.7% underrepresentation and the latter 7.3% overrepresentation. The ECMA program also reported statistically significant differences for the same years: 14.3% underrepresentation in 2009, and 25.6% overrepresentation in 2013. The overrepresentation of recent years, and corresponding underrepresentation of less recent years, is not unexpected and is likely the result of recency. As with analysis by province, the number of responses by year and program were too small to test for significance. Therefore, generalizability of the paired sample to the population based on program and year cannot be assumed.

4.4. Conclusion

Chapter 4 outlined the characteristics and representativeness of the sample data collected in order to answer the three investigative questions developed for this study. The total sample (n = 224) collected was also analyzed for representativeness against the population (N = 2,234) based on four factors: province, year of program completion, gender, and program completed. Table 4.6 summarizes the representativeness of the total sample to the population. With respect to the total sample, based on proportions, females and males are under and overrepresented, respectively. SLP and ECMA graduates are also under and overrepresented and CMBA program participants are proportionately well represented in the sample. By province, the sample is proportionally representative of the population. Due to the paired sample size being too small (n_p = 39), representativeness of the smaller paired sample to the population could not be adequately tested for significance against the population where subsets of responses by province, program or year were less than five.

Table 4.6

Summary of Total Sample Representativeness versus the Population

	Demographic variable					
	Gender		Program Completed			
	Female	Male	SLP	CMBA	ECMA	Total Sample
Total Sample	(–)	(+)	(–)	R	(+)	
Province						
AB	(–)	(+)	(+)	R	(–)	R
SK	R	R	(–)	R	R	R
MB	R	R	R	R	R	R
Year of program completion						
2008	R	R	R	R	R	R
2009	(–)	(+)	(–)	R	(–)	(–)
2010	(–)	(+)	R	R	R	R
2011	(–)	(+)	R	R	R	(–)
2012	(–)	(+)	R	(+)	R	(+)
2013	(–)	(+)	(+)	R	(+)	(+)

Note: Table summarizes total sample (n = 244) representativeness to the population (N = 2,234); R = no statistically significant differences were observed between total sample and population proportions indicating sample is reasonably representative of the population; (–) indicates statistically significant underrepresentation in the sample versus the population; (+) indicates statistically significant overrepresentation in the sample versus the population.

Generalizability from findings related to the paired sample to the population is limited to females, and AB SLP graduates.

The following chapters (5 through 8) present the analysis of the data collected to answer the three investigative research questions for this study identified in Chapter 3. Each research question will be addressed by evaluating a set of related hypotheses. Each of the next three chapters focuses on a different question and, in each case, the potential biases identified in Chapter 4 will be taken into consideration when discussing overall results and generalizability over the population.

Chapter 5: Research Question One – Results and Analysis

Chapter 5 seeks to answer the first of three investigative research questions: *Do professional accounting programs contribute to bridging the MC expectations gap?* In order to answer this question, the following four hypotheses were tested:

- $H_{1.1}$ There are *no* significant differences in the perceptions of CMAs and employers regarding the capability of CMAs to use MCs in their current jobs.
- $H_{1.2}$ There is *not* a gap between the MCs CMAs required for their current jobs and those acquired in the CMA PEP.
- $H_{1.3}$ The CMA PEP does *not* enhance MC development.
- $H_{1.4}$ Elements of the CMA PEP *do not* contribute to the development or improvement of MCs.

Hypotheses 1.1 and 1.2 focused on determining whether or not a MC gap for CMAs exists. Hypotheses 1.3 and 1.4 addressed whether or not the CMA program contributes to bridging any identified gap. This chapter is organized into four sections corresponding to each of the four hypotheses listed. Each section will interpret the results of the analysis and testing that was conducted. This is followed by an overall conclusion and answer to research question one.

5.1. Results Related to Hypothesis 1.1: CMA MC Capability

Hypothesis 1.1 was intended to determine whether or not accounting programs fill in the MC expectations gap by comparing differences in perceived levels of agreement of both CMAs and supervisors regarding the capability of CMAs to use MCs in their jobs. While the perceived capability level is not directly related to MC development, it provides some indication as to whether or not a MC gap still exists after completing the

CMA PEP. This hypothesis was tested using eight MC capability variables based on CMA self-assessments (CMA survey question 13, Appendix D) and eight variables based on supervisor assessments (supervisor survey question 7, Appendix E).

Hypothesis 1.1 was tested for statistically significant differences in responses using nonparametric sign and Wilcoxon matched-pairs tests because the data collected proved to not be normally distributed. Since these variables represent self-assessment of the CMAs capabilities related to MCs, responses are subject to self-report and SDR bias, which could result in inflated capability results. It is because of this bias risk that supervisors were invited to participate and to possibly provide validation of the CMA self-report results.

5.1.1. MC capability variables.

CMAs and supervisors were surveyed to identify the extent to which they agreed or disagreed, on a 7-point scale, with the CMAs' capability to use each of the eight MCs in their current job (1.0 = *strongly disagree*; 4.0 = *neutral*; 7.0 = *strongly agree*). The data was first analyzed using Azevedo et al.'s (2012) meta-level indicator #3 for capability: the percentage of respondents who reported either *agree* or *strongly agree* that CMAs were capable of using the MC in their jobs. The indicator applied to supervisor responses as well as CMA responses from both the paired sample (n_p = 39) and unpaired sample (n_u = 185). Results are presented in Table 5.1. The data could not be tested for statistical significance using *Z* or *t*-tests because the population proportions were not known; therefore, differences of 10% or more were judged to be significant and worthy of discussion by the researcher.

Table 5.1

Meta-level MC Capability Indicators

	Supervisor (n_p = 39)	CMA Paired Sample (n_p = 39)		CMA Unpaired Sample (n_u = 185)	
MC	%SUP	$\%CMA_p$	Difference (%SUP – $\%CMA_p$)	$\%CMA_u$	Difference (%SUP – $\%CMA_u$)
Influencing/ persuading	66.7%	74.3%	–7.6%[b]	76.7%	**–10.0%**[b]
Teamwork/ relationships	76.9%	71.8%	5.1%	86.5%	–9.6%
Critical/ analytical	84.7%	82.0%	2.7%	94.1%	–9.4%
Self/time management	82.0%	76.9%	5.1%	84.4%	–1.4%
Leadership	69.2%	69.3%	–0.1%	81.5%	**–12.3%**[b]
Bigger picture	66.6%	82.0%	**–15.4%**[b]	89.1%	**–22.5%**[b]
Presentation	81.5%	64.1%	**17.4%**[a]	73.9%	7.6%
Communication	77.0%	76.9%	0.1%	86.4%	–9.4%
Average	75.6%	74.7%	0.9%	84.1%	–8.5%

Note. Meta-level indicators for each meta-competency is based on the proportion of responses reporting *agree* (6.0) and *strongly agree* (7.0). Differences of 10% or more are presented in boldface. Adapted from "Satisfaction with knowledge and competencies: A multi-country study of employers and business graduates," by A. Azevedo, D. Gomezelj Omerzel, J. Andrews, H. Higson, A. Caballero, B. Frech, 2012, *American Journal of Economics and Business Administration*, *4*(1), p. 29. Copyright 2012 by Science Publications.

[a]Proportion of supervisor responses versus exceeds proportion of CMA responses by 10% or more indicating supervisors perceives the CMAs to be more capable in using the meta-competency than CMAs. [b]Proportion of CMA responses versus exceeds the proportion of supervisor responses by 10% or more indicating CMAs perceive themselves to be more capability in using the meta-competency than supervisors do.

Analysis of the meta-level capability indicators shows that, on average, CMAs and their supervisors agree with CMAs' overall MC capability. In the matched-pair sample, CMAs considered themselves to be more capable of being able to see the bigger picture, whereas supervisors perceived CMAs to be more capable of using the presentation MC. When compared to the unpaired sample, however, CMAs responding independent of supervisors reported themselves to be much more capable of using influencing/ persuading, leadership and bigger-picture MCs than CMAs and supervisors in the paired sample. This could be a potential indicator of self-report and SDR bias.

Also, all meta-level capability indicators were higher for the unpaired CMAs than paired CMAs. It is important to note, however, that comparison of CMA-supervisor paired sample meta-level capability indicators may not be representative of the larger unpaired CMA sample; therefore, these findings must be interpreted with caution. These results suggest that CMAs may overestimate their MC capabilities (except presentation) especially for influencing/persuading, leadership, and the ability to see the bigger picture. This overstatement of meta-level capability indicators may also indicate the potential for self-report and SDR bias in the unpaired CMA sample. Based on meta-level capability indicators for both CMA-supervisor paired and CMA unpaired samples, the findings suggest that, after CMA PEP completion, there does appear to be a gap between CMAs and supervisors regarding the CMA's ability to see the bigger picture. The potential for additional gaps regarding influencing/persuading and leadership may exist; however, since the CMA-supervisor paired sample meta-level indicators may not be representative of the unpaired sample indicators, the existence of gaps for these two other MCs cannot be determined. The fact that the unpaired CMA sample consistently provided higher meta-level ratings of MC capability suggests that the data may indeed be subject to more self-report bias in the unpaired CMA sample than the CMA-supervisor paired sample, and that pairing CMAs and supervisors may have helped reduce the potential for these biases. Alternatively, the findings might be an indicator that those who volunteered to participate in the study are more capable of using MCs. In addition, these findings may highlight an opportunity for future research related to self-report bias in studies conducted with professionals and their employers by utilizing a control group consisting of unpaired professional respondents.

While meta-level indicators could not be tested for statistical significance and reflect only responses at the higher end (i.e. 6.0 and above) of the 7-point Likert scale, tests for statistical significance can be applied to mean capability responses that cover the entire range of ratings. Results from the CMA-supervisor paired sample indicate that CMAs and supervisors reported very similar perceived capability ratings. For all eight MCs studied, self-reported mean capability ratings by all CMAs sampled ranged between 5.90 (SD = 1.24) and 6.56 (SD = 0.73), indicating CMAs believe they are very capable of using MCs in their jobs. Supervisor mean ratings ranged between 5.74 (SD = 1.04) and 6.28 (SD = 0.79), indicating supervisors also perceive that CMAs are quite capable of using MCs in their jobs. The CMA-supervisor paired sample was compared against the unpaired CMA sample (n_u = 185) to test for consistency in responses using the M-W test (95% confidence, $\alpha = .05$). The only statistically significant difference was observed for communication where CMAs in the paired sample provided lower levels of agreement of their communication capability (M = 5.95; SD = 1.07) versus unpaired CMA sample respondents (M = 6.31; SD = 0.87). Additional significance testing was conducted on the CMA-supervisor paired sample MC capability data using the non-parametric sign test and Wilcoxon matched-pairs test. All tests were conducted at a 95% confidence level ($\alpha = .05$) and results are discussed in the following sections.

5.1.1.1. *MC capability sign test results.*

Self-reported CMA mean capability ratings for all MCs ranged between 5.64 (SD = 1.39) and 6.33 (SD = 0.90) on the 7-point scale. Supervisor ratings ranged between 5.74 (SD = 1.04) and 6.28 (SD = 0.79). These results indicate that both the CMAs and their supervisors perceived CMAs to be capable of using MCs in their jobs. The only significant difference observed was for the ability to see the bigger picture (p = .04; α =

.05), where CMAs rated themselves (M = 6.33; SD = 0.90) as being slightly more capable than supervisors (M = 5.79; SD = 1.17) perceived them to be. This suggests that CMAs may have a tendency to overestimate their own ability to see the bigger picture, and supports the findings based on meta-level capability indicators.

5.1.1.2. *MC capability: Wilcoxon matched-pairs test results.*

The results of the Wilcoxon matched-pairs test revealed only one significant difference in population median distributions related to the bigger picture MC (p = .03; α = .05), indicating the CMA probability distribution is shifted towards the right of the supervisor probability distribution. This supports the sign test result in Section 5.1.1.1 that CMAs rated their capability to see the bigger picture slightly higher than supervisors did. This also confirms the findings of the meta-level capability indicators.

5.1.2. Conclusion related to hypothesis 1.1.

Responses of CMAs and supervisors concerning the capability of CMAs to use MCs in their current jobs were compared using meta-level indictors and significance testing. The findings (based on meta-level capability indicators and confirmed through significance testing) suggest that a MC capability gap exists for CMAs pertaining to their perceived level of capability to see the bigger picture compared to supervisor assessments. The results indicate that CMAs and supervisors both agree that CMAs are generally capable of seeing the bigger picture; however, they do not seem to agree on the level of CMA capability. The meta-level indicators (based on the unpaired CMA sample) also suggested that CMAs might overestimate their influencing/persuading and leadership capability; however, this could not be confirmed via significance testing.

In addition to the apparent existence of a capability perception gap, two observations can be made regarding the use of meta-level capability indicators. First,

meta-level capability indicators in the CMA-supervisor paired sample may not be representative of the unpaired CMA sample. Second, meta-level indicators do not possess the same power that statistical significance testing does and thus may not be reliable indicators of CMA MC capability.

Finally, the similarity of results for both CMAs and supervisors suggests that the risks associated with SDR and self-report biases are low in the paired sample, and potentially in the unpaired CMA sample as well, since no statistically significant differences except for communication were observed when compared to the CMA responses in the paired sample. This also may suggest that the fear of reprisal (Donaldson & Grant-Vallone, 2002) related to a perceived threat of having a supervisor participate in the study did not influence responses (except possibly for communication), further supporting the inference that self-report and SDR bias for CMAs sampled may be low.

That only one MC gap exists, as compared to the multiple gaps identified in the literature, for both undergraduate and MBA students suggests that somewhere between the completion of undergraduate/graduate studies and the completion of the CMA program, the MC gaps between students and employers have narrowed. With respect to research question one, the data related to MC capability suggests that CMAs are capable of using MCs in their jobs. This implies that those MCs would have been presumably developed, at least in part, in the CMA PEP. Therefore, it can be reasonably inferred that the CMA PEP may contribute to bridging the MC expectations gap. The CMA-supervisor paired sample results also suggest the narrowing of supervisor/student gaps identified in Chapter 2; however, the low supervisor participation rate limits generalizability of the

paired sample results to only CMAs who took part in the study, rather than the population.

5.2. Results Related to Hypothesis 1.2: CMA MC Gap

Hypothesis 1.2 focused on observing whether or not there were significant differences in perceptions of satisfaction of CMAs or their supervisors regarding the CMAs' performance in each of eight workplace situations. While the perceived levels of satisfaction and capability are not directly related to MC development, these variables provide some indication as to whether or not CMAs are capable of employing MCs required to perform satisfactorily in the eight situations identified. This hypothesis was tested using eight work situation variables identified in Table 5.2 and previously described in section 3.4.2 (Table 3.3), along with the corresponding questions from the CMA and supervisor survey instruments (Appendices D and E).

Table 5.2

$H_{1.2}$ Test Variables

Survey Question		Variable Description (SPSS Name)	Variable Measure (Scale)	Tests Conducted
CMA	Supervisor			
10, 14	6, 10	Situation Recall (Sit1Recal – Sit8Recall)	Nominal	χ^2 test Paired-sample McNemar
11, 15	5, 9	Situation Satisfaction (Sit1Sat – Sit8Sat)	Interval (7-point Likert)	Sign Wilcoxon matched-pairs

The MC capability variables analyzed in section 5.1 directly measure perceived CMA capability while situation satisfaction variables do so indirectly. For example, if the CMA recalls a situation that requires the direct application of the corresponding MC and indicates a high level of satisfaction, then it is presumed that the CMA is capable of using the associated MC in order to perform satisfactorily in the situation. As noted with the

capability variables, the self-report data is subject to potential bias, which could result in inflated satisfaction ratings. The results pertaining to the situation recall and situation satisfaction variables are analyzed and discussed in the next three sections.

5.2.1. Situation recall variables.

For all situation recall variables, CMAs and supervisors were asked if they could recall a specific situation that requires the use of MCs. As shown in Table 5.19, CMA (n = 224) situation recall for all situations ranging from 74.6% of respondents (writing business reports) to 99.1% (working closely with a team) of respondents. Supervisors (n = 39) reported varied levels of situation recall ranging from 53.8% of respondents (writing business reports) to 100% of respondents (influencing and working with a team). To test for statistically significant differences between the number of CMAs and between the number of supervisors who could recall and could not recall having to perform in a given situation, the χ^2 test was applied to the data. The χ^2 results indicated that, for all given situations, the number of CMAs who could recall a specific situation significantly outnumbers those who could not (i.e. $p \leq .05$; $\alpha = .05$ for all situations). This result suggests that the CMAs are required to perform in situations where higher-level MCs would be required. Supervisor χ^2 results revealed significant differences in responses for all situations (i.e. $p \leq .05$; $\alpha = .05$), thereby supporting the results observed for CMAs respondents, except for writing a business report ($p = 0.63$; $\alpha = .05$), where a nearly equal distribution of responses was observed.

In addition to the χ^2 test, the matching recall results of the CMA-supervisor paired sample were compared using the McNemar test, which presumes the distributions of different values across each of the recall variables are equally likely. McNemar test results for each recall variable found no significant differences between CMA and

supervisor responses regarding CMAs performing in situations where they would have to demonstrate MCs; recall was high for both. It can therefore be suggested that no gap exists between CMAs' and supervisors' responses regarding the need for CMAs to use MCs in their job; however, the small matched-pair sample limits generalizability to the population.

5.2.2. Situation satisfaction variables.

Once it was determined whether or not CMAs and supervisors recall situations in which the CMAs were required to demonstrate each of the MCs studied, it was necessary to determine what differences, if any, were observed between CMA and supervisor perceived levels of satisfaction of CMAs' performance in each of the eight work situations. Despite high situation recall, only 15 CMAs provided self-assessments, compared to 38 supervisors. As with the MC capability variables, the situation satisfaction variable data were not normally distributed; therefore, nonparametric M-W, sign, and Wilcoxon matched-pairs tests were employed (95% confidence level; $\alpha = .05$).

For all CMAs sampled, mean satisfaction ratings ranged from 6.06 ($SD = 1.10$) for influencing to 6.38 ($SD = 1.02$) for working with teams. Similar results were observed for the paired CMA sample, with situation satisfaction means ranging between 5.80 (influencing; $SD = 1.61$) and 6.60 (working with teams; $SD = 0.74$), indicating a relatively high level of satisfaction overall. CMA responses from the matched-paired sample were compared to the unpaired CMA sample responses using the M-W test to identify statistically significant differences. No significant differences were identified, indicating a high level of consistency in responses between CMA respondents in both the CMA-supervisor paired and unpaired CMA samples. Supervisor situation satisfaction

means ranged between 6.03 (writing business reports; *SD* = 1.03) and 6.42 (working with a team; *SD* = 0.87), also indicating relatively high satisfaction levels.

5.2.2.1. *Situation satisfaction sign test results.*

Based on nonparametric sign test results, the only statistically significant difference in situation satisfaction responses was identified for organizing a project or event ($p = .03$; $\alpha = .05$) where the median supervisor satisfaction responses exceeded the median CMA satisfaction responses. This suggests that CMAs may have a tendency to underestimate their ability to organize projects or events. In addition, these relatively consistent results could suggest that the risk related to SDR and self-report bias, whereby CMAs might have the tendency to inflate their self-assessment ratings, is low. However, there is also the potential risk of SDR bias on behalf of the supervisors who may inflate the satisfaction ratings, although there is no evidence to indicate that this was the case. These results, however, may not be generalizable over the entire CMA population due to the low response in the CMA-supervisor paired sample.

5.2.2.2. *Situation satisfaction: Wilcoxon matched-pairs test results.*

Where the sign test identified one significant difference in responses for a CMA's ability to organize a project or event, the Wilcoxon matched-pairs test found no significant differences in the medians of the population distributions for all situations, including the ability to organize a project or event ($p = .06$; $\alpha = .05$). At 90% confidence, however, organizing a project or event would then become statistically significant ($p = .06 <$; $\alpha = .10$). This indicates that the CMA probability distribution for organizing a project or event is slightly shifted to the left versus the supervisor probability distribution, supporting the sign test results discussed in section 5.3.2.1. Based on these results, the

earlier conclusion in section 5.3.2.1 regarding potentially low risk of SDR and self-report bias is reinforced.

5.2.3. Conclusion related to hypothesis 1.2.

Overall, both the sign test and Wilcoxon matched-pairs test produced similar and consistent results when applied to situation variables. However, the findings suggest that CMAs appear to underestimate their performance in stations requiring them to organize projects and events. Mean satisfaction ratings were still at the higher end of the Likert scale (CMA: $M = 6.00$, $SD = 0.85$; supervisor $M = 6.42$, $SD = 0.87$). In addition, the similarity in responses relating to situation satisfaction variables from both CMAs and supervisors might also suggest that the risks associated with SDR and self-report biases are low. Therefore, the findings suggest that there is not a gap between the MCs CMAs required for their current jobs and those acquired in the CMA PEP. However, as previously noted, the low supervisor participation rate resulted in a small matched-pair sample size that limits generalizability of findings to the total CMA sample, but not necessarily to the population.

With respect to research question one, the data related to situation recall and situation satisfaction suggest that CMAs are required to perform in workplace situations that require the application of MCs, and that CMAs handle themselves satisfactorily in such situations thereby demonstrating capability in being able to use MCs. Capability to use MCs implies that these skills would have somehow been developed, presumably, at least in part, in the CMA PEP and, therefore, that the CMA PEP may contribute to bridging the university graduate MC expectations gap. However, while testing of hypothesis 1.2 found no evidence to indicate a gap regarding the need for MCs in CMAs' jobs, or their ability to perform satisfactorily in work situations requiring the use of MCs,

the findings related to hypothesis 1.1 did identify that a capability perception gap appears to exist with respect to CMAs' ability to see the bigger picture.

5.3. Results Related to Hypothesis 1.3: CMA Professional Program Impact on MC Development

Following the determination of a MC capability gap as part of hypotheses 1.1 and 1.2, hypotheses 1.3 and 1.4 examine the contribution of the CMA program to MC development in CMAs. This hypothesis was tested using two sets of variables derived from questions 21 and 25 in the CMA survey instrument (Appendix D) and listed in Table 5.3.

Table 5.3

$H_{1.3}$ Test Variables

CMA Survey Question	Variable Description (Name)	Variable Measure (Scale)	Tests Conducted
21	CMA Program *contribution* to MC development (MC1CMADev – MC8CMADev)	Interval (7-point Likert)	Descriptives Kruskal-Wallis (K-W) Mann-Whitney *U* (M-W)
25	Learning environment *contribution* to MC development (MC1Most – MC8Most)	Nominal/ Binomial	Descriptives χ^2 test

These variables were selected because they ask specifically about the contribution of the CMA PEPs to MC development. First, CMAs were asked to identify whether respective CMA PEP contributed to the development of each of the eight MCs studied. Responses ranged from 1.0 (*strongly disagree*) to 7.0 (*strongly agree*) on a 7-point Likert scale. CMAs were also asked to identify which of three learning environments (CMA program, work experience, or extracurricular activities) they felt contributed most to their development of each of the eight MCs studied. All of the data collected on these two

variables exhibited non-normal distributions; therefore, only nonparametric tests could be used. The following three subsections explore the results of the variables tested in greater detail.

5.3.1. CMA program contribution to MC development.

Proportions of CMA program contribution ratings on the 7-point scale are presented in Table 5.4.

Table 5.4

Distribution of Responses for CMA Program Contribution to MC Development

		SD			N			SA
MC	*n*	1	2	3	4	5	6	7
Influencing/persuading	224	3.6%	2.2%	4.5%	8.0%	25.9%	**31.3%**	24.6%
Teamwork/relationships	223	1.3%	0.4%	2.2%	5.4%	16.6%	25.6%	**48.4%**
Critical/analytical	223	1.3%	0.4%	1.3%	6.3%	16.1%	32.3%	**42.2%**
Self/time management	223	2.7%	1.8%	4.9%	14.8%	17.5%	**30.0%**	28.3%
Leadership	221	1.8%	0.5%	4.1%	8.6%	22.2%	**34.4%**	28.5%
See bigger picture	221	1.8%	0.9%	2.3%	7.2%	18.6%	31.2%	**38.0%**
Presentation	220	1.4%	0.0%	2.3%	3.2%	9.1%	28.2%	**55.9%**
Communication	221	2.3%	0.5%	1.8%	5.0%	14.5%	32.6%	**43.4%**

Note: n = number of valid responses. SD = Strongly Disagree; N = Neutral; SA = Strongly Agree. The highest proportion of responses for each MC is reported in boldface.

Mean contribution ratings over the entire sample ranged from the lowest at 5.24 (*SD* = 1.47) for influencing and persuading, to the highest at 6.27 (*SD* = 1.12) for presentation. The average mean contribution rating over all eight MCs was 5.28 (*SD* = 1.28). Overall, the results indicate a relatively high level of agreement that the CMA programs contribute to MC development, with a high proportion of respondents (over 50%) reporting values of 6.0 or greater. However, aggregated results do not identify where significant differences in responses may lie or what demographic factors may influence these differences. Table 5.5 lists the 13 demographic variables identified from the

literature as likely to influence the development of MCs and indicates which variables delivered statistically significant differences in perceptions of program contribution to MC development.

Table 5.5

H_1 Demographic Variables

Demographic variable	Significant Differences		Significance tests conducted (95% confidence; $\alpha = .05$)
	Yes	No	
Age	X		K-W
Gender	X		M-W
Income level	X		K-W
Industry		X	
Job level		X	
Job preparation satisfaction	X		K-W
Job satisfaction		X	
Job tenure		X	
MBA vs. non-MBA	X		M-W
Organization size		X	
Program completed	X		K-W
Province	X		K-W
Year of program completion		X	K-W

Note: ANOVA tests were conducted on all variables listed; however, only results where significant differences were observed are discussed.

ANOVA testing was conducted using the K-W and M-W tests to identify demographic factors influencing the perception of CMA program contribution to MC development. The following sections evaluate the results related to each of the seven demographic variables for which statistically significant differences in responses were observed and identified in Table 5.5. All tests were conducted at a 95% confidence level ($\alpha = .05$).

5.3.1.1. *CMA program MC contribution results: Age.*

As discussed in section 4.2.1, age data were categorized into three groups, corresponding to Generations Y (Gen Y or Millennials), X (Gen X), and Baby Boomers (Boomers). Descriptive analysis revealed that, while all age ranges provided relatively strong positive ratings, Gen Y reported the highest level program contribution ratings for all MCs except for the influencing/persuading, and critical/analytical thinking MCs, on which Boomers ranked highest. Though descriptive analysis appears to show a difference in responses across age groups, further testing revealed significant differences in responses only for the presentation MC ($p = .02$; $\alpha = .05$). Thus, while all age groups provided relatively high and consistent ratings of the perceived importance of the CMA program to the development of all eight MCs, presentation proved to be an exception where CMAs aged 30 and younger reported the CMA program to be more important to presentation MC development than the other age groups. These findings are not generalizable to the population, however, because representativeness of the sample to the population could not be assessed.

5.3.1.2. *CMA program MC contribution results: Gender.*

Descriptive analysis of responses by gender shows that, based only on descriptive statistics, females reported higher mean contribution ratings for all MCs except the ability to see the bigger picture. To determine if the differences between female and male responses were statistically significant, the data were subjected to the M-W test at 95% confidence ($\alpha = .05$). Statistically significant differences in responses were identified for only two MCs: self and time management ($p = .04$; $\alpha = .05$; females: $M = 5.73$, $SD = 1.27$; males: $M = 5.28$, $SD = 1.57$) and presentation ($p = .03$; $\alpha = .05$; females: $M = 6.48$, $SD = 0.86$; males: $M = 6.13$, $SD = 1.24$), indicating females perceive the CMA program

to contribute more to both presentation and self and time management MCs than males do. These findings may not be generalizable to the population since the CMA sample collected was overrepresented by males.

5.3.1.3. *CMA program MC contribution results: Income.*

As discussed in section 4.2.2, CMA participant data were collected and categorized into five income levels corresponding closely to the categorization of level of job responsibility. While statistical analysis by job level revealed no significant differences in responses relating to CMA program contribution to MC development, analysis by income level did. Mean MC contribution ratings and K-W test results for each income level are presented in Table 5.6. CMAs earning $140,000 and above reported the lowest mean contribution ratings for all eight MCs. There are mixed results for the remaining income levels. Statistically significant differences in the ratings of CMA program contribution to MC development were observed for the following four MCs: teamwork and relationship building, self and time management, presentation, and communication. The findings suggest that CMAs earning less than $70,000 believe the CMA contribution contributes more to development of the self and time management MC, whereas CMAs earning between $70,000 and $89,999 believe the program contributes more to the development of the influencing and persuading, teamwork and relationship building, and communication MCs. These findings seem to support Dreyfus and Dreyfus' (1980) observation that proficiency and competency increase with concrete experience, illustrating progression through the five developmental stages (from novice to mastery) evidenced by shifting emphasis from the CMA PEP to work experience as income level increases.

Table 5.6

Mean Program Contribution Ratings and Significance: Income Level

	Total sample (n = 224)		Income Level										
			≤ $69,999		$70,000 – $89,999		$90,000 – $139,000		$140,000 – $199,999		> $200,000		
MC	#	*M (SD)*	#	*M (SD)*	#	*M (SD)*	#	*M (SD)*	#	*M (SD)*	#	*M (SD)*	*p*
Influencing/persuading	224	5.24 (1.47)	30	5.50 (1.55)	65	**5.69** (1.41)	75	5.27 (1.45)	21	4.90 (1.48)	15	5.20 (1.42)	**.05**
Teamwork/relationships	223	6.06 (1.22)	30	5.83 (1.56)	65	**6.25** (1.20)	74	6.16 (1.05)	21	5.81 (1.03)	15	5.53 (1.12)	**.03**
Critical/analytical	223	6.00 (1.17)	30	5.97 (1.22)	64	**6.22** (1.11)	75	5.95 (0.97)	21	5.81 (1.33)	15	5.67 (1.45)	.21
Self/time management	223	5.46 (1.47)	30	**5.60** (1.50)	64	5.63 (1.54)	75	5.48 (1.28)	21	5.14 (1.39)	15	4.53 (1.41)	**.03**
Leadership	221	5.66 (1.28)	30	**5.90** (1.27)	63	5.79 (1.30)	74	5.59 (1.18)	21	5.38 (1.47)	15	5.33 (0.90)	.12
See bigger picture	221	5.86 (1.28)	30	5.77 (1.38)	63	5.95 (1.31)	74	**5.89** (1.07)	21	5.48 (1.44)	15	5.80 (1.52)	.53
Presentation	220	6.27 (1.12)	30	6.27 (1.29)	64	**6.50** (0.99)	72	6.26 (1.04)	21	6.00 (1.05)	15	5.93 (1.16)	.07
Communication	221	6.00 (1.26)	30	5.97 (1.25)	65	**6.23** (1.28)	75	6.01 (1.14)	21	5.57 (1.36)	15	5.23 (1.25)	**.01**
Average		5.82 (1.28)		5.85 (1.38)		**6.03** (1.27)		5.83 (1.15)		5.51 (1.32)		5.40 (1.28)	

Note. # = number of valid responses. The sum of all income range samples may not equal the total sample as not all respondents provided their income level. The sum of all responses may not equal the total sample (n = 224) due to missing cases where respondents answered "I don't know". K-W test was conducted on 5-independent samples represented by each income range at a 95% confidence level (α = .05). Reported ratings of perceived CMA program contribution to the development of each MC were ranked from smallest to largest (with ties being assigned the average rank) followed by a rank sum calculation. The highest mean contribution ratings reported by income range on the 7-point Likert scale for each MC are presented in boldface. Statistically significant mean contribution ratings by income ($p \leq .05$) are presented in boldface.

The findings related to income may not be generalizable to the population because representativeness of the sample could not be determined.

5.3.1.4. *CMA program MC contribution results: CMA program job preparation satisfaction.*

Respondents were asked to rate their level of satisfaction with their CMA program's contribution to preparing them for their jobs. The data was originally collected on a 7-point scale ranging from 1.0 (*very dissatisfied*) to 7.0 (*very satisfied*); however, for simpler data analysis, the data were recoded into three categories: dissatisfied, neutral, and satisfied. Respondents who were satisfied with the CMA PEP in preparing them for their jobs reported the highest perceived CMA program contribution to MC development (M = 5.93; SD =1.18). However, even dissatisfied respondents reported an average mean program contribution rating over all MCs of 5.02 (SD = 2.23). This result was not surprising as individuals who are satisfied with the program were expected to provide higher ratings of the program's contribution to MC development and vice versa. To identify if any potential gender bias was present in the program satisfaction results, a cross tabulation was performed; the proportions of dissatisfied, neutral, and satisfied respondents were nearly equal for both male and female respondents. The possibility of an overall bias in the sample towards satisfied respondents may exist, since over 85% of respondents were satisfied with the CMA program in preparing them for their jobs.

ANOVA testing based on CMA job preparation satisfaction using the K-W test (at 95% confidence; $\alpha = .05$) revealed significant differences in responses for the influencing/persuading ($p = .02$; $\alpha = .05$), teamwork/relationship building ($p = .05$; $\alpha = .05$), and communication ($p = .04$; $\alpha = .05$) MCs. The findings suggest that dissatisfied respondents perceive that the CMA program contributes significantly less to the

development of influencing and persuading (M = 4.15; SD = 2.19), teamwork and relationship building (M = 5.23, SD = 2.20), and communication (M = 5.31; SD = 2.36).

5.3.1.5. *CMA program MC contribution results: MBA vs. non-MBA.*

Descriptive analysis of the data revealed some interesting trends regarding the responses of CMA graduates possessing an MBA versus those who do not. Specifically, MBAs consistently provided lower mean CMA program contribution ratings for all eight MCs than non-MBAs. Average mean rating over all MCs was 5.96 (SD = 1.17) for non-MBAs and 5.56 (SD = 1.49) for MBAs. However, when the data was subjected to the M-W test (at 95% confidence; $\alpha = .05$), despite non-MBAs providing higher ratings for all MCs, statistically significant differences in the differences of population means were observed only for three MCs: teamwork and relationship building ($p = .01$; $\alpha = .05$), presentation ($p = .00$; $\alpha = .05$), and communication ($p = .04$; $\alpha = .02$).

These findings suggest that, despite somewhat to moderately high contribution ratings (ranging between 5.09 and 5.83), MBAs believe the CMA program contributes less to the development of these three MCs than do non-MBAs. Why MBA perceptions of CMA program contribution to MC development are significantly lower is unclear. However, one possible explanation could be related to experience. Cross tabulations revealed the following demographic composition of CMAs possessing MBA degrees: 66.2% male; 76.9% Gen X; 21.9% employed in senior management and 37.5% in executive/partner roles; and 40.0% enrolled in the ECMA program. These demographics suggest that older, more experienced candidates may have developed MCs elsewhere, such as in their MBA programs and/or work experience, and perceive the CMA program to contribute less to MC development. The lower ratings were not found to be the result of general dissatisfaction with the CMA program, since cross tabulations revealed that

80.0% of MBAs reported satisfactory ratings of the CMA program. The findings related to possession of an MBA may not be generalizable to the population since representativeness of the sample collected could not be determined.

5.3.1.6. *CMA program MC contribution results: CMA program completed.*

CMA program contribution to MC development was also analyzed by which program the respondent had completed. As shown in Table 5.7, for all eight MCs, SLP graduates reported the highest level of agreement of program, whereas CMBA program graduates reported the lowest ratings for all MCs except communication. Average mean ratings over all eight MCs were 6.01 (*SD* = 1.13), 5.11 (*SD* = 2.08), and 5.58 (*SD* = 1.08) for SLP, CMBA and ECMA graduates, respectively.

The K-W test for statistical significance revealed that each of the three CMA programs was perceived to contribute differently to the development of six of eight MCs and that SLP graduates reported higher mean contribution ratings in all cases. Statistically significant differences were observed in all MCs except critical/analytical thinking and the ability to see the bigger picture. These findings suggest that SLP program graduates report the CMA program contributes more to the development of influencing/persuading, teamwork/relationship building, self/time management, leadership, presentation, and communication MCs than do CMBA and ECMA graduates. The findings also suggest that CMBA graduates perceive the CMA program to contribute less to the development of the same set of MCs, except communication, to which ECMA graduates believe the CMA program contributes less than other program graduates. These findings are generalizable to the population for CMBA and ECMA program graduates, though not necessarily for SLP graduates, since the SLP program was underrepresented in the sample.

Table 5.7

Mean Program Contribution Ratings and Significance: CMA Program Completed

	Total sample (n = 224)		CMA program completed						
			SLP		CMBA		ECMA		
MC	#	*M (SD)*	#	*M (SD)*	#	*M (SD)*	#	*M (SD)*	*p*
Influencing/ persuading	224	5.24 (1.47)	160	**5.60** (1.31)	22	4.55 (2.43)	42	5.21 (1.20)	**.04**
Teamwork/ relationships	223	6.06 (1.22)	159	**6.27** (1.07)	22	5.32 (1.99)	42	5.64 (0.98)	**.00**
Critical/ analytical	223	6.00 (1.17)	159	**6.11** (1.05)	22	5.18 (1.92)	42	6.07 (0.92)	.08
Self/time management	223	5.46 (1.47)	159	**5.62** (1.43)	22	4.91 (2.07)	42	5.14 (1.16)	**.02**
Leadership	221	5.66 (1.28)	157	**5.80** (1.20)	22	5.05 (1.94)	42	5.48 (1.09)	**.04**
Bigger picture	221	5.86 (1.28)	158	**5.96** (1.15)	21	5.05 (2.16)	42	5.88 (1.04)	.26
Presentation	220	6.27 (1.12)	156	**6.54** (0.79)	22	5.41 (1.97)	42	5.71 (1.15)	**.00**
Communication	221	6.00 (1.26)	157	**6.21** (1.07)	22	5.41 (2.15)	42	5.52 (1.09)	**.00**
Average		5.82 (1.28)		6.01 (1.13)		5.11 (2.08)		5.58 (1.08)	

Note. # = number of valid responses. The sum of all responses may not equal the total sample (n = 224) due to missing cases where respondents answered "I don't know". K-W test was conducted on 3-independent samples represented by program completed at a 95% confidence level (α = .05). Reported ratings of perceived CMA program contribution to the development of each MC were ranked from smallest to largest (with ties being assigned the average rank) followed by a rank sum calculation. The highest mean contribution ratings reported by level of satisfaction on the 7-point Likert scale for each MC are presented in boldface. Statistically significant mean contribution ratings by program ($p \leq .05$) are presented in boldface.

5.3.1.7. *CMA program MC contribution results: Province.*

CMA program contribution to MC development was also analyzed by province. Descriptive analysis revealed that AB respondents provided the highest mean program contribution ratings for all MCs except critical and analytical thinking, which SK respondents rated the highest. The K-W test revealed statistically significant differences for two MCs: presentation (p = .02; α = .05) and communication (p = .05; α = .05). The

findings suggest that AB CMAs believe the CMA program contributed more to the development of presentation and communication MCs than did SK or MB graduates.

The provincial results are likely biased in favour of SLP graduates because 77% of AB respondents were represented by SLP graduates versus 55% and 38% for SK and MB. As noted in section 5.1.1.6, SLP graduates provided the highest mean contribution ratings for all MCs; therefore, the results observed by province are consistent, except for critical and analytical thinking. These findings are generalizable to the population, since it was determined that the sample collected was representative based on province.

5.3.2. Learning environment importance to MC development.

In addition to asking CMAs to identify the level to which they agreed their CMA program contributed to the development of each individual MC (on a 7-point scale), respondents were also asked to identify which of three learning environments contributed most to their development of each MC. The three learning environments studied were: (a) the CMA PEP (representing the formal learning environment), (b) work experience, and (c) extracurricular activities, both representing experiential learning environments. With respect to CMA PEP contribution to MC development, if it can be shown that the PEP contributes most to specific MCs, then it could be inferred that the PEP contributes to bridging the MC gap.

Once again, the data were not normally distributed, thus limiting analysis to nonparametric tests. Given that the variables for this test were nominal or binomial, one-sample χ^2 and binomial tests were conducted, with results summarized in Table 5.8.

Table 5.8

Learning Environment Contribution and Significance

MC	#	*p*	Learning Environment		
			CMA program[a]	Work experience[a]	Extracurricular activities[a]
Influencing/persuading	220	**.00**	32.7%	**62.3%**	5.0%
Teamwork/relationships	222	**.00**	**45.9%**	40.1%	14.0%
Critical/analytical	216	**.00**	**53.7%**	44.9%	1.4%
Self/time management	210	**.00**	30.0%	**61.0%**	9.0%
Leadership	217	**.00**	35.0%	**53.0%**	12.0%
See bigger picture	220	**.00**	**50.0%**	47.3%	2.7%
Presentation	223	**.00**	**77.6%**	18.8%	3.6%
Communication	220	**.00**	43.0%	**48.2%**	8.8%

Note: # = number of valid responses; $n = 224$. One-sample χ^2 test was conducted on nominal variables at a 95% ($\alpha = .05$) confidence level. Statistically significant differences in responses ($p \leq .05$) are presented in boldface.
[a]Percent values represent proportion of responses (n). The highest proportion of responses for each MC is presented in boldface.

Based on the χ^2 results, the null hypothesis would be rejected, as significant differences were observed for all three learning environments, indicating that the learning environments do not contribute equally to the development of the eight MCs studied. Descriptive analysis shows that participation in extracurricular activities did not contribute most to the development of any of the eight MCs. The CMA program, however, is perceived to contribute the most to teamwork/relationship building, critical/analytical thinking, bigger picture, and presentation MCs. Work experience is perceived to contribute most to influencing/persuading, self/time management, leadership, and communication MCs. It is important to note that these results could be biased based on age, gender, program, or possession of an MBA. Additional significance testing was conducted on these four variables, and the results are shown in Table 5.9. Based on age, significant differences in the proportions of responses were identified for

presentation and communication. Analysis by job level and program indicated significant differences in proportions for all six MCs identified in Table 5.9, and significant differences in responses for MBAs and non-MBAs were observed for all MCs except influencing/persuading, self/time management and bigger picture.

Table 5.9

Summary of Statistically Significant Differences in Learning Environment Contribution Based on Demographic Factors

MC	Age	Job Level	Program	MBA
Influencing/ persuading		JR: CMA (+) EXE: CMA (–)[b] EXE: WORK (+)	ECMA: CMA (–) ECMA: WORK (+)	
Teamwork/ relationships		JR: CMA (+) INT: ECA (+)	SLP: CMA (+) SLP: WORK (–) CMBA: CMA (–) ECMA: CMA (–) ECMA: WORK (+)	MBA: CMA (–) MBA: ECA (+)
Critical/ analytical				MBA: CMA (–) MBA: WORK (+)
Self/time management				
Leadership		JR: CMA (+)	ECMA: WORK (+)	MBA: CMA (–)
See bigger picture		JR: CMA (+)	ECMA: WORK (+)	
Presentation	Gen Y: CMA (+) Gen X: CMA (–)[a]	JR: CMA (+)	SLP: CMA (+) SLP: WORK (–) CMBA: CMA (–) CMBA: WORK (+)	MBA: CMA (–) MBA: WORK (+) NON: CMA (–) NON: WORK (+)
Communication	Gen X: WORK (+)	JR: CMA (+)	SLP: CMA (+) SLP: WORK (–) CMBA: CMA (–) CMBA: WORK (+) ECMA: CMA (–) ECMA: WORK (+)	MBA: CMA (–) MBA: WORK (+) NON: CMA (+)

Note. (+) = contributes most; (-) = contributes least; CMA = CMA program; WORK = work experience; ECA = extracurricular activities; JR = Junior/entry job level; INT = intermediate job level; EXE = executive job level ; SLP = Strategic Leadership program; CMBA = CMBA program; ECMA = prairie region executive CMA program; MBA = possession of MBA degree; NON = non-MBA.

[a]Example 1: Generation-X (Gen X) respondents identified the CMA program (CMA) contributed the least (–) to the presentation MC. [b]Example 2: CMAs employed in Executive level positions (EXE) identified work experience (WORK) as contributing the most (+) to influencing/persuading MC development.

5.3.3. Conclusion related to hypothesis 1.3.

Hypothesis 1.3 sought to determine whether or not the CMA PEP enhances MC development. Mean perceived importance of CMA program contribution to MC was analyzed by 13 different demographic factors. Statistically significant differences were observed for seven factors and are summarized in Table 5.10.

Table 5.10

Summary of Statistically Significant Differences in MC Contribution Based on Demographic Factors

MC	Age	Gender	Income	Job preparation satisfaction	MBA/ non-MBA	CMA program completed	Province
Influencing/ persuading			X	X		X	
Teamwork/ relationships			X	X	X	X	
Critical/ analytical							
Self/time management		X	X			X	
Leadership						X	
See bigger picture							
Presentation	X	X			X	X	X
Communication			X	X	X	X	X

Based on the results, the following observations were made:

- Younger CMAs perceive the CMA program contributed more to the development of communication than do older CMAs.
- Females believe the CMA program contributed more to the development of self and time management and presentation MCs than males do.

- CMAs earning less than $70,000 believe the CMA program contributed more to the development of self and time management, whereas CMAs earning between $70,000 and $139,000 believe the CMA program contributed more to the development of influencing and persuading, teamwork and relationship building, and communication.
- Non-MBAs perceive the CMA program to contribute more to teamwork and relationship building, presentation, and communication MCs than MBAs do.
- Graduates that were satisfied with the CMA program job preparation believe the program contributes more to influencing and persuading, teamwork and relationship building, and communication.
- SLP program graduates believe the SLP program contributed more to the development of all MCs except for critical and analytical thinking and the ability to see the bigger picture.
- Finally, AB CMAs perceive the CMA program contributed more to presentation and communication development than do CMAs from other provinces.

In addition to demographic factors, the learning environment contribution to MC development was also analyzed. Respondents were asked to indicate which of three learning environments – the CMA program, work experience, or participation in extracurricular activities – contributed the most to the development of each MC. The findings revealed the following:

- The CMA program was identified as contributing the most to the development of teamwork and relationship building, critical and analytical thinking, ability to see the bigger picture, and presentation MCs.

- Work experience was identified as contributing the most to the influencing and persuading, self and time management, leadership, and communication MCs.

When statistically significant differences from analysis of both program contribution and overall learning environment contribution are taken into consideration, it is clearly evident that the CMA program contributes more to the development of teamwork and relationship building, and most significantly to presentation than the remaining MCs. The SLP appears to contribute more to MC development than the CMBA or ECMA programs, as evidenced by the analysis conducted by program in section 5.1.1.6.

Overall, based on the analysis and results of the two relevant survey questions, it can be suggested that the CMA programs *do* contribute to MC development. The degree to which they contribute, however, varies by program. In the context of learning environments (formal vs. experiential), the contribution to MC development is not an all-or-nothing proposition and ultimately depends on the program, which is directly related to the graduates themselves. Overall, it appears that the younger and less experienced SLP graduates value their program more than do more experienced CMBAs and ECMAs, and that SLP graduates benefit more from the experiential learning environment to develop most of the MCs studied. One might then be tempted to conclude that the ECMA graduates (with the most experience) would value their CMA professional program the least of the three. This was shown not to be the case, however, with CMBA graduates providing the lowest contribution and importance ratings overall. There was not enough data to explain the differences between CMBA and ECMA responses, and this could represent an area for future research. Perhaps the most important observation is that the formal, in-class portion of all three CMA programs is extremely important to the

development of the presentation MC. Finally, with respect to the overall research question to which hypothesis one is related, these findings suggest that the CMA PEP *does* contribute to bridging the MC expectations gap.

5.4. Results Related to Hypothesis 1.4: CMA Program Elements

Hypothesis 1.4, the second of two hypotheses related to determining whether or not the CMA program contributes to bridging the MC gap, focuses on specific program elements. All three of the CMA PEPs (SLP, CMBA, and ECMA) include a series of learning and evaluation elements designed to develop the skills and competencies outlined in the CMA Competency Map (Appendix A). There are seven key elements of the formal learning portion of the CMA PEPs: (a) management reports and assignments, (b) residencies consisting of (c) residency activities facilitated by moderators, followed by (d) a case examination, (e) written board report, and (f) the report to the board. It was essential to examine the perceived importance of these program elements to MC development. Relevant data was collected via question 22 in the CMA survey instrument (Appendix D), where CMAs were asked to identify how important each element was to MC development. Responses ranged from 1.0 (*not important*) to 7.0 (*very important*) on a 7-point scale. During the initial planning of the CMA survey instrument, a series of questions seeking to observe the importance of each program element to the contribution of each individual MC was not included in order to keep the survey at a reasonable length. As a result, a more complete analysis of program element contribution on specific MCs could not be completed. The distribution of results of the importance ratings are summarized in Table 5.11, indicating a relatively high level of perceived importance given the highest proportions of respondents rated each program element's contribution at a 6.0 or greater.

Table 5.11

Distribution of Responses for CMA Program Element Importance to MC Development

	NI			N			VI
CMA Program Element	1	2	3	4	5	6	7
Reports/assignments	2.3%	2.3%	2.3%	6.3%	18.6%	32.1%	**36.2%**
Facilitated residencies	2.5%	2.5%	2.5%	13.4%	19.3%	**34.2%**	25.7%
Residency activities	1.5%	2.0%	3.1%	14.3%	22.7%	**29.1%**	27.1%
Moderators	1.4%	1.9%	2.3%	10.2%	21.8%	28.2%	**34.3%**
Case examination	1.4%	3.2%	4.5%	7.7%	25.5%	**31.4%**	26.4%
Written board report	1.3%	1.8%	0.9%	2.7%	11.2%	28.6%	**53.6%**
Board report presentation	2.2%	1.3%	1.3%	1.8%	13.4%	25.0%	**54.9%**

NI = Not Important; N = Neutral; VI = Very Important. The highest proportion of responses for each MC is reported in boldface.

As with the program MC contribution variables discussed in section 5.1.2, the sample data collected were not normally distributed, thus requiring the use of nonparametric tests for statistical analysis based on nine demographic factors listed in Table 5.12. Each of the statistically significant findings is discussed in the following sections.

Table 5.12

$H_{1.4}$ Demographic Factors

	Significant Differences		
Demographic Factor	Yes	No	Significance tests conducted (95% confidence; $\alpha = .05$)
Age	X		K-W
Gender		X	M-W
Income level	X		K-W
Job level			M-W
Job preparation satisfaction	X		K-W
MBA vs. non-MBA	X		M-W
Program completed	X		K-W
Province		X	K-W
Year of program completion		X	K-W

Note: ANOVA tests were conducted on all variables listed; however, only results in which significant differences were observed are discussed.

5.4.1. CMA program element importance results: Age.

The first demographic variable for which responses were analyzed relating to the importance of CMA program elements was age. Interestingly, the Boomers, as opposed to Gen Y, reported the highest overall mean importance ratings where, based on program contribution results related to hypothesis 1.3, the opposite would be expected. To determine if the results were significant, the K-W test was applied at a 95% confidence level. Statistically significant differences in responses were identified, where Boomers reported a significantly higher mean importance rating for the case examination (M = 6.22; SD = 0.94) than did Gen Y (M = 5.46; SD = 1.28) or Gen X (M = 5.45; SD = 1.43) respondents. Gen Y reported the highest importance rating for the board presentation (M = 6.51; SD = 0.80) and Gen X the lowest (M = 5.99; SD = 1.46), likely contributing to the observed statistically significant difference.

5.4.2. CMA program element importance results: Income and job level.

Average mean CMA program contribution ratings over all eight MCs were relatively consistent among all income levels, ranging between 5.53 and 5.89, except the $140,000 – $199,999 income range, which reported an average of 5.09 (SD = 1.60). The lower three income levels reported the highest mean ratings, which varied by program element. The K-W test identified two statistically significant differences in responses for the following program elements: moderators (p = .01; α = .05), and board presentation (p = .00; α = .05), where the $140,000 – $199,999 income band reported significantly lower mean contribution ratings than the other three income bands.

The data were also subjected to significance testing by job level to observe whether or not similar results would be observed. Mean importance ratings were fairly consistent, with the junior job level reporting descriptively higher mean ratings than the

remaining three higher job levels. The K-W test revealed only one significant difference relating to the board presentation program element ($p = .01$; $\alpha = .05$), where junior/entry level CMAs reporting the highest mean importance ratings. The data suggest that lower-income-earning CMAs, who would correspondingly be employed in jobs with lower responsibility, favour the board presentation the most. A possible explanation for this finding could be that individuals employed in higher-level jobs and salary levels may have developed presentation experience at work and do not feel the need to develop the MC further in the CMA program, or that they would have already dealt with these types of presentations and do not see a need to simulate them.

5.4.3. CMA program MC contribution results: CMA program job preparation satisfaction.

The K-W test also identified statically significant differences in responses when analyzed by CMA job preparation satisfaction. Unsurprisingly, satisfied respondents with the program's preparation for their jobs reported the highest CMA program element importance ratings. Dissatisfied respondents reported an average mean program contribution rating over all MCs of 5.17 ($SD = 1.84$) versus 5.83 ($SD = 1.27$) for satisfied respondents. As with CMA program contribution to MC development, this result is not unexpected, given that individuals who are satisfied with the program are more likely to provide higher ratings of the importance of the program elements to MC development. Significant differences in responses were observed only for the reports and assignments ($p = .01$; $\alpha = .05$). Satisfied respondents reported a mean importance rating of the reports and assignments of 5.89 ($SD = 1.29$) versus 4.46 ($SD = 2.15$) for dissatisfied respondents.

5.4.4. CMA program element MC contribution results: CMA program completed.

Mean importance ratings by CMA program are presented in Table 5.27. Descriptive analysis indicates that all program elements are considered to be at least moderately important to MC development, with importance ratings ranging between 5.50 (facilitated residencies and activities: *SD* = 1.41 and 1.35, respectively) and 6.21 (written board report; *SD* = 1.19). Statistically significant differences in importance ratings between the three programs using the K-W test were observed for only two program elements: moderators ($p = .00$; $\alpha = .05$) and board presentation ($p = .02$; $\alpha = .05$). Overall, the results indicate respondents generally agree that the CMA program elements contribute to MC development.

5.4.5. CMA program element MC contribution results: MBA vs. non-MBA.

The last demographic variable against which CMA program elements were assessed was whether or not respondents possessed an MBA degree. The results indicated that non-MBAs provided higher mean program contribution ratings for all seven program elements, with average mean rating over all program elements of 5.88 (*SD* = 1.18) for non-MBAs and 5.56 (*SD* = 1.60) for MBAs. However, despite non-MBAs providing higher ratings for all program elements, the only statistically significant difference was observed for moderators ($p = .00$; $\alpha = .05$), with MBAs reporting a mean importance rating of 5.15 (*SD* = 1.61) versus 5.96 (*SD* = 1.14) for non-MBAs. The data suggest that both MBAs and non-MBAs consider the all seven CMA program elements to be important to MC development; however, non-MBAs considered the moderators to be more important than MBAs did.

5.4.6. Conclusions related to hypothesis 1.4.

Overall, it can be concluded that the program elements of each of the three CMA PEPs are considered important to the development and improvement of MCs. Graduates rated the written board report presentation and board presentation as the most and second-most important program elements, respectively. Younger CMAs earning lower incomes and employed in positions with lower levels of responsibility rated the importance of the board presentation as a greater contributor to overall MC development than older, higher-income, more senior CMAs. This finding suggests that the CMA program provides greater impact on presentation development to younger, less experienced CMAs, likely because they have not had the opportunity to develop the MC as strongly through work experience on the job. MBAs, on the other hand, rated the importance of moderators in the programs as contributing the least to overall MC development. The reason for this finding is unclear and could present an opportunity for future research.

With respect to the overall research question and the role of the professional accounting program in bridging the MC expectations gap, the results for hypothesis 1.4 suggest that all seven elements comprising the CMA PEP, especially the reports and assignments, moderators, written board report, and board report presentation, are important to MC development. Therefore, it is reasonable to conclude that the CMA PEP does contribute to bridging the MC expectations gap. In addition, the data clearly indicate that the written board report and presentation are the most important program elements of the CMA programs, presumably because they contribute to the development and improvement of communication and presentation MCs.

5.5. Conclusions Related to Research Question One

Chapter 5 of this dissertation sought to answer the following question: *Do professional accounting programs contribute to bridging the MC expectations gap?* The answer to this question was evaluated through analysis of the following four related hypotheses, using the CMA PEP as an example.

- $H_{1.1}$ There are *no* significant differences in the perceptions of CMAs and employers regarding the capability of CMAs to use MCs in their current jobs.
- $H_{1.2}$ There is *not* a gap between the MCs CMAs required for their current jobs and those acquired in the CMA PEP.
- $H_{1.3}$ The CMA PEP does *not* enhance MC development.
- $H_{1.4}$ Elements of the CMA PEP *do not* contribute to the development or improvement of MCs.

Hypothesis 1.1 tested for MC expectation gaps by determining whether or not any significant differences could be observed between CMA and supervisor perceptions of the CMAs capability to use MCs in their jobs. The findings suggest that one potential MC gap exists regarding the ability to see the bigger picture, where CMAs self-reported a mean capability rating that exceeded the supervisor rating, although the supervisor rating was still relatively high on the 7-point scale and the standard deviations were similar. Hypothesis 1.2 focused on identifying significant differences in perceptions of CMAs and supervisors of the performance of the CMA in eight situations that require the use of MCs. This was important to analyze for two reasons: first, because CMAs are expected to possess and be able to demonstrate the application of MCs in accordance with the CMA competency map; and second, because identifying significant differences in responses

between CMAs and supervisors helped identify whether or not self-report and SDR biases are prevalent. Nonparametric statistical testing identified significant differences in satisfaction ratings for organizing projects and events where supervisors were more satisfied than CMAs themselves. Mean CMA and supervisor satisfaction ratings were greater than 6.0 indicating relatively high levels of satisfaction in all situations. The findings suggest that CMAs appear to perform satisfactorily in situations requiring MCs. However, since hypotheses 1.1 and 1.2 relied on the matched-pair survey, the low supervisor participation rate resulted in too small a sample size for results related to these two hypotheses to be generalizable to the population.

Hypothesis 1.3 determined that all three PEPs (SLP, CMBA and ECMA) contribute to MC development, with the most emphasis on the presentation MC. SLP program graduates reported the highest mean contribution ratings, whereas CMBA graduates reported the lowest ratings (albeit no mean CMBA rating was below 4.3 on the 7-point scale). Though all programs were identified as contributing to MC development, it was determined that the programs contributed the most to teamwork/relationship building, critical/analytical thinking, the ability to see the bigger picture, and presentation. Work experience was identified as contributing the most to influencing/ persuading, self/time management, leadership, and communication. The results clearly indicate that the CMA program *does* contribute to filling in the MC gap, but not equally for each of the eight MCs studied or for each CMA program. Since this hypothesis did not rely on supervisor responses, these findings are generalizable to the population, and self-report/SDR bias could be considered low because responses do not represent self-assessments of capability.

Lastly, hypothesis 1.4 focused on determining whether or not the elements that comprise the CMA programs contribute to MC development. The elements studied included reports and assignments, facilitated residencies, activities in the residencies, moderators who facilitate the residencies, the national case examination, written board reports, and board report presentations. It was concluded that all program elements were perceived to contribute to overall MC development. SLP graduates reported the highest mean ratings for all program elements except the case examination, for which ECMA graduates reported the highest mean rating. CMBA graduates reported the lowest mean ratings. The written board report and board presentation report received the highest mean ratings of all the program elements. These results support the previous observations that the CMA program contributes to the critical and analytical thinking MC, as demonstrated in the written board report, and presentation MC, as demonstrated in the board presentation. Using mean importance ratings as a proxy for perceived program value, SLP and ECMA graduates appeared to have derived the most value from their programs, while CMBA graduates appear to have derived the least value. Given the results related to hypothesis 1.4, it is reasonable to conclude the CMA program elements are considered to be important to MC development. As with hypothesis 1.3, these findings are generalizable to the population.

In answer to research question one, based on the results of analysis conducted on data collected from CMAs and supervisors, the following observations can be made:

- CMAs report that the CMA program, and the elements that comprise the program, contributed to MC development.

- No gaps *appear* to exist between CMA and supervisor assertions that MCs are required and the assessments of CMAs' ability to use them in their jobs; however, this could not be adequately determined due to the low supervisor response.
- CMAs consider themselves capable of using all eight MCs in their jobs and supervisors agree, except that CMAs perceive their ability to see the bigger picture to be higher than supervisors reported, suggesting the existence of a capability perception gap, but not a gap in capability per se. Again, this could not be adequately determined due to the low supervisor response.

As noted in the Chapter 2 literature review, a MC expectations gap existed between undergraduates/MBAs and employers. Based on findings in this study, it appears that, although a MC expectations gap still exists for CMA PEP graduates, the gap *may* have been significantly reduced to only one MC: the ability to see the bigger picture. The reduction in the MC expectations gap appears to be attributed to the CMA PEP and experience. Therefore, it may be reasonable to suggest that the CMA PEP contributes to bridging the MC expectations gap, given that CMAs reported this to be so.

The findings in chapter five suggest that, despite limitations in generalizability and potential for self-report/SDR bias, MCs appear to be important to CMAs, and that CMAs appear to be capable of satisfactorily demonstrating the use of MCs in their jobs. In accepting the importance of MCs and capability of CMAs to use MCs, Chapter 6 explores MC development by addressing the second investigative question for this thesis pertaining to potential factors that influence MC development in professional accountants.

Chapter 6: Research Question Two – Results and Analysis

Chapter 6 seeks to answer the second investigative research question: *What factors influence the development of MCs in recently designated professional accountants?* In order to answer this question, the following four hypotheses were tested:

$H_{2.1}$ The learning environment *does not* influence the development of MCs in CMAs.

$H_{2.2}$ Specific job tasks or responsibilities *do not* influence the development of MCs in CMAs.

$H_{2.3}$ Personal factors *do not* influence the development of MCs in CMAs.

$H_{2.4}$ Organizational factors *do not* influence the development of MCs in CMAs.

This chapter is organized into four sections corresponding to each of the aforementioned hypotheses. Each section provides the results of the analysis and testing that were conducted. This analysis is followed by an overall conclusion and answer to research question two.

6.1. Results Related to Hypothesis 2.1: Learning Environment Influence on MC Development

Hypothesis 2.1 posits that the learning environment does not influence the development of MCs in CMAs. For the purpose of this study, three learning environments were identified: the CMA PEP (representing the formal learning environment), the CMA's workplace, and extracurricular activities (both representing experiential learning environments). The CMA survey included four questions focused on determining the contribution of the three learning environments to each of the eight MCs studied. Table 6.1 lists the four survey questions and identifies the type of statistical analysis that was employed.

Table 6.1

$H_{2.1}$ Test Variables

CMA Survey Question	Variable Description (Name)	Variable Measure (Scale)	Tests Conducted
21	CMA Program *contribution* to MC development (MC1CMADev – MC8CMADev)	Interval (7-point Likert)	Descriptives K-W M-W
25	Learning environment *contribution* to MC development (MC1Most – MC8Most)	Nominal	Descriptives χ^2
19	Work experience contribution to MC development (MC1Exp – MC8Exp)	Interval (7-point Likert)	Descriptives K-W M-W
24	Extracurricular activity contribution to MC development (MC1ECA – MC8ECA)	Interval (7-point Likert)	Descriptive K-W M-W

6.1.1. Overall perceived learning environment contribution to MC development.

Question 25 of the CMA survey was used in Chapter 5 to help assess the importance of the CMA program to MC development as part of hypothesis 1.3. The question also has direct applicability to hypothesis 2.1, and so the results of the analysis conducted in section 5.3.2 will be briefly summarized in this section. Based on the χ^2 results, significant differences were observed for all three learning environments, thus supporting the conclusion that the learning environments contribute, but not equally, to the development of the eight MCs studied. The distribution of responses (Table 5.11) revealed that participation in extracurricular activities did not contribute most to the development of any of the eight MCs. The CMA program and work experience, however, were each credited with contributing the most to four different MCs (Table 6.2).

Table 6.2

Summary of Learning Environment Contribution to MC Development

MC	CMA Program	Work Experience
Influencing/persuading		X
Teamwork/relationships	X	
Critical/analytical thinking	X	
Self/time management		X
Leadership		X
See bigger picture	X	
Presentation	X	
Communication		X

6.1.2. Learning environment contribution to the development of the influencing and persuading MC.

The learning environment variables listed in Table 6.1 were tested against 13 demographic factors (Table 6.3) to identify where significant differences in responses may exist, and to identify any significant correlations between demographic factors and learning environment variables to identify potential influences on MC development. CMA survey questions 19, 21, and 24 (Appendix D) focused specifically on learning environment contribution to MC development. The questions asked CMAs to identify how important (on a 7-point scale) work experience (question 19) and participation in extracurricular activities (question 24) were to the development of MCs. Question 21 (which was also used to test hypothesis 1.3) asked the CMAs to identify how strongly they agreed (on a 7-point scale) with the contribution of the CMA program to MC development. Statistically significant differences in responses relating to learning environment were identified for seven personal factors and presented in Table 6.3.

Table 6.3

$H_{2.1}$ List of Statistically Significant Differences: Learning Environment

CMA survey question	Demographic variable	CMA program	Work experience	Extracurricular activities
26	Age[a]	X	X	X
27	Gender[b]	X		
28	Income level[a]	X	X	
32	Industry			
30	Job level		X	
7	Job preparation satisfaction[a]	X	X	X
8	Job satisfaction		X	
9	Job tenure			
5	MBA vs. non-MBA[b]	X		
31	Organization size			
3	Program completed[a]	X	X	
	Province[a]	X		
2	Year of program completion[a]			

Note: ANOVA tests were conducted on all variables listed; however, only results where significant differences were observed are discussed

[a]Significant differences in responses were identified using either nonparametric *k*-independent sample Kruskal-Wallis ANOVA tests at a 95% level of significance ($\alpha = .05$). [b]Significant differences were observed using either nonparametric 2-independent sample Mann-Whitney *U* tests at a 95% level of significance ($\alpha = .05$).

Three of the descriptors (gender, possession of an MBA, and province) saw significant differences in responses relating only to the CMA program, and those results were discussed in sections 5.3.1.2, 5.3.1.5, and 5.3.1.7, respectively. In summary, females perceived the CMA program to contribute more to presentation and self/time management than males did; non-MBAs reported the CMA program contributed more to teamwork/relationships, presentation, and communication than MBAs did; and AB CMAs reported the CMA program contributed more to presentation and communication than CMAs in other provinces did. Generalizability of these findings to the population

was limited to AB CMAs. The remaining four personal factors with significant differences in responses relating to work experience and participating in extracurricular activities are discussed in the next four sections.

6.1.2.1. *Learning environment contribution to MC development: Age.*

Overall mean ratings of work experience contribution to all eight MCs ranged between 5.22 (*SD* = 1.64) and 5.88 (*SD* = 1.30), indicating that workplace learning/ practical experience is relatively important to the development of all MCs. With the exception of communication, Gen X rated work experience as a more important contributor to the development of all other MCs, as compared to Gen Y and Boomers, with statistically significant differences (based on K-W tests) identified for four MCs: influencing and persuading, leadership, ability to see the bigger picture, and presentation (Table 6.4). Gen X identified work experience as contributing significantly more to the development of these MCs than did either Gen Y or Boomers. As previously identified in section 5.3.1.1, the CMA program was identified as contributing the most to the development of the presentation MC by Generation Y (*M* = 6.60; *SD* = 0.72) and the least by Generation X (*M* = 6.14; *SD* = 1.25).

When work experience was analyzed, significant differences were identified for the following four MCs: influencing/persuading, leadership, bigger picture, and presentation. Influencing and persuading saw the widest range of means between the age groups with importance ratings of 4.86 (*SD* = 1.47), 5.44 (*SD* = 1.40), and 4.94 (*SD* = 1.80) for Gen Y, Gen X, and Boomers, respectively. Gen Y reported that work experience contributed the least to the development of the presentation MC overall, as compared to Gen X and Boomers.

Table 6.4

Mean Work Experience Contribution Ratings and Significance: Age

	Total sample (n = 224)		Age (generation) ≤ 30 years (Gen Y)		31 – 50 years (Gen X)		> 50 years (Boomer)		
MC	#	*M (SD)*	#	*M (SD)*	#	*M (SD)*	#	*M (SD)*	*p*
Influencing/ persuading	224	5.24 (1.47)	63	4.86 (1.47)	142	**5.44** (1.40)	18	4.94 (1.80)	**.01**
Teamwork/ relationships	224	5.77 (1.34)	63	5.78 (1.21)	142	**5.82** (1.32)	18	5.33 (1.85)	.56
Critical/ analytical	224	5.88 (1.30)	63	5.81 (1.18)	142	**5.97** (1.24)	18	5.33 (1.94)	.28
Self/time management	224	5.57 (1.41)	63	5.56 (1.47)	142	**5.64** (1.34)	18	5.06 (1.76)	.37
Leadership	224	5.42 (1.43)	63	5.19 (1.27)	142	**5.58** (1.42)	18	4.94 (1.89)	**.05**
Bigger picture	224	5.73 (1.37)	63	5.49 (1.33)	142	**5.89** (1.29)	18	5.22 (1.86)	**.04**
Presentation	224	5.22 (1.64)	63	4.81 (1.74)	142	**5.39** (1.53)	18	5.28 (1.93)	**.04**
Communication	224	5.73 (1.26)	63	**5.76** (1.13)	142	5.55 (1.24)	18	5.39 (1.82)	.86
Average		5.57 (1.40)		5.41 (1.35)		5.66 (1.35)		5.19 (1.86)	

Note. # = Number of valid responses. The sum of all age range samples does not equal the total sample as not all respondents provided their age. K-W test was conducted on 3-independent samples represented by each age group at a 95% confidence level (α = .05). Reported ratings of perceived work experience contribution to the development of each MC were ranked from smallest to largest (with ties being assigned the average rank) followed by a rank sum calculation. The highest mean contribution ratings reported by age group on the 7-point Likert scale for each MC are presented in boldface. Statistically significant mean contribution ratings by age ($p \leq .05$) are presented in boldface.

That Gen X considered work experience to be more important to MC development than Boomers is interesting, as one might expect the most experienced age group to identify work experience as the most important contributor to MC development. Also of interest is that Boomers considered work experience to contribute the least to the development of influencing/persuading and the ability to see the bigger picture, when the opposite would reasonably be expected.

When extracurricular activities were analyzed for significant differences in mean contribution to MC development, mean ratings of extracurricular activity contribution to MC development ranged between 4.56 (critical and analytical thinking) and 6.00 (teamwork and relationship building). However, only two significant differences were observed: influencing and persuading (p = .02; α = .05), and the ability to see the bigger picture (p = .00; α = .05), where Boomers identified extracurricular activities contributed more to the development of MCs than did Gen Y or Gen X. This result, in which Boomers favoured extracurricular activities over work experience to developing the influencing/persuading and bigger picture MCs, was unexpected and could be an area of further research. Generalizability of these findings to the population cannot be inferred because representativeness of the sample by age could not be determined.

6.1.2.2. *Learning environment contribution to MC development: Income and job level.*

As discussed in section 4.2.2, CMA participant data was collected and categorized into five income levels corresponding closely to the categorization of level of job responsibility. Section 5.3.1.3 summarized the results relating to the contribution of the CMA program to MC development. Recall that CMAs earning $140,000 and above reported the lowest mean contribution ratings for CMA program contribution to the development of all eight MCs and the results were mixed for the remaining income levels. The highest mean ratings were reported by the $140,000 – $199,000 income level and the lowest by CMAs earning below $70,000. K-W tests revealed significant differences in responses across income levels for two MCs: influencing/persuading (p = .01; α = .05), and presentation (p = .05; α = .05). CMAs earning below $70,000 reported lowest mean importance rating for work experience contribution to influencing and

persuading MC development (M = 4.40 SD = 1.48) and for presentation development (M = 4.47; SD = 1.87), which, considering the averaging involved, are essentially neutral on the 7-point scale. This finding suggests CMAs at the lower income and job levels have not yet had the opportunity to practice or apply these MCs in the workplace.

Further analysis was conducted by job responsibility level. As shown in Table 6.5, the highest average mean work experience contribution ratings to MC development were reported by senior management and executive/partner level CMAs. The lowest ratings were provided by CMAs employed at junior/entry level positions. Significant differences in responses across job levels were observed for four MCs: influencing/ persuading, leadership, bigger picture, and presentation. For all of these MCs, executive/partner-level CMAs reported the highest importance ratings for work experience and junior/entry-level CMAs reported the lowest, especially for influencing and persuading, and leadership. These results support previous findings that less experienced CMAs employed at lower job levels rely more on the formal portion of the CMA program to develop these MCs (especially presentation) that more experienced CMAs employed in higher-level positions. It is important to note, however, that any findings related to income or job level are not generalizable to the population because sample representativeness could not be determined.

Table 6.5

Mean Work Experience Importance Ratings and Significance: Job Level

	Total sample (n = 224)		Job responsibility level								
			Junior/ entry level		Intermediate management		Senior management		Executive/ principal		
MC	#	*M (SD)*	#	*M (SD)*	#	*M (SD)*	#	*M (SD)*	#	*M (SD)*	*p*
Influencing/persuading	224	5.24 (1.47)	42	4.60 (1.73)	67	5.30 (1.26)	67	5.31 (1.35)	46	**5.59** (1.54)	**.01**
Teamwork/relationships	224	5.77 (1.34)	42	5.52 (1.25)	67	**5.90** (1.27)	67	5.71 (1.43)	46	5.87 (1.39)	.25
Critical/analytical	224	5.88 (1.30)	42	5.55 (1.47)	67	5.96 (1.16)	67	**5.99** (1.24)	46	5.87 (1.41)	.40
Self/time management	224	5.57 (1.41)	42	5.52 (1.19)	67	5.55 (1.35)	67	5.46 (1.61)	46	**5.76** (1.42)	.60
Leadership	224	5.42 (1.43)	42	4.83 (1.67)	67	5.46 (1.26)	67	5.51 (1.32)	46	**5.78** (1.47)	**.02**
Bigger picture	224	5.73 (1.37)	42	5.36 (1.36)	67	5.78 (1.32)	67	5.70 (1.35)	46	**6.02** (1.44)	**.04**
Presentation	224	5.22 (1.64)	42	4.86 (1.77)	67	5.10 (1.54)	67	5.24 (1.61)	46	**5.65** (1.54)	**.04**
Communication	224	5.73 (1.26)	42	5.64 (1.36)	67	5.72 (1.19)	67	5.69 (1.23)	46	**5.85** (1.37)	.74
Average		5.57 (1.40)		5.24 (1.48)		5.60 (1.29)		5.58 (1.39)		5.80 (1.45)	

Note. # = number of valid responses. The sum of all job ranges does not equal total number of responses sample due to elimination of professor/instructor job level. K-W test was conducted on 4-independent samples represented by job level at a 95% confidence level (α = .05). Statistically significant differences in mean importance ratings by job level ($p \leq .05$) are presented in boldface. Reported ratings of perceived work experience contribution to the development of each MC were ranked from smallest to largest (with ties being assigned the average rank) followed by a rank sum calculation. The highest mean contribution ratings reported by job responsibility level on the 7-point Likert scale for each MC are presented in boldface.

6.1.2.3. *Learning environment contribution to MC development: CMA program job preparation satisfaction and job satisfaction.*

Tables 6.6 and 6.7 present the descriptive statistics and results of K-W tests for significance for work importance and extracurricular activity contribution to MC development when analyzed by level of job preparation satisfaction. Respondents who were satisfied with the CMA program in preparing them for their jobs reported the highest level of work experience importance to the development of all MCs, and differences in responses were all statistically significant except for the ability to see the bigger picture. The results are interesting in that one might expect dissatisfied and neutral CMA program respondents to rate work experience as more important to MC development that those respondents who were satisfied with the CMA program in preparing CMAs for their jobs. As shown in Table 6.6, the mean importance ratings by dissatisfied respondents were significantly lower than neutral or satisfied respondents with very wide standard deviations. Further analysis to identify any demographic commonalities among the 13 respondents revealed that nine also reported being dissatisfied with their jobs. The remaining twelve respondents provided more favourable mean contribution ratings for the CMA program, which suggests that, with one exception, CMAs unsatisfied with their jobs are not developing MCs at work; however, the CMA program appears to have, at least in part, filled in the gap for them. This provides additional support for research question one. Beyond the 13 unsatisfied graduates, these findings suggest that CMAs satisfied with the program consider work experience important to MC development.

Table 6.6

Mean Work Experience Importance Ratings and Significance: CMA Program Job Preparation Satisfaction

	Total sample (n = 224)		Dissatisfied		Neutral		Satisfied		
MC	#	*M (SD)*	#	*M (SD)*	#	*M (SD)*	#	*M (SD)*	*p*
Influencing/ persuading	224	5.24 (1.47)	13	4.00 (1.96)	16	4.19 (1.80)	195	**5.41** (1.33)	**.00**
Teamwork/ relationships	224	5.77 (1.34)	13	4.62 (2.10)	16	5.00 (1.51)	195	**5.91** (1.20)	**.00**
Critical/ analytical	224	5.88 (1.30)	13	5.00 (2.08)	16	5.13 (1.26)	195	**5.99** (1.19)	**.00**
Self/time management	224	5.57 (1.41)	13	4.85 (1.67)	16	4.56 (1.28)	195	**5.70** (1.28)	**.01**
Leadership	224	5.42 (1.43)	13	4.77 (2.16)	16	4.38 (1.82)	195	**5.55** (1.29)	**.02**
See bigger picture	224	5.73 (1.37)	13	5.08 (2.14)	16	4.13 (1.41)	195	**5.82** (1.28)	.07
Presentation	224	5.22 (1.64)	13	4.31 (2.10)	16	4.13 (1.82)	195	**5.37** (1.54)	**.00**
Communication	224	5.73 (1.26)	13	5.08 (2.14)	16	4.88 (1.50)	195	**5.84** (1.13)	**.02**
Average		5.57 (1.40)		4.71 (2.04)		4.55 (1.55)		5.70 (1.28)	

Note. # = Number of valid responses. K-W test was conducted on 3-independent samples represented by level of satisfaction with the CMA program in preparing graduates for their jobs at a 95% confidence level (α = .05). Reported ratings of CMA program contribution MC development for MC were ranked from smallest to largest (with ties being assigned the average rank) followed by a rank sum calculation. The highest mean contribution ratings reported by level of satisfaction on the 7-point Likert scale for each MC are presented in boldface. Statistically significant differences in mean contribution ratings by job preparation satisfaction ($p \leq .05$) are presented in boldface.

When combined with the findings in section 5.3.1.4, where satisfied respondents also rated the CMA program as contributing the most to MC development, the data suggest that CMAs satisfied with the CMA program consider *both* the CMA program *and* work experience to be strong contributors to MC development, rather than one over the other.

With respect to participation in extracurricular activities, one significant difference related to job preparation satisfaction was also observed. On average, respondents who were neutral to the CMA program in preparing them for their jobs reported the highest mean contribution ratings of participation in extracurricular activities. However, the only significant difference was related to influencing and persuading ($p = .02$; $\alpha = .05$), where neutral respondents reported the highest rating of 6.25 ($SD = 0.89$) and dissatisfied respondents the lowest at 3.83 ($SD = 2.04$).

Additional analysis was conducted relating work experience importance to MC development with level of job satisfaction. Descriptive and significance test results are presented in Table 6.7. Unsurprisingly, as was observed with job preparation satisfaction level and mean CMA program contribution (section 5.3.1.4), respondents who were satisfied with their jobs reported the highest mean work experience importance to the development of all eight MCs. Differences in responses were determined to be statistically significant for six MCs (excluding critical and analytical thinking and communication), with satisfied respondents reporting the highest and dissatisfied respondents the lowest mean importance ratings.

Table 6.7

Mean Work Experience Importance Ratings and Significance: Job Satisfaction

	Total sample (n = 224)		Dissatisfied		Neutral		Satisfied		
MC	#	*M (SD)*	#	*M (SD)*	#	*M (SD)*	#	*M (SD)*	*p*
Influencing/ persuading	224	5.24 (1.47)	22	4.18 (1.89)	35	5.20 (1.83)	167	**5.38** (1.26)	**.01**
Teamwork / relationships	224	5.77 (1.34)	22	4.82 (1.74)	35	5.57 (1.63)	167	**5.93** (1.15)	**.01**
Critical/ analytical	224	5.88 (1.30)	22	4.82 (1.74)	35	5.66 (1.66)	167	**6.06** (1.06)	**.00**
Self/time management	224	5.57 (1.41)	22	4.91 (1.80)	35	5.49 (1.58)	167	**5.68** (1.30)	.14
Leadership	224	5.42 (1.43)	22	4.50 (1.95)	35	5.20 (1.68)	167	**5.59** (1.24)	**.03**
Bigger picture	224	5.73 (1.37)	22	4.82 (1.76)	35	4.54 (1.69)	167	**5.89** (1.18)	**.01**
Presentation	224	5.22 (1.64)	22	4.18 (2.11)	35	4.91 (2.05)	167	**5.43** (1.40)	**.03**
Communication	224	5.73 (1.26)	22	5.00 (1.88)	35	5.60 (1.50)	167	**5.85** (1.07)	.16
Average		5.57 (1.40)		4.65 (1.86)		5.27 (1.70)		5.73 (1.21)	

Note. # = number of valid responses. K-W test was conducted on 3-independent samples represented by level of satisfaction with the CMA program in preparing graduates for their jobs at a 95% confidence level (α = .05).). Reported ratings of perceived work experience contribution to the development of each MC were ranked from smallest to largest (with ties being assigned the average rank) followed by a rank sum calculation. The highest mean contribution ratings reported by level of satisfaction on the 7-point Likert scale for each MC are presented in boldface. Statistically significant differences in mean contribution ratings by job preparation satisfaction ($p \leq .05$) are presented in boldface.

6.1.2.4. *CMA program MC contribution results: CMA program completed.*

The importance of work experience to MC development was also analyzed by program completed. Average mean ratings over all eight MCs were 5.52 (*SD* = 1.35), 5.16 (*SD* = 1.73), and 5.88 (*SD* = 1.34) for SLP, CMBA and ECMA graduates, respectively, indicating a relatively high importance of work place learning to MC development. For all eight MCs, ECMA graduates reported the highest mean importance

ratings for work experience contribution to MC development, whereas CMBA program graduates reported the lowest ratings for all MCs. This is a particularly interesting finding since CMBA graduates also rated the CMA program as the lowest contributor to MC development for all MCs except communication. Statistically significant differences based on the K-W test results were observed for influencing and persuading (p = .01; α = .05), leadership (p = .01; α = .05), and the ability to see the bigger picture (p = .05; α = .05), where CMBA importance ratings for work experience contribution were substantially lower than graduates of other programs.

Why CMBA graduates reported lower ratings for both the CMA program and work experience is unclear and could be an area for future research. However, a cross tabulation analysis of job and program preparation satisfaction against MBAs and CMBA graduates did reveal that MBAs and CMBA graduates constituted the highest proportions of responses that were either neutral or dissatisfied with both their jobs and the CMA program in preparing them for their jobs. The results are consistent with previous findings related to MBAs reporting the lowest contribution ratings for the CMA program. These findings suggest that MBA program graduates believe that work experience and workplace learning contribute less to the development of influencing and persuading, leadership, and bigger picture MCs more than do SLP or ECMA graduates. This raises the question of whether they think the MBA contributed to these MCs. This study did not include the impact of MBA programs on MC development; however, additional research to examine the contribution of MBA programs on MC development could be beneficial.

6.1.3. Conclusions related to hypothesis 2.1.

Hypothesis 2.1 expanded on the analysis conducted related to hypothesis 1.3 in Chapter 5, which sought to determine whether or not the learning environment influences

the development of MCs in CMAs. Consistent with the analysis of perceived CMA PEP (representing the formal learning environment) contribution discussed in section 5.3.1, work experience importance and extracurricular activities contributions (both representing the experiential learning environment) to MC development were also analyzed against the same 13 different demographic factors used for hypothesis 1.3. Table 6.8 presents the summary of statistically significant results for all three learning environments. The findings suggest that the learning environment influence on MC development is tied to the age and experience of the CMA candidate. The following observations were made in relation to hypothesis 2.1:

- Younger, less experienced CMAs (Gen Y) employed at lower levels of responsibility and income perceive the formal learning environment as a better contributor to the development of all MCs except leadership, and they also believed that the CMA program contributed more to the development of presentation development than did older CMAs.
- Gen X CMAs identified work experience as more important to the development of influencing and persuading, leadership, bigger picture, and presentation MCs.
- Females believed the CMA program contributed more to the development of self and time management and presentation MCs than males did.
- CMAs earning less than $70,000 believed the CMA program contributed more to the development of self and time management, whereas CMAs earning between $70,000 and $139,000 believed the CMA program contributed more to the development of influencing and persuading, teamwork and relationship building, and communication.

Table 6.8

Summary of Statistically Significant Differences of Work Experience Importance to MC Development Based on Demographic Factors

MC	Overall	Age	Gender	Income	Level	Job preparation satisfaction	Job satisfaction	MBA/ non-MBA	CMA program completed	Province
Influencing/ persuading	W	W E		C W	W	C W E	W		C W	
Teamwork/ relationships	C			C		C W	W	C	C	
Critical/ analytical	C					W	W			
Self/time management	W		C	C		W			C	
Leadership	W	W			W	W	W		C W	
See bigger picture	C	W E			W		W		C W	
Presentation	C	C W	C	W	W	W	W	C	C	C
Communication	W			C		C W		C	C	C

Note. C = CMA program; W = work experience; E = extracurricular activities.

- Non-MBAs perceived the CMA program to contribute more to teamwork and relationship building, presentation, and communication MCs than MBAs did.
- Graduates who were satisfied with the CMA program preparation for their jobs believed the program contributes more to influencing and persuading, teamwork and relationship building, and communication.
- SLP program graduates believed the SLP program contributed more to the development of all MCs except for critical and analytical thinking and the ability to see the bigger picture.
- AB CMAs perceived the CMA program contributed more to presentation and communication development than did CMAs from other provinces.

Findings related to age, gender, income, and possession of an MBA are not generalizable to the population.

In addition to demographic factors, the learning environment contribution to MC development was also analyzed in section 5.1.2. Recall that respondents were asked to indicate which of three learning environments – CMA program, work experience, or participation in extracurricular activities – contributed the most to their development of each MC. The findings suggest that the CMA program was identified as contributing the most to the development of teamwork and relationship building, critical and analytical thinking, ability to see the bigger picture, and presentation MCs. Work experience was identified as contributing the most to the influencing and persuading, self and time management, leadership, and communication MCs.

Overall, based on analysis of significant differences in responses for nine demographic factors, it can be suggested that the different learning environments do

indeed influence MC development. It is important to point out that mean ratings for all learning environments suggest that they all do contribute to MC development; however, analysis of significant differences shows that the contribution of the learning environments to MC development differs based on the CMAs' experience, for which age, income, level of responsibility, and program completed could be considered reasonable indicators and were found to be highly correlated statistically. The findings suggest that younger and less experienced CMA candidates believe they benefit more from the formal learning environment (CMA program) to develop MCs, whereas older and more experienced candidates believe they benefit more from work experience. These findings also suggest that provinces that offer all three programs appear to be on the right track in providing different approaches to obtaining the CMA designation, and that they might need to take this tailoring further and provide better counselling to program applicants on which stream to enter.

6.2. Results Related to Hypothesis 2.2: Job Task and Responsibility Influence on MC Development

Hypothesis 2.2 posits that specific job tasks or responsibilities do not influence the development of the eight MCs in this study. The variables used in testing for this hypothesis are presented in Table 6.9. The CMA survey (Appendix D) asked respondents to identify situations in which they performed a specific job task and, if they were able to recall such situations, to identify their perceived level of satisfaction with how well they performed the task. The eight tasks, which correlate to the eight MCs studied, are included in Table 6.10.

Table 6.9

$H_{2.2}$ Test Variables

CMA Survey Question	Variable Description (Name)	Variable Measure (Scale)	Tests Conducted
21	CMA Program *contribution* to MC development (MC1CMADev – MC8CMADev)	Interval (7-point Likert)	Descriptives M-W
10, 14	Situation Recall (Sit1Recal – Sit8Recall)	Nominal	Descriptives M-W

Table 6.10

Nonparametric Significance Results Summary: Job Task/Responsibility Contribution to MC Development

	MC							
	MC-1	MC-2	MC-3	MC-4	MC-5	MC-6	MC-7	MC-8
Situation	*p*	*p*	*p*	*p*	*p*	*p*	*p*	*p*
1. Influence someone's point of view	**.00**	**.00**	**.00**	.13	**.04**	**.00**	**.00**	**.00**
2. Work closely with a team	.26	.11	.72	.84	.22	.18	.16	.80
3. Critically analyze a problem	**.00**	.31	**.00**	.45	**.03**	**.02**	.61	**.06**
4. Organize a project or event	**.00**	**.06**	.10	.95	**.00**	**.01**	**.02**	.50
5. Take a leading role	**.01**	**.02**	.08	.90	**.01**	.06	.26	.06
6. Demonstrate strategic knowledge	**.01**	**.03**	**.00**	.13	**.00**	**.00**	**.03**	.11
7. Deliver a presentation	**.01**	**.01**	**.00**	.26	**.00**	**.00**	**.00**	**.05**
8. Write a business report	**.01**	**.01**	**.00**	.19	**.00**	**.00**	**.00**	**.04**

Note. MC1 = influencing/persuading; MC2 = teamwork and relationship building; MC3 = critical and analytical thinking; MC4 = self and time management; MC5 = leadership; MC6 = ability to see the bigger picture; MC7 = presentation ; MC8 = communication. Data was subjected to 2-indepndent sample Mann-Whitney *U* tests at 95% confidence level ($\alpha = .05$). Statistically significant capability MC ($p \leq .05$) are presented in boldface.

Each MC was tested against its associated situation recall variable using 2-independent M-W tests to identify any significant difference in mean MC capability ratings between those who recalled performing in each situation and those who did not. Based on the formulated null, it was presumed that if a statistically significant difference in ratings were observed between those who did and did not participate in each situation, the job task would be considered to affect MC development. Conversely, if no difference was observed, then it could be concluded that the job task does not contribute to MC development.

The shaded cells in Table 6.10 show the statistically significant differences where ($p \leq .05; \alpha = .05$) for each situation recalled and its associated MC capability variable. Mean capability responses for each recalled situation are presented in Table 6.11. For all job situations recalled, mean capability ratings were higher for those who recalled performing the job task than for those who did not. Statistically significant differences were observed for six situation recall variables, except working closely as a team and organizing a project or event. Working closely as a team could not be tested for significant differences in responses because all but two participants recalled working in teams. The results do indicate, however, that working closely in teams does not appear to influence the development of any of the eight MCs, including teamwork/relationship building, which is contrary to what might be expected. The lack of significant differences relating to organizing a project or event (row 4, table 6.10) and the self/time management MC capability (MC4, Table 6.10) suggests that performing job tasks that require organizing projects and events does not enhance the self/time management MC, which is also contrary to what might be expected.

In addition to the associated results (represented by the shaded cells in Tables 6.10 and 6.11) the analysis was extended to observe the potential impact of each job situation on all eight MC capability variables, and the results indicate that MC development appears to be affected by more than just the most closely associated job task. The results are discussed in further detail in the sections that follow, and must be interpreted with caution, since the distribution of respondents heavily favours those who did recall each situation (average of 195 responses) over those who did not recall them (average of 25 responses).

6.2.1. Job task/responsibility influence on influencing and persuading MC development.

Average mean capability ratings for respondents who recalled being in each situation were 6.14 versus 5.22 (Table 6.11) for those who did not recall such a situation, which resulted in an average deviation of almost a full Likert scale point (0.92). Of particular interest was the large 2.83-point deviation between those who recalled having to influence someone's point of view and those who did not, reporting a capability mean for influencing/ persuading of 6.16 versus 3.33 for those who did not recall (Table 6.11). This result suggests a strong relationship between the task and the MC. The null hypothesis associated would suggest that specific job/task responsibilities do not influence the development of the influencing and persuading MC. As shown in Table 6.10, significant differences were reported for all situation recall variables, except for working closely with a team. Overall, this suggests that, with the exception of closely working with a team, each task may contribute to a higher level of capacity for the influencing and persuading MC. This is especially evident for respondents who have influenced someone's point of view in a situation.

Table 6.11

Mean MC Capability: Job Task/Responsibility MC Development

Situation Recall Variable (Y/N Responses)	MC Capability															
	MC-1		MC-2		MC-3		MC-4		MC-5		MC-6		MC-7		MC-8	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
1. Influence (Y=214; N=6)	**6.16**	**3.33**	6.36	4.17	6.60	4.83	6.30	5.50	**6.14**	**4.67**	**6.50**	**3.67**	**5.78**	**5.67**	**6.30**	**4.50**
2. Work Closely with a team (Y=218; N=2)	6.09	5.50	6.31	5.50	6.56	6.50	6.28	6.50	6.11	5.50	6.42	–	5.89	–	6.25	6.50
3. Critically analyze and offer solutions (Y=209; N=11)	**6.12**	**5.36**	6.31	6.00	**6.60**	**5.73**	6.29	6.18	6.13	5.55	**6.46**	**5.64**	5.91	5.45	**6.27**	**5.92**
4. Organize a project or event (Y=192; N=28)	**6.15**	**5.60**	6.34	6.04	6.57	6.43	6.28	6.32	6.21	5.36	**6.45**	**6.18**	**5.96**	**5.36**	6.25	6.21
5. Take a leading role (Y=212; N=8)	**6.12**	**5.00**	**6.33**	**5.75**	6.58	6.13	6.28	6.38	6.14	5.25	6.45	5.50	5.91	5.38	6.26	5.88
6. Demonstrate strategic knowledge (Y=185; N=35)	**6.16**	**5.66**	**6.36**	**6.00**	**6.63**	**6.11**	6.35	6.14	6.24	5.40	**6.52**	**5.89**	**5.98**	**5.40**	6.30	6.03
7. Deliver a presentation (Y=190; N=30)	**6.17**	**5.50**	**6.37**	**5.90**	**6.62**	**6.10**	6.30	6.20	6.21	5.43	**6.53**	**5.73**	**6.07**	**4.70**	**6.29**	**6.00**
8. Write a business report (Y=163; N=57)	**6.18**	**5.81**	**6.39**	**6.05**	**6.64**	**6.32**	6.35	6.18	6.25	5.68	**6.56**	**6.00**	**6.04**	**5.44**	**6.30**	**6.12**
Average	6.14	5.22	6.35	5.68	6.60	6.02	6.30	6.18	6.18	5.36	6.49	5.52	5.94	5.34	6.28	5.90

Note. Means are reported only for situations recalled where statistically significant differences were identified in Table 6.14 ($p \leq .05$).

6.2.2. Job task/responsibility influence on teamwork and relationship building MC development.

Average mean capability ratings for respondents who did or did not recall having to perform each situation were 6.35 and 5.68, respectively (Table 6.11). Significant differences were reported for all situation recall variables, except for working closely with a team (due to an insufficient sample size), organizing a project or event, and critical analysis of a problem. Therefore, the null would not be rejected for these three job tasks. While it might be reasonably expected that working in teams would naturally contribute to the development of the teamwork and relationship building MC, the data were not able to confirm that presumption.

6.2.3. Job task/responsibility influence on critical and analytical thinking MC development.

Average mean capability ratings for respondents who did or did not recall having to perform each situation of 6.60 and 6.02 (Table 6.11), respectively, resulting in an average deviation of 0.58 Likert scale points. An above average difference of 1.77 points in mean perceived capability ratings was observed between those who recalled having to influence someone's point of view, reporting a capability mean of 6.60 versus 4.83 (Table 6.11) for those who did not recall such activity. Significant differences were observed for all situation recall variables, except working closely with a team, taking a leading role, and organizing a project or event. As a result, the null hypothesis should not be rejected for only these variables, and the findings suggest that a job in which the CMA influences others' points of view, demonstrates knowledge of the company at a strategic level, writes clear and concise business reports, delivers presentations, and critically analyzes problems and offers solutions may contribute to higher capability for the critical and analytical thinking MC.

6.2.4. Job task/responsibility influence on self and time management MC development.

The null hypothesis associated with this MC posits that specific job/task responsibilities do not influence self and time management MC development on the basis that the distribution of responses for all job situation recall variables are the same. The results of the 2-independent M-W tests did not identify any significant differences in responses for any of the eight situation recall variables for self and time management. These findings suggest that none of the job tasks/responsibilities identified (even organizing a project or event, which would require good time management) appears to influence the development of the self and time management MC. This is an interesting finding that may represent an opportunity for the CMA (or new CPA) program to contribute to enhancing self and time management, since it appears as though work experience may not be enough to develop this MC.

6.2.5. Job task/responsibility influence on leadership MC development.

Average mean capability ratings for respondents who recalled having to perform each situation were 6.18 versus 5.36 (Table 6.11) for those who did not recall. The results for this MC were similar to the results for the influencing and persuading MC, where significant differences were reported for all situation recall variables except for working closely with a team. Of particular significance was the 1.47-point deviation between those who recalled having to influence someone's point of view, reporting a capability mean of 6.14 versus 4.67 (Table 6.11) for those who did not recall. Overall, this suggests that having to perform each task, except closely working with a team, may contribute to higher leadership capability, especially with respect to activities that involve influencing someone's point of view in a situation.

6.2.6. Job task/responsibility influence on the ability to see the bigger picture MC development.

Descriptive interpretation of the results shows average mean capability ratings for respondents who did or did not recall having to perform each situation of 6.49 and 5.52 (Table 6.11), respectively, resulting in an average deviation of nearly a full Likert scale point (0.97). A similarly above average difference of 2.83 points in mean capability ratings was observed between those who recalled having to influence someone's point of view and those who did not, reporting a capability mean of 6.50 versus 3.67 for those who did not recall. Significant differences were reported for all situation recall variables, except for working closely with a team and taking a leading role. These findings suggest that a job in which the CMA is in situations where he/she must influence others' points of view, organize a project or event, demonstrate knowledge of the company at a strategic level, write clear and concise business reports, deliver presentations, and critically analyze a situation and offer solutions may contribute to a higher ability to see the bigger picture.

6.2.7. Job task/responsibility influence on presentation MC development.

Average mean capability ratings for respondents who did or did not recall having to perform each situation were 5.97 and 5.31 (Table 6.11), respectively, resulting in an average deviation of 0.65 Likert scale points. The largest difference, of 1.37 Likert scale points in mean responses, was for having to deliver a presentation, favouring those respondents who have had to deliver a presentation. Significant differences were reported for all situation recall variables, except for working closely with a team, taking a leading role, and critically analyzing a situation and offering solutions. Overall, this suggests that a job in which the CMA must influence others' points of view, organize a project or

event, demonstrate knowledge of the company at a strategic level, write clear and concise business reports, and deliver presentations, may contribute to higher capability of an individual's ability to present. Added emphasis appears to be placed on having to present in front of groups, which likely supports the old adage that practice makes perfect; in other words, having to deliver more presentations helps build the skill.

6.2.8. Job task/responsibility influence on communication MC development.

The last MC tested against situation recall was communication. Descriptive analysis revealed average mean capability ratings for respondents who did or did not recall having to perform each situation of 6.30 and 5.54 (Table 6.11), respectively, resulting in an average deviation of 0.76 Likert scale points. The largest difference of 1.37 Likert scale points in mean responses was for influencing and persuading, where those who recall having to influence and persuade someone's point of view reported a mean rating of 6.30 versus 4.50 for those who did not, a deviation of 1.8 Likert scale points. Significant differences were observed for only the three following variables: influencing and persuading, delivering a presentation, and writing a business report. Overall, this suggests that a job in which the CMA must influence others' points of view, deliver presentations, and produce clear and concise business reports may contribute to higher capability of an individual's ability to communicate. Added emphasis, once again, is placed on having to influence and persuade someone's point of view. The results pertaining to presenting and writing reports strongly support the contribution of experience to the development of the presentation and communication MCs.

6.2.9. Conclusion related to hypothesis 2.2.

Hypothesis 2.2 sought to observe the impact of work experience on the development of the eight MCs in this study, using eight variables to identify whether or not the respondent recalled a situation in the workplace in which he/she had to perform the particular MC. It was assumed that if the respondent did recall performing the task, then the respondent had at least some experience related to that particular task. The results of the data analysis suggest that all MCs, except self and time management, are potentially influenced in some way by at least three job tasks: (a) influencing someone's point of view, (b) delivering a presentation in front of a group, and (c) writing a clear and concise business report. Influencing someone's point of view seemed to have the most impact on the development of the seven MCs, based on the larger deviations of mean capability ratings reported by respondents who did and did not recall a situation in which they had to perform a particular task. This suggests that the CMA program should continue to include, or enhance, activities that promote influencing and persuading. In addition, working closely in a team did not *appear* to influence any of the eight MCs; however, because all but two respondents recalled having to work with a team, this result could not be tested for statistically significant differences in responses. That working with teams did not appear to influence the development of the teamwork MC is an especially interesting and unexpected finding that could definitely benefit from additional research. It was also observed that none of the job tasks appeared to affect self and time management. These findings suggest that experience, through the performance of specific job tasks, does indeed influence the development of at least seven of the eight MCs studied, and that job tasks do influence the development of MCs, except possibly for working closely in a team, for which insufficient data was collected.

6.3. Results Related to Hypothesis 2.3: factor influences on meta-competency development

Hypothesis 2.3 posits that specific personal factors do not influence the development MCs. The survey collected information on 17 demographic factors, organized into three categories: demographic, education-related, and work-related. Table 6.12 lists all the demographic variables by category and identifies where statistically significant differences in mean MC capability ratings were observed.

6.3.1. Personal factor influence on influencing and persuading MC development.

The overall reported mean capability rating for the influencing and persuading MC was 6.08 (SD = 0.97; Table 6.12) on the 7-point Likert, indicating a moderately high level of capability in being able to influence and persuade. Based on significance testing using the K-W test (*k*-independent samples) and the M-W test (2-independent samples), significant differences in mean influencing and persuading capability responses were observed for four personal factors (age, gender, income, and province), one education-related factor (CMA program completed), and one work-related factor (job responsibility level).

Table 6.12

Summary of Statistically Significant Differences in Mean Capability Ratings: Personal factors

	MC							
Factor	MC-1	MC-2	MC-3	MC-4	MC-5	MC-6	MC-7	MC-8
M *(SD)*	6.08 (0.97)	6.30 (0.94)	6.56 (0.73)	6.29 (0.88)	6.11 (1.00)	6.42 (0.90)	5.90 (1.24)	6.26 (0.92)
Demographic								
Age (Generation)[a]	X		X		X	X	X	
Gender[b]	X			X				
Income[a]	X				X	X	X	
Province[a]	X		X		X	X		
Extracurricular[b]								
Education-related								
Post-secondary institution[a]								
Undergraduate degree[a]								X
Graduate degree[a]								
MBA[b]			X		X	X		
CMA program completed[a]	X				X	X	X	
CMA program year[a]								
Work-related								
Work experience/ work success[b]		X		X				
CMA required for job[b]								
Job preparation satisfaction[a]								
Job satisfaction[a]		X						
Level of responsibility[a]	X				X	X	X	
Job tenure[a]								

Note. MC1 = influencing/persuading; MC2 = teamwork and relationship building; MC3 = critical and analytical thinking; MC4 = self and time management; MC5 = leadership; MC6 = ability to see the bigger picture; MC7 = presentation; MC8 = communication; X = statistically significant differences in mean capability ratings ($p \leq .05$).
[a]Variables include *k*-independent samples (i.e. >2) and were subjected to the Kruskal-Wallis test at a 95% confidence level ($\alpha = .05$). [b]Variables include 2-independent samples and were subjected to the Mann-Whitney *U* test at 95% confidence level ($\alpha = .05$).

Mean capability ratings by generation were 5.61, 6.21, and 6.53 for Gen Y, Gen X, and Boomers, respectively, indicating higher capability levels. Males reported significantly higher mean perceived capability ratings (6.21) for influencing and persuading than females (5.83). Reported means by income level ranged from 5.83 ($70,000 – $89,000) to 6.63 ($200,000+) with capability increasing as income increases. When categorized by province, reported means were 5.98, 6.11, and 6.50 for AB, SK, and MB, respectively (Table 6.12). When categorized by CMA program completed, reported mean capability ratings were 5.95, 5.85, and 6.58 for SLP, CMBA, and ECMA graduates, respectively. ECMA graduates reported the highest capability ratings, which is not unexpected. Finally, based on income level, mean capability ratings for influencing and persuading ranged from 5.74 (junior/entry level) to 6.54 (executive/partner), clearly showing an increase in capability at higher job levels.

On the surface this might imply that SK and MB respondents consider themselves to be more capable in influencing and persuading than AB candidates. However, there is likely an inherent bias in the results based on the distribution of participants, with AB favouring SLP graduates and SK and MB favouring ECMA graduates. Cross tabulations revealed that, despite AB representing the highest number of participants, the proportions of respondents who completed either the ECMA or CMBA programs were significantly lower for AB respondents than for SK and MB. In addition, many of the ECMA respondents from SK and MB were acquainted with the researcher, and thus were more willing to participate in the survey. As a result, there is a disproportionate representation of more experienced respondents, which skews the means in favour of SK and MB.

The findings suggest that the following six personal factors appear to influence the development of the influencing and persuading competency: age, gender, income, province, program and job level. If age, income, job level, and CMA program completed are considered reasonable indicators of experience – for example, older ECMA graduates are typically employed at higher job levels, earn more money, and are likely more experienced than younger SLP graduates employed with lower job responsibility levels and earning less – then these findings suggest that experience contributes to the development of the influencing and persuading MC, or that more experienced professionals are more capable of influencing and persuading, and that experience is gained over time. The results relating to gender might suggest that males are more capable of influencing and persuading than females. However, there was no other evidence to support such a conclusion, and the results could be subject to potential self-report and SDR bias where males may have a tendency to report higher ratings about their capability than females. This finding may be deserving of future research. Finally, regarding province, there is not enough evidence beyond the computation of statistically significant differences between sample groups that contain an uneven distribution of SLP, CMBA, and ECMA graduates, the latter of which were significantly overrepresented in SK and MB, resulting in biased results. Therefore, the generalizability of these findings to the population is limited to CMBA and ECMA program graduates.

6.3.2. Personal factor influence on the development of the teamwork and relationship building MC.

Mean capability ratings for the teamwork and relationship building MC were 6.30 (SD = 0.94). Significant differences were observed for two work-related factors: job satisfaction and perceived work experience contribution to success at work. Dissatisfied

respondents reported a mean capability of 5.68 versus 5.03 and 6.43 for neutral and satisfied respondents, respectively. In addition, respondents who considered work experience important to their success in their jobs reported mean capability of 6.38 versus 6.00 for those that did not. Overall, the mean ratings imply moderate to strong capability in teamwork and relationship building. However, the statistically significant difference in responses suggests a relationship between perceived work experience contribution to job success and job satisfaction, and that job satisfaction may play an important role in cultivating the teamwork and relationship building MC. For example, a professional who considers work experience important to their job success may be more likely to report higher levels of job satisfaction and vice versa. This is not to suggest, however, that work experience is the only contributor to job satisfaction.

The findings suggest that job satisfaction and work experience success factors may contribute to the development of the teamwork and relationship development MC. It is interesting that job satisfaction was identified as a potentially influential factor in the development of this particular MC, since the people with whom a professional works, and the relationships developed between them, may significantly impact job satisfaction (Fernet, Gagné, & Austin, 2010). For example, if one has positive work relationships and enjoys working with others in the organization, then higher job satisfaction ratings could reasonably be anticipated, and a positive work environment characterized by good relationships between co-workers may positively contribute to the development of teamwork and relationship building competencies, or vice versa.

6.3.3. Personal factor influence on the development of the critical and analytical thinking MC.

The overall reported mean capability rating for the influencing and persuading MC was 6.56 (SD = 0.73), which was the highest of all eight MCs studied. Tests for statistically significant differences in mean capability ratings were observed for two demographic factors: age and province, and one education-related factor: possession of an MBA degree. Mean capability ratings by generation were 6.35, 6.62, and 6.78 for Gen Y, Gen X, and Boomers, respectively, and show a positive relationship between age and capability. Mean capability ratings for AB, SK, and MB were 6.49, 6.69, and 6.85, respectively. As with the influencing and persuading MC, SK and MB reported the highest capability ratings and AB the lowest. However, the same potential bias based on the overrepresentation of ECMA respondents in SK and MB would apply here as well. Finally, when categorized by possession of an MBA degree, MBAs reported a mean of 6.68 versus 6.51 for non-MBAs. On the 7-point Likert scale, both indicate strong capability, and the data suggest that possession of an MBA may contribute to perceptions of better critical and analytical thinking. However, it may also be true that MBAs may have a personal bias and self-report a higher perceived capability rating.

The results indicate that age, province, and possession of an MBA may influence the development of the critical/analytical thinking MC. The provincial results, which appear to favour ECMA respondents, may support the findings related to age, if both are considered reasonable indicators of experience. These findings show higher critical and analytical thinking capability as age increases, thus suggesting that experience may be a potential factor to influence the development of critical and analytical thinking. Finally, the conclusions from these tests suggest that possession of an MBA also influences the

development of, or the perception of possessing, critical and analytical skills. The generalizability of these findings is limited to province and program, but not to possession of an MBA because representativeness related to the latter could not be determined.

6.3.4. Personal factor influence on the development of the self and time management MC.

The overall reported mean capability rating for self and time management was 6.29 (*SD* = 0.88). Significant differences based on the application of the M-W test were observed for one demographic factor (gender; $p = .02$; $\alpha = .05$) and one work-related factor (work experience success; $p = .04$; $\alpha = .05$). Females reported mean capability of 6.43 (*SD* = 0.86) versus 6.20 (*SD* = 0.88) for males. Respondents who indicated work experience was important to their success at work reported mean self and time management MC capability of 6.32 (*SD* = 0.90) versus 6.13 (*SD* = 0.76) for those who indicated work experience was not important to their success at work. In all cases, mean capability self-ratings are generally high. Granted, the differences identified are very small and arguably similar; nevertheless, they are statistically significant and worthy of noting. These differences may indicate some potentially underlying cause that could be explored further through additional empirical research.

The findings suggest that gender and work success may potentially influence the development of the self/time management MC. Female CMAs perceive they are better at managing themselves and their time than males, an observation that is supported by findings in other studies, including Burke and Collins (2001); Gill and Davidson (2001); and Orser, Elliott, and Leck (2011). This could also represent an opportunity for future research in the area of time management and professional accountants. The perception

that work experience contributes to the respondents' success in the workplace for those who reported higher capability ratings for self and time management does not, unfortunately, provide any tangible indication for work success on the development of this MC. It is possible that, in jobs in which work experience contributes to job success, the employer provides some support, training, or education to assist with personal and time management, but this remains an empirical question to be tested. Generalizability of findings related to gender is limited to the SK and MB populations only.

6.3.5. Personal factor influence on the development of the leadership MC.

Average mean capability ratings reported by respondents in the CMA survey was 6.11 (*SD* = 1.00), indicating a moderately high level of capability for the leadership MC. Significant differences were observed for three demographic factors (age, income, and province), two education-related factors (possession of an MBA degree and CMA program completed), and one work related factor (job level). As observed with the previous MCs for which significant differences by age were identified, perceptions of MC capability for leadership appeared to increase with age (Gen Y = 5.81; Gen X = 6.20; Boomers = 6.47). Mean ratings by income ranged from 5.70 to 6.40, increasing as income level increased. Ratings by province were 6.01, 6.36, and 6.42 for AB, SK, and MB, respectively. This is not unexpected given the bias previously identified based on the composition of the respondents from SK and MB and previous differences observed in MC capability differences. MBAs reported mean capability ratings of 6.28 versus 6.03 for non-MBAs and ratings by program were 6.00, 6.10, and 6.50 for SLP, CMBA, and ECMA program graduates, respectively. Finally, mean leadership capability ratings by job level increased from 5.5 (junior/entry level) to 6.41 (senior management).

All of these factors point to a strong emphasis on the importance of experience in development of the leadership MC. Generally speaking, the older the CMA, the higher the job level and income. In addition, the ECMA and CMBA program participants typically include older candidates with more practical experience than SLP candidates. Also, possession of an MBA degree appears to influence perceptions of leadership MC development as well. Thus, a null hypothesis which posits that personal factors do not influence leadership MC development would be rejected for the six variables noted (age, income, province, possession of an MBA, program completed, and job level), thus suggesting that these factors do influence leadership MC development.

6.3.6. Personal factor influence on the development of the ability to see the bigger picture.

Average mean capability ratings reported by respondents in the CMA survey were 6.42 (*SD* = 0.90), indicating a relatively high level of capability for the ability to see the bigger picture. Statistically significant differences were observed for the same six personal factors that were identified for the leadership MC: age, income, and province, possession of an MBA degree, CMA program completed, and job level. Consistent with previous findings, ability to see the bigger picture capability increased with age: Gen Y = 5.98; Gen X = 6.56; and Boomers = 6.82. Mean ratings increased with income from 6.00 (< $70,000) to 6.76 ($140,000 – $199,999). Mean capability ratings for AB, SK, and MB were 6.30, 6.75, and 6.70, respectively. MBAs reported mean capability ratings of 6.57 versus 6.34 for non-MBAs, and ratings by program were 6.33, 6.25, and 6.79 for SLP, CMBA, and ECMA program graduates, respectively. Finally, mean bigger picture ratings by job level increased from 6.02 (junior/entry level) to 6.82 (executive/partner).

Overall, the findings suggest that age, income, province, possession of an MBA, program completed, and job level appear to influence the development of one's ability to see the bigger picture. All of these also factors point to a strong emphasis on the importance of experience in development of the bigger picture MC. Generally speaking, the older the CMA, the higher the job level and income, which suggests more experience. In addition, the ECMA and CMBA program participants typically include older candidates with more practical experience than SLP candidates. Therefore, it can be reasonably inferred that the development of a CMA's ability to see the bigger picture is influenced by experience and education.

6.3.7. Personal factor influence on the development of the presentation MC.

Average mean capability ratings for the presentation MC were found to be the lowest of all eight MCs studied, at 5.90, with the highest observed standard deviation of 1.24. This is, however, still somewhat to moderately high, given the 7-point scale. M-W and K-W tests revealed statistically significant differences in mean capability ratings for four personal factors: age, income, CMA program completed, and job level. Capability ratings by age were 5.59, 5.95, and 6.29 for Gen Y, Gen X, and Boomers, respectively, showing that capability increased with age. Ratings by income were ranged between 5.52 (< $70,000) to 6.67 ($200,000+), indicating that capability increased with income. Capability ratings reported by SLP, CMBA, and ECMA graduates were 5.76, 5.70, and 6.36, respectively. Again, the SLP ratings were higher than CMBA program graduates, but ECMA graduates were consistently the highest overall. Finally, based on job level, mean capability ratings ranged between 5.49 for junior/entry level to 6.21 for executive/partner, and increased at all levels. Given the significant differences in responses, it can be concluded that presentation MC development may be influenced by

age, income, job level (all of which could be considered reasonable proxies for experience), and CMA program completed.

6.3.8. Personal factor influence on the development of the communication MC.

The average mean MC capability rating for the communication MC across all respondents was 6.26 (SD = 0.92), indicating a moderately high capability level for this MC. Significant differences in responses were observed in only one personal factor: possession of an undergraduate degree, which was an unexpected result. Respondents with a baccalaureate degree were classified into five undergraduate degrees and associated mean capability ratings for baccalaureate business (6.20), BSc (6.21), applied business (6.30), 6.50 for BA-Economics (6.50), and other undergraduate degrees (6.25). All mean ratings are over 6.0, indicating strong agreement of self-capability. However, it is interesting that undergraduate university business graduates reported the lowest mean communication capability rating of all undergraduate degrees, and BAs in Economics the highest. A higher mean rating for applied business degree holders is understandable considering that applied business degrees generally require that students be employed during the fourth year of their program. However, many full four-year academic undergraduate business students are also employed in co-op programs. Therefore, definitive conclusions cannot be made regarding the potential differences between undergraduate baccalaureate and applied business degree students. This could be an area for further research, especially considering that both degrees are accepted by the CMA designation and the newly formed CPA designation. As a result, the findings suggest that possession of a BA in Economics influences communication MC development. This was an unexpected finding, which could also benefit from future research.

6.3.9. Conclusion related to hypothesis 2.3.

Hypothesis 2.3 sought to identify the influence of 17 personal factors (demographic, education, and work) on the development of the eight MCs in this study. Overall mean capability ratings were relatively high, with presentation the lowest (5.90) and critical and analytical thinking the highest (6.56). With the exception of two MCs (teamwork and relationship building and communication), significant differences were identified for some combination of experience-related personal factors, including age, income level, job level, and the CMA program completed. These following observations were made:

- Influencing and persuading, critical and analytical thinking, self and time management, leadership, ability to see the bigger picture, and presentation MCs are all influenced by experience.
- Possession of an MBA degree might be perceived to influence the development of critical and analytical thinking, leadership, and ability to see the bigger picture MCs.
- Teamwork and relationship building did not appear to be influenced by any personal factors other than job satisfaction.
- Development of the communication MC appears to be more influenced by the undergraduate degree possessed, with a BA in Economics potentially being the most influential.

The overall conclusion here is that personal factors do indeed influence the development of all eight MCs studied, albeit in different ways. This finding has

practical importance as it may suggest further tailoring of CMA/CPA programs based on these differences.

6.4. Results Related to Hypothesis 2.4: Organizational Influences on MC Development

The final hypothesis (2.4) for research question two posits that specific job organizational factors do not influence the development of the eight MCs in this study. Table 6.13 summarizes the variables tested for this hypothesis.

Table 6.13

$H_{2.2}$ Test Variables

CMA Survey Question	Variable Description (Name)	Variable Measure (Scale)	Tests Conducted
21	CMA Program *contribution* to MC development (MC1CMADev – MC8CMADev)	Interval (7-point Likert)	Descriptives K-W
11, 15	CMA Situation Satisfaction (Sit1Sat – Sit8Sat)		Descriptives K-W
31	Organization size (OrgSize)	Nominal	Descriptives χ^2 test M-W
32	Industry (Ind)		

The CMA survey (Appendix D) collected demographic information from respondents related to the size of the organization they work for (micro: 1 – 4 employees; small: 5 – 99 employees; medium: 100 – 499 employees; large 500+ employees) and industry classification. Seventeen industries were initially identified, which were then classified into four categories of more substantial size to make statistical testing more meaningful. The industry classifications are presented in Table 6.14.

Chi-squared tests were conducted on both organizational size and the recoded industry variable. The χ^2 test null hypothesis associated with organization size and

industry presumes that the distribution of respondents is equal across all four organization sizes and across all four industry classifications. The test identified significant differences in the distribution for organization size ($\chi^2 = 103.68$; $p = .00$) but not for industry ($\chi^2 = 4.750$; $p = .191$).

All MC capability and situation satisfaction variables were tested for significant differences in responses by size of organization and industry variables using K-W tests. Of all 32 tests conducted, only one significant difference was identified: teamwork and relationship-building capability based on organization size ($H = 11.717$; $p = 0.01$). Mean capability ratings for teamwork and relationship building were 5.75 ($SD = 1.06$) for micro-organizations, 6.09 ($SD = 0.95$) for small, 6.34 ($SD = 0.97$) for medium, and 6.43 ($SD = 0.87$) for large organizations. This suggests that organization size could have an impact on the development of teamwork and relationship-building capabilities. Specifically, the larger the organization in which a professional is employed, the higher the teamwork and relationship-building MC capability. This is likely a reasonable conclusion given that larger organizations, by their very nature, provide more opportunities for employees to develop teamwork and relationship building skills than do smaller organizations.

Table 6.14

Industry Categories

Industry	#	Industry	#
Government, public services, and non-profit		Professional services and financial	
Education	11	Public accounting	8
Government	27	Professional services	5
Health	9	Financial	27
Non-profit	9	Business related	17
	56		57
Energy and utilities		Other	
Energy	8	Construction	4
Oil and gas	25	Manufacturing	27
Telecommunications	4	Real estate	4
Utilities	7	Transportation	6
	44	Wholesale/retail	13
		Other	13
			67

Note: # = Number of valid responses. Total Reponses, $N = 224$.

No significant differences in mean satisfaction ratings were observed by organization size, and no significant differences in either mean capability or situation satisfaction ratings were observed by industry, suggesting that the industry in which a professional is employed does not influence the development of MCs.

6.5. Conclusions Related to Research Question Two

Chapter 6 aimed to answer the following investigative question: *What factors influence the development of MCs in recently designated professional accountants?* The answer to this question was evaluated through analysis of the following four related hypotheses using the CMA PEP as an example:

$H_{2.1}$ The learning environment *does not* influence the development of MCs in CMAs.

$H_{2.2}$ Specific job tasks or responsibilities *do not* influence the development of MCs in CMAs.

$H_{2.3}$ Personal factors *do not* influence the development of MCs in CMAs.

$H_{2.4}$ Organizational factors *do not* influence the development of MCs in CMAs.

Hypothesis 2.1 focused on the contribution of the learning environment on MC development. Based on non-parametric significance testing and descriptive analysis, the following findings were observed related to learning environment:

- The formal learning environment represented by the CMA program influences the development of the following four MCs: teamwork and relationship building, critical and analytical thinking, the ability to see the bigger picture, and presentation.
- The experiential learning environment, represented by work experience, has a greater influence on the development of the remaining four MCs: influencing and persuading, self and time management, leadership, and communication.
- Extracurricular activities were not found to strongly influence the development of any of the eight MCs studied.

Hypothesis 2.2 focused on identifying any potential influences of job tasks and responsibilities on MC development. Based on analysis of eight work situations that require the application of MCs against each of the eight MCs studied, it was observed that all job tasks, except for working closely with a team, appear to influence the development of seven of eight MCs. Three particular job tasks that were common to all

seven remaining MCs: (a) influencing someone's point of view, (b) delivering a presentation in front of a group, and (c) writing a clear and concise business report. Influencing someone's point of view appeared to have the greatest influence on development of the seven MCs. It was also observed that the self and time management MC appear to not be influenced by any of the seven job tasks.

Hypothesis 2.3 examined the potential influence of personal factors on MC development. Seventeen personal factors were organized into three categories: personal, education-related, and work-related, and tested for statistically significant differences in responses. The findings revealed the following:

- Influencing/persuading, critical/analytical thinking, self/time management, leadership, ability to see the bigger picture, and leadership MCs are influenced by experience, as evidenced by significant differences in age, income, and job level factors.
- Possession of an MBA degree appears to influence, or be associated with, the development of critical/analytical thinking, leadership, and ability to see the bigger picture MCs.
- Teamwork and relationship building do not appear to be influenced by any personal factors other than job satisfaction.
- The development of the communication MC appeared to be more influenced by the undergraduate degree possessed, specifically a BA (Econ).

Lastly, Hypothesis 2.4 focused on potential organizational factor influence on MC development where it was found that organization size appears to influence the teamwork and relationship building MC. Specifically, CMAs employed in smaller organizations

reported lower mean capability ratings than did CMAs in larger organizations and mean capacity ratings increased for each organization size.

Given the results related to four hypothesis tested for research question two, it is reasonable to conclude that MC development is indeed influenced by the learning environment, personal factors, job task and responsibilities, and organization size. However, the contribution of each individual factor differs for each of the eight MCs. In addition, the findings suggest that age, income level, and job level (factors that can be reasonable indicators of experience) were strongly correlated with perceived levels of capability for several of the MCs studied and support similar findings related to experience in Chapter 5. These findings have implications for future CMA and CPA program development, which will be addressed in chapter 9.

Chapter 7: Research Question Three – Results and Analysis

Chapter 7 focuses on investigative question three, which asks: *Are there differences in perceptions of the importance of MCs between recently designated professional accountants and their employers?* In order to answer this question, two hypotheses were developed and tested:

$H_{3.1}$ There are *no* significant differences in the perceptions of CMAs and employers of the *value* of MCs for CMAs to perform their jobs.

$H_{3.2}$ There are *no* significant differences in the perceptions of CMAs and employers of the *relevance* of MCs for future CMA career development

This chapter is organized into two sections based on each hypothesis. Each section provides interpretation the results of the analysis and testing that was conducted followed by an overall conclusion and answer to research question three.

7.1. Results Related to Hypothesis 3.1

Hypothesis 3.1 is concerned with potentially different perceptions of the value of MCs. Question 12 from the CMA survey (Appendix D) and question 6 from the supervisor survey (Appendix E) asked the respondents how strongly (on a 7-point Likert scale ranging from 1.0 = *strongly disagree* to 7.0 = *strongly agree*) they agreed with the value of the eight MCs in the CMAs' current jobs. The data was tested against the meta-level value indicator #1 (Azevedo et al., 2012) and tested for statistically significant differences in responses using nonparametric paired-sample sign and Wilcoxon matched-pairs tests. The results are analyzed and discussed in the following sections.

7.1.1. MC value variables.

Questions 12 and 6 for the CMA and supervisor (Appendices D and E, respectively) surveys inquired about the perceptions of how valuable the eight MCs studied are in performing the CMAs' current job activities. The data was first analyzed using Azevedo et al.'s (2012) meta-level indicator #1 for value, the percentage of respondents who reported that they either *agree* or *strongly agree* that MCs are valuable for CMAs' current jobs. The indicator was applied to supervisor responses as well as CMA responses from both the CMA-supervisor paired sample (n_p = 39) and unpaired CMA sample (n_u = 185); results are presented in Table 7.1.

Table 7.1

Meta-level MC Value Indicators

	Supervisor (n_p = 39)	CMA paired sample (n_p = 39)		CMA unpaired sample (n_u = 185)	
MC	%SUP	$\%CMA_p$	Difference %SUP – $\%CMA_p$	$\%CMA_u$	Difference %SUP – $\%CMA_u$
Influencing/ persuading	92.3%	74.4%	**17.9%**[a]	85.0%	7.3%
Teamwork/ relationships	89.7%	84.6%	5.1%	91.4%	–1.7%
Critical/ analytical	94.8%	92.1%	2.7%	92.9%	1.9%
Self/ time management	97.4%	84.2%	**13.2%**[a]	85.9%	**11.5%**[a]
Leadership	87.2%	71.1%	**16.1%**[a]	83.7%	3.5%
Bigger picture	94.8%	79.0%	**15.8%**[a]	90.1%	4.7%
Presentation	87.2%	61.5%	**25.7%**[a]	72.6%	**14.6%**[a]
Communication	97.4%	84.6%	**12.8%**[a]	90.8%	6.6%
Average	92.6%	78.9%	**13.7%**[a]	86.6%	6.0%

Note. Meta-level indicators for MC is based on the proportion of responses reporting *agree* (6.0) and *strongly agree* (7.0). Differences greater than 10% are presented in boldface. Adapted from "Satisfaction with knowledge and competencies: A multi-country study of employers and business graduates," by A. Azevedo, D. Gomezelj Omerzel, J. Andrews, H. Higson, A. Caballero, B. Frech (2012), *American Journal of Economics and Business Administration*, *4*(1), p. 29. Copyright 2012 by Science Publications.

[a]Proportion of supervisor responses versus exceeds the proportion of CMA responses by greater than 10%, indicating supervisors value the MC more than CMAs.

For the paired sample, the results indicate that, on average overall, and for all MCs except teamwork/relationship building and critical/analytical thinking, supervisors perceive MCs to be more valuable to CMAs' jobs than CMAs do. This suggests a potentially significant expectations gap in the paired sample. Perceptions between supervisors and CMAs in the total sample were similar (varied less than 10%) overall, and for each MC except self/time management and presentation, suggesting that CMAs may underestimate the value of these two MCs to their current jobs.

In addition to application of Azevedo et al.'s meta-level value indicator, responses were analyzed descriptively and tested for statistical significance. Mean CMA value importance in the CMA-supervisor paired sample (n_p = 39) ranged from 5.47 (*SD* = 1.69) to 6.45 (*SD* = 1.20), whereas supervisor mean responses ranged from 6.21(*SD* = 0.95) to 6.68 *SD* = 0.57). All responses indicate relatively high levels of agreement on the value of MCs to the job performance of CMAs. Both CMAs and supervisors rated the presentation MC lowest and the critical/analytical MC highest. Mean value ratings of CMAs from the CMA-supervisor paired sample (n_p = 39) and unpaired CMA (n_u = 185) sample were also compared using the M-W test, where only one significant difference in responses was observed. This observation suggests that the CMA respondents paired with supervisors consider the leadership MC (p = .01; α = .05) less important than do CMAs respondents who were not paired with supervisors. The following two sections summarize the results of the sign test and Wilcoxon matched-pairs test as applied to the MC value variables.

7.1.1.1. *MC value sign test results.*

The sign test was applied to the eight MC value variables for matched pairs of CMAs and supervisors. At a 95% confidence level, no significant differences were observed in matched-pair responses, and so there does not appear to be a gap between CMA and supervisor perceptions of the value of MCs in CMAs' jobs.

7.1.1.2. *MC value: Wilcoxon matched-pairs test results.*

Though the sign test revealed no significant differences in responses relating to the value of MCs, the Wilcoxon matched-pairs yielded different results. Based on a 95% confidence interval, one significant difference was observed for the presentation MC (p = .01; α = .05). The CMA probability distribution for the presentation MC value is shifted to the left versus the supervisor probability distribution, suggesting supervisors find the presentation MC to be of greater value than CMAs do. This finding supports the meta-level value indicator discussed in section 7.1.1.

7.1.1. Conclusion related to hypothesis 3.1.

Hypothesis 3.1 posited that there are no significant differences in the perceptions of CMAs and employers of the value of MCs for CMAs to perform their jobs. This hypothesis was tested using nonparametric significance tests (sign and Wilcoxon matched pairs) on related paired samples of CMAs and supervisors. The results revealed only one significant difference in mean value ratings, which suggest that supervisors value the presentation MC higher than CMAs do. Meta-level indicators for value also suggest that CMAs underestimate the value of the self/time management MC. However, this could not be supported statistically, and the low supervisor response rate renders these findings ungeneralizable to the population.

As noted in Section 5.1.2 regarding the use of meta-level capability indicators, the same two observations can be extended to the use of meta-level value and relevance indicators. First, meta-level value and relevance indicators in the paired sample may not be representative of the unpaired sample. Second, meta-level indicators do not possess the same power that statistical significance testing does, and thus may not be reliable indicators of CMA MC value and reliability. The value indicator identified self/time management as significant, whereas statistical significance testing did not; as well, the meta-level relevance indicator did not identify any significant differences for MC relevance, whereas statistical significance testing revealed two.

7.2. Results Related to Hypothesis 3.2

The second of two hypotheses relating to research question three focuses on whether or not there is a perceived gap between the relevance of MCs to the CMA's future careers. CMA and supervisor survey questions 16 and 10 respectively asked respondents the how strongly they agreed (on a 7-point Likert scale ranging from 1.0 = *strongly disagree* to 7.0 = *strongly agree*) with the relevance of the eight MCs to CMAs' future career development. The data was first analyzed using Azevedo et al.'s (2012) meta-level indicator #2 for relevance, the percentage of respondents who reported that they either *agree* or *strongly agree* that MCs are relevant to CMAs future careers. The indicator was applied to supervisor responses as well as CMA responses from both the CMA-supervisor paired sample (n_p = 39) and unpaired CMA sample (n_u = 185). Results are presented in Table 7.2.

Table 7.2

Meta-level MC Relevance Indicators

	Supervisor (n_p = 39)	CMA paired sample (n_p = 39)		CMA unpaired sample (n_u = 185)	
MC	%SUP	$\%CMA_p$	Difference %SUP – $\%CMA_p$	$\%CMA_u$	Difference %SUP – $\%CMA_u$
Influencing/ persuading	89.5%	97.4%	–7.9%	95.6%	–6.1%
Teamwork/ relationships	92.1%	94.8%	–2.7%	97.8%	–5.7%
Critical/ analytical	94.7%	94.8%	–0.1%	96.8%	–2.1%
Self/time management	94.7%	97.4%	–2.7%	94.6%	0.1%
Leadership	94.8%	100.0%	–5.2%	98.4%	–3.6%
Bigger picture	97.4%	97.4%	0.0%	97.3%	–0.1%
Presentation	94.8%	92.3%	2.5%	90.2%	4.6%
Communication	97.0%	100.0%	–3.0%	97.8%	–0.8%
Average	94.4%	96.8%	–2.4%	96.1%	–1.7%

Note. Meta-level indicators for each MC is based on the proportion of responses reporting *agree* (6.0) and *strongly agree* (7.0). Adapted from "Satisfaction with knowledge and competencies: A multi-country study of employers and business graduates," by A. Azevedo, D. Gomezelj Omerzel, J. Andrews, H. Higson, A. Caballero, B. Frech (2012), *American Journal of Economics and Business Administration*, *4*(1), p. 29. Copyright 2012 by Science Publications.

The meta-level indicators for relevance shows relatively consistent responses comparing supervisor responses to both the paired and total samples, suggesting that, on average overall, and for each MC, supervisors and CMAs are in agreement regarding the relevance of MCs in their future careers. Descriptive analysis revealed CMA mean relevance ratings ranged from 6.63 (*SD* = 0.71) to 6.87 (*SD* = 0.41) compared to supervisor mean responses ranging from 6.50 (*SD* = 0.60) to 6.84 (*SD* = 0.55). Both CMAs and supervisors ranked presentation the lowest of the eight MCs. CMAs ranked the influence MC as the most relevant, whereas supervisors ranked the ability to see the bigger picture MC as the most relevant. All responses indicate strong agreement that MCs are relevant to the future career development of the CMA. Mean value ratings of the

CMA-supervisor paired sample (n_p = 39) and unpaired CMA sample (n_u = 185) were also compared using the M-W test, and no significant differences in responses were identified. The variables were also subjected to paired sample sign and Wilcoxon matched-pairs tests for statistical significance, and the results are analyzed in the following sections.

7.2.1. MC relevance: Sign test results.

When applied to the MC relevance variables, only one statistically significant difference between CMAs and supervisors in relevance responses was identified for the communication MC (p = .04; α = .05). At 90% confidence (α = 0.10), a significant difference would be observed for the influencing and persuading MC as well. These results suggest that CMAs consider the communication MC, and perhaps, to some extent, the influencing/persuading MC to be more relevant to the their future career development than supervisors do.

7.2.2. MC relevance: Wilcoxon matched-pairs test results.

Where the signed test demonstrated that CMAs consider the communication MC to be more relevant to CMA future career development than supervisors did, and produced weak evidence at 90% significance to support the same for the influence MC, the Wilcoxon matched-pairs test results support the sign test results for both influence and communication relevance variables. The test identified statistically significant differences in relevance responses for influencing/persuading (p = .04; α = .05) and communication (p = .02; α = .05) MCs, indicating that CMAs consider these two MCs more important to their future careers than supervisors do. However, both CMAs and supervisors provide mean relevance ratings of 6.50 or greater, indicating strong agreement of the relevance of all MCs.

7.2.3. Conclusion related to hypothesis 3.2.

Hypothesis 3.2 posited that there is not a significant difference in perceived relevance between CMAs and supervisors of relevance of MCs to CMAs' future careers. Mean relevance ratings were very high on the 7-point scale, indicating strong agreement of the relevance of all meta-competencies to the future careers of CMAs, and this was supported by the calculation of the meta-level relevance indicator (Azevedo et al., 2012). However, when assessed for statistical significance, differences were observed for two MCs: influencing and persuading and communication. Where comparison of perceived value ratings in section 7.1 revealed that supervisors consider the presentation MC to be more valuable to CMAs' current jobs than CMAs did, the comparison of MC relevance revealed that CMAs consider influencing and persuading and communication competencies to be more relevant to their future careers than supervisors did. However, these findings are not generalizable to the population due to the low supervisor participation rate.

7.3. Conclusions Related to Research Question Three

Chapter 7 seeks to answer the following research question: *Are there differences in perceptions of the importance of MCs between recently designated professional accountants and their employers?* The answer to this question was evaluated through analysis of the following two related hypotheses using the CMA PEP as an example:

$H_{3.1}$ There are *no* significant differences in the perceptions of CMAs and employers of the *value* of MCs for CMAs to perform their jobs.

$H_{3.2}$ There are *no* significant differences in the perceptions of CMAs and employers of the *relevance* of MCs for future CMA career development.

Hypothesis 3.1 focused on the value of MCs to CMAs' current jobs by examining the differences in responses by CMAs and supervisors as part of a paired sample. Descriptive analysis revealed relatively strong high value ratings for all MCs by both supervisors (6.21 and above) and CMAs (5.47 and above). Both CMAs and supervisors identified the presentation MC as the least valuable, and influencing and persuading as the most relevant to their jobs. Based on non-parametric significance testing and descriptive analysis, it was determined that supervisors consider the presentation MC more important to CMAs' jobs than CMAs do. At a lower level of statistical significance, influencing and persuading, self and time management, and communication MCs would also be considered more valuable for CMAs' jobs by supervisors than CMAs.

Hypothesis 3.2 focused on the relevance of MCs to CMAs' future careers. As with hypothesis 3.1, differences in responses in paired samples of CMAs and supervisors were subjected to significance testing and descriptive analysis. Descriptive analysis revealed relatively strong high value ratings for all MCs by both supervisors (6.50 and above) and CMAs (6.63 and above). Analysis of statistically significant differences in paired sample responses revealed that CMAs considered influencing and persuading and communication MCs to be more important to their future careers than supervisors did.

Based on the results of the two hypotheses tested in support of research question three, the findings suggest that there may be differences in perceptions of the importance of MCs between CMAs and employers for three MCs: presentation, influencing and persuading, and communication. Perceptions of importance (based on value and relevance) of the remaining eight MCs revealed no significant differences in perceptions between CMAs and employers and ratings of value and relevance were relatively high for

all eight MCs studied. These findings reveal that CMAs and employers are on par with their perceptions of the importance of the following five MCs: teamwork/relationship building, critical/analytical thinking, self/time management, leadership, and bigger picture. However, CMAs and employers appear to disagree somewhat on the importance of influencing/persuading, presentation, and communication MCs. Considering the importance of ensuring CMAs understand employer expectations, it might be necessary for CMA/CPA to communicate the importance of presentation skills to students and graduates so expectations are better matched. Since the two hypotheses tested rely on supervisor responses, these findings are not generalizable to the population due to the low supervisor response rate.

Chapter 8: Discussion of Results

The previous three chapters presented detailed analysis of all ten hypotheses associated with the three investigative research questions for this study. For each MC studied, the various null hypotheses were either rejected or retained based on the results summarized in Table 8.1. This chapter aims to synthesize the results in the larger context of theory and practice, with linkages to the literature review in Chapter 2, and provides an overall answer to the primary research question for this study: *What role does the CMA professional accounting program play in the development of MCs?* The answer(s) to this question will add to the body of knowledge of, and contribute practically to, the profession by furthering our understanding of MC development in professional accountants. This contribution is extremely important in addressing the perceived competency crisis (Brewer et al., 2014) facing the profession: knowing the importance of MCs, the processes of their development, and the existence of gaps, if any, enable more effective training of professional accountants.

This chapter follows the three investigative questions used to guide the study. It identifies whether or not professional accounting programs bridge the MC expectations gap by discussing what the study reveals about the importance of MCs to CMAs. It will then be shown that a CMA MC expectations gap does exist, and how the CMA program contributes to bridging that gap. Factors affecting the development of MCs in CMAs are identified, and differences in CMA and employer perceptions regarding the importance of MCs will be discussed.

Table 8.1

Summary of Support for Null Hypotheses

Null Hypothesis		Meta-Competency								Section
		MC1	MC2	MC3	MC4	MC5	MC6	MC7	MC8	
RQ1: Do professional accounting programs contribute to bridging the MC expectations gap?										
$H_{1.1}$	There are *no* significant differences in the perceptions of CMAs and employers regarding the capability of CMAs to use MCs in their current jobs	X	X	X	X	X	✓	X	X	5.1
$H_{1.2}$	There is *not* a gap between the MCs CMAs required for their current jobs and those acquired in the CMA PEP	✓	✓	✓	✓	✓	✓	✓	✓	5.2
$H_{1.3}$	The CMA PEP does *not* enhance MC development[a]	X	X	X	X	X	X	X	X	5.3
$H_{1.4}$	Elements of the CMA PEP *do not* contribute to the development or improvement of MCs				X					5.4
RQ2: What factors influence the development of MCs in recently designated professional accountants?										
$H_{2.1}$	The learning environment *does not* influence the development of MCs in CMAs.	X	X	X	X	X	X	X	X	6.1
$H_{2.2}$	Specific job tasks or responsibilities *do not* influence the development of MCs in CMAs.	X	X	X	✓	X	X	X	X	6.2
$H_{2.3}$	Personal factors *do not* influence the development of MCs in CMAs.	X	X	X	X	X	X	X	X	6.3
$H_{2.4}$	Organizational factors *do not* influence the development of MCs in CMAs.	✓	X	✓	✓	✓	✓	✓	✓	6.4
RQ3: Are there differences in perceptions between employers and professional accountants of the importance of MCs to recently designated professional accountants?										
$H_{3.1}$	There are *no* significant differences in the perceptions of CMAs and employers of the *value* of MCs for CMAs to perform their jobs.	✓	✓	✓	X	✓	✓	X	✓	7.1
$H_{3.2}$	There are *no* significant differences in the perceptions of CMAs and employers of the *relevance* of MCs for future CMA career development.	X	✓	✓	✓	✓		X	✓	7.2

Note: MC1 = Influencing/persuading; MC2 = Teamwork/ relationship building; MC3 = Critical/analytical thinking; MC4 = Self/time management; MC5 = Leadership; MC6 = Ability to see the bigger picture; MC7 = Presentation; MC8 = Communication; ✓= Retain the Null; X = Reject the Null.

[a]Null hypothesis 1.4 could not be tested against each individual MC because the corresponding CMA survey question 22 asked the respondent to rate their perceived importance of each CMA program element to the development of MCs in general, as opposed to each individual MC.

Finally, inferences about CMAs' tendencies to be reflective on their MC development will be discussed, followed by two additional outcomes of the study relating to the development of a professional MC development framework and meta-level quality indicators, as adapted from Azevedo et al. (2012).

8.1. Do Professional Accounting Programs Contribute to Bridging the MC Expectations Gap?

Before the contribution of professional accounting programs to MC development can be answered, it is first necessary to identify what this study revealed regarding the importance of MCs and whether or not an MC expectations gap between CMAs and employers still exists.

8.1.1. What does the study reveal about the Importance of MCs to CMAs and the MC Expectations Gap?

As noted in the literature review in Chapter 2, numerous studies spanning over 20 years have underscored the importance of MCs, or related derivations of soft skills based on different authors' interpretations, to undergraduate business students (Azevedo et al., 2012; Evers et al., 1998; Gracia, 2010; Jackson, 2009a, 2010; Warn & Tranter, 2001), undergraduate accounting students (Cranmer, 2006; Hardy & Deppe, 1995; Harpe et al., 2000; Jackling & De Lange, 2009; Kavanagh & Drennan, 2008; Mason et al., 2003; Wells et al., 2009; Wilson, 2011*,* inter alia), and MBAs (Camuffo & Gerli, 2004; Lawrence, 2013; Rubin & Dierdorff, 2009). The notion of a competency gap is not new, as noted by Schön (1987): "professional educators have voiced with increasing frequency their worries about the gap between the schools' prevailing conception of professional knowledge and the actual competencies required of practitioners in the field" (p. 10). Numerous professions have also recognized the importance of MCs as part of a larger set of requisite competencies as identified in their competency maps, including consulting,

nursing, psychology, law, and accounting (Canadian Association of Management Consultants, 2014; Canadian Nurses Association, 2010; CPA Canada, 2012; College of Alberta Psychologists, 2013; CMAC, 2011; The Law Society of Alberta, 2013). However, to date, no research has been done to actually compare the differences in perceptions of importance of competencies, and more specifically MCs, between professions and employers.

Given the limited research in the field of professional MC development, this study has attempted to make a contribution where none has yet been made by measuring the aforementioned differences in perceptions of MC importance between professionals and their employers. The perceptions of importance were measured by surveying CMAs and their supervisors. The measures were based on two criteria, each of which had a dedicated hypothesis tested: (a) value to the CMAs' current jobs, and (b) relevance to the CMAs' future careers. Assessment of the value of MCs to a CMA's current job is relatively obvious; however, consideration of the relevance of MCs to their future careers is important because "personal competence [i.e. meta-competence] may be a better predictor of a person's potential to perform in future posts than technical competence" (Cheetham & Chivers, 1998, p. 268).

The results of the paired surveys confirmed what we already know: that MCs (or enabling competencies as they are referred to in the CMA/CPA maps) are important. The study revealed two interesting findings. First, CMAs and supervisors appear to be consistent in their perception of the value of seven of the eight MCs studied. However, supervisors consider the presentation MC to be more valuable to CMAs job performance than CMAs do, suggesting CMAs may underestimate the value of the presentation MC to

their current jobs. Second, CMAs and supervisors appear to be consistent in their perceptions of the importance of all eight MCs studied to CMAs' future performance. However, CMAs consider the influencing and persuading, and communication MCs to be more relevant to their future careers than supervisors did, suggesting that CMAs slightly overestimate the relevance of these two MCs. This shows that MCs cannot be assumed to be of equal importance to employers and CMAs, and that understanding where any differences lie can assist the profession in tailoring professional programming to ensure expectations are aligned.

In addition to confirming findings identified in the literature, this study affirms and extends the conclusions of Azevedo et al. (2012), Gracia (2010), Hardy and Deppe (1995), Jackling and De Lange (2009), and Jackson (2009, 2010), that MCs are important, not only to employers of university graduates, but to employers of CMAs as well. This study also affirms Evers et al.'s (1998) observations of the importance of four MCs for workplace success after graduation: managing self, communicating, managing people and tasks, and managing innovation and change.

8.1.2. Is there a CMA MC gap?

As noted in section 2.2, and confirmed in this study, MCs are very important to employers, business school graduates, and CMAs. Section 2.3 of the literature identified the existence of a gap between MCs employers expected versus those that graduates possess for both undergraduates (Albrecht & Sack, 2000; Bui & Porter, 2010; Fortin & Legault, 2010; Gracia, 2010; Hankock et al., 2009; Hardy & Deppe, 1995; Jackling & De Lange, 2009; Jackson, 2009a, 2009b, 2010; Kavanagh & Drennan, 2008; Sin et al., 2007; Willcoxson et al., 2010) and MBAs (Camuffo & Gerli, 2004; Lawrence, 2013; Rubin & Dierdorff, 2009). To date, however, no work has been done on determining whether or

not a MC gap exists between newly designated professional accounts and their employers. Taking a cue from previous studies (Azevedo et al., 2012; Ballou et al., 1999; R. E. Boyatzis, 1994; R.E. Boyatzis et al., 2002; Camuffo & Gerli, 2004), this study took a multi-constituency approach with both CMAs and employers participating to determine whether or not a gap exists and whether or not the CMA program contributes to bridging that gap.

The findings of the study revealed two key observations relating to differences in responses between CMAs and supervisors regarding CMA MC capability. However, due to low supervisor participation, these findings may not be generalizable to the population. First, as discussed in Section 9.1, it was determined that CMAs and supervisors appear to generally agree with CMAs' capability to use all eight MCs in their jobs. However, CMAs appear to overestimate their capability to see the bigger picture, thus revealing an expectations gap. This is an interesting, and potentially important, outcome of this study, since CMAs have traditionally prided themselves, and promoted themselves, as strong strategic thinkers. It is conceivable that, because of the focus of the CMA designation as strategic and focused on the bigger picture, CMA graduates may be predisposed in their assessment bias of their ability to see the bigger picture. This may be an indication of SDR bias, in which CMAs appear to seek to be normatively appropriate and/or create a favourable self-image regarding their ability to see the bigger picture because they believe it is expected of them. The fact that employers do not recognize this capability may raise a concern regarding the efficacy of the CMA training for this MC.

Second, in work situations that require the use of MCs, the only difference in CMA and supervisor responses related to the situation in which CMAs had to organize a

project or event. This particular finding does not necessarily indicate the existence of a "gap", since supervisors thought CMAs were better in this work situation than CMAs self-reported. Thus, it would appear that the only MC gap that exists is related to the ability to see the bigger picture. Figure 3 illustrates where the gaps in responses between CMAs and employers exist with respect to MC value, relevance, and CMA performance in using MC in work situations.

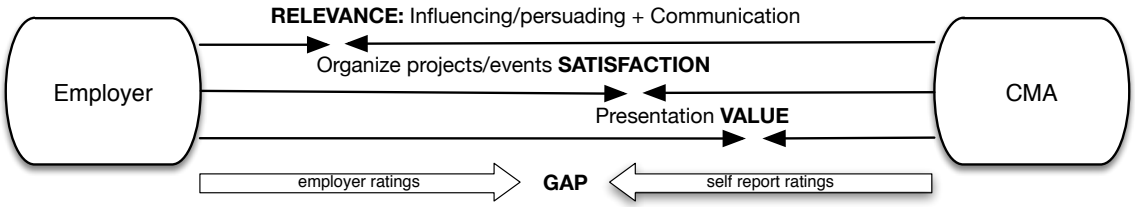

Figure 3. Summary of CMA and employer response gaps.

The existence of a MC expectations gap should not be cause for alarm to CMAs, the profession, or employers; realistically, a gap will always exist, as 100% alignment is extremely difficult to achieve. However, given that the CMA profession prides itself on strategic thinking capability, the discovery of a gap for this particular MC is important and warrants additional research.

8.1.3. Does the CMA program contribute to bridging the gap?

As discussed in Section 9.2, the findings of this study suggest that a MC expectations gap still exists between CMAs and supervisors, but it is very narrow in comparison to undergraduates and MBAs and confined primarily to the CMAs' ability to see the bigger picture, which CMAs appear to overestimate. One potential explanation for the narrowed gap may be that the CMA programs, through a combination of in-class and work experience, contributed to bridging that gap. A second explanation of the narrowed gap could be related to experience alone; namely, that CMA program graduates gained

experience between the time they completed their undergraduate/graduate studies, and the completion of the CMA program. A third explanation could simply be the result of a large proportion of respondents with a bias in favour of the CMA program taking part in the study, thereby overstating the contributions of the program to MC development. Given that the CMA program includes a work experience requirement, the first explanation is arguably more plausible, especially since work experience was credited for enhancing the development of only four of the eight MCs studied. Mean contribution ratings for all eight MCs indicated a moderate to somewhat high level of agreement that the CMA programs do, overwhelmingly, contribute to the development of all MCs, though not equally for all eight. It was also observed that the CMA program is overwhelmingly perceived to contribute the most to the development of the presentation MC. These findings suggest that CMAs are not being given the opportunity to develop their presentation MCs at work and that emphasis on presentation development should be retained, if not enhanced, in the new CPA program, especially if CMAs appear to undervalue the importance of the presentation MC in their jobs.

It was determined that the undergraduate/MBA MC exceptions gap has been narrowed, partly by work experience and partly by the CMA program. However, it appears that a gap remains with respect to the CMAs ability to see the bigger picture, where CMAs appear to overestimate their ability to do so versus employer perceptions. This is a particularly important and potentially controversial finding, given that one of the major aims, and differentiating features, of the CMA designation is to promote bigger picture, strategic thinking. This finding may have identified a personal bias on the part of CMAs regarding their ability to see the bigger picture; since they completed the program

and are designated CMAs, then they must be highly capable at seeing the bigger picture. Despite this one significant difference, it can be reasonably concluded that the CMA PEP does contribute to the bridging of the MC expectations gap, but perhaps not solely through the content in the program. By having a dual structure, which combines formal and experiential learning, the CMA PEP is able to maximize the opportunities for candidates to develop their MCs. Though each learning environment appears to be credited with contributing most to the development of a set of four MCs, both environments cross over and students with different education and employment backgrounds can leverage both. Where the CMA PEP appears to contribute the most is in the development of the presentation MC followed by critical/analytical thinking and bigger picture MCs. Less experienced CMAs relied more on the CMA PEP to develop critical/analytical and bigger picture MCs, whereas the contribution to the presentation MC was prevalent over all experience levels. This bodes well for the new CPA program, which is directed primarily towards undergraduate and MBAs with less experience (entry-level professionals).

However, since there is no longer an executive stream, MCs that rely more on work experience will likely need to be augmented in the new CPA program. This is particularly important given the changing demographic of the CPA versus the CMA. By focusing on entry-level professionals, the experience level of CPAs will drop because they will not have the same level of work experience. This may result in a re-opening of a MC expectations gap for these four MCs if the PEP does not pick up the slack in the development of these four MCs.

The MC expectations gap may also vary by field of practice, which may further vary by age and experience. The public accounting practice stream of the CPA, which essentially was the legacy CA stream, traditionally targeted new business school undergraduate students because they lack experience and start at lower income levels. This is not likely to change, since experienced people would not be likely to accept lower salaries typically associated with public practice accounting positions. The industry CPA stream replaces the CMA program, which targeted a more broad demographic, to include MBAs as well as individuals working in industry with more work experience. As a result, it is likely that younger, less experienced students will enter the public accounting stream, whereas more experienced candidates are more likely to enter the industry stream. Therefore, the experience level of CPA graduates may not be the same for both, and the result could be a wider MC expectations gap in public accounting CPAs. For example, an individual with an MBA and 10 years of work experience, including three years of management experience, who decides to become a CPA would likely have developed many more of the MCs than a new undergrad with limited work experience.

Therefore, while the CMA program appears to develop all MCs with greater emphasis on the four, the new CPA program may see different results making industry or field of practice a prevalent factor. The dual structure of the legacy CMA program, incorporating both work experience and training, provided the appropriate learning conditions to develop all of the meta-competencies and appears to have been successful in doing so, thus allowing the CMA program to take credit for, at least partially, bridging the MC expectations gap. However, in reality, half of the MCs were actually developed in work practice rather than through the formal parts of the program. The new CPA

program will need to develop more training in influencing/persuading, self/time management, leadership, and communication MCs, especially for the public accounting stream, as these competencies could be said to have come from work experience rather than the CPA training program.

The findings of this study indicate that the MC expectations gap between university graduates and employers was significantly reduced for CMA program graduates, in part due to the CMA PEP and experience. The next question that logically follows is: *How else might have the gap been bridged?* In order to answer this question, this study also sought to identify the influence of learning environment, work tasks, CMA program elements, personal factors, and organizational factors on MC development. The following five subsections explore the findings of this study on the influence of these five factors on MC development.

8.2. What Factors Influence the Development of MCs in Recently Designated Professional Accountants?

The following sections summarize the findings related to factors influencing MC development in CMAs. The key findings of the study relate to the following factors: learning environment, job task, CMA program elements, personal, and organizational. The results pertaining to these factors culminate in the development of a professional MC development framework.

8.2.1. Learning environment influence on CMA MC development: Formal versus experiential?

As noted in section 2.2, Dreyfus and Dreyfus (1980) observed that formal instruction plays an important role in skill development, but proficiency and competency increase with concrete experience. Brown (1994) also noted the unresolved issue of "whether the delivery of management knowledge [i.e. MC] is a matter of 'education' or

'training'" (p. 294). Tubbs and Schulz (2006) and Leonard and Swap (2004) also raised these questions, with respect to leadership and "deep smarts", respectively. Brown's (1994) question suggests that the options of education or training might be mutually exclusive; however, as shown by this study, it appears that development of competence is a matter of *both* education *and* training, as both are comprised of guided practice, observation, problem solving, and experimentation (Leonard & Swap, 2004), thereby potentially widening the zone of proximal MC development (an extension of Vygotksy & Cole's ZPD). In other words, a PEP that emphasizes collaborative and guided learning may be more effective for MC development than an individualized program. In addition, the findings of this study revealed that the extent to which education (i.e. the CMA program) and training (i.e. work experience) each contribute to MC development depends on the MC. Because these findings did not rely on supervisor responses, they are generalizable to the population. Respondents were not asked to provide a self-assessment or rating of their capability or performance, but rather their perceptions of how the learning environment contributed to MC development; therefore, self-report/SDR bias is likely to be low. There is, however, a potential for biased responses based on respondents' satisfaction with their PEP and/or work experience.

As illustrated in Figure 4, the most likely contributing factors to four MCs are the CMA program and work experience:

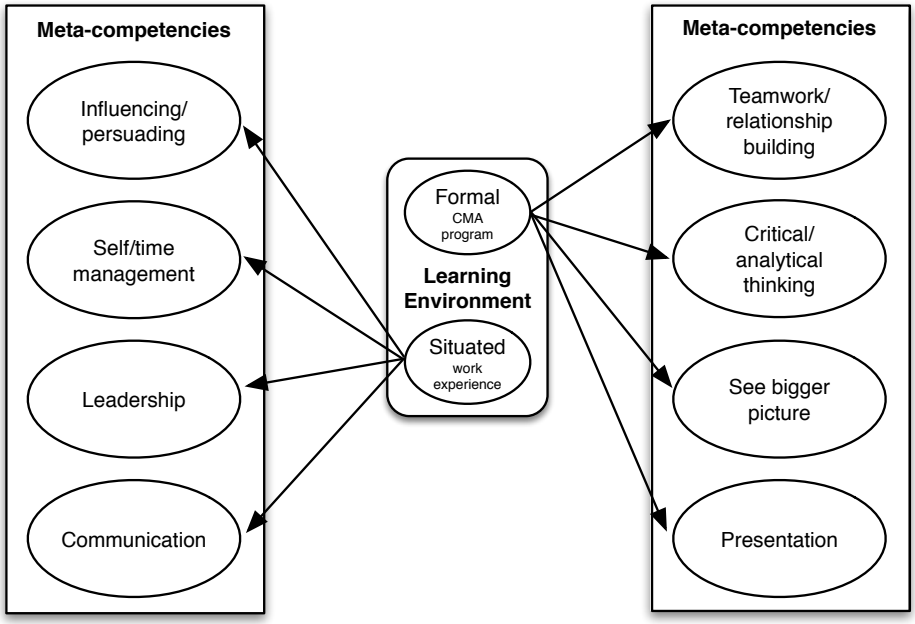

Figure 4. Learning environment contribution to MC development.

The results of this study suggest that both the formal instruction of the CMA programs (which also include experiential activities) and work experience were key contributors to the development of all competencies, indicating both vertical and horizontal development (Guile & Griffiths, 2001) of MCs. We know that the CMA programs provide these guided elements; however, the workplace may not always be "guided" in the sense that, sometimes, it is sink or swim, and experience is developed out of necessity rather than careful guidance. In cases in which the CMA program is thought to contribute more to the development of certain MCs, this could indicate that the workplace does not provide enough guided learning opportunities, and vice versa. These findings may alert both the professional association and the workplace that more opportunities should be provided to CMAs to develop their meta-competencies. Specifically, CMA Canada (and now CPA Canada) should ensure that additional opportunities should be built into the CMA (CPA) program to develop the influencing/persuading, self/time management, leadership, and

communication MCs, whereas the workplace should provide professional accountants with opportunities to develop teamwork/relationship building, critical/analytical thinking, bigger picture, and presentation MCs. In essence, there are opportunities for *both* the accounting profession *and* the workplace to make improvements to maximize overall MC development, all of which have been shown to be important. These findings also echo Bradshaw's (2013) findings related to university education, where students are calling on universities to build more work experience into their educations, but extended to the workplace itself where additional experience is required in the four areas to which work experience contributes less than other areas.

In response to the concerns of many (Albrecht & Slack, 2000; Bui & Porter, 2010; Camuffo & Gerli, 2004; Forgin & Legault, 2010; Hankock et al., 2009; Kavanagh & Drennan, 2008; Rubin & Dierdorff, 2009; Sin et al., 2009; and Willcocxson et al., 2010) that universities (at both the undergraduate and MBA levels) have not effectively developed MCs in graduates, thus creating the MC expectations gap, it appears that, in spite of the limitations noted in this study, the CMA PEP contributes to bridging that gap, at least for some of the MCs, especially presentation. The structure of the CMA program emphasizes the enabling nature of MCs over technical accounting skills. It follows a competency-based approach similar to that described by Hardy and Deppe (1995), which emphasized the development of nine MCs that correspond to the eight in this study. The findings of this study suggest that taking a competency-based approach in professional education combined with work experience serves to aid in the development of at least some MCs.

A final interesting observation that came out of the study with respect to the contribution of learning environments to MC development was that extracurricular activities were not considered to contribute *most* to the development of any of the eight meta-competencies. Given the perceived importance recruiters and employers place on extracurricular activities, and research findings suggesting that "extracurricular activities have become credentials of social and moral character that have monetary conversion value in labor markets" (Rivera, 2011, p. 71), i.e. that extracurricular activities are a proxy for candidates possessing the qualities employers desire, it could be reasonably expected that this study would reveal that extracurricular activities play a potentially important role in MC development. However, what this study did find was that extracurricular activities do not enhance MCs, or at least are not perceived to contribute the most to MC development. Further research into the contribution of extracurricular activities to MC development could be very fruitful.

8.2.2. Job task influence on CMA MC development.

To date, no research was found on the influence of specific job tasks to the development of MCs in professional accountants. Azevedo et al. (2012) did preliminary research, but it was related to undergraduates. Therefore, research question two extended Azevedo et al.'s research by focusing on the potential of each of the eight work situations corresponding to each of the eight MCs studied. Initially the scope of analysis was to look at each work situation/MC pair individually, but the study was then expanded to consider whether or not each work situation might influence the development of all eight MCs. Despite the fact that all but two CMAs sampled recalled a situation in which they had to work in a team, the study found that working in teams had no influence on the

development of any of the eight MCs, including teamwork and relationship building. Figure 5 illustrates the job tasks this study found to influence MC development.

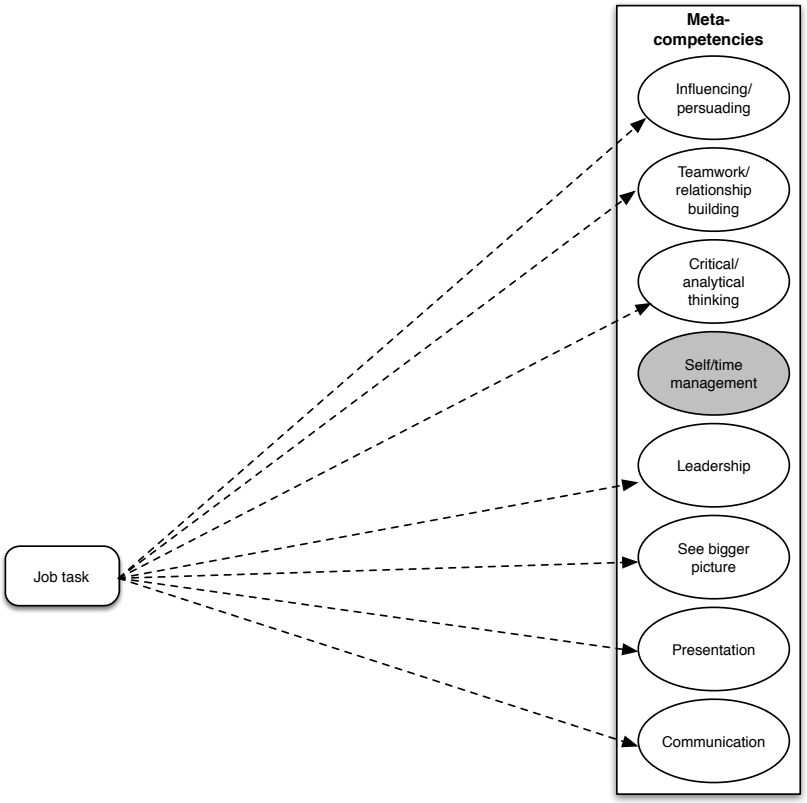

Figure 5. Job Task influence on MC development

It was also found that self/time management was not influenced by any of the eight work situations, including organizing a project or event. These findings suggest that work situations appear to contribute generally to MC development; however, additional research should be conducted to confirm the findings related to the apparent lack of influence of working with teams, and the lack of work situation influence, on self/time management. In addition, the findings might suggest that more opportunities to develop self/time management skills be built into the CMA program as a professional

development opportunity, either in the workplace or offered through the professional association.

8.2.3. CMA program element influence on CMA MC development.

The CMA program is a customized PEP with unique evaluation elements; however, prior to this study, no research had been done on the influence of the seven CMA program elements on the development of MCs. Based on descriptive results and significance testing, it can be concluded that all seven elements of the CMA PEP contribute, albeit differently, to MC development. Four key observations can be made. First, consistent with results related to CMA program contribution to MC development, younger, less experienced CMAs consider the CMA program elements to contribute more to MC development than more experienced CMAs who valued experience. The only exception was for the case examination, which was considered to be more important to Boomers and CMAs employed at the executive/partner level. This finding is important because it highlights the importance of experience as a key contributor to MC development.

Second, MBAs appear to value the CMA program the least, based on the lowest reported importance ratings from MBAs and CMBA graduates. This was an interesting observation in that, based on experience, it might be reasonably thought that ECMA graduates would value the CMA program the least. These findings suggest that MBAs may consider their MBA education to be a bigger contributor to MC development than the CMA program, perhaps because of duplication that may exist in the CMA program. This could raise a flag to CMA (CPA) program developers that professional accounting programs for MBAs be sufficiently differentiated and emphasize development of MCs in a manner different from MBA programs.

Third, the written board report and board presentation appear to be the most important contributors to MC development. Fourth, the residency sessions and activities appear to be the least important contributors to MC development. These last two findings are important because they tell us that assignments and exams are valuable and should remain, as should a team-based project that includes a written report and presentation component, while facilitated residencies with moderators could potentially be eliminated. The findings also suggest that formal programs have a greater MC development impact on less experienced candidates.

8.2.4. Personal factor influence on CMA MC development.

The overall conclusion here is that personal factors do indeed influence the development of MCs, in several different ways. Teamwork/relationship building and communication revealed significant differences related to some combination of experience-related personal factors, including age, income level, job level (which were found to be highly correlated) and CMA program completed. Based on the findings, four key observations can be made. First, influencing/persuading, critical/analytical thinking, self/time management, leadership, ability to see the bigger picture, and leadership MCs are influenced by experience. Second, possession of an MBA degree might influence the development of critical and analytical thinking, leadership, and ability to see the bigger picture MCs. This might explain why MBAs and CMBA program graduates provided lower program contribution ratings; however, the MBA responses may be impacted by SDR, since work by Camuffo and Gerli (2004) and Rubin and Dierdorff (2009) suggested that MBA education has not been overly effective in developing MCs. Third, teamwork and relationship building appear to be influenced only by job satisfaction, which is an interesting finding that may benefit from further research and may have important

implications in the professional world, which is increasingly emphasizing collaboration and teamwork as part of building high-performance organizations (Abbott, Boyd, & Miles, 2006; Morley & Heraty, 1995; Proenca, 2007). The results suggest that unsatisfied employees may not work as well in teams or be able to build collaborative relationships with co-workers.

Perhaps of even greater importance may be understanding the source of job dissatisfaction from external factors such as strained relationships with co-workers; organizational politics (Valle & Witt, 2001); supervisor support and team implementation (Griffin, Patterson, & West, 2001); or personal factors including achievement, recognition, and nature of work (Benrazavi & Silong, 2013). Whatever the reason, low job satisfaction is likely to negatively affect the development of the team building and relationship development MC, and identifying employee levels of job satisfaction could be an important precursor to developing effective team-based organizations. Fourth, the development of the communication MC appeared to be more influenced by the undergraduate degree possessed, with a BA in economics potentially being the most influential. This was also an unexpected finding and could warrant additional research.

8.2.4.1. *Experience and MC development.*

As noted in section 9.4.1 and 9.4.3, the CMA program is perceived to contribute to the development of all MCs, especially presentation. It was also discovered, however, that the contribution of the CMA program was found to be more significant for younger, less experienced candidates. These findings suggest that experience may have some impact on MC development. Figure 6 illustrates the MCs that this study found to be most influenced by experience.

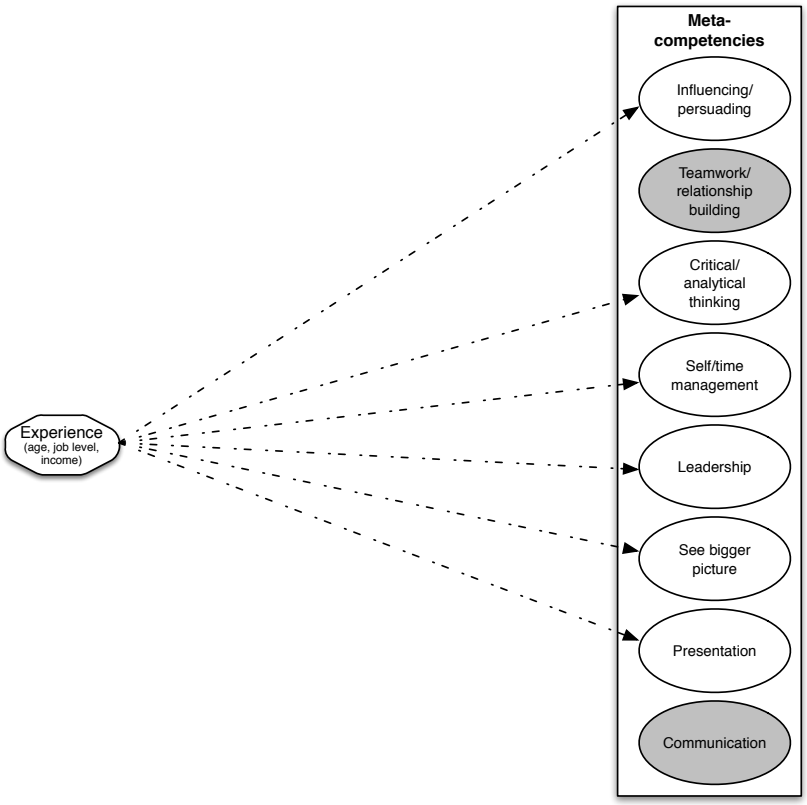

Figure 6. Experience contribution to MC development

Experience has been defined in Quinones, Ford, and Teachout (1995) as "events that are experienced by an individual that relate to the performance of some job" (p. 890). As an extension of this definition, Tesluk and Jacobs (1998) argued, "experience should reflect the challenges and interactions that accrue above and beyond what is acquired through simple continued practice" (p. 325). Huang et al. (2013) went further to conceptualize the construct of work experience as "consisting of qualitative and quantitative components that capture the work-related events experienced by an individual, such as performance and achievement at work" (p. 3613). If age, income, possession of an MBA, and program completed can be considered reasonable indicators of the level of experience a CMA candidate has, then the data suggests that those with

less experience consider the CMA program to contribute more to the development of six of eight MCs. Conversely, CMAs with more experience (older, earning higher incomes, possessing an MBA, and graduating from programs that included more experienced candidates) consider the CMA program to contribute less to MC development of six of the eight MCs studied.

Another factor considered to be representative of experience is years of experience, as Huang, Chen, and Lai (2013) were able to show a positive link between job tenure and perceived level of experience. For this study, job tenure (based on the number of years with the CMAs' *current* organization) was initially thought to be an appropriate measure of years of experience. Statistical testing, however, resulted in no evidence to suggest job tenure impacts MC development and, in hindsight, selection of the job tenure variable was not appropriate for this study, perhaps because "most research on the effects of work experience has concerned mainly job tenure, which refers to the number of years within the *prior* [emphasis added] and current job or organization (Huang et al., 2013, p. 3613). As a result, years of experience could not be tested directly. However, by accepting age, income and job level (which were determined to be highly correlated statistically) as reasonable indicators of experience, the findings support the conclusion that experience plays an important role in the development of MCs. Specifically, CMAs with less experience benefit more from formal educational programs and CMAs with more experience tend to rate work experience over formal education. An underlying premise that may have emerged from the research is that, to develop certain MCs faster, learning in a formal, controlled environment similar to the CMA program

may be more beneficial than work experience, since the latter requires more time. This could be an area for further research.

Also implicit in the understanding of development through experience is the progression through Perry's (1968) stages of intellectual maturity: (a) *Dualism* (a bifurcated structure of the world); (b) *Multiplicity* (acceptance of multiple perspectives, points of view, or ways to solve problems); (c) *Relativism* (plurality of points of view, interpretations, frames of reference, and value systems allowing various sorts of analysis, comparison, and evaluation in Multiplicity); and (d) *Commitment* (affirmation of personal values or choice in Relativism). The CMA PEP emphasizes relativism, supporting Perry's (1968) belief that "the efficient fostering of competence in the skills and disciplines of contextual meta-thinking does of course require, in itself, the further development of those ways of teaching which encourage risking, groping, analytic detachment, and synthetic insight" (p. 212), essentially what the CMA program purports to do. Commitment, on the other hand, which Perry (1968) defines as "an act or ongoing activity relating a person as agent and chooser to aspects of his life in which he invests his energies, care, and identity" (p. 135), seems to be strongly related to reflection, which Cheetham and Chivers (1998) categorized as a super-meta-competency overarching all other meta-competencies. Nonetheless, reflection was not considered in this study.

It is important to distinguish between *experience* and *experiential learning*. Experience refers to the accumulation of knowledge, skills, and MCs over time, whereas experiential learning is an approach to augment teaching and learning with experiential activities or simulations where the learner is more of an active participant than a passive learner. The findings of this study appear to support Jonnaert (2002, as cited in Jonnaert

et al., 2006), who favours competency development by experience over instruction because "it is only in situation that a learner can construct, modify or disconfirm his/her situated knowledge and develop competencies that are equally situated" (p. 76). Jonnaert, however, does not suggest that such learning takes place only in the workplace, leaving open the possibility of combining experiential learning in a classroom environment, which is precisely what the structure of programs such as CMA do by including experiential learning through assignments and residency activities that emphasize many of the MCs, especially presentation. The CMA program also acknowledges the importance of both experience and experiential learning, which is evident in the requirement of the candidate to be working while enrolled in the program. The findings of this study showed that both the CMA program and the workplace contribute to competency development, but also that each contributes most to the development of different MCs. These findings highlight the importance of both formal and workplace learning to optimal MC development.

The importance of experience to MC development cannot be underestimated. Experience was shown to influence the softer MCs relating more to leadership and people skills which could arguably require emotional intelligence (EI), defined by Mayer at al. (2001, as cited in Cook, Bay, Visser, Myburgh, & Njoroge, 2011) as "the ability to recognize, use, and manage emotions" (p. 267). In fact, Akers and Porter (2003) stated, "emotional intelligence skills are critical for the success of the accounting profession" (p. 65) and relate to "leadership, team building, and interpersonal relations" (Cook et al., 2011, p. 267). While this study did not attempt to measure or observe EI per se, the relationship of EI to the other meta-competencies identified could support the inclusion

of EI as a ninth MC and be potentially correlated to intellectual maturity, which is also developed through experience. The implications for the new CPA program are profound, since the CPA PEP is focused on entry-level (less experienced) professionals; therefore, the CPA PEP may need to focus more on the softer skills and leadership than the current program does.

8.2.5. Organizational factor influences on CMA MC development.

Exploration of the literature for any studies relating to organization factors such as size or industry did not yield any relevant research. The focus of hypothesis 2.4 was to determine whether or not organizational factors influence the development of MCs in CMAs. The survey collected information from respondents related to the size of the organization they work for (micro, small, medium, or large), and in which of five industries the organization is classified (non-profit, public accounting, government and public service, energy and utilities, or others). After examining the correlation between these factors and MC development, two key outcomes were observed. First, organization size could have an impact on the development of the teamwork and relationship building MC (as illustrated in Figure 7), whereby the larger the organization in which a professional is employed, the higher the teamwork and relationship building MC capability.

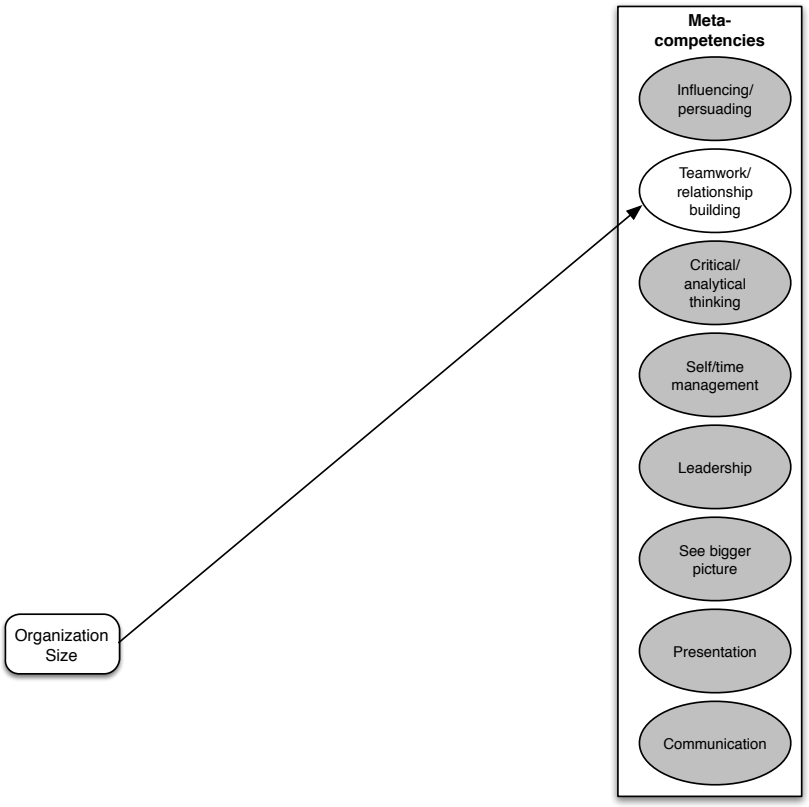

Figure 7. Organization size influence on MC development.

Conceptually, this may be a reasonable conclusion, given that larger organizations employ more people, thereby providing more opportunities for employees to develop teamwork and relationship building skills than do smaller organizations. There does not appear to be any research to support this, however; thus, additional research is warranted. This could present an opportunity for PEPs that emphasize teamwork to provide additional support by way of direct program enhancements and/or professional development to candidates in smaller businesses to hone their teamwork and relationship building skills. Second, the industry in which a professional is employed did not appear to have any influence on the development of any of the eight MCs studied.

8.3. Are There Differences in Perceptions Between Employers and Professional Accountants of the Importance of MCs to Recently Designated Professional Accountants?

The exploration of this investigative question revealed a high level of consistency in responses between CMAs and supervisors regarding the importance of MCs, which was not surprising. However, two notable differences were identified. First, CMAs appear to understate the value of the presentation MC to their current jobs, and possibly also the self/time management MC, as evidenced by meta-level indicators. Second, CMAs also appear to overstate the relevance of both the influencing/persuading and communication MCs to their future careers. These findings might suggest that CMAs consider softer interpersonal skills to be more important than supervisors do, perhaps to the detriment of more practical MCs such as presentation and communication.

In both cases, the findings could not be generalized to the population; therefore, additional research in this area is needed to more accurately identify differences in perceptions between CMAs/CPAs and employers to prevent a potential future widening of the MC expectations gap beyond the ability to see the bigger picture as identified in this study. Understanding and matching perceptions of MC importance is critical in ensuring professional accountants possess the MCs employers expect. The CMA PEP was determined to contribute to the bridging of the MC expectations gap, and the new CPA program must continue to do so as well.

8.4. What Role Does the CMA Professional Accounting Program Play in the Development of MCs?

All of the work done for this study comes down to answering this key question. The stated role of the CMA program is to equip candidates with the strategic management capabilities and competencies demanded by employers, and this is achieved

through a blended approach of formal and experiential (work experience) learning through programs directed at three experience levels: low (SLP), medium (CMBA), and high (ECMA). Beyond the stated role, the CMA PEP contributes to bridging the MC expectations gap identified at the undergraduate business/MBA level, and it appears that the CMA PEP has done so, despite an observable difference in perceptions of capabilty regarding the CMAs' ability to see the bigger picture. The formal learning environment relies on evaluative elements to help candididates develop experience they might not have gained based on their age or job. Regardless of experience level, the most valued CMA program elements included the written board report and presentation, whereas other program elements, such as moderators, residencies and activities, were determined to be more valued by less experienced candidates.

8.5. What Role SHOULD the CPA Professional Accounting Program Play in the Development of MCs?

While serving to identify the role the CMA PEP plays in the development of MCs, this study also aimed to discuss the role of professional education in MC development. As a result, an unintended outcome of the project may well be the opportunity to discuss the role(s) the new CPA PEP should play in MC development. Since unification is almost complete across Canada, discussing implications for the CMA program is no longer meaningful, but instead, the CMA program findings can be applied to the new CPA PEP. Perhaps one of the most enlightening findings was understanding the role of experience in MC development and the importance of a PEP that can be adjusted to the candidates' level of experience. The profession, through its competency map, has created the expectation that CPAs possess and are able to demonstrate MCs. This study has determined that experience plays a significant role in the development of

these MCs. The problem is that the CPA program is focused on the entry-level professional, one who has little or, in many cases, no experience. In addition, the new CPA program emphasizes the technical competencies carried over from the legacy CA program, with some emphasis on MCs from the legacy CMA program. The risk is that the new CMA program's focus on the hard skills left over from the CA training program may abbreviate training in the MCs candidates need to be successful. Where the CMA program recognized different experience levels and tailored the PEP accordingly, the CPA program does not appear to differentiate between different experience levels. In addition, by focusing on the entry-level professional, the new CPA program runs the risk of graduating technically competent CPAs who may not adequately possess or demonstrate the very enabling (meta) competencies the profession itself deems to be of great importance. Thus, my findings provide the opportunity to identify, at least in part, the ideal role(s) of the CPA PEP in MC development. More specifically, the CPA PEP should:

- Clearly understand the expectations of, and perceptions of importance, of employers and CPAs regarding MCs and ensure CPA student and graduates' expectations are matched to those of employers to minimize any potential MC expectations gap.
- Include evaluative elements similar to the group-based CMA written board report and presentation, which relies on teamwork and interpersonal skills, and which should be retained or even enhanced in the CPA PEP.
- Continue emphasis on presentation MCs.
- Continue emphasis on overall MC development for less experienced candidates.

- Give careful consideration to the experience level of its candidates and tailor the experience accordingly, especially given the different professional streams of emphasizing either public accounting or industry experience.

8.6. Additional Outcomes of the Study

In addition to the primary and investigative questions surrounding the development of MCs in CMAs, this study also produced two additional outcomes which serve to build on Cheetham and Chivers' (1996, 1998) work on professional competence and Azevedo et al.'s (2012) work on meta-level quality indicators. The following two sections discuss these additional outcomes.

8.6.1. MC development framework.

Cheetham and Chivers (1996, 1998) developed a model of professional competence encompassing the eight MCs studied here; however, their model provides examples of skills and tasks associated with cognitive, functional, personal, and values/ethical competencies overarched by meta-competencies. Cheetham and Chivers did not identify factors which might contribute to the development of MCs; therefore, a key objective of this study was to identify which factors – personal, educational, or organizational – might influence the development of MCs in professional CMAs. A provisional MC development framework was developed in Chapter 3 (Figure 2) and included factors that the researcher considered potentially influential on MC development in the Canadian CMA. Figures 3 through 7 illustrate the individual factor influences on the development of various MCs, and each represents a piece of a more comprehensive framework. Together, they comprise a revised MC development framework, illustrated in Figure 8. In the provisional model (Figure 2), years of experience were included as a factor that the researcher intended to test using tenure in the CMA's current job.

However, it was discovered that job tenure does not appear to influence MC development; therefore, the revised model replaces *years of experience* with *experience,* which combines the correlated variables of age, job level, and income, to reflect the findings of the study.

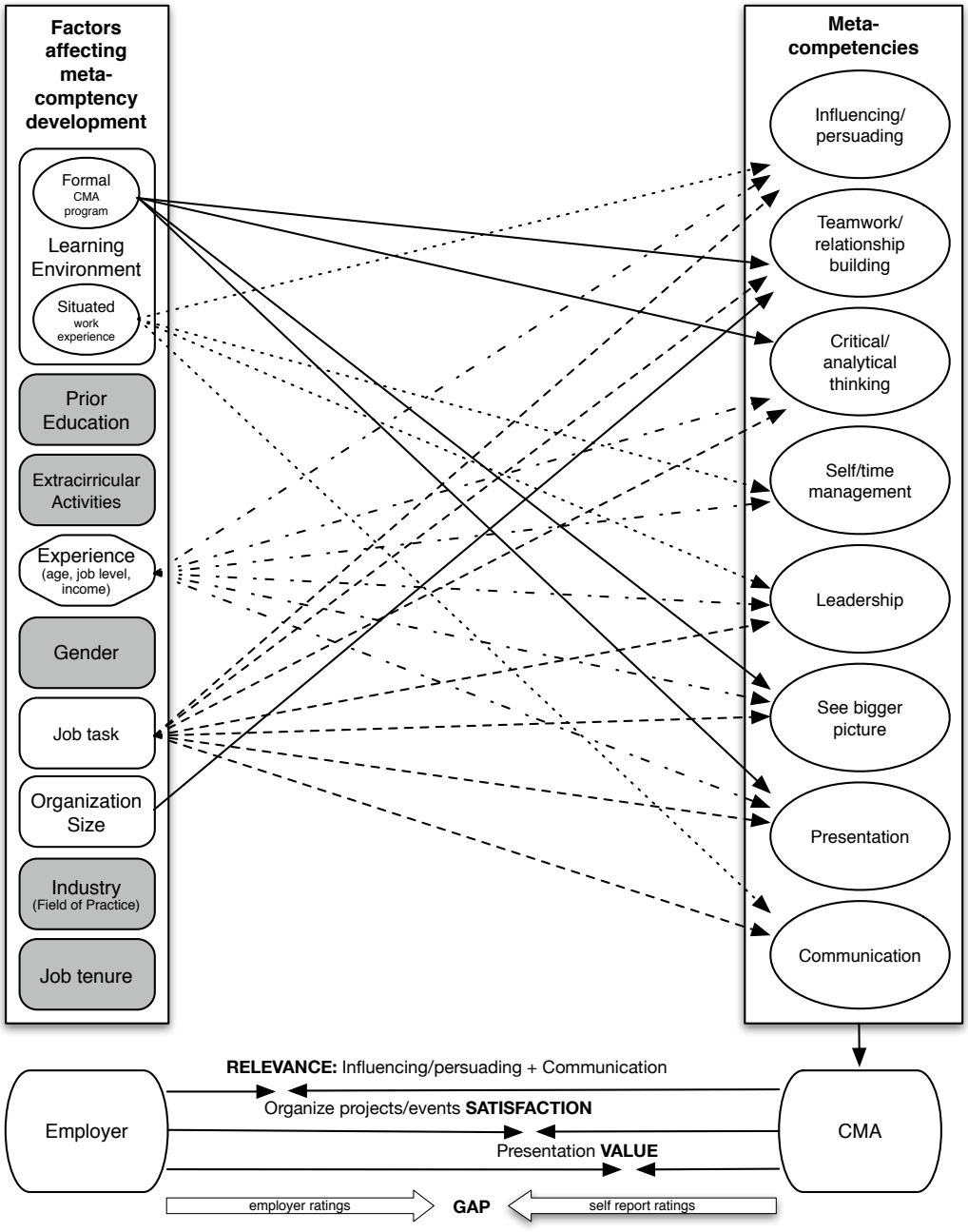

Figure 8. Revised professional MC development framework. Shaded factors were found not to influence MC development.

The framework illustrates that professionals and employers will not always be in alignment with respect to their MC expectations in terms of value, relevance and capability, and knowing where these gaps exist enables the CMA to narrow them.

8.6.2. What do the meta-level indicators tell us about MCs and CMAs?

One of the key findings from Azevedo et al.'s (2012) MISLEM study was the development of four meta-level quality indicators comparing perceptions of students and supervisors, three of which were adapted for this study:

- Indicator #1: value of MCs to CMAs' current jobs.
- Indicator #2: relevance of MCs to CMAs' future careers.
- Indicator #3: capability of CMAs to use MCs in their current jobs.

Indicators #1 and #2 were discussed in Chapter 7, in which it was revealed that, based on proportions of responses at the higher end of the 7-point scale, CMAs and supervisors in the paired sample were not aligned in their perceptions of the value of MCs to CMAs' jobs (indicator #1; section 7.2). For all MCs except teamwork/ relationship building and critical/analytical thinking, the meta-level indicator clearly showed supervisors considered the remaining six MCs to be more important to CMAs' jobs than the CMAs did. This suggests a difference in expectations and supports the existence of a MC expectations gap, but only for the paired grouping of CMAs. When the mean responses in the paired samples were compared statistically for significant differences, the results differed substantially with the only difference observed for the presentation MC. When compared to proportions of higher-end responses (*agree* and *strongly agree*) for all CMAs sampled, responses were much more similar, except for self/time management. In this case, the meta-level indicator and statistical testing do not

tell the same story regarding the value of MCs. This finding suggests that meta-level indicators alone may not be sufficient to develop a full understanding of the differences in value perceptions between CMAs and supervisors. Indicator #2 (section 7.2), however, revealed more consistent relevance responses between CMAs and supervisors, with all proportionate differences less than 10%. Significance testing for the same variables flagged two MCs as statistically significant: influencing/persuading and communication, which CMAs considered to be more relevant to their future careers than supervisors did. Again, the significance testing produced different results than the meta-indicator. Finally, for Indicator #3 (capability, section 5.2) differences of greater than 10% in proportions of higher-level responses were observed for the bigger picture and presentation MCs for both the paired and total samples, as well as leadership for the total sample. Significance testing, however, revealed only one difference for the ability to see the bigger picture, which did support the meta-level indicator result. Again, the meta-level indicators produced results that appear to be significant, but that could not be confirmed with the significance testing.

What the findings relating to the application of meta-level indicators and significance testing suggest is that use of the meta-level indicators or significance testing alone may not be sufficient to develop an accurate understanding of the value, relevance, and capability relating to MCs. The differences in results could be explained by the small-paired sample size of 39, which may have been too small to generate accurate and truly meaningful results. The findings also seem to suggest using both meta-level indicators *and* significance testing together to provide a more complete picture regarding differences in these three aspects. That both methods tell different stories about the same

variables is interesting and valuable and supports the conclusion of combining the two methods to enhance rather than limit analysis. Since Azevedo et al. (2012) were not able to apply the same significance testing used for this study because the student/supervisor data they obtained were not paired and thus did not constitute related samples required for sign and Wilcoxon matched-pairs testing, more research comparing the use of meta-level indicators and statistical significance testing using paired sampling is warranted.

8.7. Conclusion

Chapter 8 focused on synthesizing the results related to all the data gathered pertaining to the three investigative questions and ten associated hypotheses, ultimately resulting in the answer to the primary research question regarding the role of the CMA program in MC development. The chapter began with identifying the motivation of the study and proceeded to link findings from the study to theory related to MC development detailed in the Chapter 2 literature review. It was also identified that a gap between employer and CMA expectations exists, but it is much narrower in comparison to the research relating to undergraduates and MBAs and is limited to the ability to see the bigger picture, where CMAs appear to overestimate their capability. Given that the MC expectations gap has been narrowed, the study determined that the CMA program contributed to narrowing the MC expectation gap and is credited with contributing the most to four of the eight MCs studied.

As part of the CMA program's contribution to bridging the MC expectations gap, the study also determined that job tasks, CMA program elements, personal experience, and organization size appear to influence MC development. The findings reinforced the importance of MCs to CMAs and employers, and showed that CMAs may underestimate the value of presentation to their jobs, while concurrently overestimating the relevance of

influencing/persuading and communication to their future careers. The role of the CMA PEP in MC development was described, as well as the role(s) the new CPA program should play in the development of MCs in new CPAs. Two additional outcomes were identified. First, a comprehensive MC development framework was introduced that links influential factors to the MCs required of the CMA. Second, a discussion of these findings in the context of three meta-level indicators developed by Azevedo et al. (2012) revealed that meta-level indicators should be combined with statistical significance testing to obtain a better understanding of the value, relevance, and capability of MCs.

Now that the findings of the study have been articulated, it is time to consider the implications of these findings as well as limitations of the study and identify potential avenues for future research, all of which are the focus of the next, and final, chapter.

Chapter 9: Conclusion

While Chapter 8 synthesized the findings discussed in Chapters 5 through 7 with respect to the theory, Chapter 9 looks to bring closure to this work by first identifying the motivation behind the study, followed by a discussion of the empirical, methodological, theoretical, and practical contributions of the findings of the research. Key limitations of the study will be identified as well as considerations for future research. The chapter will close with final reflections and concluding thoughts of the researcher.

9.1. Motivation Behind the Study

The spark for this study started during my work with CMA Canada (circa 2011) in revising the competency map for the profession. As a professional accountant, post-secondary business instructor, and instructor in the CMA programs, I have always considered it important that CMAs possess the necessary skills and competencies to contribute to their organizations and have successful careers. As I began learning about competency development related to professional accounts, I was inspired by Brown's (1993) conclusions related to the managerial competence where, if we can identify the competencies employers require, and if we can better understand how they are developed, then we can train professionals to acquire and perfect them. It was primarily Brown's (1993, 1994, 1995, 2003, 2004) work that introduced me to MCs, which reflect a higher level of thinking than technical or functional competencies, and for which little research has been done relating to professional accounting. In addition to Brown's work, Rainsbury et al. (2002) conducted the only known study of MC development in the professional accounting profession which focused on eight cognitive skills (technical competencies) and eight behavioural skills (MCs) of graduates of the Chartered Accountants of New Zealand's Professional Accounting School (PAS). The Rainsbury et

al. study surveyed graduates only and was limited to three hypotheses: (a) assessment of program outcomes, (b) improvements in candidates' levels of competence, and (c) gender-based differences in competency levels.

Although there has been some criticism of accounting education in Canada (Boritz & Carnaghan, 2003; Forristal, 2002; Gibbins, 2002; Langdon, 2002; Richardson, 2002; Shahi & Harrison, 2002), it has been largely directed at the post-secondary institutions rather than at the profession's education programs. As such, no research has been done related to professional accounting in Canada. Thus, the research opportunity to focus on MC development and expand on Rainsbury et al.'s (2002) work was clear, and the overarching question that frames this study was conceived: *How can the Canadian accounting profession ensure professional accountants have the MCs necessary to meet the expectations of employers and to be successful in their jobs and future careers?*

Additional motivations for the study included the impending unification of the accounting profession in Canada into a single CPA designation, which, at the time the proposal for this study was developed, was in its infancy. If unification of the profession fell through, then the CMA program would have gone through a massive redevelopment (for competitive reasons) and any findings from this study could potentially be used to enhance program development and delivery in the new CMA program. If unification was successful, then a new national program would be developed, based on a competency map that would still highly emphasize MCs, and any findings from this study could still be used in the development and delivery of the new CPA program. Regardless of the outcome of unification, this study would still be valid and useful.

Finally, the MISLEM study by Azevedo et al. (2012) used a multi-constituency approach with undergraduate students and their employers which studied the same MCs that I considered to be of interest and that were similar to the eight studied by Rainsbury et al. (2002). In addition, Azevedo et al. identified four key meta-level quality indicators for business knowledge and competencies: value, relevance, capability, and gap. The extension of the MISLEM beyond the undergraduate level to professions, and to professional accounting specifically, represented a wonderful opportunity to build on existing work and apply these meta-level indicators to identify differences in perceptions of employers and CMAs. In addition, I had the benefit of personal access to the lead researcher of the MISLEM study, which proved invaluable in planning, implementing, and analyzing the results of this study. It also presented the opportunity to attempt what Azevedo et al. had originally hoped to do, but were ultimately unable to: pair the student and supervisor.

9.2. Overview of Research and Results

With the aim of identifying how the Canadian accounting profession can ensure professional accountants have the MCs necessary to meet the expectations of employers and to be successful in their jobs and future careers, this study took a multi-constituency approach to better understanding the importance of, and potential factors influencing, the development of the following eight MCs as part of a PEP:

- influencing and persuading,
- teamwork and relationship building,
- critical and analytical thinking,
- self and time management,

- leadership,
- the ability to see the bigger picture,
- presentation, and
- communication.

These eight MCs were borrowed from previous research conducted by Azevedo et al. (2002) in a similar study of business school graduates and employers in four European countries, and based on previous work by Arnold & Davey (1992); Berman & Ritchie (2006); Cheetham & Chivers (1998); Evers et al. (1998); Mayer (1992); O'Neil & Onion (1994); and Rainsbury et al. (2002). In an attempt to address the research objective, the study used CMA Canada's professional accounting education program as an example of a recognized PEP. The CMA designation requires professionals to develop and demonstrate the aforementioned MCs and the CMA professional programs are intended to help develop or refine these MCs. The study was based on the following three key research questions:

1. Do professional accounting programs contribute to bridging the MC gap?
2. What factors influence the development of MCs in recently designated professional accountants?
3. Are there differences in perceptions of the importance of MCs between recently designated professional accountants and their employers?

Each research question included a set of related hypotheses that were tested based on survey data collected from 224 CMAs (from a population of 2,234) who graduated from one of three CMA programs: the Strategic Leadership Program (SLP), CMA for MBA program (CMBA), and the Prairie Region Executive Program (ECMA). Study

participants completed the CMA programs between 2008 and 2013 inclusive in AB, SK, or MB. In addition, CMAs were asked if they would be willing to have their immediate supervisors participate in the study by completing a related but different survey. A total of 39 supervisors participated in the study, resulting in 224 total individual CMA samples and 39 paired samples.

The findings of the study enabled the formulation of the following answers to the key research questions based on the ten hypotheses tested with results related to retention or rejection of the nulls for each MC summarized in Table 8.1:

1. The CMA programs contribute to bridging the MC expectations gap with differing impacts for each MC and demographic factors including. The program was found to contribute the most to the presentation MC.
2. The development of MCs is influenced differently by a number of factors including the learning environment, age, job level, CMA program satisfaction, job tasks, and organization size. However, experience was shown to be the largest contributor to MC development overall.
3. CMAs and employers are generally in agreement with the importance of MCs; however, it appears that employers value presentation competency more than CMAs do and employers appear to consider influencing/persuading and communication MCs to be less relevant to CMAs' future careers than other MCs.

Potential implications of these findings are discussed next.

9.3. Implications and Contributions of Research Findings

This study has implications and makes contributions in four major areas: empirical, methodological, theoretical, and practical. The following four sections discuss each of these areas in turn.

9.3.1. Empirical implications and contributions.

To date, virtually all of the research related to MC development has focused only on post-secondary business education. As discussed in the literature review (Chapter 2) and Section 9.3, the literature strongly supports the importance of MCs to business graduates and their and employers, and identifies a gap between what the two constituencies consider important regarding MCs. This study builds on previous work and extends into areas linking MC development and professional accounting in ways no other studies have.

Other than the Rainsbury et al. (2002) NZ professional accounting study, no other work has been done linking MC development and post-university professional accounting education, and none at all takes the multi-constituency approach this study does by including both CMAs and employers. Finally, while Azevedo et al. (2012) built on the existing research and developed meta-level quality indicators linking business education and employment, analysis of differences in student and employer responses were limited because Azevedo et al. were unable to conduct paired sampling. This study was able to augment Azevedo et al.'s work through a related-sample approach.

Prior to this study, the extent to which CMAs and employers were aligned in their perceptions of the importance of MCs was not known. The study confirms that both CMAs and employers consider all eight MCs studied to be important, but that CMAs undervalue the presentation MC for their current jobs and overestimate the relevance of influencing/persuading and communication to their future careers. This study has also confirmed, at least at a rudimentary level, that CMAs reflect on their own MC development by reflecting-on-action.

At a developmental level, this study identified some interesting revelations about factors influencing MC development. Aside from experience-related factors, such as age, income, and job level, the study revealed that organization size is a contributing factor to the development of teamwork/relationship building. However, the study also revealed that job tasks requiring teamwork do not appear to contribute to the development of the teamwork MC, or any others for that matter. Hardy and Deppe (1995) develop an integrated, competency-based approach to accounting education and, more recently, Lawson et al. (2014) also introduced an integrated competency-based framework for accounting education, which also includes MCs. However, both frameworks are directed primarily to universities, and both fail to identify any underlying factors that may contribute to the development of MCs. The empirical contribution of this thesis is to advance previous work from the undergraduate business and MBA levels to the professional education level, and specifically in the Canadian context.

9.3.2. Methodological implications and contributions.

This study used a multi-constituency approach by attempting to pair CMA graduates and their immediate supervisors. This section discusses the implications of non-participant and non-response rates separately for CMAs and supervisors, as well as the use of incentives versus appeals to social conscience. Other methodical considerations discussed include the value of social media in empirical research, the value of simplicity in research, research design, and the usefulness of the multi-constituency approach in empirical research. One of the most significant methodological contributions of this thesis potentially involves the testing of three meta-level quality indicators developed by Azevedo et al. (2012) in the MISLEM study and identifying the need for paired sampling to enhance their effectiveness.

9.3.2.1. *CMA non-participation and non-response.*

Invitations were extended to 1,276 eligible participants and 224 CMAs participated in the study, representing 10% of the target population. The researcher had to rely on publicly available information to contact potential participants, as the CMA provincial offices could not divulge any private information regarding their members. Contact was made with participants only via email and social media, and three requests for participation were made. In reflection, making contact with potential participants via telephone could have increased the response rate, but would have increased the time required to complete the study.

9.3.2.2. *Supervisor non-participation and non-response.*

Of 224 CMA participants, only 39 supervisors participated in the study. Reasons for this could include lack of supervisor interest when asked by the CMA to participate. Alternatively, CMAs may not have approached their supervisors and them to participate based on concerns of burdening their supervisors with a survey, or perhaps CMAs had other concerns about asking their supervisors to participate, such as fear of reprisal.

9.3.2.3. *Use of incentives versus appeals to social conscience.*

In an attempt to increase the response rate, an appeal to social conscience was made, in which $2 for every completed survey would be donated to World Vision Canada. At the halfway point of the data collection period, the response rate was low, and an iPad incentive was introduced, resulting in a significant increase in response rates. These findings may suggest that a larger contribution to a charity is required or that offering a tangible incentive to appeal to the self-interests of participants is more effective for garnering participation in research studies involving business people and/or professional accountants.

9.3.2.4. *Value of social media to empirical research.*

It is doubtful that this study could have been completed as planned within the three-month time frame specified and with a 10% response rate without the use of social media, specifically LinkedIn. The researcher was initially skeptical regarding the usefulness of social media for business research; however, for the purpose of obtaining participants for a research study of business professionals, LinkedIn proved to be invaluable and to be, by far, the most effective contact method for this study, suggesting that LinkedIn might be a very effective method for conducting business-related research. Also, given that LinkedIn usage is based on an "opt-in" method, research ethics issues related to finding potential participants can be avoided. LinkedIn is also much less intrusive than direct, unsolicited email, which may be more of an annoyance to the recipient. Using LinkedIn to find participants was not without its challenges and limitations, and, as a personal network-based system, the potential for bias and non-response due to the researcher and participant being acquainted with each other exists. However, given the challenge with generating interest to participate in research studies and survey fatigue, social media can effectively be a viable (but not the only) research source.

9.3.2.5. *The value of simplicity.*

This study consisted of three research questions and tested ten hypotheses. In retrospect, each question could have been the focus of its own research study and the researcher might have been overzealous in taking on so many hypotheses. The study generated so much data that it was impossible to effectively evaluate and test everything without making the study the researcher's life's work; therefore, validity could be

affected due to omission of certain tests and related analysis. As a result, judgments had to be made on what testing to conduct and where to take the analysis.

9.3.2.6. *Research design.*

On advice from the lead researcher of the Azevedo et al. (2012) MISLEM study, a question related to directly measuring the perceived MC gap in CMAs was omitted because the question was determined to be misunderstood and, therefore, unreliable. While no research questions or hypotheses were aimed at directly determining whether or not a gap existed, discussion related to the MC expectations gap ensued nevertheless. In retrospect, the question should have been retained in the study. Question 22 of the CMA survey (Appendix D) asked respondents to rate the importance of each CMA program element to the general development or improvement of all MCs. The question did not ask the respondent for an evaluation for each individual MC, and thus some valuable data that could have easily been gathered were not. The question was excluded out of concern for the length of the survey, as seven additional questions would have to be added, potentially making the study appear to be too long to complete in a reasonable amount of time to potential participants.

9.3.2.7. *Usefulness of the multi-constituency approach.*

One of the limitations of the MISLEM study (Azevedo et al., 2012) was that, for ethics reasons in one country, the researchers were unable to pair supervisors with students. As a result, the comparisons that could be made between both constituencies were limited. For this study, the researcher had hoped to bypass that limitation by pairing CMAs and supervisors, and expected to receive a significant number of paired-samples. This expectation was evidently short-sighted, with only 39 supervisors of 224 CMAs participating. However, the use of the paired sample approach was found to be very

valuable in the analysis, especially when working with self-report data. The advantage of paired samples was that they also provided the opportunity to statistically compare the paired CMAs to the total and unpaired samples. Although the pairings were extremely useful, the non-participation rates made it abundantly clear that obtaining paired employee-employer samples is difficult, even with an incentive to promote participation. As a result, the findings of results related to paired-sample data might not be generalizable to the population. The researcher hopes to be able to conduct multi-constituency paired studies in the future.

9.3.3. Theoretical implications and contributions.

What has been learned from this study that was not already known? The literature has made it abundantly clear that a MC expectations gap exists between business school graduates and employers, but it was not known whether such a gap exists between professional accountants and employers. What this study revealed is that the CMA program contributed to narrowing the gap for seven of eight MCs and that CMAs appear to overestimate their ability to see the bigger picture. While one might reasonably infer or assume that development of higher-level competencies such as the ones studied requires experience gained over time in the workplace, this study confirms such an inference. However, the findings also suggest that, in the absence of experience, and in cases of high levels of experience, the CMA program does contribute to the development of MCs, and is credited with contributing more to four of the eight MCs studied, most notably presentation.

Further, this study examines potential factors (learning environment, program elements, job tasks, personal, and organizational) affecting MC development that have not been effectively included in the MC discussion to date. In doing so, this study extends

our understanding of both the MC gap *and* the development of these important skills in the working professional. Specifically, this study suggests that PEP programs are effectively bridging the MC gap and that the development of these skills depends on both the PEP and work experience. In essence, this study goes where others have not and provides an extended foundation for future research on MC development in general and in relation to the accounting profession, as well as other professions.

9.3.4. Practical implications and contributions.

Between the development of the proposal for this study and the final writing of this dissertation, unification of the accounting profession in Canada is now a fait accompli, as all three legacy designations (CMA, CGA, and CA) have merged into the new CPA designation. At the time of writing, all provinces in Canada have approved unification, but are all at different stages with respect to amending legislation. Regardless of legislation delays, the new CPA Professional Education Program (PEP) has been developed and has started to roll out across the country. The new program combines aspects of both the CMA, CGA, and CA legacy programs and supports two distinct career paths: public accounting and industry.

As part of the unification process, a new competency map has been developed which combines the maps and competencies of all three legacy designations. The CPA competency map distinguishes between *technical* competencies and *enabling* competencies. The technical competencies include:

- Financial reporting
- Governance and strategy
- Management and accounting

- Audit and assurance
- Finance
- Taxation

The enabling competencies, which are effectively MCs as defined for this study, include:

- Professionalism and ethical behaviour
- Problem solving and decision-making (encompassing the critical/analytical thinking and bigger picture MCs)
- Communication (encompassing presentation and communication MCs)
- Self-management (encompassing the self and time management MC)
- Teamwork and leadership (encompassing the influencing/persuading teamwork/relationship building and leadership MCs)

The overlap between the CPA enabling competencies and the MCs studied suggest that findings from this study are completely transferrable to the CPA program as well as CMA program. Appendix J illustrates the new CPA program. The entrance examination requirement of the CMA program has been eliminated in the new program. All candidates must complete six common modules (Cores 1 and 2) and two elective modules (Electives 1 and 2) emphasizing the six technical competencies and integrating elements of the legacy CA program. All modules are based on formal in-class instruction (i.e. the formal learning environment). Evaluation elements for the Cores are based on nationally-set case-based exams that "must assess the cross-competency integration, problem-solving and communication elements" (CPA Canada, 2014, p. 10). Evaluation elements for the Electives also consist of larger and more complex assignments and cases designed to assess professional skill in "in a multi-competency environment, always

building on prior learnings" (CPA Canada, 2014). Following the Core and Elective modules is the "Capstone integrative module assessment [which] will include presentations and team-based assignments, and culminate in a business case completed as part of a team" (CPA Canada, 2014, p. 9). The Core and Elective modules effectively replace the SLP from the CMA program. The Capstone modules emphasize enabling (i.e. MCs) and include a team-based written case and board presentation, heavily influenced by the legacy CMA program. Finally, the entire CPA certification program culminates in a multi-day national Common Final Examination, which is a carry-over from the legacy CA program; this examination integrates most competencies, but primarily emphasizes the six technical competencies. Also, the new program does not include an option for executives, but does include an MBA stream, as well as MPAcc and MAcc programs delivered by qualifying accredited post-secondary institutions across the country, rather than by CPA. The program also admits qualified workforce applicants without an undergraduate degree into the program, provided they meet the necessary criteria (Chartered Professional Accountants of Canada (CPA Canada), 2014a). As all three legacy programs did, the CPA program includes a practical work experience requirement (representing an experiential learning environment).

Overall, the new CPA program does attempt to integrate both technical and meta-competencies; however, its emphasis, other than the mid-point board report and presentation, is largely individual and heavily weighted on a single, final comprehensive examination. Thus, the new CPA program does not appear to emphasize the enabling/MCs as strongly as the legacy CMA program did, and the new program may be shifting MC development more towards work experience. This de-emphasis on the

enabling MCs within the formal portion of the CPA program could have negative impacts on the development of MCs if the workplace is unable to deliver, especially for younger, less experienced candidates. Recall the findings of this study, which indicated that the responders perceived the CMA program to contribute most to teamwork/relationship building, critical/analytical, bigger picture, and presentation MCs, especially for less experienced CMAs. As the new CPA program seems to be directed heavily towards younger, inexperienced university undergraduates and MBA/MPacc/MAcc graduates, the need for a program to develop all MCs – especially the four aforementioned ones – is very important because, as the findings clearly show, the workplace is not as effective an environment for the development of certain MCs as the CMA program was. Although the CPA program does not expressly indicate a preference for younger and less experienced university graduates, the prerequisite qualifications and career paths will likely naturally select candidates. The public accounting business model, in practice, still favours hiring young, inexperienced articling students, paying them entry-level salaries, and moving them up through the ranks. Qualified candidates with higher levels of experience and earning higher wages in industry are not as likely to enter the public accounting stream, and will likely favour the alternative industry stream where they would not have to "start at the bottom" and could continue with their roles. The CPA program also includes a mentorship requirement requiring "future CPAs meet with their mentors at least semi-annually to review their progress against set required competencies" (Chartered Professional Accountants of Canada (CPA Canada), 2014b), which is not likely to appeal to highly experienced candidates. All of these factors could increase the employer-CPA MC expectations gap for graduates of either or both the public accounting and industry

career paths; the gap would vary in size based on the demographic factors of the professional. Organization size is one such example. The findings of this study show that, for CMAs working in smaller organizations, the teamwork/relationship building MC was more influenced by the CMA program than by work experience. While the new CPA program emphasizes the teamwork/relationship MC in the Capstone module, such a model may not be sufficient to develop the MC more fully. The CMA program, using a facilitated residency approach, emphasized teamwork throughout the program, and not just in the final Capstone. This leaves CPAs working in smaller organizations at a potential disadvantage regarding the development of two MCs that CPA indicates are important: teamwork and relationship building. This means that CPAs or the CPA program might benefit from a better understanding of the influences on MC development – hence the value of this study. In cases in which the CPA student might be at a disadvantage, such as working for a smaller organization, some opportunities can thus be made available, such as professional development or other elective modules, to help the student develop his/her MCs. The findings of this study also recommend that opportunities to develop influencing/persuading and self/time management competencies should be included and/or enhanced in an accounting PEP.

9.4. Limitations of the Study

As with any research study, this study has a number of inherent limitations. The following eight core limitations associated with this study were identified:

- Generalizability
- Incommensurability of MC proficiency
- Response bias

- Quantitative versus qualitative research
- Inability to test for significant differences in meta-level indicators

Each limitation is discussed in more detail in the following eight sections.

9.4.1. Limitations related to generalizability.

Data were collected relating to many demographic factors, which were used to determine representativeness of the samples collected to the population. Representativeness, or lack thereof, has impacts on generalizability of results to the population. It is important to stress that this study was exploratory in nature and, rather than providing definitive proof relating to meta-competency development of CMAs en masse, the study provides suggestions for future research in the area of meta-competency development in professionals. This study relied on a sample of 10% of the population, and so the results derived from the sample may not be generalizable to the overall population. Generalizability to the population subsets based on various demographic factors such as province, program completed, year of program completion, and gender is also limited because the subset samples of the population are of insufficient size to conduct conclusive statistical analyses.

9.4.2. Incommensurability of MC proficiency.

The constructs of MCs in this thesis are, by their very nature, complex, ambiguous, and subjective. As a result, measurement of proficiency is difficult, if not impossible. Many uncontrollable factors are involved in the development and demonstration of MCs, and the degrees to which experience and education affect MC development cannot be determined definitively. With respect to the eight MCs studied, this thesis did not attempt to measure MC proficiency as determined by CMAs and their supervisors. Rather, it sought to identify the level of agreement that CMAs are capable of

using MCs in their jobs, and the level to which CMAs and supervisors are satisfied with the CMAs' handling of specific job situations that require the use of MCs.

9.4.3. Limitations related to response bias.

All samples are potentially biased, and these potential biases may "diminish the value of the data collected" (Cooper & Schindler, 2011, p. 248) by reducing generalizability and validity. The most likely biases in this study, as discussed in Section 3.5, include social desirability bias, self-response bias, sampling bias, and hypothesis awareness bias. This study relied on self-report data, which asked CMA respondents to indicate their perceived levels of: (a) agreement of their capability to use MCs, (b) satisfaction in handing certain work situations (c) value of MCs to their current jobs, and (d) relevance of MCs to their future careers. Self-reported responses and assessments are subject to potential biases: respondents may either overstate or understate their responses to make themselves appear more or less capable of demonstrating MCs, or to create a favourable self-image and/or to impress the researcher. Supervisor responses are also subject to the same biases: supervisors may under- or overstate their perceptions regarding a CMA's MC capability and/or to create a favourable or unfavourable image of the CMAs with whom supervisors are paired. The paired sample approach was an attempt to minimize the impact of self-report and SDR bias, whereby differences in CMA and supervisor responses were analyzed for consistency and for potential evidence of reflectivity in CMAs. In addition, CMAs who were more certain that their supervisors would provide favourable responses of CMA MC capability may have been more likely to invite their supervisors to participate. This could possibly result in biased or unbalanced supervisor responses, thereby potentially affecting the validity and generalizability of the findings. While such biases cannot be controlled for directly, the

design of the study incorporated various measures to lessen their impact: a comparative analysis between CMAs' and employers' responses attempted to allow the researcher to identify and account for the potential effects of social desirability and self-response bias. Comparing descriptive analyses of the sample to the population tested sampling, non-response, and non-completion biases. Given the nature of the study and the results, it was acknowledged that the potential for self-report and SDR biases did exist: however, based on the consistency of results between CMAs and employers, the risks associated with self-report and SDR were generally low. In the end, the results "should be accepted for what they are—statements by individuals that reflect varying degrees of truth and accuracy" (Cooper & Schindler, 2011, p. 248).

9.4.4. Limitations related to quantitative versus qualitative research.

As discussed in the previous section, this study took a primarily a quantitative (positivist) approach, which was based on a positivist paradigm. Quantitative approaches, however, are limited in their application and the conclusions that may be drawn: "There can be a tendency for the quantitative researcher to lose perspective, focusing on numbers and not their meaning. Numbers are simply a way to summarize and describe facets of the world. They are not, by themselves, reality" (Johnson & Harris, 2002, p. 99). Quantitative research will help identify statistical relationships between various factors and MCs, but the intent is for the quantitative data to provide a foundation for qualitative interpretation (Jensen, 2012) about MC development, especially given the "complexities associated with . . . [MCs] the heterogeneous nature of the population [and other factors] being investigated" (Jensen, 2012, p. 11). However, other studies have taken similar approaches to this study, by asking participants their opinions and perceptions of MCs (Azevedo et al., 2012; Fortin & Legault, 2010; Reynolds & Snell, 1988). Thus, though

the positivist approach may not be ideal for such complex and subjective constructs, it has been applied by others, and is therefore a recognized way of approaching these constructs.

9.4.5. Inability to test for significant differences of meta-level indicators.

This study adapted three of four meta-level indicators developed by Azevedo et al. (2012). The results of the indicators, which measured proportions of CMA and supervisor responses at the higher ends of the 7-point Likert scales, revealed some interesting results. However, interpretation of the indicators could only be subjected to descriptive analysis and the indicators could not be tested for statistically significant differences because population proportions could not be determined or estimated.

9.5. Considerations for Future Research

This research study tackled a great deal of information through the testing of ten hypotheses to answer three key research questions all related to the development of MCs in professional accountants. At the same time, through the analysis and synthesis of results of this explorative study, many doors for research have been opened. The following represent some potential areas of research that could be conducted as part of MC development or other avenues:

1. With the impending completion of the unification of the accounting profession across Canada, any new research must be conducted based on the CPA program. Future research extending beyond this study could include similar, but more focused, follow-up studies in five and again in ten years' time to maintain a pulse on the development of MCs in future CPAs. This could represent an interesting longitudinal study on observing the importance of MCs, differences in perceptions of importance and capability between CPAs and employers, and whether the new CPA program is

effective in developing the key enabling MCs. Findings from those studies can be fed back to CPA Canada for improvements to the programs and to create possible professional development opportunities or programs for CPAs.

2. A separate study could be conducted on the program elements of the CPA program to assess their effectiveness in the development of not just enabling MCs, but technical competencies as well.
3. This study revealed some interesting responses from MBAs who appear not to be enamoured with the CMA program or their work experience contributions to MC development. MBAs might be predisposed to believe they are more capable in using MCs because they possess an MBA, thus creating an SDR bias. Research targeted to comparing MBA and employer responses, separate from any professional accounting program, regarding MC development would be very interesting.
4. A number of studies (Burke & Collins, 2001; Gill & Davidson, 2001; Orser et al., 2011) have observed that females seem to be more capable than males at managing themselves. This study uncovered a similar finding in which females self-reported higher self/time management capability than males. Additional research focusing on this MC related to observe gender differences in professional accountants, or any recognized profession for that matter, or MBAs could be conducted to support or refute these findings.
5. Each MC could conceivably be the source for a series of studies conducted on professionals or MBAs based on the development of a more concrete measurement scale or personal inventory.

6. This study looked at differences in employer and CMA responses using three meta-level indicators developed by Azevedo et al. (2012) as well as statistical significance testing, both yielding different results. Further research employing a paired-sample approach, which could allow for more application of both meta-level indicators in conjunction with significance testing, may be warranted to determine the validity and reliably of each method separately and together.
7. This study focused only on the Canadian accounting profession. However, future research could focus on comparing MC capability and importance between business professions such as law, consulting, finance, marketing, and human resources.

These eight areas represent a mere fraction of the limitless opportunity related to research related to higher-level MC development.

9.6. Final Reflections and Concluding Thoughts

Though this study was a large undertaking that seemingly took forever, it is but one work of many on the subject of MCs. The area is interesting, valuable, and important, and a huge potential for further research exists. I had no idea of what I was getting into until I was in the thick of it. As a result, I feel that I have only managed to scratch the surface of research relating to MC development in professional accounting. Given the amount of data collected, I could possibly have squeezed more juice from the lemon, but I had to draw the line somewhere. I believe the data collected can support further analysis using a number of alternative quantitative methods and theoretical perspectives, thus giving a potentially long life to this study. In particular, meta-level indicators could be applied to different subsets of the data, such as program, age, or education, to identify any other patterns that may exist.

As a professional accountant and post-secondary instructor with undergraduate business and MBA degrees, I possess a relatively high mathematical competency. However, with the implementation and analysis of a quantitative study with many complex hypotheses, my statistical competency increased substantially. In addition, the requirement to interpret statistical data and to make qualitative inferences while making linkages to other studies and to the literature undoubtedly challenged my critical thinking and bigger picture MCs. Planning, implementing, and managing a project of this magnitude, while balancing work and family, challenged my self/time management MC. Writing a dissertation of this length and disseminating the findings to convince the researcher's academic committee that the work done is worthy of being awarded a doctoral credential definitely challenged my communication, presentation, and influencing/persuading MCs. Finally, the ongoing, often circular, analysis, interpretation, and dissemination of results enabled me to reflect-in-action, while describing the learning realized as a result of the study enabled me to reflect-on-action.

In the end, this work is not perfect, but it has accomplished what it set out to do. If we can identify the competencies required of professional accountants in Canada, and better understand how they are developed, we may develop better ways to help professionals master them. The answers to the three questions asked in this project helped identify key factors that influence the development of MCs in CMAs, and also created an MC development framework that may, hopefully, become a basis for the profession and for future research in the field. In conducting this project, I believe I have contributed to both the theory and practice of MC development, and have demonstrated the capacity to plan and execute a research project at the doctoral level. In the end, the judgment of

whether or not this work is deemed to have academic merit does not rest with me. What I am sure of is that I know more now than when I started, but I also know that the learning never stops and “why?” is one of the most important questions we can ever ask.

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Appendix A: CMA Competency Map

Table A1

CMA Role of Creating Value: The design and formulation of strategies, policies, plans, structures, and governance measures that set the course for the delivery of sustainable value

	Knowledge Acquisition (8)	Professional Proficiency (6)	Advanced Proficiency (9)
Problem solving and decision making	Evaluates options in a methodical way. Applies integrative and creative stills to the creation of plans and other forward-looking documents	Selects a methodical approach for uncovering new ways to create value. Uses integrative and creative skills in contributing to strategic activities.	Formulates, implements, and evaluates long-term strategic decisions. Explores options for large-scale initiatives in unchartered territory.
Leadership and group dynamics	Participates as a team member in creative brainstorming discussions. Sets and pursues goals. Shows initiative in working with others.	Takes an active role in ensuring brainstorming discussions are productive, and remains focused on value creation. Takes initiative in planning processes.	Leads teams creating sustainable strategies and defines team structure. Sets organizational goals. Applies vision and relays it to teams and stakeholders. Initiates strategic processes.
Professionalism and ethical behaviour	Applies ethical considerations in hypothetical strategic planning exercises. Is familiar with professional standards and their application to strategy.	Integrates and highlights the important ethical considerations in strategic planning activities.	Uncovers and highlights professional and ethical issues in strategic plans and ensures they are addressed.
Communication	Listens actively and effectively to others, presents new ideas, and communicates new and untested ideas in a clear and logical matter, both orally and in writing.	Presents the results of major planning exercises orally and in writing, persuasively highlighting the key points.	Mentors other in effective communication of new, creative ideas. Uses persuasion skills to promote new ideas.

Table A2

CMA role of enabling value: The execution of strategy for sustainable value, and the planning, implementation, monitoring, and improvement of supporting processes.

	Knowledge Acquisition (6)	Professional Proficiency (13)	Advanced Proficiency (8)
Problem solving and decision making	Systematically analyzes data and applies to defined problems. Generates and researches alternative solutions to problems	Exercises discrimination and judgment in recognizing the limitations of analytic and monitoring tools, and revises approach accordingly. Uses spreadsheets and other IT tools to support effective issue identification and decision-making. Performs sensitivity analysis on quantitative information.	Generates medium and long-term decisions on methods to measure, monitor, and improve the organization's ability to deliver sustainable value.
Leadership and group dynamics	Participates in ongoing efforts according to established goals.	Provides input as a team player to identify issues, help solve performance problems, and implement improvements. Listens to dairying viewpoints.	Leads multi- functional teams in the investigation and development of recommendations for solving of operational issues and implementing solutions.
Professionalism and ethical behaviour	Explains the need for transparency in communication of financial numbers and issues.	Exercises integrity and transparency in performing quantitative financial analysis that is free of bias and communicates results of analysis objectively and fairly. Monitors compliance with ethics policies. Identifies and reports ethical conflicts.	Takes initiative in reinforcing ethical guidelines. Acts as a role model for ethical behaviour. Verifies that checks and balances are in place to ensure that financial analysis and decision-making are free of bias, and that results are presented to decision-makers honestly.
Communication	Describes the fundamentals of presenting financial numbers to a variety of audiences. Demonstrates communications capability using email, word processing, presentation software, and the telephone.	Asks appropriate questions to uncover performance issues. Relays financial information to a variety of audiences. Communicate effectively during strategy implementation. Follows up with ongoing communications in a timely fashion.	Communicates with stakeholders on the major performance issues. Clearly communicates policies affecting day-to-day operations. Ensures that effective communication processes are in place throughout, during strategy implementation, and that change management issues are handled effectively

Table A3

CMA role of preserving value: The protection of a sustainable value strategy against strategic and operational risks.

	Knowledge Acquisition (4)	Professional Proficiency (10)	Advanced Proficiency (11)
Problem solving and decision making	Describes processes for mitigating risks and reducing the impact of damaging effects.	Employs analytical problem-solving skills to solve or report a particular problem or risk to the organization. Exercises judgment in determining whether an issue requires attention.	Assesses major problems and decides on long-term solutions and mitigation strategies. Prioritizes response activity in complex situations.
Leadership and group dynamics	Deals effectively with a diverse situations and potential conflict.	Takes initiative in groups in identifying risks and problems. Exercises discretion over sensitive issues.	Designs control and authorization policies. Uncovers and solve conflicts. Confronts individuals over compliance issues. Deals with resistance to change.
Professionalism and ethical behaviour	Describes and observes the dangers posed by ethical and sustainable risks.	Reports ethical and sustainability threats quickly and transparently. Adheres to control policies and codes of ethics (professional and organizational). Maintains confidentiality.	Identifies and addresses conflicts of interest. Identifies unethical business practices that could harm the organization's reputation. Response to complaints over ethical issues.
Communication	Follows conventions of honest and clear communication.	Listens to the concerns of coworkers and response with appropriate discretion and clarity. Uses methodical questioning to uncover the root causes of problems. Exercises discretion on discussing sensitive issues.	Develops and clearly communicates policies for controls and compliance. Send a clear message about the serious nature of risks.

Table A4

CMA role of reporting value: The transparent communication of the delivery of sustainable value to stakeholders and the general public.

	Knowledge Acquisition (4)	Professional Proficiency (6)	Advanced Proficiency (7)
Problem solving and decision making	Describes the role of financial reporting in promoting sound business decisions.	Identifies problems based on historical data. Provide input for decisions related to presentation of information in financial statements.	Sets and overseas policies for financial reporting in the organization.
Leadership and group dynamics	Listens carefully and critically to detailed presentations and develops an understanding of the needs of users of financial statements	Works with teams to research and prepare financial statements and other reporting documents.	Mentors others on proper financial reporting procedures.
Professionalism and ethical behaviour	Explains the meaning and describes the substance of professional and ethical standards for financial reporting.	Creates financial statements and supporting documents in strict adherence to professional and ethical standards.	Promotes professional and ethical standards throughout the organization for reporting financial information.
Communication	Communicates effectively, both orally and in writing, in one of Canada's official languages.	Writes clear and readable documents reporting on financial matters. Presents numbers in clear, easy-to-read format.	Sets communication policies on financial issues. Communicates with auditors and regulators. Presents financial results to boards of directors, shareholder meetings, and to the media. Participates in conferences and associations.

Appendix B: Published Definitions of Competence

Definition	Source
"(a) the state of being competent; ability; (b) sufficient means; sufficiency; (c) qualification or admissibility (in law)"	Funk and Wagnall's (1917) Referenced in Brown (1994, p. 290)
"…the demonstrated ability to apply knowledge and/or skills, and, where relevant, demonstrated personal attributes."	ISO/IEC: 17024 as cited in International Project Management Association (2006, p. 3)
"a condition of being capable; an ability to do; a behavioral description of workplace performance; doing rather than knowing or being taught"	Brown & McCartney (1995, p. 45)
"a generic knowledge, motive, trait, social role, or skill of a person linked to superior performance on the job"	Hayes (1979, p. 3)
"a personal characteristic that contributes to effective managerial performance"	Albanese (1989, p. 66)
"communication, involvement, and a deep commitment to working across organizational boundaries"	Prahalad and Hamel (1980, p. 82)
"any personal trait, characteristic or skill which can be shown to be directly linked to effective or outstanding job performance"	Boyatzis (1982, as cited in Boyatzis et al., 2002)
"the dynamic organizing structure of activity that allows a person to adapt to a class of situations on the basis of her experience, activity and practice"	Jonnaert et al. (2006, p. 15).
"A dynamic structure, firmly rooted in the person's experience and practice in situation"	Pastré (2004)
"the use, by a person in a given situation and context, of a diverse but coordinated group of resources; such use depends on the selection, mobilization and organization of these resources and the actions that they support in order to deal effectively with a situation)"	Jonnaert et al. (2005, as cited in Jonnaert et al. 2006, p. 16)
"…being able to perform a work role to a defined standard, with reference to real working environments."	IFAC (2002, p. 4).
"…a collection of knowledge, personal attitudes, skills and relevant experience needed to be successful in a certain function"	IPMA (2006, p.9)

Appendix C: Important Competencies for Modern Graduates (Jackson, 2010)

Competency Level	Competency	
Graduate level competencies	Application and use of technology Problem solving Decision management	Operating in organizational environment Multitasking
Higher level competencies	Project management Meeting Management	Coaching
Threshold competencies	Ethics and responsibility Written communication Information management Operating globally Intellectual ability Lifelong learning Disciplinary expertise	Business acumen Work experience Numeracy Professionalism/work ethic Accountability Life Experience
Distinguishing competencies	Oral communication Team working Organizational skills Interpersonal skills Continuous improvement management Meta-cognition Cultural and diversity management Autonomy Critical thinking Leadership skills	Initiative Adaptability and change management Emotional intelligence Political skill Self-efficacy Reliability Stress tolerance Attention to detail Entrepreneurship Creativity

Appendix D: CMA Survey Instrument

CMA Meta-Competency Survey

This is a study in competency development in professionals that is being conducted by Mark T. Morpurgo, a student in the Doctor of Business Administration program at Athabasca University. The purpose of this study is to examine how a professional accounting education program contributes to the higher-level competencies required of a designated professional.

What will be done:
You will complete a survey, which will take 30-40 minutes to complete. The survey includes questions about your education and work history and about your perceptions of the importance of higher-level competencies to your current job and to your future career. Other questions pertain to how your professioanl accounting education program (which combines both formal learning and work experience) contributed to your development of these higher-level competencies. A similar but shorter survey will be completed by your immediate supervisor to obtain his/her perceptions of the importance of higher-level competencies to your job and future career.

Benefits of this Study:
You will be contributing to knowledge about the development of higher-level competencies in business professionals, and more specifically professional accountants in Canada. Your contribution to this study will also result in a donation of $2.00 to support the important work of World Vision Canada. You will also be entered into a draw to win an iPad Mini.

Risks or discomforts:
No risks or discomforts are anticipated from taking part in this study. You can withdraw from the study at any time. If you decide not to complete the survey your answers will NOT be recorded.

Confidentiality:
Your responses will be kept completely confidential. Your IP address will NOT be tracked when you respond to the Internet survey. You will be asked to enter the unique participant code provided to you by the researcher and only the participant code will appear with your survey responses. Only the researcher will see your individual survey responses. The surveys will be conducted using Survey Monkey and all data collected will reside on servers located in the U.S. however, because of the use of unique identifier codes, NO PERSONALLY IDENTIFIABLE DATA WILL BE STORED on any third party computer or servers. For tracking of participation only, a list of names and e-mail addresses of our participants will be stored electronically in a password-protected folder. Once the data collection has been completed, all personally identifiable information will be destroyed.

Decision to quit at any time:
Your participation is voluntary; you are free to withdraw your participation from this study at any time. If you do not wish to continue, you can simply leave this website or click "Exit Survey" at the top of the screen. If you do not complete the survey, your answers and participation will not be recorded. Once you have completed and submitted the survey, a donation to World Vision Canada will be made.

How the findings will be used:
The results of the study will be used for scholarly purposes only. The results from the study will be presented in educational settings and at professional conferences, and the results may be published in professional journals in the fields of management, business and accounting education.

Contact information:
If you have concerns or questions about this study, please contact: Mark T. Morpurgo at mark@morpurgo.ca; the Athabasca University Research Ethics Committee Chairperson, Dr. Fathi Elloumi at fathie@athabascau.ca; or the student's supervisor Dr. Janice Thomas at janicet@athabascau.ca.

By clicking the "Next" button below to begin this survey, you acknowledge that you have read this information and agree to participate in this research, with the knowledge that you are free to withdraw your participation at any time without penalty.

1. Please enter participation validation code that was provided to you in the email with the link to this survey.

The questionnaire is divided into four sections: Education and work history, Business related meta-competencies, Work-

CMA Meta-Competency Survey

related skills, and background questions.

All the information given in this questionnaire will remain completely confidential. No personal or organizational details will be made public. Only members of the research team directly involved in the study will review each questionnaire.

Please answer the questions according to your experiences and knowledge gained during your CMA Professional Education Program which includes the CMA Strategic Leadership Program (SLP), the Prairie Region Executive CMA Program (ECMA), and the CMA for MBA program.

For each completed survey, $2.00 will be donated to World Vision Canada and you will be entered into a draw to win an iPad Mini.

2. In which year where you awarded your CMA designation?

- ○ 2013
- ○ 2012
- ○ 2011
- ○ 2010
- ○ 2009
- ○ 2008

3. Please select which CMA Professional Education Program you completed to obtain your CMA Designation.

- ○ CMA Strategic Leadership Program (SLP)
- ○ CMA Prairie Region Executive Program (ECMA)
- ○ CMA for MBA Program
- ○ Other (please specify)

4. What type of educational institution did you attend prior to entering the strategic leadership program?

(Please check all that apply)

- ☐ University
- ☐ University of Applied Sciences
- ☐ College
- ☐ Vocational or Technical Institute
- ☐ Other (please specify)

CMA Meta-Competency Survey

5. What academic degrees do you possess?

(Please check all that apply)

- ☐ Undergraduate Baccalaureate Business
- ☐ Undergraduate Applied Business
- ☐ Graduate Business / MBA
- ☐ Doctorate Business
- ☐ Other

Other (please specify)

The following questions utilize a 'sliding scale' in order for us to reach an accurate overview of your perspectives and experiences.

Please use your judgment to indicate to the strength of your opinion.

6. When you applied for your current position, was the CMA designation considered a job requirement?

- ○ Yes
- ○ No
- ○ I don't know

7. In general, how satisfied are you that your CMA professional education program (SLP, ECMA, or CMA for MBA) was suitable for your current occupational needs?

Very Dissatisfied			Neutral			Very Satisfied
○	○	○	○	○	○	○

8. In general, how satisfied are you with your job?

Very dissatisfied			Neutral			Very satisfied
○	○	○	○	○	○	○

9. About how long have you been in your current position?

- ○ 0 - 3 months
- ○ 4 - 6 months
- ○ 7 - 12 months
- ○ 1 - 3 years
- ○ 3 - 5 years
- ○ 5 - 10 years
- ○ greater than 10 years

CMA Meta-Competency Survey

Meta-competencies represent a dynamic combination of knowledge, understanding, skills, and abilities.

10. Can you remember a specific situation when you had to...

	Yes	No
Influence someone's point of view	○	○
Work closely with a team	○	○
Take a leading or coordinating role in a team	○	○
Organize a project or event by yourself	○	○

11. How satisfied are you with how you handled each of the these situations?

(If the situation is not applicable to you, please select "Not applicable" and go to the next line)

	Very dissatisfied			Neutral			Very satisfied	Not applicable
Influence someone's point of view	○	○	○	○	○	○	○	○
Work closely with a team	○	○	○	○	○	○	○	○
Take a leading or coordinating role in a team	○	○	○	○	○	○	○	○
Organize a project or event by yourself	○	○	○	○	○	○	○	○

CMA Meta-Competency Survey

12. Please indicate the extent to which you agree or disagree with the following statement: "The following meta-competencies are valuable when I perform my current job activities..."

	Strongly disagree			Neutral			Strongly agree	I don't know
INFLUENCING and PERSUADING (i.e. Ability to use communication and negotiation skills to positively influence individual behaviour)	○	○	○	○	○	○	○	○
TEAMWORK and RELATIONSHIP BUILDING (i.e. Ability to work in teams whilst utilizing appropriate interpersonal skills to build relationships with colleagues, team members and external stakeholders)	○	○	○	○	○	○	○	○
CRITICAL/ANALYTICAL (i.e. Ability to analyze problems and situations in a critical and logical manner)	○	○	○	○	○	○	○	○
SELF AND TIME MANAGEMENT (i.e. Ability to organize oneself, one's time effectively)	○	○	○	○	○	○	○	○
LEADERSHIP (i.e. Ability to take responsibility for a task, give direction, provide structure, and assign responsibility to others)	○	○	○	○	○	○	○	○
ABILITY TO SEE THE BIGGER PICTURE (i.e. Ability to see how things are interconnected; manifested by an ability to think about the business both strategically and operationally)	○	○	○	○	○	○	○	○
PRESENTATION (i.e. Ability to prepare and deliver effective presentations to different audiences)	○	○	○	○	○	○	○	○
COMMUNICATION (i.e. Ability to communicate clearly and concisely using a range of verbal and written methods)	○	○	○	○	○	○	○	○

CMA Meta-Competency Survey

13. Please indicate the extent to which you agree or disagree with the following statement: "I am capable of using the following meta-competencies in my current job"...

	Strongly disagree			Neutral			Strongly agree	I don't know
INFLUENCING and PERSUADING (i.e. Ability to use communication and negotiation skills to positively influence individual behaviour)	○	○	○	○	○	○	○	○
TEAMWORK and RELATIONSHIP BUILDING (i.e. Ability to work in teams whilst utilizing appropriate interpersonal skills to build relationships with colleagues, team members and external stakeholders)	○	○	○	○	○	○	○	○
CRITICAL/ANALYTICAL (i.e. Ability to analyze problems and situations in a critical and logical manner)	○	○	○	○	○	○	○	○
SELF AND TIME MANAGEMENT (i.e. Ability to organize oneself, one's time effectively)	○	○	○	○	○	○	○	○
LEADERSHIP (i.e. Ability to take responsibility for a task, give direction, provide structure, and assign responsibility to others)	○	○	○	○	○	○	○	○
ABILITY TO SEE THE BIGGER PICTURE (i.e. Ability to see how things are interconnected; manifested by an ability to think about the business both strategically and operationally)	○	○	○	○	○	○	○	○
PRESENTATION (i.e. Ability to prepare and deliver effective presentations to different audiences)	○	○	○	○	○	○	○	○
COMMUNICATION (i.e. Ability to communicate clearly and concisely using a range of verbal and written methods)	○	○	○	○	○	○	○	○

CMA Meta-Competency Survey

14. Can you remember a specific situation when you had to...

	Yes	No
Demonstrate knowledge of the company's business at a strategic level	○	○
Write a business report in a very clear and concise manner	○	○
Deliver a presentation in front of a group	○	○
Critically analyze a difficult problem in order to identify causes and offer alternative solutions	○	○

15. How satisfied are you with how you handled each of these situations?

(If the situation is not applicable please select "Not applicable" and go to the next line.)

	Very dissatisfied			Neutral			Very satisfied	Not applicable
Demonstrate knowledge of the company's business at a strategic level	○	○	○	○	○	○	○	○
Write a business report in a very clear and concise manner	○	○	○	○	○	○	○	○
Deliver a presentation in front of a group	○	○	○	○	○	○	○	○
Critically analyze a difficult problem in order to identify causes and offer alternative solutions	○	○	○	○	○	○	○	○

CMA Meta-Competency Survey

16. Please indicate the extent to which you agree with the following statement:
"The following meta-competencies are relevant to the my future career development"...

	Strongly disagree			Neutral			Strongly agree	I don't know
INFLUENCING and PERSUADING (i.e. Ability to use communication and negotiation skills to positively influence individual behaviour)	○	○	○	○	○	○	○	○
TEAMWORK and RELATIONSHIP BUILDING (i.e. Ability to work in teams whilst utilizing appropriate interpersonal skills to build relationships with colleagues, team members and external stakeholders)	○	○	○	○	○	○	○	○
CRITICAL/ANALYTICAL (i.e. Ability to analyze problems and situations in a critical and logical manner)	○	○	○	○	○	○	○	○
SELF AND TIME MANAGEMENT (i.e. Ability to organize oneself, one's time effectively)	○	○	○	○	○	○	○	○
LEADERSHIP (i.e. Ability to take responsibility for a task, give direction, provide structure, and assign responsibility to others)	○	○	○	○	○	○	○	○
ABILITY TO SEE THE BIGGER PICTURE (i.e. Ability to see how things are interconnected; manifested by an ability to think about the business both strategically and operationally)	○	○	○	○	○	○	○	○
PRESENTATION (i.e. Ability to prepare and deliver effective presentations to different audiences)	○	○	○	○	○	○	○	○
COMMUNICATION (i.e. Ability to communicate clearly and concisely using a range of verbal and written methods)	○	○	○	○	○	○	○	○

CMA Meta-Competency Survey

17. How important was your practical experience/work-based learning (i.e. internship, work placement, etc.) to successfully completing your CMA professional education program (SLP, ECMA, or CMA for MBA)?

Not important			Neutral			Very important
○	○	○	○	○	○	○

18. Has your practical experience/work-based learning (i.e. internship, work placement, etc.) made you more successful at work?

- ○ Yes
- ○ No

19. Please indicate how important your practical experience/work-based learning was to the development or improvement of your meta-competencies.

	Not important			Neutral			Very important
Influencing and Persuading	○	○	○	○	○	○	○
Teamwork and relationship building	○	○	○	○	○	○	○
Critical/analytical	○	○	○	○	○	○	○
Self and time management	○	○	○	○	○	○	○
Leadership	○	○	○	○	○	○	○
Ability to see the bigger picture	○	○	○	○	○	○	○
Presentation	○	○	○	○	○	○	○
Communication	○	○	○	○	○	○	○

20. How important was the CMA professional education program (SLP, ECMA, or CMA for MBA) in contributing to your success at work?

Not important			Neutral			Very important
○	○	○	○	○	○	○

CMA Meta-Competency Survey

21. Please indicate the extent to which you agree or disagree with the following statement:

"The formal component of your CMA professional education program (i.e. interactive sessions, evaluations, cases, and examinations) contributed to your development of the following meta-competencies."

	Strongly disagree			Neutral			Strongly agree	I don't know
Influencing and Persuading	○	○	○	○	○	○	○	○
Teamwork and relationship building	○	○	○	○	○	○	○	○
Critical/analytical	○	○	○	○	○	○	○	○
Self and time management	○	○	○	○	○	○	○	○
Leadership	○	○	○	○	○	○	○	○
Ability to see the bigger picture	○	○	○	○	○	○	○	○
Presentation	○	○	○	○	○	○	○	○
Communication	○	○	○	○	○	○	○	○

22. To what extent were the following components of your CMA professional education program (SLP, ECMA or CMA for MBA) important to your development or improvement of meta-competencies?

	Not important			Neutral			Very important	I don't know
Management reports and assignments	○	○	○	○	○	○	○	○
Facilitated residency sessions	○	○	○	○	○	○	○	○
Activities within residency sessions	○	○	○	○	○	○	○	○
Moderators	○	○	○	○	○	○	○	○
Case Examination	○	○	○	○	○	○	○	○
Written Board Report	○	○	○	○	○	○	○	○
Board Report Presentation	○	○	○	○	○	○	○	○

Other (please specify with ranking from 1=not important to 7=very important)

CMA Meta-Competency Survey

23. Did you participate in any extra-curricular activities (e.g. volunteer work, mentoring, sports, etc.) during your CMA professional studies?

- ○ Yes
- ○ No

24. Please indicate the extent to which you agree or disagree with the following statement:

"Participation in extracurricular activities contributed to your development of the following meta-competencies..."

	Stongly disagree			Neutral			Stongly agree	I don't know
Influencing and Persuading	○	○	○	○	○	○	○	○
Teamwork and relationship building	○	○	○	○	○	○	○	○
Critical/analytical	○	○	○	○	○	○	○	○
Self and time management	○	○	○	○	○	○	○	○
Leadership	○	○	○	○	○	○	○	○
Ability to see the bigger picture	○	○	○	○	○	○	○	○
Presentation	○	○	○	○	○	○	○	○
Communication	○	○	○	○	○	○	○	○

25. Please identify which learning environment you feel contributed MOST to your development of each of the following meta-competencies.

	CMA Professional Education Program (SLP, ECMA, or CMA for MBA)	Work Experience	Extracurricular Activities	Neither
Influencing and Persuading	○	○	○	○
Teamwork and Relationship Building	○	○	○	○
Critical/Analytical	○	○	○	○
Self and Time Management	○	○	○	○
Leadership	○	○	○	○
Ability to see the bigger picture	○	○	○	○
Presentation	○	○	○	○
Communication	○	○	○	○

CMA Meta-Competency Survey

26. What is your age?

- Up to and including 20 years old
- between 21 and 25 years old
- between 26 and 30 years old
- between 31 and 35 years old
- between 36 and 40 years old
- between 41 and 45 years old
- between 46 and 50 years old
- older than 50 years
- prefer not to say

27. What is your gender?

- Female
- Male
- Prefer not to say

28. What is your annual gross income

- Less than $40,000
- between $40,000 and $49,999
- between $50,000 and $59,999
- between $60,000 and $69,999
- between $70,000 and $89,999
- between $90,000 and $139,999
- between $140,000 and $199,999
- $200,000 or more
- prefer not to say

29. What is your job title?

CMA Meta-Competency Survey

30. What is your level of responsibility with your organization?

- ○ Entry / Technical Accounting
- ○ Technical / Support
- ○ Supervisory / Junior Management
- ○ Senior
- ○ Executive / Partner
- ○ Other (please specify)

31. What is the size of your organization?

- ○ Micro (1-4 employees)
- ○ Small (5-99 employees)
- ○ Medium (100-499 employees)
- ○ Large (500 + employees)

32. In which industry does your organization operate?

- ○ MANUFACTURING (e.g. Food and beverages, textiles, leather, wood, paper, metal, chemicals, etc.)
- ○ WHOLESALE AND RETAIL TRADE (e.g. Wholesale and retail trade of green, food, agricultural products, clothing, motor vehicles, etc.)
- ○ FINANCIAL INTERMEDIATION (e.g. Banking, insurance and pension funding, security brokering and fund management, etc.)
- ○ REAL ESTATE, RENTING (e.g. buying and selling of real estate, renting of machinery and equipment, renting of personal goods and office equipment, etc.)
- ○ BUSINESS RELATED ACTIVITIES (e.g. computer and related activities, research and development, legal activities, management consultancy, market research, other consulting activities, etc.)
- ○ TELECOMMUNICATIONS (e.g. Telephone, internet, cellular provider, etc.)
- ○ HEALTH CARE (e.g. Health administration, health related services, etc.)
- ○ EDUCATION (e.g. Primary and secondary education administration, post-secondary instruction or administration, etc.)
- ○ NON-PROFIT (e.g. Registered/non-registered charity, etc.)
- ○ PUBLIC ACCOUNTING SERVICES (e.g. compilation and review engagements, audit and assurance services, personal and/or corporate taxation services, etc.)
- ○ GOVERNMENT, PUBLIC ADMINISTRATION, DEFENSE (e.g. General public service activities, social security, public security, law and order activities, foreign affairs, community services, etc.)
- ○ OTHER (please specify)

CMA Meta-Competency Survey

33. Do you have any additional comments you would like to make?

Appendix E: Employer Survey Instrument

Supervisor Meta-Competency Survey

This is a study in competency development in professionals that is being conducted by Mark T. Morpurgo, a student in the Doctor of Business Administration program at Athabasca University. The purpose of this study is to examine how a professional accounting education program contributes to competency development.

What will be done:
You will complete a survey, which will take 20-30 minutes to complete. The survey includes questions about perceptions of the importance of higher-level competencies of a CMA whom you currently directly supervise, or directly supervised within the last six (6) months.

Benefits of this Study:
You will be contributing to knowledge about the development of higher-level competencies in business professionals, and more specifically professional accountants in Canada. Your contribution to this study will also result in a donation of $2.00 to support the important work of World Vision Canada. You will also be entered into a draw to win an iPad Mini.

Risks or discomforts:
No risks or discomforts are anticipated from taking part in this study. You can withdraw from the study at any time. If you decide not to complete the survey your answers will NOT be recorded.

Confidentiality:
Your responses will be kept completely confidential. Your IP address will NOT be tracked when you respond to the Internet survey. You will be asked to enter the unique participant code provided to you by the researcher and only the participant code will appear with your survey responses. Only the researcher will see your individual survey responses. The surveys will be conducted using Survey Monkey and all data collected will reside on servers located in the U.S. however, because of the use of unique identifier codes, NO PERSONALLY IDENTIFIABLE DATA WILL BE STORED on any third party computer or servers. For tracking of participation only, a list of names and e-mail addresses of our participants will be stored electronically in a password-protected folder. Once the data collection has been completed, all personally identifiable information will be destroyed.

Decision to quit at any time:
Your participation is voluntary; you are free to withdraw your participation from this study at any time. If you do not wish to continue, you can simply leave this website or click "Exit Survey" at the top of the screen. If you do not complete the survey, your answers and participation will not be recorded. Once you have completed and submitted the survey, a donation to World Vision Canada will be made.

How the findings will be used:
The results of the study will be used for scholarly purposes only. The results from the study will be presented in educational settings and at professional conferences, and the results may be published in professional journals in the fields of management, business and accounting education.

Contact information:
If you have concerns or questions about this study, please contact: Mark T. Morpurgo at mark@morpurgo.ca; the Athabasca University Research Ethics Committee Chairperson, Dr. Fathi Elloumi at fathie@athabascau.ca; or the student's supervisor Dr. Janice Thomas at janicet@athabascau.ca.

By clicking the "Next" button below to begin this survey, you acknowledge that you have read this information and agree to participate in this research, with the knowledge that you are free to withdraw your participation at any time without penalty.

1. Please enter participation validation code that was provided to you in the email with the link to this survey.

This questionnaire is divided into four sections: Introduction, business related meta-competencies, work-related skills, and background questions.

All the information given in this questionnaire will remain completely confidential. No personal or organizational details will be made public. Questionnaires will be reviewed only by members of the research team directly involved in the study and

Supervisor Meta-Competency Survey

not shared with anyone.

Please answer the questions according to your experiences of supervising the CMA with whom you have been paired to participate in this study.

For each completed survey, $2.00 will be donated to World Vision Canada and you will be entered in a draw to win an iPad Mini.

Thank you in advance for your participation.

The following questions utilize a 'sliding scale' in order for us to reach an accurate overview of your perspectives and experiences.

Please use your judgment to indicate to the strength of your opinion.

2. How long have you directly supervised the CMA?

- 0 - 3 months
- 4 - 6 months
- 7 - 12 months
- 1 - 3 years
- greater than 3 years

3. Did the CMA you currently supervise (or recently supervised) require a professional accounting qualification in order to obtain his/her current job?

- Yes
- No
- I don't know

The following questions utilize a 'sliding scale' in order for us to reach a more accurate overview of your perspectives and experiences.

Please use your judgment to indicate to the strength of your opinion.

Meta-competencies represent a dynamic combination of knowledge, understanding, skills, and abilities.

Supervisor Meta-Competency Survey

4. Can you remember a specific situation when the CMA you currently supervise (or recently supervised) ever had to...

	Yes	No
Influence someone's point of view	○	○
Work closely with a team	○	○
Take a leading or coordinating role in a team	○	○
Organize a project or event by him/herself	○	○

5. How satisfied are you with how the CMA handled each of the these situations?

(If the situation is not applicable to you, please select "Not applicable" and go to the next line.)

	Very dissatisfied			Neutral			Very satisfied	Not applicable
Influence someone's point of view	○	○	○	○	○	○	○	○
Work closely with a team	○	○	○	○	○	○	○	○
Take a leading or coordinating role in a team	○	○	○	○	○	○	○	○
Organize a project or event by him/herself	○	○	○	○	○	○	○	○

Supervisor Meta-Competency Survey

6. Please indicate the extent to which you agree or disagree with the following statement: "The following meta-competencies are VALUABLE for the CMA's job performance..."

	Strongly disagree			Neutral			Strongly agree	I don't know
INFLUENCING and PERSUADING (i.e. Ability to use communication and negotiation skills to positively influence individual behaviour)	○	○	○	○	○	○	○	○
TEAMWORK and RELATIONSHIP BUILDING (i.e. Ability to work in teams whilst utilizing appropriate interpersonal skills to build relationships with colleagues, team members and external stakeholders)	○	○	○	○	○	○	○	○
CRITICAL/ANALYTICAL (i.e. Ability to analyze problems and situations in a critical and logical manner)	○	○	○	○	○	○	○	○
SELF AND TIME MANAGEMENT (i.e. Ability to organize oneself, one's time effectively)	○	○	○	○	○	○	○	○
LEADERSHIP (i.e. Ability to take responsibility for a task, give direction, provide structure, and assign responsibility to others)	○	○	○	○	○	○	○	○
ABILITY TO SEE THE BIGGER PICTURE (i.e. Ability to see how things are interconnected; manifested by an ability to think about the business both strategically and operationally)	○	○	○	○	○	○	○	○
PRESENTATION (i.e. Ability to prepare and deliver effective presentations to different audiences)	○	○	○	○	○	○	○	○
COMMUNICATION (i.e. Ability to communicate clearly and concisely using a range of verbal and written methods)	○	○	○	○	○	○	○	○

Supervisor Meta-Competency Survey

7. Please indicate the extent to which you agree or disagree with the following statement: "The CMA you currently supervise (or recently supervised) is CAPABLE of using the following competencies in his/her job..."

	Strongly disagree			Neutral			Strongly agree	I don't know
INFLUENCING and PERSUADING (i.e. Ability to use communication and negotiation skills to positively influence individual behaviour)	○	○	○	○	○	○	○	○
TEAMWORK and RELATIONSHIP BUILDING (i.e. Ability to work in teams whilst utilizing appropriate interpersonal skills to build relationships with colleagues, team members and external stakeholders)	○	○	○	○	○	○	○	○
CRITICAL/ANALYTICAL (i.e. Ability to analyze problems and situations in a critical and logical manner)	○	○	○	○	○	○	○	○
SELF AND TIME MANAGEMENT (i.e. Ability to organize oneself, one's time effectively)	○	○	○	○	○	○	○	○
LEADERSHIP (i.e. Ability to take responsibility for a task, give direction, provide structure, and assign responsibility to others)	○	○	○	○	○	○	○	○
ABILITY TO SEE THE BIGGER PICTURE (i.e. Ability to see how things are interconnected; manifested by an ability to think about the business both strategically and operationally)	○	○	○	○	○	○	○	○
PRESENTATION (i.e. Ability to prepare and deliver effective presentations to different audiences)	○	○	○	○	○	○	○	○
COMMUNICATION (i.e. Ability to communicate clearly and concisely using a range of verbal and written methods)	○	○	○	○	○	○	○	○

Supervisor Meta-Competency Survey

8. Can you remember a specific situation where the CMA you currently supervise (or recently supervised) ever had to...

	Yes	No
Demonstrate knowledge of the company's business at a strategic level	○	○
Write a business report in a very clear and concise manner	○	○
Deliver a presentation in front of a group	○	○
Critically analyze a difficult problem in order to identify causes and offer alternative solutions	○	○

9. How satisfied are you satisfied with how the CMA handled each of the these situations?

(If the situation is not applicable, please select "Not applicable" and go to the next line)

	Very dissatisfied			Neutral			Very satisfied	Not applicable
Demonstrate knowledge of the company's business at a strategic level	○	○	○	○	○	○	○	○
Write a business report in a very clear and concise manner	○	○	○	○	○	○	○	○
Deliver a presentation in front of a group	○	○	○	○	○	○	○	○
Critically analyze a difficult problem in order to identify causes and offer alternative solutions	○	○	○	○	○	○	○	○

Supervisor Meta-Competency Survey

10. Please indicate the extent to which you agree or disagree with the following statement: "The following meta-competencies are RELEVANT to the CMA's future career development..."

	Strongly disagree			Neutral			Strongly agree	I don't know
INFLUENCING and PERSUADING (i.e. Ability to use communication and negotiation skills to positively influence individual behaviour)	○	○	○	○	○	○	○	○
TEAMWORK and RELATIONSHIP BUILDING (i.e. Ability to work in teams whilst utilizing appropriate interpersonal skills to build relationships with colleagues, team members and external stakeholders)	○	○	○	○	○	○	○	○
CRITICAL/ANALYTICAL (i.e. Ability to analyze problems and situations in a critical and logical manner)	○	○	○	○	○	○	○	○
SELF AND TIME MANAGEMENT (i.e. Ability to organize oneself, one's time effectively)	○	○	○	○	○	○	○	○
LEADERSHIP (i.e. Ability to take responsibility for a task, give direction, provide structure, and assign responsibility to others)	○	○	○	○	○	○	○	○
ABILITY TO SEE THE BIGGER PICTURE (i.e. Ability to see how things are interconnected; manifested by an ability to think about the business both strategically and operationally)	○	○	○	○	○	○	○	○
PRESENTATION (i.e. Ability to prepare and deliver effective presentations to different audiences)	○	○	○	○	○	○	○	○
COMMUNICATION (i.e. Ability to communicate clearly and concisely using a range of verbal and written methods)	○	○	○	○	○	○	○	○

Supervisor Meta-Competency Survey

11. In general, how satisfied are you with the CMA's job performance?

Very dissatisfied			Neutral			Very satisfied
○	○	○	○	○	○	○

12. Did the CMA supervised by you obtain his/her practical experience for his/her CMA designation while working in your organization?

- ○ Yes
- ○ No
- ○ I don't know

13. Do you consider the experiences gained by the CMA during his/her enrollment in the CMA professional education program (SLP, ECMA, or CMA for MBA) sufficient to satisfy the job requirements of his/her employment role?

- ○ Yes
- ○ No
- ○ I don't know

14. Are you aware if the CMA you currently supervise (or recently supervised) was involved in any extracurricular activities (eg. volunteer work, mentoring, sports, etc.) during his/her CMA studies?

- ○ Yes
- ○ No

15. Do you consider it an advantage for employees to have experiences gained through extracurricular activities?

- ○ Yes
- ○ No

Supervisor Meta-Competency Survey

16. What is your age?

- ○ Up to and including 20 years old
- ○ between 21 and 25 years old
- ○ between 26 and 30 years old
- ○ between 31 and 35 years old
- ○ between 36 and 40 years old
- ○ between 41 and 45 years old
- ○ between 46 and 50 years old
- ○ older than 50 years
- ○ prefer not to say

17. What is your gender?

- ○ Female
- ○ Male
- ○ Prefer not to say

18. What is your job title?

19. What is your level of responsibility with your organization?

- ○ Entry / Technical Accounting
- ○ Technical / Support
- ○ Supervisory / Junior Management
- ○ Senior
- ○ Executive / Partner
- ○ Other (please specify)

20. What is the size of your organization?

- ○ Micro (1-4 employees)
- ○ Small (5-99 employees)
- ○ Medium (100-499 employees)
- ○ Large (500 + employees)

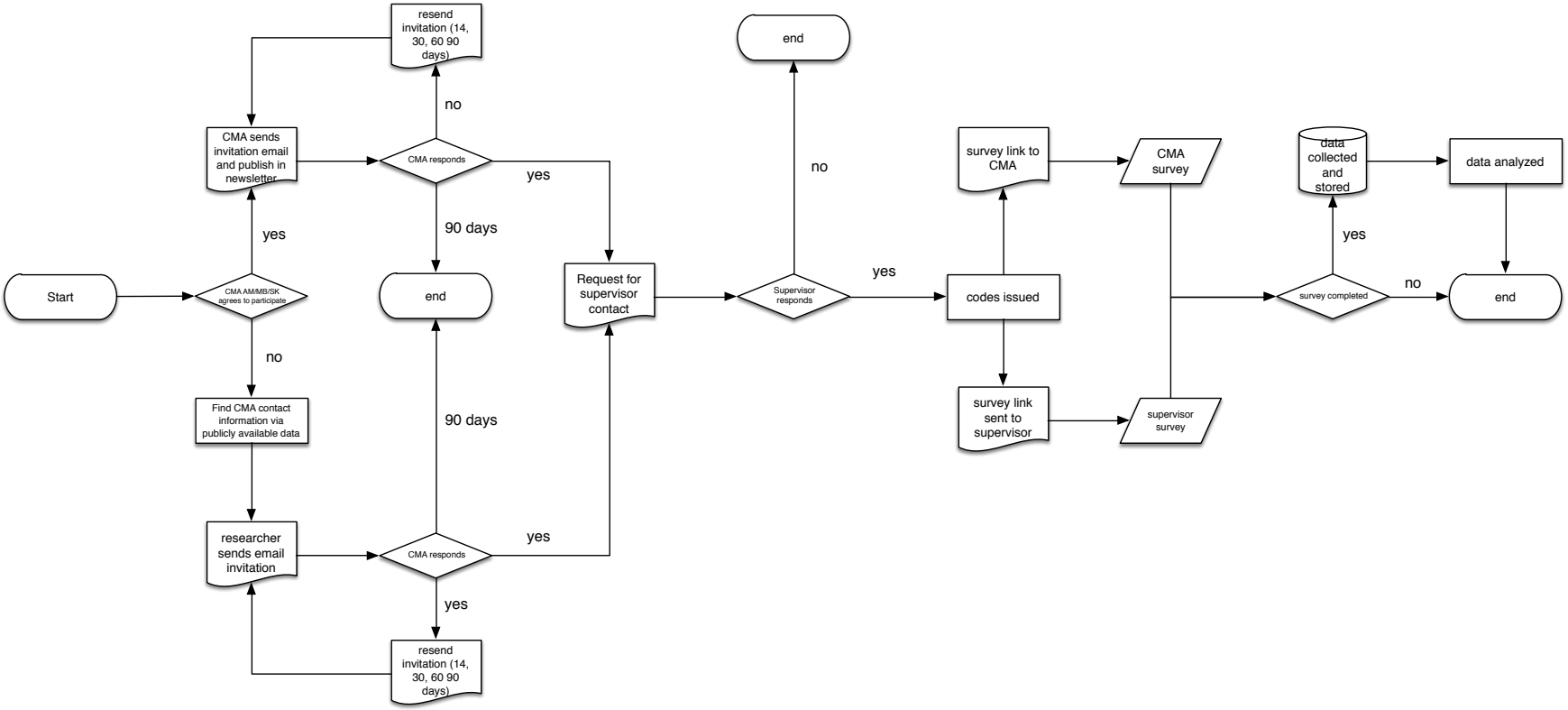
Supervisor Meta-Competency Survey

21. In which industry does your organization operate?

- MANUFACTURING (e.g. Food and beverages, textiles, leather, wood, paper, metal, chemicals, etc.)
- WHOLESALE AND RETAIL TRADE (e.g. Wholesale and retail trade of green, food, agricultural products, clothing, motor vehicles, etc.)
- FINANCIAL INTERMEDIATION (e.g. Banking, insurance and pension funding, security brokering and fund management, etc.)
- REAL ESTATE, RENTING (e.g. buying and selling of real estate, renting of machinery and equipment, renting of personal goods and office equipment, etc.)
- BUSINESS RELATED ACTIVITIES (e.g. computer and related activities, research and development, legal activities, management consultancy, market research, other consulting activities, etc.)
- TELECOMMUNICATIONS (e.g. Telephone, internet, cellular provider, etc.)
- HEALTH CARE (e.g. Health administration, health-related services, etc.)
- EDUCATION (e.g. Primary and secondary education administration, post-secondary instruction or administration, etc.)
- NON-PROFIT (e.g. Registered/non-registered charity, etc.
- PUBLIC ACCOUNTING SERVICES (e.g. compilation and review engagements, audit and assurance services, personal and/or corporate taxation services, etc.)
- GOVERNMENT, PUBLIC ADMINISTRATION, AND DEFENSE (e.g. General public service activities, social security, public security, law and order activities, foreign affairs, community services, etc.)
- Other (please specify)

22. Do you have any additional comments you would like to make?

Appendix F: Participant Protocol



Appendix G: Determination of Sample Size

Table G1

Sample Size Test Summary

Population Test	From Table	Sample size (SD_{est} = 1.50)	Sample size (SD_{act} = 1.13980)
1. Cross tabulations	F2	210	210
2. Means	F3	328	201
3. Proportions	F4	96	96
Desired sample size (highest test result)		328	210
Estimated proportion of population		14.6%	9.4%

Note. SD_{est} = Estimated standard deviation based on 7-point Likert; SD_{act} = Actual standard deviation based on 7-point Likert.

Table G2

Sample Size Test #1: Cross Tabulations on 7-Point Likert Scale

Maximum scale size	7
Maximum number of variables (based on number of provinces)	3
Largest possible crosstab	7 x 3 = 21
Crosstab sample size	21 x 10 = 210

Table G3

Sample Size Test #2: Estimated Samples Size Based: Means With Finite Population Based on Estimated and Actual Standard Deviations

	Estimated	Actual
Desired confidence level	95%	95%
Corresponding *z*-value to 95% confidence	$z = 1.96$	$z = 1.96$
Desired level of accuracy (precision)	±15%	±15%
Corresponding β-value to 15% accuracy	$\beta = 0.15$	$\beta = 0.15$
Estimate *SD*: $s = \frac{\text{range}}{4} = \frac{7-1}{4}$	$s = \frac{6}{4} = 1.50$	
Actual *SD*		1.13980
Population	$N = 2{,}234$	$N = 2{,}234$
Sample size	$n = 328$	$n = 202$
Proportion of population (%)	14.68%	9.04%
$\beta = z\sqrt{\left(\frac{N-n}{N}\right)\left(\frac{s^2}{n}\right)}$		
Actual sample size		224
Proportion of population (%)	14.68%	10.0%
Actual accuracy (Precision)		14.6%

Table G4

Population Test #3: Proportions (male/female)

Desired confidence level	95%
Corresponding *z*-value to 95% confidence	$z = 1.96$
Desired level of accuracy	±10%
Corresponding β-value to 10% accuracy	$\beta = 0.10$
Estimate	$p = q = 0.50$
Population	$N = 2{,}234$
Sample size	$n = 92$

$$\beta = z\sqrt{\left(\frac{N-n}{N}\right)\left(\frac{pq}{n}\right)};0.10 = 1.96\sqrt{\left(\frac{2{,}234-n}{2{,}234}\right)\left(\frac{(0.5)(0.5)}{n}\right)}$$

Table G5

Variable Average Standard Deviation

Variable	*SD*	Variable	*SD*	Variable	*SD*
JobPrepSat	1.34169	MC6Cap	0.90099	MC3CMADev	1.17017
JobSat	1.43662	MC7Cap	1.23869	MC4CMADev	1.47249
Sit1Sat	1.10351	MC8Cap	0.91639	MC5CMADev	1.27840
Sit2Sat	1.01673	MC1Rel	0.58462	MC6CMADev	1.28163
Sit3Sat	1.00925	MC2Rel	0.59033	MC7CMADev	1.12094
Sit4Sat	1.10604	MC3Rel	0.58569	MC8CMADev	1.25950
Sit5Sat	0.89268	MC4Rel	0.58746	CMAElement01	1.37533
Sit6Sat	0.86193	MC5Rel	0.53044	CMAElement02	1.40804
Sit7Sat	0.94361	MC6Rel	0.53596	CMAElement03	1.35111
Sit8Sat	0.74636	MC7Rel	0.73178	CMAElement04	1.32002
MC1Val	0.96887	MC8Rel	0.52538	CMAElement05	1.36640
MC2Val	0.96062	WorkExpCMA	1.59384	CMAElement06	1.19144
MC3Val	0.89986	MC1Exp	1.46783	CMAElement07	1.27446
MC4Val	0.99022	MC2Exp	1.33583	MC1ECA	1.57235
MC5Val	1.08032	MC3Exp	1.29591	MC2CA	1.20493
MC6Val	0.94357	MC4Exp	1.41240	MC3ECA	1.67335
MC7Val	1.34675	MC5Exp	1.43109	MC4ECA	1.30116
MC8Val	0.93902	MC6Exp	1.36646	MC5ECA	1.23650
MC1Cap	0.96707	MC7Exp	1.63597	MC6ECA	1.59305
MC2Cap	0.94075	MC8Exp	1.26418	MC7ECA	1.81244
MC3Cap	0.72510	CMAWorkSuccess	1.30477	MC8ECA	1.48774
MC4Cap	0.87859	MC1CMADev	1.46821	Average	1.13980
MC5Cap	0.99593	MC2CMADev	1.21596		

Appendix H: Ethics Approval

MEMORANDUM

Athabasca University
Canada's Open University

DATE: September 15, 2013

TO: Mark Morpurgo

COPY: Dr. Janice Thomas
Alice Tieulié, Acting Secretary, Athabasca University Research Ethics Board
Dr. Vive Kumar, Chair, Athabasca University Research Ethics Board

FROM: Dr. Fathi Elloumi, Chair, Faculty of Business Research Ethics Review Committee

SUBJECT: **Ethics Proposal FB-13-09M "Beyond competency: The role of professional education in the development of meta-competencies"**

Thank you for providing the additional information requested by the Faculty of Business Research Ethics Review Committee.

I am pleased to advise that the above-noted project has now been awarded **APPROVAL TO PROCEED**. **You may begin your research immediately.**

This approval of your application will be reported to the Athabasca University Research Ethics Board (AU REB) at their next monthly meeting. The AU REB retains the right to request further information, or to revoke the approval, at any time.

The approval for the study "as presented" is valid for a period of one year from the date of this memo. If required, an extension must be sought in writing prior to the expiry of the existing approval. **A Final Report is to be submitted when the research project is completed.** The reporting form can be found online at http://www.athabascau.ca/research/ethics/ .

As implementation of the proposal progresses, if you need to make any significant changes or modifications, please forward this information immediately to the Faculty of Business Research Ethics Review Committee Chair at fathie@athabascau.ca for further review.

If you have any questions, please do not hesitate to contact the Faculty of Business Research Ethics Review Committee Chair at fathie@athabascau.ca

Appendix I: Data Sources and Characteristics

Table I1

Invitation Summary by Province and Method of Contact

Contact method	Province			Total invitations	% of total invitations
	AB	SK	MB		
Direct email	74	12	9	95	7.4%
Facebook	72	34	64	180	14.1%
LinkedIn	**855**	**64**	**76**	**995**	**77.9%**
Referrals	-	-	6	6	0.5%
Total invitations	**1,007**	110	159	1,276	100.0%
Total population	1,637	365	232	2,234	
Total invitations as % of population	**61.5%**	30.1%	68.5%	57.1%	

Note. AB = Alberta; SK = Saskatchewan; MB = Manitoba

Table I2

Participant Summary by Province and Method of Contact

Contact method	Province			Total participants	% of total participants
	AB	SK	MB		
Direct email	21	15	7	43	19.2%
Facebook	8	1	1	10	4.5%
LinkedIn	134	14	19	167	74.5%
Referrals	4	–	–	4	1.8%
Total participants	167	30	27	224	
Total invitations	1,007	110	159	1,276	
Participants as % of invitations	16.6%	27.3%	16.9%	17.6%	
Population	1,637	365	232	2,234	
Participants as % of population	10.2%	8.2%	11.6%	10.0%	

Note. AB = Alberta; SK = Saskatchewan; MB = Manitoba.

Table I3

Summary of CMA Participation and Completion Rates

Province	CMA invitations extended	Willing CMA participants	Gross participation rate[a]	Completed surveys	Net Participation rate[b]
AB	1,007	204	20.3%	167	81.7%
SK	110	34	30.9%	30	88.2%
MB	159	30	18.9%	27	90.0%
Total	1,276	268	21.0%	224	83.6%

Note. AB = Alberta; SK = Saskatchewan; MB = Manitoba.
[a]Gross Particpation rate is calculated as the number of willing participants in each province divided by the number of invitations extended. [b]Net partition rate is calculated as the number of surveys completed in each province divided by the number of willing participants.

Table I4

Summary of Supervisor Completion and Participation Rates

Province	Willing supervisor participants	Abandoned surveys	Completed surveys	Completion rate[a]	Participation rate[b]
AB	34	2	28	82.4%	16.8%
SK	7		7	100.0%	23.3%
MB	4		4	100.0%	14.8%
	45	2	39	82.2%	17.4%

Note. AB = Alberta; SK = Saskatchewan; MB = Manitoba
[a]Completion rate is calculated as the number of completed surveys divided by the number of willing supervisor participants in each province. [b]Participation rate is calculated as the number of completed surveys divided by the number of completed CMA surveys (Column 5 in Table I3)

Table I5

Personal Demographic Data Characteristics

Personal Demographic variable	Population (N = 2,234)		Total sample (n = 224)		Unpaired sample (n_u = 185)		Paired sample (n_p= 39)	
	#	%	#	%	#	%	#	%
Age (Generation)[a]								
≤ 30 (Gen Y/Millennials)			63	28.1%	51	27.6%	12	30.8%
31 – 50 (Gen X)			142	63.4%	115	62.2%	27	43.6%
50 + (Boomer)			18	8.0%	18	9.7%	–	–
No response			1	0.4%	1	0.5%	–	–
Gender								
Female	1,031	46.2%	84	37.5%	63	34.1%	21	53.8%
Male	1,203	53.8%	140	62.5%	122	65.9%	18	46.2%
Program Completed								
SLP	1,892	84.7%	160	71.4%	129	69.7%	31	79.5%
CMBA	174	7.8%	22	9.8%	19	10.3%	3	7.7%
ECMA	168	7.5%	42	18.8%	37	20.0%	5	12.8%
Province								
AB	1637	76.3%	167	74.6%	136	73.5%	31	79.4%
SK	365	16.3%	30	13.4%	26	14.1%	4	10.3%
MB	232	10.4%	27	12.1%	23	12.4%	4	10.3%
Year of program completion								
2008	189	8.5%	13	5.8%	12	6.5%	1	2.6%
2009	317	14.2%	12	5.4%	10	5.4%	2	5.1%
2010	328	14.7%	30	13.4%	25	13.5%	5	12.8%
2011	481	21.5%	40	17.9%	30	16.2%	10	25.6%
2012	423	18.9%	59	26.3%	52	28.1%	7	17.9%
2013	496	22.2%	70	31.3%	56	30.3%	14	35.9%

Note: Percentages represent proportions of the total respective population or sample.

[a]Age data for the population were not attainable. Data were originally collected on eight age ranges; however, the ranges were recoded into three age ranges corresponding to Generations Y (Millennials), X, and Boomers.

Table I6

Work Demographic Data Characteristics

Work demographic variable	Total sample (n = 224) #	%	Unpaired sample (n_u = 185) #	%	Paired sample (n_p= 39) #	%
Organization size						
Micro (1 – 4 employees)	12	5.4%	10	5.4%	2	5.1%
Small (5 – 99 employees)	46	20.5%	40	21.6%	6	15.4%
Medium (100 – 499 employees)	49	21.9%	42	22.7%	7	18.0%
Large (500+ employees)	117	52.2%	93	50.3%	24	61.5%
Job responsibility level						
Entry level/support	42	18.8%	29	15.7%	13	33.3%
Intermediate supervisory/management	67	29.9%	53	28.6%	14	35.9%
Senior supervisory/management	67	29.9%	61	33.0%	6	15.4%
Executive/partner/self employed	46	20.5%	40	21.6%	6	15.4%
Instructor/professor[a]	2	0.9%	2	1.1%	–	–
Income						
< $69,999	30	13.4%	20	10.8%	10	25.6%
$70,000 – $89,999	65	29.0%	57	30.8%	8	20.5%
$90,000 – $139,999	75	33.5%	58	31.4%	17	43.6%
$140,000 – $199,999	21	9.4%	18	9.7%	3	7.7%
$200,000 +	15	6.7%	15	8.1%	–	–
No response	18	8.0%	17	9.2%	1	2.6%
Industry[b]						
Government/public services/non-profit	56	25.0%	45	24.3%	11	28.2%
Professional services/financial	57	25.4%	50	27.0%	7	17.9%
Energy/utilities	44	19.6%	32	17.3%	12	30.8%
Other	67	30.0%	58	31.4%	9	23.1%
Job Tenure						
0 – 1 year	80	35.7%	62	33.5%	18	46.1%
1 – 3 years	88	39.3%	72	38.9%	16	41.0%
3 – 5 years	28	12.8%	24	13.0%	4	10.3%
5 – 10 years	19	8.5%	19	10.3%	–	
> 10 years	8	3.6%	7	3.8%	1	2.6%
No response	1	0.4%	1	0.5%	–	

Note. [a]Instructor/professor was determined to not be an appropriate job level for data analysis purposes and was therefore omitted from any data analysis relating to job level. [b]Data was originally collected on 19 separate industries; however, the data were recoded into the five industry categories presented for data analysis.

Table I7

Additional CMA Program and Work Experience Characteristics

CMA program / work experience variable	Total sample (n = 224)		Unpaired sample (n_u = 185)		Paired sample (n_p= 39)	
	#	%	#	%	#	%
CMA designation required for job						
Yes	89	39.7%	76	41.1%	13	33.3%
No	133	59.4%	107	57.8%	26	66.7%
Do not know	2	0.9%	2	1.1%	–	
CMA program job preparation satisfaction[a]						
Dissatisfied	13	5.8%	12	6.5%	1	2.6%
Neutral	16	7.1%	12	6.5%	4	10.2%
Satisfied	195	87.1%	161	87.0%	34	87.2%
CMA Program contributes to success at work						
Not important	10	4.5%	9	4.9%	1	2.6%
Neutral	23	10.3%	22	11.9%	1	2.6%
Very important	191	85.3%	154	83.2%	37	94.8%
Job Satisfaction (recoded)[a]						
Dissatisfied	22	9.8%	17	9.2%	5	12.8%
Neutral	35	15.6%	29	15.7%	6	15.4%
Satisfied	167	74.6%	139	75.1%	28	71.8%
Work experience importance to CMA program completion						
Not important	29	12.9%	24	13.0%	5	12.8%
Neutral	28	12.5%	24	13.0%	4	10.3%
Important	167	74.6%	137	74.1%	30	76.9%
Work experience contributes to success at work						
Yes	184	82.1%	151	81.6%	33	84.6%
No	40	17.9%	34	18.4%	6	15.4%

Note. Percentages represent proportions of the total respective sample.

[a]CMA program job preparation satisfaction and job satisfaction data were originally collected using a 7-point Likert scale. The data have been recoded (1 – 3 = dissatisfied; 4 = neutral; 5 – 7 = satisfied) for data analysis as presented.