



Perceived Importance of Professional Competencies for Admission to the College of Kinesiologists of Ontario

Chad Prevost

School of Human Kinetics, Laurentian University
935 Ramsey Lake Rd, Sudbury, Ontario, Canada P3E 2C6
E-mail: crprevost@laurentian.ca

Georges Kpazaï (Corresponding author)

School of Human Kinetics, Laurentian University
935 Ramsey Lake Rd, Sudbury, Ontario, Canada P3E 2C6
E-mail: gkpazai@laurentian.ca

Kossivi Attiklemé

National Institute of Youth, Physical Education and Sports
University of Abomey-Calavi
01BP 169 INJEPS, Porto-Novo, Bénin
E-mail: attiklemkossivi@yahoo.fr

Received: 15-03- 2015

Accepted: 27-04- 2015

Published: 30-04- 2015

doi:10.7575/aiac.ijkss.v.3n.2p.30

URL: <http://dx.doi.org/10.7575/aiac.ijkss.v.3n.2p.30>

Abstract

Background: For more than a decade, the development of professional competencies has been at the heart of curriculum reforms in Education and Health care training worldwide. Reference documents of competencies have been developed in Australia (Brownie, Thomas, McAllister, & Groves, 2014), Canada (Boucher & Ste-Marie, 2013; Royal College of Physicians and Surgeons of Canada, 2005), United-States (Hurd & Buschbom, 2010), and in Europe (Battel-Kirk, Van der Zanden & al., 2012). In most of these reference documents, the number of professional competencies that a professional must acquire does not exceed twenty. However, in the field of kinesiology, the College of Kinesiologists of Ontario (CKO) (2013) has defined 54 professional competencies required for admittance to the College. **Objective:** The purpose of this research project aims to identify, from the standpoint of university instructors who teach in a kinesiology program, the professional competencies that are considered the 17 most relevant from those suggested by CKO. **Methodology:** Participants (N=23) were required to complete an online survey on the domain www.SurveyMonkey.com in order to determine the competencies deemed most important by them. **Results:** The quantitative data obtained through the use of the surveys allowed for a list of 17 competencies to be retained at the end of the study. The qualitative data provided by the participants supported and complemented the quantitative data. **Conclusion:** The competencies retained in this study undoubtedly represented the views of all the participants in regards to the essential competencies that a kinesiologist should be able to demonstrate upon admission to the College of Kinesiologists of Ontario.

Keywords: Professional competencies, Curriculum, Kinesiology

1. Introduction

1.1 Kinesiology as a Regulated Health Profession

Recently regulated in the spring of 2013 under the *Regulated Health Professions Act (RHPA), 1991* (Ontario Kinesiology Association, 2014), the health profession of kinesiology has widely contributed to the enhancement of health care in multiple communities across Ontario. Registered kinesiologists are creating paths towards improved health care by intervening in rehabilitation to maintain the health of individuals while assessing the needs of people who present with a variety of conditions (HPRAC, 2006). However, due to its recent regulation under RHPA, 1991, the health profession of kinesiology still remains a cloudy domain for much of the general population. The question remains: what exactly is kinesiology?

In an academic environment, the speciality of kinesiology is to focus on physical activity and incorporate knowledge from three sources including: 1) experiencing physical activity, 2) studying the theoretical and conceptual bases of physical activity and, 3) professional practice centered on physical activity (Hoffman & Harris, 2000); as well as its impact on health, society, and quality of life (Chodzko-Zajko, 2014). With respect to the Ontario legislation, however, the province of Ontario's Kinesiology Act 2007 defines kinesiology as being "the assessment of human movement and performance and its rehabilitation and management to maintain, rehabilitate or enhance movement and performance

(Service Ontario, *Province of Ontario's Kinesiology Act*, 2007, c. 10, Sched. O, s. 3). The Ontario Kinesiology Association (OKA) also defined the practice of kinesiology as being “the assessment of movement, performance and function and the rehabilitation, prevention and management of disorders to maintain, rehabilitate or enhance movement, performance and function, in the areas of sport, recreation, work, exercise, and activities of daily living” (Ontario Kinesiology Association, 2014).

To legally practice in Ontario, kinesiologists must be registered under the College of Kinesiologists of Ontario. Since much of the general population is not familiar with the field of kinesiology, they are also unaware of the numerous roles kinesiologists hold as well as the settings in which they practice. Kinesiologists intervene in many settings including, but not limited to, cardiac rehabilitation, insurance situations, long-term care, hospital environments, and community health care. Kinesiologists may also participate in functional assessments, personal training, and ergonomics. Essentially, kinesiologists “assess human movement and implement strategies to promote the general function and health of the public as well as to help prevent injury and disease” (HPRAC, 2006).

Registration with the College of Kinesiologists allows kinesiologists to legally practice in Ontario. Regulation of the profession of kinesiology, as with all other health professions, was put in place to protect the public. Regulation also ensures a specific baseline of standards to provide adequate, trained and, competent professionals. In total, HPRAC recommended eight factors for the regulation of kinesiology which are: the risk of harm in the practice of the profession, a significant lack of supervision, the willingness of practitioners to be regulated, public interest, an increasing demand for kinesiologists, the contribution of kinesiologists to workplace safety, health promotion and prevention, and protection of consumers and the public by making kinesiologists more accountable to patients and clients (HPRAC, 2006).

1.2 Competencies in the Health Professions

1.2.1 The purpose of competencies

Every time a health profession becomes regulated, professionals must become competent in order to demonstrate sufficient competencies in their health sector. In a professional context, Hurd and Buschbom (2010) defined competencies as the skills, knowledge, and personal characteristics needed for successful performance in a job (Hurd & Buschbom, 2010).

In 2012, Fernandez & al. conducted a systematic review of medical education journals to extricate definitions of competence or to identify the author's interpretation of competence. Their results indicated that competencies are defined by three broad categories: components of competence, roles of competence, and the purpose of competence. As in Hurd and Buschbom's (2010) definition of competence, Fernandez & al. (2012) determined that the majority of the definitions included knowledge and skill as the two main components of competence. According to their findings, a defining concept of competence is that it enables someone to do something adequately or successfully, and that the purpose of competence is to provide a guarantee to the community and society that the possessor will be able to perform to acceptable standards (Fernandez & al., 2012). Competent practitioners are critical, from a practical and service perspective, as patients are unable to interview or screen their own healthcare providers, just as they do not always have control over their medical situation. Therefore, the patients trust that there are guidelines and mechanisms in place to identify competent behaviour by employees (Dawes, 1999).

1.2.2 Competencies in health promotion

In 2008, Trevor Shilton of the Western Australian Centre for Health Promotion & al. (2008) conducted a study to determine perceptions regarding the ability and uses of competencies in health promotion. Their research concluded with a recommendation for eight possible roles of competencies in health promotion. The eight uses are: clarification of definitions of health promotion, informing advocacy for health promotion, clarification of job roles, personnel and human resource management uses of competencies for employers, building health promotion capacity in the health workforce, assisting job seekers gain employment in health promotion, developing and revising tertiary education courses, and providing a framework for credentialing in health promotion (Shilton & al., 2008). Of the eight uses of competencies, only the latter two are of interest for this research thesis because of their involvement in the education domain.

1.2.3 Competencies in physical and health education

In physical and health education, researchers Žvan and Lešnik (2014) of the University of Ljubljana, Slovenia, listed eight key competencies to assist in creating competent teachers. Their research involved developing a competence profile entitled the *PE Teacher Competence Profile* (Žvan & Lešnik, 2014) to improve the teacher framework by guiding teachers to establish desired competencies. In brief, their eight competencies include communication in mother tongue, communication in foreign languages, numeric imagination and competencies in mathematics, natural sciences and technology, digital competence, learning to learn, social and civil competencies, innovativeness and entrepreneurship, and cultural awareness and expression (Žvan & Lešnik, 2014). Essentially, those eight key competencies should lead to the formation of proficient and flexible educators capable of adapting, overcoming unpredictable changes or situations to resolve a problem efficiently, and to work with students of differing backgrounds, capabilities, and needs.

1.2.4 Competencies in occupational and health therapy

Like many other health professions, there has been an increased need for frameworks to guide educational programs and professional expectations (Merritt & al., 2012). Similar to the *Kinesiologist Core Competency Profile* put in place

by CKO, the Association of Canadian Occupational Therapists Regulatory Organizations (ACOTRO) created their own publication containing a variety of competencies utilized by occupational therapists in Canada. The *Essential Competencies of Practice for Occupational Therapists in Canada (3rd Ed.)* is a compilation of proposed competencies which best represent the required competencies needed to successfully perform at a professional level. ACOTRO describes it as what is seen and heard in day-to-day occupational therapy practice when a competent occupational therapist demonstrates the appropriate knowledge, skills, and attitudes for the occupational therapy practice context in Canada (ACOTRO, 2011). Generally speaking, the competency profile created by ACOTRO assures that a regulated occupational therapist is competent, has a professional judgement, utilizes critical thinking for responsible decisions, has a client-centered approach, and makes use of all other competencies listed in the profile. The guide also reflects the standards, regulations, guidelines, codes of ethics, and bylaws for practice in a given jurisdiction (ACOTRO, 2011). In total, there are seven categories containing a total of 35 competencies for occupational therapists that were listed, ranging from critical thinking to professional development. ACOTRO also listed five other units forming 14 competencies necessary for occupational therapists in a nonclinical setting. However, the *Essential Competencies of Practice for Occupational Therapists in Canada (3rd Ed.)* is not solely for use by registered occupational therapists. This guide can contribute to unions, professional associations, students, occupational education programs, and many more. In their article, Merritt & al. (2012) share the position of Verma & al., (2006), stating that “since these competencies can be beneficial for occupational education programs and that they may serve as a foundation for the requirements for entry into the profession of occupational therapy, it is possible that they may also provide a foundation for evaluating the curricula within Canadian occupational therapy educational programs” (page 176). Merritt & al. (2012)’s study also provides an innovative methodological approach to curriculum evaluation and highlights the initial usefulness of the ACOTRO competencies as a benchmark against which the curricula can be compared. Based on Merritt & al. (2012)’s study, the Dalhousie School of Occupational Therapy also used a competency-based approach to create their graduate-level curriculum. In total, they developed seven core competencies that would guide curriculum development and design (Merritt & al., 2012)

1.3 Competencies in education curriculum training and credentialing

As previously mentioned above, Shilton & al. (2008) stated competencies as being an important element in developing and revising tertiary education courses and providing a framework for credentialing in health promotion. As part of developing and revising tertiary education courses, Shilton & al. (2008) proposed that course development, evaluation, and revision might benefit from the use of competencies. Specifically, competencies play a role in the identification of overall course and subject objectives, as well as providing options for selection of content for those courses and aiding in the development of individual course assessment. According to Shilton & al. (2008), a set of health promotion competencies can be used to assess existing health promotion academic courses, especially in a bachelors’ degree program. A university may also use this process as a means of quality control to review and assess the course objectives, the individual learning outcomes, subject content, and unit assessment tasks (Shilton & al., 2008). The researchers also suggested that competencies can also “provide a framework for commencing a process of credentialing for health promotion professionals” (Shilton & al., 2008).

If we look to what was previously mentioned, many of the health professions contain anywhere from 5 to 54 competencies. As for an appropriate amount of essential competencies needed for health professions, there has been little research done, specifically on an acceptable number of competencies. The study on competencies needed by chief executive officers in YMCAs by Hurd and Buschbom (2012) produced 5 key competencies and Žvan and Lešnik (2014) found eight key competencies for the *PE Teacher Competence Profile*. While Shilton & al (2008) did not provide a specific number of required competencies, they did indicate that there are eight roles, which competencies could be used for. Similarly to them, ACOTRO and CKO both indicated a number of categories to aid in the identification of competencies. ACOTRO listed seven categories for occupational therapists, while also including five categories for those in a nonclinical setting, whereas CKO listed five domains to differentiate their competencies. However, both of these organizations went a step further in providing the exact number of competencies given in their competency profiles, with ACOTRO having 35 and 14 competencies for occupational therapists and those in a non clinical setting, respectively. CKO also established 54 essential key competencies for the entry-to-level practice. However, this leads us to wonder what number of competencies is too little, and how many is too much? The difficulty in providing an exact and appropriate number of competencies is explained in a study by Desbiens, Alem, & Oddson (2014). They indicated that there are multiple political, conceptual, methodological, didactical, and pedagogical challenges which all play a role in the development of a frame of reference for competencies (Desbiens, Alem & Oddson, 2014). They also state that it is unknown how to directly measure competencies and how to produce a reliable frame of reference. Future research should focus on determining how to directly measure competencies while accounting for multiple variables that influence upon them.

1.4 Becoming a competent kinesiologist in Ontario

In Ontario, one must be registered under the College of Kinesiologists of Ontario (CKO) in order to practice in kinesiology and use the title “kinesiologist”. The College is mandated under the government of Ontario “to establish the registration requirements necessary for competent, safe and ethical practice so that only qualified individuals are admitted into the profession (College of Kinesiologists of Ontario, 2013). Applicants to the college must therefore meet the entry-to-practice requirements.

In order for applicants to be properly prepared for the entry-to-practice examination, CKO has put together the *Kinesiologist Core Competency Profile*. This profile is a compilation of validated statements or competencies that describes the performance required to demonstrate competence in the role of kinesiologist at the entry-to-practice level (CKO, 2013). In total, the *Kinesiologist Core Competency Profile* consists of 54 set competencies, separated into five professional domains: knowledge, kinesiology practical experience, professionalism/professional practice, communication and collaboration, and professional development (CKO, 2013).

1.5 Purpose of the study

The purpose of this research project, which is the first step in a two-step project, aims to identify, from the university teachers who teach in the programs of the bachelors' degree in kinesiology, the professional competencies that they consider the most important out of the list of the 54 competencies suggested by the College of Kinesiologists of Ontario. At the end of this study, a list of professional skills deemed to be more important will be retained, and its use could facilitate the construction and development of these key skills in initial training and curriculum formation at the Bachelors' degree level. The second part of the two-step project will be determining methods to utilize those 17 essential competencies that resulted from the first study and incorporate them into the curriculum for the Bachelors' of Science in Kinesiology program at Laurentian University to better educate and prepare the students for the entry-level examination set forth by the CKO.

2. Methods

2.1 Participants

The participants for this study consisted of university professors, laboratory technologists, and physical activity course instructors who teach in the Bachelors' Degree of Science in Kinesiology program or who intervene in the education of a post-secondary kinesiology student. A total of 23 participants completed the survey, with the remaining two not completing the survey. Seventeen participants were full-time or part-time professors and lecturers while the remaining six participants were either physical activity course instructors, laboratory technologists or both. Table 1 represents Hoffman & Harris' spheres of scholarly study for each participant (Hoffman, J. & Harris, J., 2000).

Demographically speaking, thirteen participants were members of the Laurentian University faculty while the remaining ten were faculty of other universities across Ontario. In total, five participants had between six to ten years of work experience and eighteen participants had work experience greater than ten years. Sixteen participants were male and seven participants were female.

Table 1. List of the areas of interventions of each participant.

Biophysical Sphere	
Area of intervention	Number of participants
Biomechanics of physical activity	3
Ergonomics of physical activity	2
Physiology of physical activity	3
Anatomy of physical activity	0
Traumatology of physical activity	2
Other:	1
• Clinical exercise physiology and bone physiology	
Sociocultural Sphere	
Area of intervention	Number of participants
History of physical activity	1
Philosophy of physical activity	0
Sociology of physical activity	2
Anthropology of physical activity	0
Other:	0
Behavioral Sphere	
Area of intervention	Number of participants
Motor behaviour	2
Motor learning	1
Neuromotor control	1
Pedagogy of physical activity	2
Psychology of sport and exercise	3
Other:	5
• Public health – health promotion	

The table 1 lists the spheres of scholarly study respective of all participants.

2.2 Recruitment phase

In total, 443 faculties from 13 different universities across Ontario were contacted to participate in the study. An initial email was sent out during the middle of November 2014. The survey opened on December 1, 2014 and remained open until January 31, 2015. Three other reminder emails were sent out during the course of the study to reach out for other participants. An initial email was sent out providing information to the targeted participants requesting their permission to participate in the study, which also contained a participant identification sheet, and a consent form.

2.3 Data Collection

Data was collected with an online survey using the domain *www.surveymonkey.com*. After completing their consent form and participation identification sheet, participants were e-mailed the website address and a private login number. On the first 3 pages, participants had to login with their participant identification number, read the thesis abstract, and state whether that they had read the consent form. On the following six pages, participants had to choose their area of intervention as well as their spheres of scholarly study which best represented them from one of the following three spheres: biophysical sphere, sociocultural sphere or the behavioural sphere (Hoffman & Harris, 2000). The eleventh page collected results based on the participants' amount of years of work experience. Pages 12 through 16 were where the participants were asked to class the competencies in order of importance on a scale respective for each domain. In total, CKO has listed 54 competencies divided into five domains: knowledge, kinesiology practical experience, professionalism/professional practice, communication and collaboration, and professional development. Participants were asked to class each competency in order of importance in its respective domain.

For each domain, there was also an additional section that required the participants to give a reason for their top four selected competencies in each of the first three domains, their top three ranked competencies in the fourth domain and their top two competencies in the fifth domain. The final page of the survey included a brief acknowledgement for the participants and a section where participants were allowed to provide feedback and suggestions for the study.

2.4 Data Analysis

SurveyMonkey featured an initial analysis that provided a mean ranking for each competency within its respective domain, as well as the frequency to which each participant classed every competency as a certain ranking. Two rules were applied to be able to retain the 17 competencies deemed most important by the participants. The first rule applied to the competencies was that of the mean rankings. Mean rankings were calculated by SurveyMonkey and verified with SPSS and then each competency was repositioned in order of importance within each respective domain. In the first three domains, the top four competencies were retained. In domains 4 and 5, only the top 3 and 2 competencies were retained respectively. In the case of equality between 2 or more competencies, the second rule was applied to retain the most important one. The second rule consisted of counting the amount of times each competency was ranked as one of the top competencies. Depending on the domain, that would mean either the top 4 competencies for domains 1, 2, and 3, or the top 3 or 2 competencies for domains 4 and 5 correspondingly. The qualitative data was derived from the reasons supporting the choice of essential competencies issued by the participants for each of the domains of the Kinesiologist Core Competency Profile by CKO. An analysis of the content of each participant's supporting answers was used to obtain the qualitative data. This analysis was accomplished in two steps at the level of each domain. In the first step, a reading of all the answers of the participants had been made in order to acquire a general sense of all the reasons issued. The second step consisted of coding the responses. Thus, in order to keep a record of the participant's responses, the reasons supporting each participant's choice have been divided into meaningful themes. The initial coding was the subject of verification and they were lifted by mutual agreement between the principal investigator of the research and the second researcher, a specialist in qualitative research. The coding was conducted without predetermined categories but a general direction was inductively cleared from the justifications issued.

3. Results

Results were obtained based on a collection of electronic surveys accessed through the domain SurveyMonkey that was distributed to each participant. In total, 25 out of the 443 university faculty members who were contacted accepted to participate in the study (5.64%). Ninety-two percent of the surveys were fully completed. For the validity of this study, the incomplete surveys were neglected. The survey allowed for a collection of quantitative rankings that were obtained by requesting that participants rank each individual competency amongst the others competencies in its respective domain. The quantitative data collected was used to determine the 17 essential core competencies and establish a shortened competency profile. It is important to note that for the following studies, the competencies with the lowest rankings were perceived as those being the most important.

3.1 Quantitative Results

3.1.1 Domain 1 - Knowledge

The first domain of the *Kinesiologist Core Competency Profile*, 'Knowledge', was composed of 12 competencies. Competencies situated within this domain were ranked by the participants on a scale of 1 through 12. Mean ranks for each competency are as follows: competency 2 (3.39), competency 1 (3.48), competency 3 (3.48), competency 4 (5.91), competency 5 (6.04), competency 6 (6.43) competency 8 (6.65), competency 7 (8.04), competency 10 (8.13),

competency 9 (8.30), competency 12 (8.52), and competency 11 (9.61). The figure 1 presented below represents a visual ranking of the competencies.

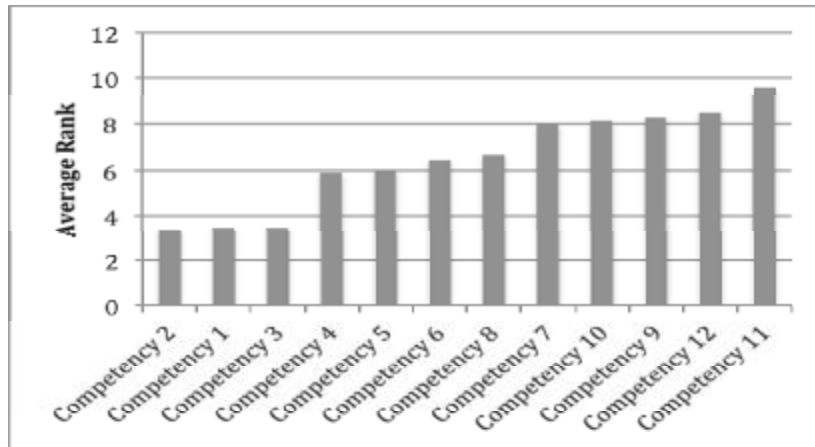


Figure 1. Average ranking for each competency in Domain 1 - Knowledge of the Kinesiologist Core Competency Profile.

The top competencies that were retained for this domain are competency 2 (3.39), competency 1 (3.48), competency 3 (3.48) and competency 4 (5.91). The figure 2 seen below represents the frequencies of each competency in the top 4 for domain 1. These results are used as the tie-breaking procedure if two or more competencies were tied in their average rankings. Since there was no equality between the average rankings of the fourth (5.91) and the fifth competency (6.04), the frequency of each competency ranked in the top four was overlooked.

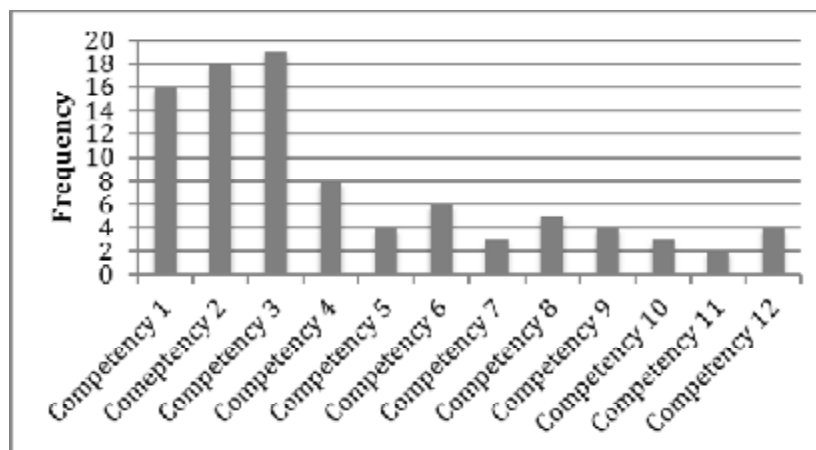


Figure 2. Frequency of each competency ranked in the top 4 by all participants for domain 1.

The figure 2 represents the frequency of each competency ranked in the top 4 competencies for the domain 1. This set of data was used if a “tie-breaker” was needed during the retention of the 4 most important competencies.

Table 2. List of competencies retained for Domain 1 – Knowledge.

Competency number	Description (As defined by the College of Kinesiologists of Ontario – CKO)
C1	1. Apply knowledge of anatomy, physiology, biomechanics, and psychomotor learning/neuroscience to human movement and performance.
C2	2. Apply knowledge of human movement and performance as it relates to health promotion, and to the prevention and treatment of chronic and other diseases and injury.
C3	3. Apply knowledge of exercise physiology to the prevention and treatment of chronic disease and other disorders and the maintenance and enhancement of human movement and performance.
C4	4. Apply knowledge of psychological and sociological factors that may influence/impact individuals and populations.

The table 2 lists the description defined by the College of Kinesiologists of Ontario of each of the 4 competencies retained for domain 1.

3.1.2 Domain 2 – Kinesiology Practical Experience

The second domain, ‘*Kinesiology Practical Experience*’, was composed of nineteen competencies. Each participant therefore ranked competencies situated in this on a scale of 1 to 19. Mean ranks for each competency (figure 3) are as follows: competency 14 (5.70), competency 13 (5.78), competency 16 (5.78), competency 21 (6.96), competency 22 (8.04), competency 20 (8.17), competency 18(8.65), competency 27 (8.91), competency 25 (9.17), competency 15 (9.61), competency 24 (10.70), competency 17 (10.78), competency 19 (10.96), competency 23 (10.96), competency 28 (12.13), competency 26 (13.17), competency 29 (13.65), competency 30 (13.96), and competency 31 (16.91).

The top competencies that were retained for this domain are competency 14 (5.70), competency 13 (5.78), competency 16 (5.78) and, competency 21 (6.96). Figure 3 below represents the average ranking of each competency for the domain 2.

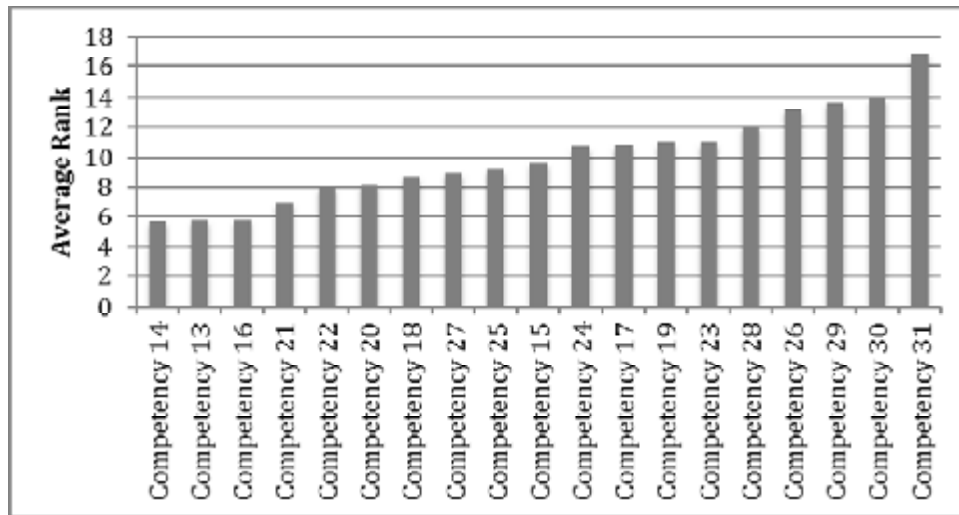


Figure 3. Average ranking for each competency in Domain 2 – Kinesiology Practical Experience of the *Kinesiologist Core Competency Profile*.

The figure 4 below represents the frequency of each competency ranked in the top 4 to be used as a tiebreaker. Since there was no equality between the average rankings of competency 21 (6.96) and competency 22 (8.04), the frequencies of each competency ranked in the top four (figure 2.2) were overlooked.

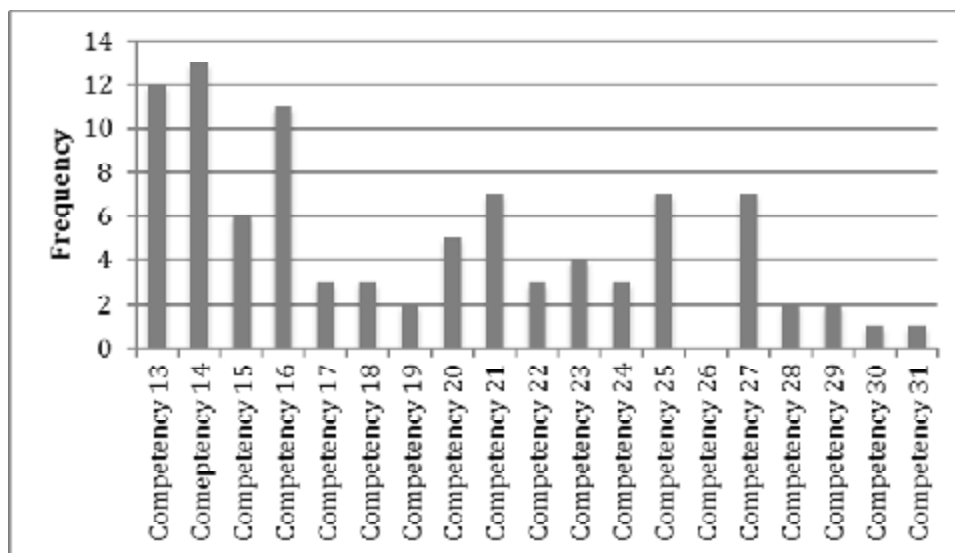


Figure 4. Frequency of each competency ranked in the top 4 by all participants for domain 2.

Figure 4 represents the frequency of each competency ranked in the top 4 competencies for the domain 2. This set of data was used if a “tie-breaker” was needed during the retention of the 4 most important competencies.

Table 3. List of competencies retained for Domain 2 – Kinesiology Practical Experience.

Competency number	Description (As defined by the <i>College of Kinesiologists of Ontario – CKO</i>)
C13	13. Able to obtain an accurate and comprehensive case history, including but not limited to medical, treatment, medications, psychosocial, and vocational/avocational history.
C14	14. Able to recognize and select appropriate assessments or tools based on factors including but not limited to case history, contraindications, patient/client presentation, context, and reason for assessment.
C16	16. Able to perform physical assessment procedures including but not limited to vital signs, anthropometrics, range of motion, strength, balance, cardiopulmonary fitness, and orthopaedic assessment.
C21	21. Able to identify, select, develop, and prescribe intervention strategies to maintain, rehabilitate, or enhance movement and performance based on assessment findings.

The table 3 lists the description defined by the College of Kinesiologists of Ontario of each of the 4 competencies retained for domain 2.

3.1.3 Domain 3 – Professionalism/Professional Practice

'Professionalism/Professional Practice' is the third domain of the competency profile by CKO. The competencies that made up this domain were ranked on a scale of 1 through 13. As presented below in the figure 5, mean ranks for each competency are as follows: competency 32 (2.52), competency 34 (3.26), competency 35 (3.96), competency 37 (5.74), competency 36 (6.61), competency 33 (6.74), competency 39 (7.83), competency 38 (8.04), competency 40 (8.61), competency 42 (8.70), competency 44 (9.17), competency 43 (9.87), and competency 41 (9.96). Description: Figure 5 below represents the average ranking of each competency for the domain 3.

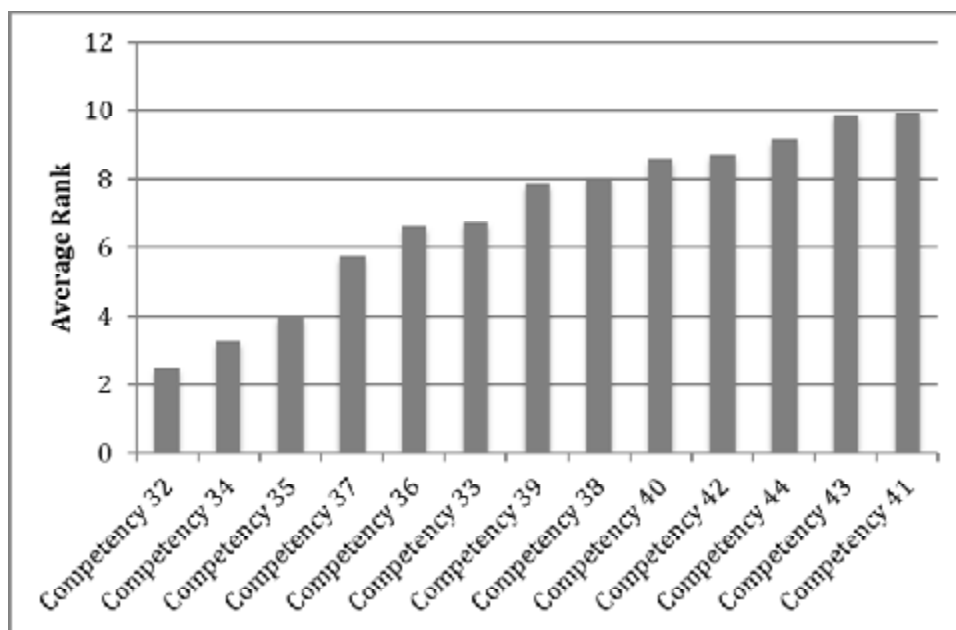


Figure 5. Average ranking for each competency in Domain 3 – Professionalism/Professional Practice of the *Kinesiologist Core Competency Profile*

The four top competencies retained for this domain (table 3) are competency 32 (2.52), competency 34 (3.26), competency 35 (3.96) and, competency 37 (5.74). Because of the difference between competency 37 (5.74) and competency 36 (6.61), there was no conflict between the two therefore the frequencies of each competency was ignored. These findings are illustrated in Figure 6.

Figure 6 below represents the frequency of each competency ranked in the top 4 competencies for the domain 3. This set of data was used if a “tie-breaker” was needed during the retention of the 4 most important competencies.

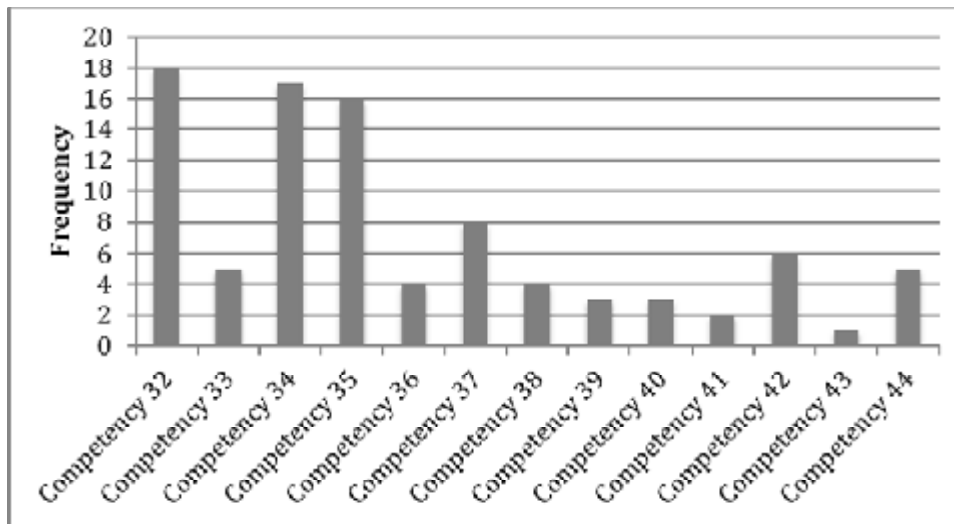


Figure 6. Frequency of each competency ranked in the top 4 by all participants for domain 3.

Table 4. List of competencies retained for Domain 3 – Professionalism/Professional Practice

Competency number	Description (As defined by the <i>College of Kinesiologists of Ontario – CKO</i>)
C32	32. Demonstrate understanding of and comply with the Regulations on Standards, Guidelines, Code of Ethics, and Professional Misconduct.
C34	34. Act in the best interest of the patient/client.
C35	35. Practice within limits of own professional knowledge, competence, and skill set.
C37	37. Comply with federal and provincial codes and regulations relevant to kinesiology practice, including but not limited to Ontario Human Rights Code, Personal Health Information Protection Act, Regulated Health Professions Act, Kinesiology Act, and Personal Information Protection and Electronic Documents Act.

The table 4 lists the description defined by the College of Kinesiologists of Ontario of each of the 4 competencies retained for domain 3.

3.1.4 Domain 4 – Communication and Collaboration

Competencies situated in domain 4, ‘*Communication and Collaboration*’, were ranked on a scale of 1 through 6. Mean ranks for each competency are as follows: competency 46 (1.83), competency 48 (3.35), competency 45 (3.43), competency 49 (3.43), competency 50 (4.26), and competency 47 (4.70). These results are illustrated in Figure 7.

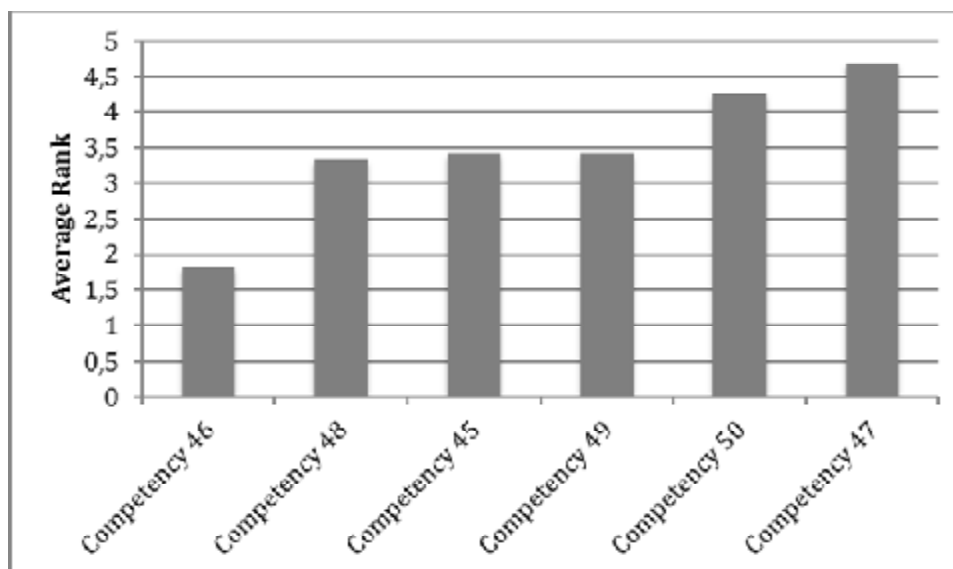


Figure 7. Average ranking for each competency in Domain 4 – Communication and Collaboration of the *Kinesiologist Core Competency Profile*.

The figure 7 represents the average ranking of each competency for the domain 4.

In this domain, only 3 competencies were retained. The first two of those competencies are: competency 46 (1.83) and competency 48 (3.35). The next lowest ranked competencies are both competency 45 (3.43) and competency 49 (3.43). Since only 3 competencies are kept, frequencies of competencies 45 and 49 in the top three were calculated. Overall, 12 participants ranked competency 45 in the top 3 while only 11 ranked competency 49 in the top 3. Therefore, competency 49 was excluded from the data and competency 45 was retained. The difference in frequencies of rankings between the competency 45 and the competency 49 are demonstrated in Figure 8.

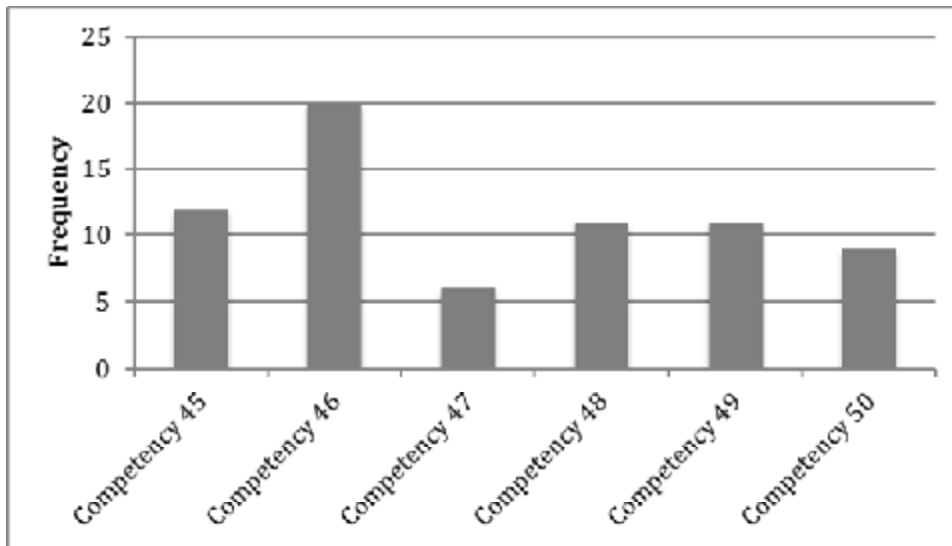


Figure 8. Frequency of each competency ranked in the top 3 by all participants for domain 4.

Table 5. List of competencies retained for Domain 4 – Communication and Collaboration

Competency number	Description (As defined by the <i>College of Kinesiologists of Ontario – CKO</i>)
C45	45. Able to communicate and collaborate effectively as a member of an interprofessional team.
C46	46. Able to communicate with empathy and appropriate language with patients/clients.
C48	48. Able to effectively deliver education to patients/clients.

The table 5 lists the description defined by the College of Kinesiologists of Ontario of each of the 3 competencies retained for domain 4.

3.1.5 Domain 5 – Professional Development

Domain 5, entitled ‘Professional Development’, contains four competencies and was ranked accordingly on a scale of 1 to 4. Mean ranks for each competency, displayed in the figure 9, are as follows: competency 54 (2.00), competency 51 (2.43), competency 53 (2.70), and competency 52 (2.87). The two retained competencies are also presented in the figure 9. Figure 9 below represents the average ranking of each competency for the domain 5.

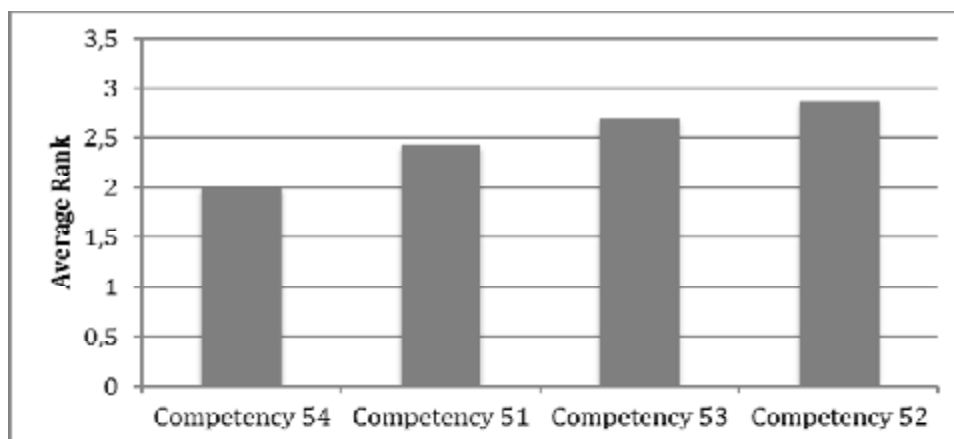


Figure 9. Average ranking for each competency in 4.1.5 Domain 5 – Professional Development of the *Kinesiologist Core Competency Profile*.

Figure 10 indicates the frequency of each competency ranked in the top 2 by all the participants. Since there were no conflicts between the retained competencies, their frequencies were therefore neglected.

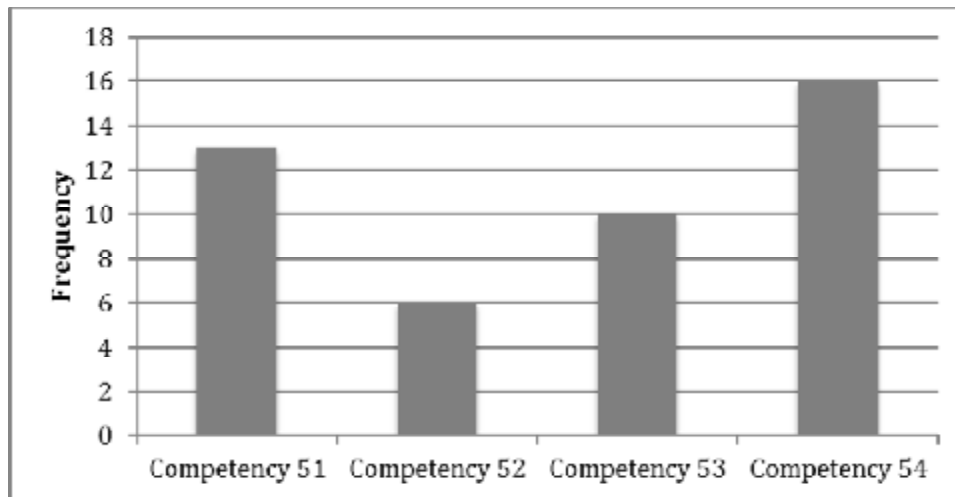


Figure 10. Frequency of each competency ranked in the top 2 by all participants for domain 5.

The figure 10 represents the frequency of each competency ranked in the top 2 competencies for the domain 5. This set of data was used if a “tie-breaker” was needed during the retention of the 2 most important competencies.

Table 6. List of competencies retained for Domain 5 – Professional Development

Competency number	Description (As defined by the <i>College of Kinesiologists of Ontario – CKO</i>)
C51	51. Develop and enhance own competence and demonstrate commitment to self-evaluation and lifelong learning.
C54	54. Able to utilize best practice guidelines, including the interpretation and application of current, evidence-based knowledge.

3.2 Qualitative Results

The qualitative data was derived from the reasons supporting the choice of essential competencies issued by the participants for each of the domains of the Kinesiologist Core Competency Profile by CKO. An analysis of the content of each participant supporting answers was used to obtain the qualitative data. Numerous key words and themes within each domain were retained on the basis of the number of occurrences that word had within all the participants’ answers. These results are presented in the table 7.

Table 7. Occurrences of key words derived from the qualitative analysis

Domain 1 - Knowledge	
Key Word	Number of references
Apply knowledge	8
Topic of study	4
Understand	3
Demonstrate	2
Domain 2 – Kinesiology Practical Experience	
Key Word	Number of references
Assess	8
Design program	6
Depends on setting	2
Domain 3 – Professionalism/Professional Practice	
Key Word	Number of references
Patient first	6
Ethics and plus	5
Domain 4 – Communication and Collaboration	
Key Word	Number of references
Patient communication	12
Inter professional skills	3
Communication (In general)	3
Domain 5 – Professional Development	
Key Word	Number of references
Remain up to date (current)	6
Evidence based	2
Knowing one’s self	2

In the domain 1, the reasons for the selection of the professional competencies in the domain of knowledge are those of basic knowledge abilities essential to the profession of a kinesiologist. For the participants, the competencies in this domain are linked with a basic foundational education essential to all professional kinesiologists. These competencies regarding knowledge are the pillars on which other competencies can be built. These are understandings related to human anatomy, human physiology, biomechanics, neurosciences, and psychomotor learning among others.

Concerning the second domain, which is related to kinesiology practical experience, the reasons issued by the participants in regards to their selection of competencies are related to those that are essential in the practice of kinesiology. For the participants, the practice of kinesiology is essentially a practical intervention that imposes qualifications related to the diagnosis, the extent, and to the elaboration of a rehabilitation program relevant to the real needs of the client. The analysis of the reasons provided by the participants' further support this statement. As observed in the table 6, of 16 of the answers coded, 14 are directly related to the evaluation and elaboration of intervention programs.

In the domain 3, professionalism/practical experience, for the participants, the essential competencies retained are those who call for a better understanding of ethical standards and laws of the practice. The professional competencies that would enable kinesiologists to respect the client, in their autonomy and their private life, are to be retained.

As for the domain 4, which is related to communication and collaboration, on 18 units coded, 12 are connected with the competencies needed to communicate with the client. This indicates that for the participants of the study, the essential competencies in this domain are those that equip the kinesiologist to apply an excellent communication with the client and demonstrate excellent interprofessional collaboration and communication.

Lastly, in regards to domain 5, professional development, 10 meaningful units emerged from the coding of the participants answers. Of these 10 units, 6 are related with the abilities that allow kinesiologists to remain up to date in their understandings and professional competencies in order to conduct a safe and professional practice.

4. Discussion

As a result of the considerable importance that competencies have in the health profession and education training, it is essential to provide future learners with the fundamental capabilities and competencies to effectively become a competent health professional. In order to achieve this, competencies can be used as an important element in developing and revising tertiary education courses and providing a framework for credentialing in undergraduate programs (Shilton & al., 2008). Specifically, competencies play a role in the identification of overall course and subject objectives as well as providing options of selection of content for those courses and aiding in the development of individual course assessment.

As stated earlier by Desbiens, Alem & Oddson (2014), it is unknown how to directly measure competencies and how to produce a reliable frame of reference. Even though multiple reference documents have been developed in countries across the world, the amount of competencies varies within each document and the majority have not gone passed 20. For example, Žvan and Lešnik (2014) of the University of Ljubljana, Slovenia, listed eight key competencies to assist on creating competent teachers while Hurd & Buschbom (2010) listed 5, which was then broadened to 15. Similar to the 54 competencies established in the *Kinesiologist Core Competency Profile* by the College of Kinesiologists, ACOTRO (2011) has the *Essential Competencies of Practice for Occupational Therapists in Canada (3rd Ed.)*, which was composed of 7 categories containing a total of 35 competencies for all occupational therapists, as well as 5 other units forming 14 competencies for occupational therapists in a nonclinical setting. As we can see, there is a large variation in the number of competencies from the previous situations. Thus, it is hopeful that a reduction in the amount of competencies given in the *Kinesiologist Core Competency Profile* will result in forming a greater number of competent kinesiologists.

With that said, the purpose of this study was to retain a list of 17 essential competencies deemed the most important according to the perception of the university faculty that participated in the study. To respect the five domains established by the College of Kinesiologists of Ontario, competencies from each domain were retained. Four competencies were preserved from the 'Knowledge', 'Kinesiology Practical Experience', and the 'Professionalism/Professional Practice' domains. Three competencies were kept from the 'Communication and Collaboration' domain while two competencies were retained from the 'Professional Development' domain. A full list of the retained competencies can be seen in the Table 8.

Table 8. Complete list of all 17 competencies retained for this study

Competency number	Description (As defined by the <i>College of Kinesiologists of Ontario – CKO</i>)
C1	1. Apply knowledge of anatomy, physiology, biomechanics, and psychomotor learning/neuroscience to human movement and performance.
C2	2. Apply knowledge of human movement and performance as it relates to health promotion, and to the prevention and treatment of chronic and other diseases and injury.

C3	3. Apply knowledge of exercise physiology to the prevention and treatment of chronic disease and other disorders and the maintenance and enhancement of human movement and performance.
C4	4. Apply knowledge of psychological and sociological factors that may influence/impact individuals and populations.
C13	13. Able to obtain an accurate and comprehensive case history, including but not limited to medical, treatment, medications, psychosocial, and vocational/avocational history.
C14	14. Able to recognize and select appropriate assessments or tools based on factors including but not limited to case history, contraindications, patient/client presentation, context, and reason for assessment.
C16	16. Able to perform physical assessment procedures including but not limited to vital signs, anthropometrics, range of motion, strength, balance, cardiopulmonary fitness, and orthopaedic assessment.
C21	21. Able to identify, select, develop, and prescribe intervention strategies to maintain, rehabilitate, or enhance movement and performance based on assessment findings.
C32	32. Demonstrate understanding of and comply with the Regulations on Standards, Guidelines, Code of Ethics, and Professional Misconduct.
C34	34. Act in the best interest of the patient/client.
C35	35. Practice within limits of own professional knowledge, competence, and skill set.
C37	37. Comply with federal and provincial codes and regulations relevant to kinesiology practice, including but not limited to Ontario Human Rights Code, Personal Health Information Protection Act, Regulated Health Professions Act, Kinesiology Act, and Personal Information Protection and Electronic Documents Act.
C45	45. Able to communicate and collaborate effectively as a member of an interprofessional team.
C46	46. Able to communicate with empathy and appropriate language with patients/clients.
C48	48. Able to effectively deliver education to patients/clients.
C51	51. Develop and enhance own competence and demonstrate commitment to self-evaluation and lifelong learning.
C54	54. Able to utilize best practice guidelines, including the interpretation and application of current, evidence-based knowledge.

In regards to the quantitative and qualitative data obtained throughout the study, it is easily observable that the two correlate extremely well together. A brief overview of all the competencies retained in the first domain show that a common application of knowledge is the essential stage of becoming a competent kinesiologist and the qualitative feedback seen in table 9 provided by the participants' further support this. Just like the first domain, an examination of the competencies retained for the second domain correspond accurately with the important themes issued by the participants, indicating that the main practical task of a kinesiologist would be to assess a client, design an intervention program, and evaluate their progress. Also, the competencies retained from the domain 3 can precisely be related to the answers provided by the participants in that a kinesiologist must demonstrate professionalism by adhering to ethical standards and acting in the best interest of the patient. As for domain 4, the competencies retained in regards to communication and collaboration and the results provided in the table 8 indicate that the participants placed a large emphasis on interprofessional collaboration and patient centered communication, with the latter being a key component in regards to helping the client live a healthier life. Finally, the key themes retained for the fifth domain match with the competencies retained for that domain, indicating that one of the most important competencies for a kinesiologist is to remain up to date to ensure that their practice is safe and current.

Table 9. List of key themes retrieved from the participants' justifications.

Domain	Important and frequent themes from participants justifications
Domain 1	Foundation, main pillars, more useful and beneficial <i>"You need the foundational knowledge first"</i>
Domain 2	Measure, assess, evaluation, design program <i>"One must be able to properly assess before they can prescribe an action"</i>
Domain 3	Patient first, ethics, laws <i>"Put patient first and respect their autonomy... aware of practical standards and adhere to them all the time"</i>
Domain 4	Patient centered communication, interprofessional skills <i>"Communication with an individual... be able to help them live a healthier life"</i>
Domain 5	Remain up to date, knowing one's self <i>"One must ensure their practice is safe and current"</i>

5. Conclusion

In conclusion, the competencies retained in this study undoubtedly represent the views of all the participants in regards to the essential competencies that a kinesiologist should be able to demonstrate upon admission to the College of Kinesiologists of Ontario. This present study, however, did have some limitations. For example, the small amount of participants (23 out of the 443 educators contacted) could have affected the end results of the study. If the study would have had a greater number of participants, results could have possibly been different and more accurate. Also, the fact that the *Kinesiologists Core Competency Profile* was only available in English and not translated in French, the second official language of Canada, could have restricted the participation of the francophone educators.

The findings of this study will allow for an assimilation of the seventeen most important competencies within the bachelors' of science in kinesiology program offered at Laurentian University in Sudbury, Ontario in order to help better prepare the students for the entrance examination and to increase their examination success rate. With that said, further research would then be needed to observe the effectiveness of their integration and to determine whether or not graduating students from the kinesiology program achieve a higher success rate on the entry level examination to the College of Kinesiologists of Ontario.

References

- Association of Canadian Occupational Therapy Regulatory Organizations (2011). *Essential Competencies of Practice for Occupational Therapists in Canada (3rd Ed.)*, Toronto, ON: Association of Canadian Occupational Therapy Regulatory Organizations. (Date visited October 16, 2014) Retrieved from http://www.acotro-acore.org/sites/default/files/uploads/ACOTRO_EC_3rd_ed.pdf
- Battel-Kirk, B., Van, D. Z., Schipperen, M., Contu, P., Gallardo, C., Martinez, A, Garcia de Sola, S., Sotgiu, A., Zaagsma, M., and Barry, M. M. (2012). Developing a competency-based pan-european accreditation framework for health promotion. *Health Education & Behavior*, 39(6), 672-680.
- Boucher, A., and Ste-Marie, L.G. (2013). *Pour un cursus d'études Médicales axé sur les compétences : cadre de formation*. Montréal, Québec : Les Presses du CPASS, Université de Montréal.
- Brownie, S., Thomas, J., McAllister, L., and Groves, M. (2014). Australian health reforms: Enhancing interprofessional practice and competency with the Health Workforce. *Journal of Interprofessional Care*, 28(3), 252-253.
- Chodzko-Zajko, W. (2014). The American Kinesiology Association Undergraduate Core Curriculum. *Quest*, 66(3), 288-294.
- College of Kinesiologists of Ontario (2013). *Kinesiologist Core Competency Profile*. (Date visited September 3, 2014). Retrieved from http://www.coko.ca/files/2813/8072/8550/Kin_Comp_Profile.pdf
- Collège Royale des médecins et chirurgiens du Canada (2005). *Le cadre de compétences CanMEDS 2005 pour les médecins*. Ottawa, Ontario: RCPSC 2005.
- Dawes, B. S. G. (1999). Skills, behaviors, and motivation serve as a framework for competency. *Association of Operating Room Nurses. AORN Journal*, 70(2), 188 and 190.
- Desbiens, J.-F., Alem, J. and Oddson, B. (2014). Quel regard le référentiel de compétences en enseignement du Québec permet-il de porter sur la compétence en enseignement des stagiaires finissants?, In Maurice Tardif et Jean-François Desbiens (direction), *la vogue des compétences dans la formation des enseignants: Bilan critique et perspectives d'avenir* (p. 207-231). Presses de l'Université Laval.
- Fernandez, N., Dory, V., Ste-Marie, L.-G., Chaput, M., Charlin, B., and Boucher, A. (2012), Varying conceptions of competence: an analysis of how health sciences educators define competence. *Medical Education*, 46, 357-365.
- Regulation of health professions in Ontario: New directions (2006). *A report to the minister of Health and long-term care on regulatory issues and matters respecting health care practitioners, patients and clients*. Health Professions Regulatory Advisory Council.
- Hoffman, J., and Harris, J. (2000). *Introduction to kinesiology: studying physical activity*. Champaign, IL: Human Kinetics.
- Hurd, A. R., and Buschbom, T. (2010). Competency development for chief executive officers in YMCAs. *Managing Leisure*, 15(1), 96-110.
- Merritt, B. K., Blake, A. I., McIntyre, A. H., and Packer, T. L. (2012). Curriculum evaluation: Linking curriculum objectives to essential competencies. *Canadian Journal of Occupational Therapy*, 79(3), 175-180.
- Ontario Kinesiology Association (2014). *Scope of practice*. (Date visited November 6, 2014) Retrieved from: <http://www.oka.on.ca/index.php?page=scope-of-practice>
- Service Ontario, (2013). *Kinesiology Act, 2007. S.O. 2007, Chapter 10 Schedule O*. (Date visited November 6, 2014). Retrieved from http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_07k10_e.htm
- Shilton, T., Howat, P., James, R., Hutchins, C., and Burke, L. (2008). Potential uses of health promotion competencies. *Health Promotion Journal of Australia*, 19(3), 184-188.
- Žvan, M., and Lešnik, B. (2014). Competencies for teachers of physical and health education. *Research in Physical Education, Sport & Health*, 3(1), 29-34.