

Electronic Thesis and Dissertation Repository

11-15-2013 12:00 AM

Interprofessional Socialization and Dual Identity Development Amongst Cross-Disciplinary Students

Hossein Khalili, *The University of Western Ontario*

Supervisor: Dr. Carole Orchard, *The University of Western Ontario*

A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree
in Nursing

© Hossein Khalili 2013

Follow this and additional works at: <https://ir.lib.uwo.ca/etd>



Part of the Curriculum and Instruction Commons, Educational Assessment, Evaluation, and Research Commons, Educational Methods Commons, Educational Psychology Commons, Educational Sociology Commons, Higher Education Commons, Medical Education Commons, Nursing Commons, Social Psychology and Interaction Commons, and the Theory, Knowledge and Science Commons

Recommended Citation

Khalili, Hossein, "Interprofessional Socialization and Dual Identity Development Amongst Cross-Disciplinary Students" (2013). *Electronic Thesis and Dissertation Repository*. 1742.
<https://ir.lib.uwo.ca/etd/1742>

This Dissertation/Thesis is brought to you for free and open access by Scholarship@Western. It has been accepted for inclusion in Electronic Thesis and Dissertation Repository by an authorized administrator of Scholarship@Western. For more information, please contact wlsadmin@uwo.ca.

INTERPROFESSIONAL SOCIALIZATION AND DUAL IDENTITY
DEVELOPMENT AMONGST CROSS-DISCIPLINARY STUDENTS

BY

Hossein Khalili

Graduate Program in Nursing

The School of Graduate and Postdoctoral Studies
The University of Western Ontario
London, Ontario, Canada

© Hossein Khalili 2013

Abstract

The purpose of this study was to develop and test an interprofessional socialization (IPS) framework through assessing the impact of an IPS-based interprofessional education program on interprofessional socialization and dual identity development among health professional students. Although health professional educational programs have been successful in equipping graduates with skills, knowledge and professionalism, the emphasis on specialization and profession-specific education has enhanced the development of a uniprofessional identity, which has been found to be a major barrier towards Interprofessional Person-Centered Collaborative Practice (IPCPCP). Despite the growing acknowledgment of IPS in the current IPE and collaborative practice literature, there is a lack of research investigating the IPS process that learners should move through in order to develop dual identity, leaving educators with little guidance as how to facilitate the implementation of IPS. Dual identity for IPCPCP requires interprofessional learners to develop a sense of belonging to, and simultaneously identify themselves with both individual's own profession and that of the interprofessional community.

This study sought to address this gap by first developing an IPS conceptual framework which was utilized to develop the IPS-based IPE program intervention in the study, and then examine the impact of this IPS-based IPE program on students' IPS and dual identity development. The IPS framework, underpinned by social identity and the intergroup contact theories, posits that transformation from a uniprofessional identity to a dual identity occurs through a three-stage process: 1) breaking down barriers; 2) interprofessional role learning; and 3) dual identity development. To measure the dual identity, a new instrument called the 'dual identity scale (DIS)' was developed and validated (prior to the main study). In this study a concurrent embedded mixed-method with quasi-experimental design and repeated measures (3

times) was used. One hundred and eight pre-licensure students from seven different health professions were recruited. The study intervention was comprised of two workshops with the first focused on Professional Education and Cross Disciplinary Collaboration (W#1) and the second on Interprofessional Socialization (W #2). Participants completed a set of three instruments and demographic information: DIS, Interprofessional Socialization and Valuing Scale (ISVS), and Individualism-Collectivism Scale. Participant reflections and workshop group audio-taped discussion were also used to collect the qualitative data. Quantitative data analysis was conducted using Latent Growth Curve modeling to assess the growth and change patterns of students' dual identity development across the study. Qualitative data analysis was carried out utilizing thematic content analysis.

The integrated quantitative and qualitative findings supported the impact of the IPS-based IPE program on assisting students to begin transforming their uniprofessional identity into a dual identity. No significant inter-individual differences were found among the participants that could otherwise be explained by the personal factors. However, some statistically significant correlations between the students' dual identity level and personal factors were observed. All this resulted in a revised IPS framework in which the stages of socialization were retained.

Keywords: Interprofessional Socialization (IPS), IPS-Based Interprofessional Education Program, Social Identity Theory & Intergroup Contact Theory, Uniprofessional Identity, Dual Professional and Interprofessional Identity, Dual Identity Scale (DIS), Concurrent Embedded Mixed-Method, Quasi-Experimental Design, Latent Growth Curve Modeling, Thematic Content Analysis

This Thesis Is Dedicated To My Family:

Mehrnaz Ahmadi, My Incredible Wife

Pouriya (Ryan), My Wonderful Son

Ida, My Lovely Daughter;

&

To My Parents

Gholamreza (1925-2000)

Rezvan Ghaderi (1933-1999)

Acknowledgement

This dissertation is a unique milestone in my academic career. It would not have been possible to write this doctoral thesis without the help and support of many great people around me. Foremost, I would like to express my sincere gratitude to my supervisor Dr. Carol Orchard for her continuous support, guidance, enthusiasm, and encouragement.

A special thanks goes out to my advisory committee members – Dr. Heather Laschinger and Dr. Randa Farah for their encouragement, insightful comments, and encouragement. My thanks also goes to Dr. Stefane Kabene, who served as a member of my advisory for more than a year, and to Dr. Piotr Wilk who has helped me with conducting the statistical analysis and interpretation.

I am grateful to the deans/directors/coordinators and faculty members who granted me access/time to recruit students in their programs/classrooms, and to the students who participated in my research study.

I also thank the students who have helped me with the data entry and the transcription of the group discussion/reflections as part of their research course placement. A special thanks also goes to Dr. Jodi Hall who has graciously assisted me with reviewing and editing the last two chapters of my dissertation.

Last but not the least, I am eternally grateful to my family, in particular my wife Mehrnaz for her ongoing diligence support, motivation and encouragement, and my two kids, Pouriya (Ryan) and Ida for being always smiley and cheerful, giving me the energy and encouragement.

Table of Contents

Abstract	ii
Acknowledgement	v
CHAPTER ONE	1
Introduction	2
Background and Significance	3
CHAPTER TWO	7
Review of the Literature	8
Professional Socialization	9
Interprofessional Socialization (IPS)	12
Intergroup contact theory (ICT)	14
ICT and IPE	16
Conclusion	18
CHAPTER TWO	20
Interprofessional Socialization Framework; Development of Dual Identity	21
Stage I. Breaking down barriers	23
Stage II. Interprofessional role learning – interprofessional collaboration	24
Stage III. Dual identity development	25
Conclusion	26
Methodology	28
Methodological Overview	28
Research Questions	28
Research Design	28
Sample and Sampling	29
Determination of sample size	30
Sample recruitment	31
Data Collection	32
Quantitative portion ..	32
Qualitative portion	33
Reflections ..	33

a) Reflective journals.....	33
b) Workshop Personal reflection	34
Group discussions	34
Instruments	35
Interprofessional socialization and valuing scale (ISVS)	35
Individualism-collectivism scale (ICS)	36
Dual identity scale (DIS)	36
<i>Psychometrics analysis of DIS</i>	38
<i>Content validity</i>	39
<i>Construct validity and reliability</i>	39
Intervention	45
Workshop #1	46
Activity descriptions	47
Workshop #2.....	48
Workshop activities	48
Data Analysis	49
Quantitative data	49
Qualitative portion	53
Combining Quantitative and Qualitative Findings	54
Ethics and Protection of Human Subjects.....	55
CHAPTER FOUR.....	56
Findings	57
Part 1: Descriptive Statistical Analysis Results	57
DIS Factor Analysis	59
DIS Inter-Correlation Analysis	63
Variables Mean Comparisons	64
Correlations amongst variables	66
Part 2: Testing the IPS Framework: A Latent Growth Curve Analysis	67
Research question 1: dual identity development growth; unconditional model	67
Part 3: Qualitative Findings	75

IPS Stage I: Breaking Down Barriers	77
IPS-Based IPE Program as an Eye-Opener	80
IPS Stage II: Interprofessional Role Learning – IPC	83
Learning to Collaborate	83
IPS Stage III. Dual identity development	89
Collective Unified Team	89
Interprofessional Team Meetings	93
Summary	94
Conclusion	95
CHAPTER FIVE	97
Discussion	98
Overview	98
Summary of Findings	98
Integrated Findings Related to Research Questions	102
Research Question 1	102
Research Question 2	108
<i>Demographic variables & Dual Identity</i>	108
<i>Personal Factors & Dual Identity</i>	110
Research Question 3	114
<i>Breaking Down Barriers</i>	114
<i>Interprofessional Role Learning – IPC</i>	117
<i>Dual identity development</i>	118
Limitations of the Study	122
Implications for Interprofessional Education and Practice	124
Recommendations for Further Research	126
Conclusion	127
References	129
Appendices	147
Curriculum Vitae	174

List of Tables

Table 3-1: Instruments and Time Series Measures for Quantitative Data Collection.....	33
Table 3-2: DIS Exploratory Factor Analysis.....	42
Table 3-3: Descriptive Statistical Analysis of the Preliminary Dual identity Scale and its Sub-scales.....	44
Table 3-4: Inter-Correlation Among DIS Subscales and Total Score.....	45
Table 4-1: Reliability of Scales and Sub-scales at Each Data Collection Time Point.....	58
Table 4-2: DIS Factor Analysis.....	61
Table 4-3: Inter-Correlation Among and Between DIS Subscales and Total Score Across Time Series	63
Table 4-4: Means and Standard Deviations (SD) of Scales at Each Time Point.....	65
Table 4-5: Means, SD, and Correlation among the Instruments.....	67
Table 4-6: Estimate and P Values for the Unconditional Model.....	69
Table 4-7: Standardized Regression Weights.....	74
Table 4-8: Qualitative Data Analysis: Themes and Sub-Themes.....	76

List of Figures

Figure 2-1: Professional Socialization Process	11
Figure 2-2: Interprofessional Socialization Framework; Development of Dual Identity	22
Figure 3-1. Students Sample Professional Compositio..	30
Figure 3-1: DIS Scree Plot.....	40
Figure 3-3. Students Professional Composition at Workshop # 1.....	46
Figure 3-4. Students Professional Composition at Workshop # 2.....	46
Figure 3-5: LGC Conceptual Path Diagram of the modified Dual Identity Model.....	51
Figure 4-1: T1 DIS Scree Plot.....	57
Figure 4-2: Unconditional Latent Growth Model for Dual identity Development	66
Figure 4-3: Path analysis of dual identity and personal factors across time.....	70
Figure 5-1: Revised Interprofessional Socialization Framework	99

List of Appendix

Appendix A: Information Letter and Consent Form	147
Appendix B: Evaluation Package (Instruments).....	152
Appendix C: Reflective Journal Template.....	162
Appendix D: Dual Identity Scale; Content Validity Expert Judgment	165
Appendix E: Case Studies	168
Appendix F: Mean Comparison of the Instruments.....	172

CHAPTER ONE
INTRODUCTION & BACKGROUND

Introduction

Socializing students and practitioners in the health¹ professions to effectively collaborate within interprofessional teams has become a major challenge for health professional education and health care systems around the world. The World Health Organization (WHO) (1978; 1988; 2005 & 2010) has stressed the need to prepare health professionals who can work within collaborative patient-centered teams to meet the dual challenges of increasingly complex patient² needs and the shortage of health professionals. Scholars around the globe, particularly in the UK, Australia, the USA, and Canada strongly support WHO's call for a shift from current health care delivery models to collaborative interprofessional models of care. The result has been funding to support research projects focusing on the education of students in health professional programs, but to a lesser extent on the evaluation and effectiveness of interprofessional collaboration to benefit patients, practitioners, and healthcare systems.

The Canadian federal government under its health human resource agenda (Health Canada, 2004/2005) provided national funding for interprofessional post-secondary education projects involving nursing, medicine, and at least one other allied health profession depicted in the D'Amour and Oandasan framework through its Interprofessional Education for Collaborative Patient-Centered Practice (IECPCP) program (2006). Its overall goal was to foster a change to interprofessional education (IPE) supporting the delivery of care through collaborative practice within the Canadian health system. The D'Amour and Oandasan (2005) framework outlined the

1 Health (profession, student, or professional) in this dissertation refers to all different health, social, and human services who provide care to patients.

2 Patient in this paper refers to client, family, community, and special group.

characteristics needed to be present at the macro, meso, and micro levels required for learners to practice using collaborative working relationships. Student socialization was identified as a characteristic in the micro level of the IECPCP framework. Although the framework laid a foundation for interprofessional socialization (IPS), it was not intended to shape a theory for IPS and collaborative practice. Hence, many interprofessional scholars have argued for a new curricular paradigm of education to achieve a transformative change in health professional education leading to the development of IPS and IECPCP (Cerra & Brandt, 2011; Frenk et al., 2010).

Background and Significance

There is growing evidence supporting interprofessional education (IPE) as a key strategy for improving: (a) cross disciplinary collaborative practice; (b) health provider satisfaction, recruitment and retention; and (c) client satisfaction and improved health outcomes leading to enhanced efficiencies and cost-effectiveness within the health care system (Baker, Egan-Lee, Martimianakis, & Reeves, 2011; World Health Organization, 2010; Reeves, et al., 2008). IPE advocates for equity of professional roles across disciplines to enhance and reform healthcare practice (Baker et al., 2011). Hence, a number of governments including the Canadian government have funded IPE research to evolve health care delivery towards collaborative person-centered practice.

Currently, there is a paucity of evidence linking outcomes of IPE to quality of care (Lapkin, Levett-Jones, & Gilligan, 2013; Reeves, Perrier, Goldman, Freeth Zwarenstein, 2013; Reeves, MacMillan, & van Soeren, 2010; Zwarenstein & Reeves, 2006). Advocates for the equality of roles and contributions of all professions in the delivery of care feel this alone is insufficient to transform the current multiprofessional-centered model of care to an

Interprofessional Collaborative Person-Centered Practice (IPCPCP) (Baker et al., 2011). IPCPCP is a dynamic process (D'Amour, Ferrada-Videla, San-Martin Rodriguez, & Beaulieu, 2005; Henneman, 1995) in which health professionals, as a team with their patients, work together to meet patients' needs (Carpenter & Dickinson, 2008; D'Amour, et al., 2005; Orchard & Curran, 2003; Yarborough, Jones, Cyr, Phillips, & Stelzner, 2000; Russell & Hymans, 1999; Julia & Thompson, 1994; Baggs & Schmitt, 1988). Many professionals consider this view a threat to their own professional identity and therefore resist collaboration (Baker, et al., 2011; Wakefield, Boggis, & Holland, 2006). These 'turf protection' behaviors appear to be deeply-rooted in the socialization processes of healthcare professionals (Baker, et al., 2011; Cameron, 2011; Arndt, et al., 2009). According to Baker et al. (2011), the development of healthcare professionals as distinct occupational workers has been based on a professionalization process that is tightly controlled through regulation and aimed at securing and protecting exclusive areas of knowledge and work practices. Similarly, in professional education, the emphasis is placed on profession-specific socialization models of education. These models shape the values and identities of professional learners, isolating them from learners in other disciplines and resulting in the development of a 'uniprofessional identity' (Carpenter & Dickinson, 2008; Gilbert, 2005).

Development of a strong uniprofessional identity leads individuals to view their own profession as different from, and/or better than other related professions (Baker, et al., 2011; Cameron, 2011; Lloyd, Schneider, Scales, Bailey, & Jones, 2011). This phenomenon is supported by the social identity theory proposed by Tajfel and Turner (1986). According to social identity theory, individual's identification with a social group (their specific profession) results in a profession specific cognitive map and a system of orientation towards one's chosen profession. This leads to in-group favoritism resulting in high levels of trust and cohesiveness

amongst professional members, and out-group discriminatory bias that leads to distrust towards those outside of their group. When cross-disciplinary students who lack interprofessional educational experience are brought together, their in-profession and out-profession behaviors interfere with effective collaboration (Baker, et al., 2011; Cameron, 2011). Lloyd and her colleagues (2011) found that an isolationist or uniprofessional identity limits interprofessional communication across disciplines. Miscommunication among health professionals is one of the leading causes of incidences affecting patient safety in the US and Canada (Canadian Patient Safety Institute, 2011; Institute of Medicine, 2003).

In addition, strong uniprofessional identities may cause students (and professionals) to view interprofessional collaborative efforts as a threat to their own professional boundaries (Baker, et al., 2011; Cameron, 2011; Lloyd, et al., 2011). Mitchell and colleagues (2011) found that ‘perceived threat to professional identity’ had a negative impact on interprofessional team effectiveness by stimulating hostility towards other professions. Furthermore, recognition of the interconnectivity and complementarity of roles and perspectives of different healthcare professionals forces students to focus exclusively on their own disciplinary practices within a uniprofessional model of education.

To date, the focus of IPE literature has primarily been on descriptions of IPE program development and changes in learners’ attitudes, knowledge and skills following these experiences (Hammick, Freeth, Koppel, Reeves, & Barr, 2007; Barr, Koppel, Reeves, Hammick, & Freeth, 2005). However, Currie, Finn, and Martin, (2007) suggest that the IPE focus should include interprofessional socialization (IPS) to help broaden existing professional identities into a combination of both a professional and an interprofessional or dual identity (Baker et al., 2011; Carpenter & Dickinson, 2008). Adoption of a dual identity creates an expanded ‘in-group’

perspective beyond learners own professional roles to that of a shared understanding of how all health profession roles combine for effective collaborative and complementary teamwork supporting social identity theory (Tajfel & Turner, 1986). This shift mitigates out-group discrimination and distrust and improves IPCPCP. To accomplish this, IPE strategies are needed that breakdown misperceptions, prejudices, and stereotypes among healthcare professionals emphasizing the complementarities of other healthcare professional roles and perspectives (Frenk, et al., 2010; Carpenter & Dickinson, 2008; Xyrichis & Lowton, 2008; Salvatori, Berry, & Eva, 2007). Mitchell and colleagues (2011) in their cross-sectional study of team effectiveness further found that interprofessional openness was a significant mediator for team effectiveness – firstly, by reducing the perceived threat to professional identity (reducing turf protection behaviors), and secondly, by enhancing team identity.

Although the current IPE and collaborative practice literature acknowledges the importance of IPS, there is a lack of research investigating the IPS process that learners must move through in order to develop both dual professional and interprofessional identities referred to as a ‘dual identity’. The aim of this dissertation was to develop and test an IPS framework created to re-conceptualize the socialization process that will assist healthcare profession learners to develop a dual identity.

CHAPTER TWO
SECTION I; LITERATURE REVIEW

Review of the Literature

The Canadian health care system is currently evolving to better utilize collaborative interprofessional teams with the ultimate goal of improving patient outcomes. A growing diversity of the Canadian population, the increasing number of vulnerable persons (elderly, homeless, those living with chronic diseases), the complexity of health problems, patients' untoward events, and the shortage of health care providers on one hand, and patients/families' demand for more say in their healthcare has forced health policy-makers to call for revising the way health care is provided and, consequently, necessitating a shift in the way health students are educated (Frenk, et al., 2010; Health Force Ontario, 2007; Gilbert, 2005).

IPE for health policy makers involves not solely bringing health students across disciplines together and teaching them interprofessionally, but also preparing them to function collaboratively within IPCPCP teams (Health Canada, 2004/2005). IPCPCP requires a partnership between health professionals and their patients, in which all members have reasonable knowledge of and skills in not only the services provided by each other (D'Amour, et al., 2005; D'Amour & Oandasan, 2005; Orchard & Curran, 2003), but also how to effectively collaborate as a team (Carpenter & Dickinson, 2008; Xyrichis & Lowton, 2008; Cook, Davis, & Vanclay, 2001; McCallin, 2001; Gilbert et al., 2000).

Effective interprofessional teamwork is essential for meeting patient needs. However, for this to happen, all healthcare team members must have a clear understanding of their own and others roles, and values to facilitate their interdependent work as an identified team member (Lloyd et al., 2011; Reeves et al., 2010). Several scholars believe that current health professionals have little knowledge and understanding of their colleagues' roles and values (Felten, Cady, Metzner, & Burton, 1997; Frenk, et al., 2010). Moreover, professional education

programs have neglected in socializing graduates to practice within interprofessional teams (Frenk, et al., 2010; Salvatori, Berry, & Eva, 2007; Bainbridge & Mathews, 1996).

Moving towards IPCPCP requires creating a new paradigm of education which shifts the persistent uni-professional education paradigm to a combination of intra- and interprofessional education (Frenk, et al., 2010; D'Amour & Oandasan, 2005; Orchard & Curran, 2003). Such a paradigm creates the need for students to develop both professional and interprofessional identities (Cerra & Brandt, 2011; Carpenter & Dickinson, 2008; Clark, 1997). Nursing educators along with other health educational faculty have been successful in achieving professionalization of their graduates; however, shifting educational programs to develop learners' capacity to function interprofessionally has been difficult to achieve. Theoretical models to guide development of both professional and interprofessional behaviors are lacking. In addition, a framework that can serve as a guide for assisting students in their development of both a professional and interprofessional identity is needed.

Professional Socialization

Professional socialization is associated with an adult role development process through which an individual becomes a mature member of a profession (Newman, 2005). Socialization into a profession provides the means for individuals to know 'who they are'. It reflects a process students adopt in establishing their work-based norms, values, beliefs, knowledge, skills, resulting in demonstration of the expected roles of the profession's culture (Hershey, 2007; Newman, 2005; Melia, 1987; Olesen & Whittaker, 1970; Simpson, 1967; Becker, Geer, Hughes, & Strauss, 1961; Merton, Reader, & Kendall, 1957).

Professional socialization typically starts when people begin thinking about their future careers or 'who they want to be' termed *anticipatory socialization*, leading to their career

selection (Flanagan, 1979). An individual's career selection might begin in childhood and is shaped by his/her cultural and societal contexts. Beliefs acquired through societal and media input shape one's career selection, but these sources often influence the development of myths about particular professions and prejudicial attitudes towards those in others (Adams, Hearn, Sturgis, & Macleod Clark, 2006; Hind et al., 2003; Flanagan, 1979). Hence, all students enter with various conceptions that range between myths and reality about their own and other professions (Hershey, 2007). Much of society's valuing of a profession is conveyed through print and visual media, distorting the reality yet shaping perceptions of other professionals outside a practitioner described role (Adams et al., 2006; Tunstall-Pedoe, Rink, & Hilton, 2003). Attitudes towards one's own profession, becomes adjusted during their primary professional socialization process through *professional role learning*. Professional role learning is influenced by societal valuing of the profession (professionalism) and integrated into the profession's norms, values, and behaviors associated with professional practice (Adams et al., 2006; Hershey, 2007). However, their views about other professions remain divergent from reality.

Professional identity, which is the result of professional socialization results from learners interacting with individuals both within their professional education program (faculty, and students) and in their professional practice (Arndt, et al., 2009; Hershey, 2007). Uni-disciplinary education programs limit the understanding of others' roles resulting in development of uniprofessional identities (Figure 1). Hence, professionals begin their careers lacking an understanding of and limited experience in working as part of an interprofessional team (Hall, 2005).

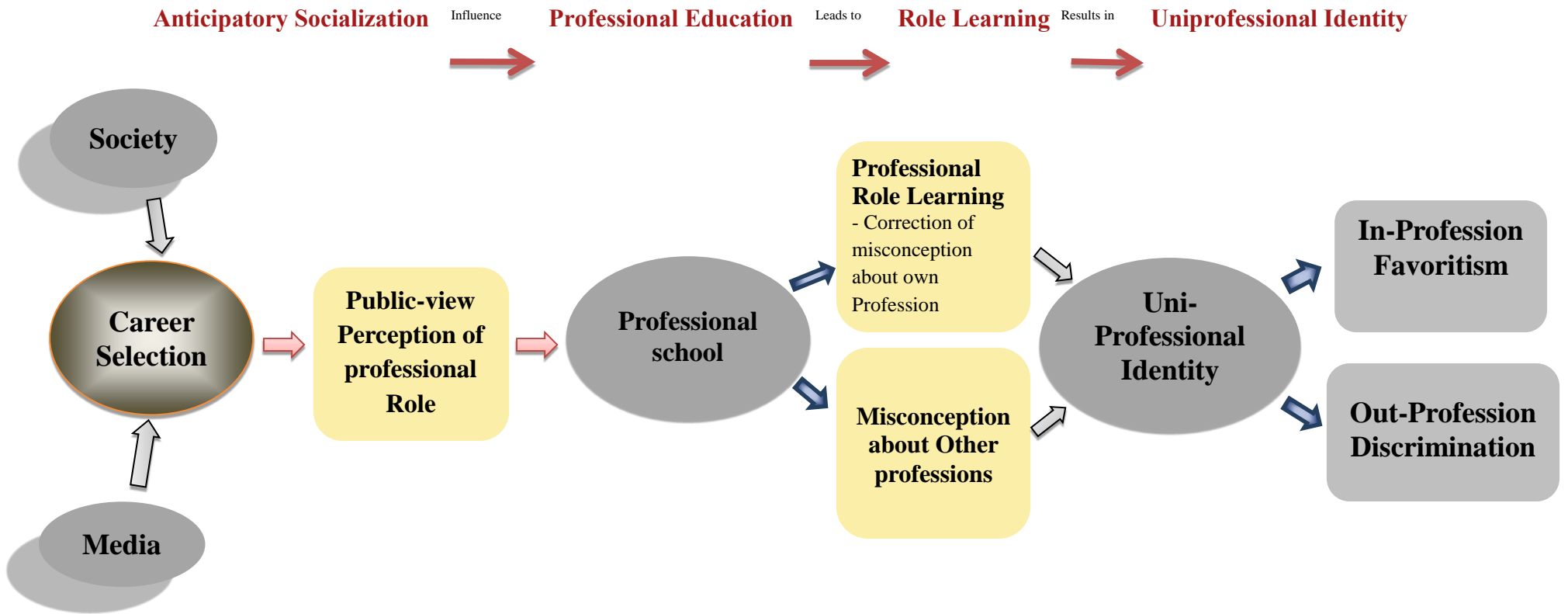


Figure 2-1: Professional Socialization Process

Interprofessional Socialization (IPS)

IPS is a process of bringing learners from across different professional programs together to learn with, from, and about each other. This process creates the context for dual identity formation. Development of a dual identity is the outcome of this socialization process and the first step for IPCPCP teamwork. Students with a dual identity view their practice simultaneously as a member of their own profession and as a member of an interprofessional collaborative team. Adoption of a dual identity through a shared interprofessional socialization process creates an expanded in-group perspective from solely one's own profession orientation, by reducing or eliminating out-group distrust of other professionals (Dovidio, Gaertner, & Saguy, 2007). Interprofessional learners need to learn and practice how to collaborate across professions using an interprofessional team perspective. In so doing they can collaboratively provide quality of care with other health professional students while still assuming their profession-specific roles.

Currently, research in professional education is limited to demonstrating how learners can develop both professional and interprofessional behaviors in isolation from each other. Clearly current educational approaches lead to high cohesiveness of students within their own profession which supports Tajfel and Turner's social identity theory (1979; 1986; 2004), in which cohesiveness from learning solely within their profession leads groups to identify with their own profession. This identification leads individuals to create both a cognitive map and a system of orientation to their chosen profession. This orientation helps to maintain or enhance both their self-esteem and positive self-concept (Ashford & Meal, 1989; Hornsey, 2008). Pettigrew (1998) found that when individuals learn within their own specific group they develop in-group behaviors and this in turn creates trust within their own group membership. At the same time, group members develop distrust towards those outside their group leading to biasing

intergroup interactions. When such uniprofessional in-group and out-group behaviors occur, group members are likely to develop prejudices and negative stereotypical attitudes towards out-professional group members hindering interprofessional collaboration (Dovidio, Gaertner, & Saguy, 2007; Fiske, 1998; Mitchell, et al., 2011).

If a professional student group favors its own group members and views those in another profession as an out-group, intergroup discrimination and competition among professional groups may occur. The need to develop a positive and secure self-concept leads people to favor their own group and developing 'in-group favoritism' (Pettigrew, 1998). Thus, strong development of uniprofessional identity may cause students to view their 'individual' profession as different and/or as better than other related professions. The intensity of the above phenomena is suggested to be stronger when students in one profession are socialized in isolation from other professions (Pettigrew, 1997; 1998). These profession-mediated behaviors are likely to create barriers to interprofessional education for both students and practicing professionals.

Prejudices and stereotypes of other professions, developed initially in childhood (resulting from career selection processes during their anticipatory socialization) and reinforced in adulthood (during professional training), can result in potential misperceptions about each other's roles and abilities thus hindering interprofessional collaboration. Horsburgh and colleagues (2006) in their cross-sectional study on first-year medical, nursing and pharmacy students found that the students came to their professional training with diverse pre-established beliefs and opinions about healthcare systems. The medical students, unlike the nursing and pharmacy participants, believed that clinical work should be the responsibility of individuals, rather than interprofessional teams, reinforcing the existing professional subcultures within the healthcare systems. Interprofessional education success may require challenging the underlying

beliefs, values and assumptions of health care professionals to eliminate, or at least reduce previous misperceptions related to roles, norms, and values of all health professions (Carpenter & Dickinson, 2008; Xyrichis & Lowton, 2008; Salvatori, et al., 2007; Horsburgh, et al., 2006; Cook, 2004; Reeves, 2000; Clark, 1994). Moving towards reducing misperceptions may be accomplished through the application of Pettigrew's intergroup contact theory (1998). This theory may help group members understand how their negative stereotypical attitudes towards out-group professions have evolved (Hewstone & Brown, 1986; Pettigrew, 1998; Tropp & Pettigrew, 2005).

Intergroup contact theory (ICT). ICT is a reformulation of the 'contact hypothesis' model proposed by Allport (1954). ICT theorizes that bringing groups together provides the best means to reduce hostilities; however, contact by itself is insufficient to attend to the development of trust across groups (Hewstone & Brown, 1986). For resolution of hostilities, Pettigrew (1998) proposed the need for the optimal contact conditions – equal status within the groups, cooperating in setting common goals, and provision of institutional support – to create an open and trusting environment. Equal status within groups requires all participants to feel they are in a neutral power situation (neither superior nor inferior). All participants must work together to set common goals and for learners there must be support from faculty and programs to facilitate inter-group interactions. Intergroup contact encourages group members to develop cooperative behaviors, and to create friendships among and across the groups leading to valuing each other and their professions and to dismantle the perception of one's own profession as more important in the health regime. Thus, four interdependent cognitive processes: a) learning about out-

groups, b) changing behavior, c) generating affective ties, and d) in-group reappraisal influences group contact outcomes.

There is a paucity of studies to date that have tested ICT within the context of interprofessional education, however, several interprofessional studies have confirmed the importance of the intergroup optimal contact conditions (Mohaupt et al., 2012; Ateah et al., 2011; Carpenter et al., 2006; Tunstall-Pedoe et al., 2003; Barnes et al., 2000; Carpenter & Hewstone, 1996; Carpenter, 1995; Hewstone, Carpenter, Franklyn-Stokes, & Routh, 1994) and each of the four interdependent cognitive processes to breakdown current barriers (Hind et al., 2003; Reeves, 2000; Reeves & Pryce, 1998; Carpenter & Hewstone, 1996; Carpenter & Hewstone, 1996; Carpenter, 1995; Hewstone, et al., 1994). The application of the intergroup contact conditions in IPE is widely supported as creating the means to improve interprofessional attitudes while reducing stereotypical attitudes between health professional students (Mohaupt et al., 2012; Ateah et al., 2011; Wakefield, et al., 2006; Ponzer et al., 2004; Carpenter, 1995; Carpenter & Hewstone, 1996). This attitudinal change, in turn, has the potential to lead to cross-professional cooperation, development of shared values and friendships across groups (Wakefield, et al., 2006; Reeves, 2000; Reeves & Pryce, 1998) and gaining insights amongst students to their own and each other's profession (Salvatori et al., 2007; Pollard, Miers, Gilchrist, & Sayers, 2006; 2004; Pullon & Fry, 2005; Fineberg, Wenger, & Forrow, 2004; Hind, et al., 2003; Reeves, 2000; Reeves & Pryce, 1998; Clark 1997). These new insights are projected to help students recognize out-group members' perspectives and roles as a necessary part of an effective interprofessional team (Pollard, et al., 2006, 2004; Wakefield, et al., 2006; Ponzer, et al., 2004). At the same time studies in which IPE programs were developed without inclusion of ICT, the results indicated no effect (Curran, Sharpe, Flynn, & Button, 2010; Carpenter et al.,

2006; Barnes et al., 2000) or negative effect of the program on students' stereotypical attitudes (McFadyen, Webster, Maclaren, & O'Neill, 2010; Pollard et al., 2006; Tunstall-Pedoe et al., 2003).

ICT and IPE. In interprofessional practice relationships are complementary to the role and perspective of each member in providing patient care (Wakefield, et al., 2006; Clark, 1997). However, this complementarity between health professional roles and perspectives may be lost when students are forced to focus their care around their own disciplinary practices. Some professions such as social workers and nurses use a 'ruling-in' approach to incorporate the physical, psychosocial, and spiritual aspects when incorporating the patient, their families, their home and community environments in care planning, while others such as medicine and physiotherapy use a 'ruling-out' approach focusing on excluding extraneous aspects of a person's needs to focus on the diagnosis and treatment of patho-physiological patient problems (Clark, 1997). Groups with either focus may perceive the other as either wasting their time or lacking consideration of key aspects for the patient's care. In reality both perspectives are critical to effective care.

Ignoring the aforementioned perspectives in professional education is likely to support continuance of existing misperceptions across professions. Can this be changed? Hind et al. (2003) studied perceptions of health care students towards interprofessional learning and found that identification with a health profession is neither a barrier for IPE, nor a creator of a unified interprofessional team. Development of professional identity is an expected and required outcome of student professional socialization (Frenk, et al., 2010). Socialization creates consistency in how all professionals function within their specific discipline, leading to legitimized occupational functioning (Barnes, et al. 2000; Orchard & Curran, 2003). However,

professional-only socialization results in a lack of understanding and exposure to other disciplines, allowing negative stereotypical attitudes to develop towards other professionals hindering effective collaboration (Frenk, et al., 2010; Pollard, et al., 2006; Carpenter, 2006; 1995). Developing individual uniprofessional identity, values, and scopes of practice, creates boundaries between themselves and other health professionals resulting in each health care profession working within its own 'silo'. This isolation results in students developing cohesive commitments to their own professional values, knowledge and skills, and perpetuating the distinction between 'rival professions' (Hall, 2005). Hence, some professionals see interprofessionalism as a threat towards their uniprofessional identity leading members to resist collaboration (Wakefield et al., 2006; Ponzer et al., 2004; Reeves & Freeth, 2002; Fallsberg & Wijma, 1999). Professional loyalties can cause persistent myths and/or misconceptions about other disciplinary colleagues' roles and contributions (Barnes et al., 2000; Gieryn, 1983). In fact, the issue is not developing a professional identity per se, rather it is holding a uniprofessional perspective that causes misperceptions and prejudice against other health professionals. Therefore, interprofessional socialization requires strategies that breakdown misperceptions, prejudices, and stereotypes while maintaining professional uniqueness in their roles and scopes of practice. These strategies are theorized to lead students to develop a dual identity that embraces collaboration with other health professional students.

At the same time, the interprofessional beliefs and behaviors of learners along with their previous interprofessional experience are believed to affect perception of and comfort towards working with others and may impact interprofessional socialization (Coster et al., 2008; Adams et al., 2006; Reeves & Freeth, 2006; Clarke, Laphorn, & Miers, 2005; Coster et al., 2008; Hojat et al., 2001). Other scholars have argued about the impact of individualist or collectivist

orientation on collaboration. In the former, people focus on their personal interests over the needs of groups/teams. This would lead individualistic-oriented people to avoid teamwork collaboration when their personal desires are in conflict with the team goals/interests (Wagner, 1995). In contrast, collectivists focus their demands and interests on the group/team to which they belong. For collectivists, collaboration is an expected and accepted behavior setting aside their own personal interests (Wagner, 1995). Assessment of individualism versus collectivism within learners has the potential to determine the relative importance individuals' accord to collaboration and teamwork (Gantert, 2007; Tschannen, 2004). Furthermore, some literature argued about the impact of some systemic factors that influence IPE including: professional education programs, professional regulations, and health care delivery models (Reeves & Freeth, 2006; AIPHE, 2008; D'Amour & Oandasan, 2005; Frenk, et al., 2010; Hall, 2005; Ho, 2006; Gilbert, 2005; Oandasan & Reeves, 2005) which are beyond the scope of this dissertation.

The following section describes a model for IPS derived from both social identity (Tajfel & Turner, 1986) and intergroup contact theories (Pettigrew, 1998) in which interprofessional values, beliefs, behaviors, knowledge, and skills are integrated into an individual's professional identity trajectory. This process is theorized to prepare the next generation of health professionals to successfully integrate interprofessional collaboration into their ongoing professional practice.

Conclusion

In conclusion, while development of a uniprofessional identity is widely considered as a major barrier to interprofessional collaboration, adoption of a dual identity among health professional students is theorized to prepare the new generation of health professionals with the necessary competence to integrate interprofessional collaboration into their ongoing professional

practice. Although the current IPE and collaborative practice literature stresses the importance of interprofessional socialization that results in dual identity development among health professional students (Frenk, et al., 2010; WHO, 2010, 2005, 1988; Carpenter & Dickinson, 2008; D'Amour & Oandasan, 2005; Clark, 1997), there is a paucity of research investigating the process students must move through to create this transformed socialization leading to dual identity development.

CHAPTER TWO

SECTION II; INTERPROFESSIONAL SOCIALIZATION FRAMEWORK

Interprofessional Socialization Framework; Development of Dual Identity

The IPS framework theorizes that the current profession-specific socialization, causes health professional students to develop a uniprofessional identity in which students share trusting and rewarding relationships with those from own profession, but may develop hostility and discrimination towards those outside of their profession, as a means to enhance their self-concept. To transform this uniprofessional identity to a dual identity, the IPS framework posits a three stage process in which interprofessional students need to first eliminate their misperceptions and hostility against each other (Stage I - Breaking Down barriers) in order to be able to begin learning and practicing interprofessional collaboration as a team (Stage II - Interprofessional Role Learning). Collaborating as a team will help the interprofessional students to develop a dual identity (Stage III - Dual Identity Development) in which they view themselves simultaneously as a member of their own profession and the interprofessional community with a willingness to practice interprofessionally in the future (Figure 2-2).

IPS development is also mediated by both individual and larger systemic factors. In the IPS framework, learners with positive past interprofessional experience, high interprofessional beliefs, and a collectivist orientation are theorized to respond more favorably to IPS than those who lack or have negative past interprofessional experiences, low interprofessional beliefs and behaviors, and an individualist orientation. The systemic factors that are theorized to influence IPS include: professional education programs, professional regulations, and health care delivery models which are beyond the scope of this dissertation (see Khalili, Orchard, Laschinger, & Farah, 2013).

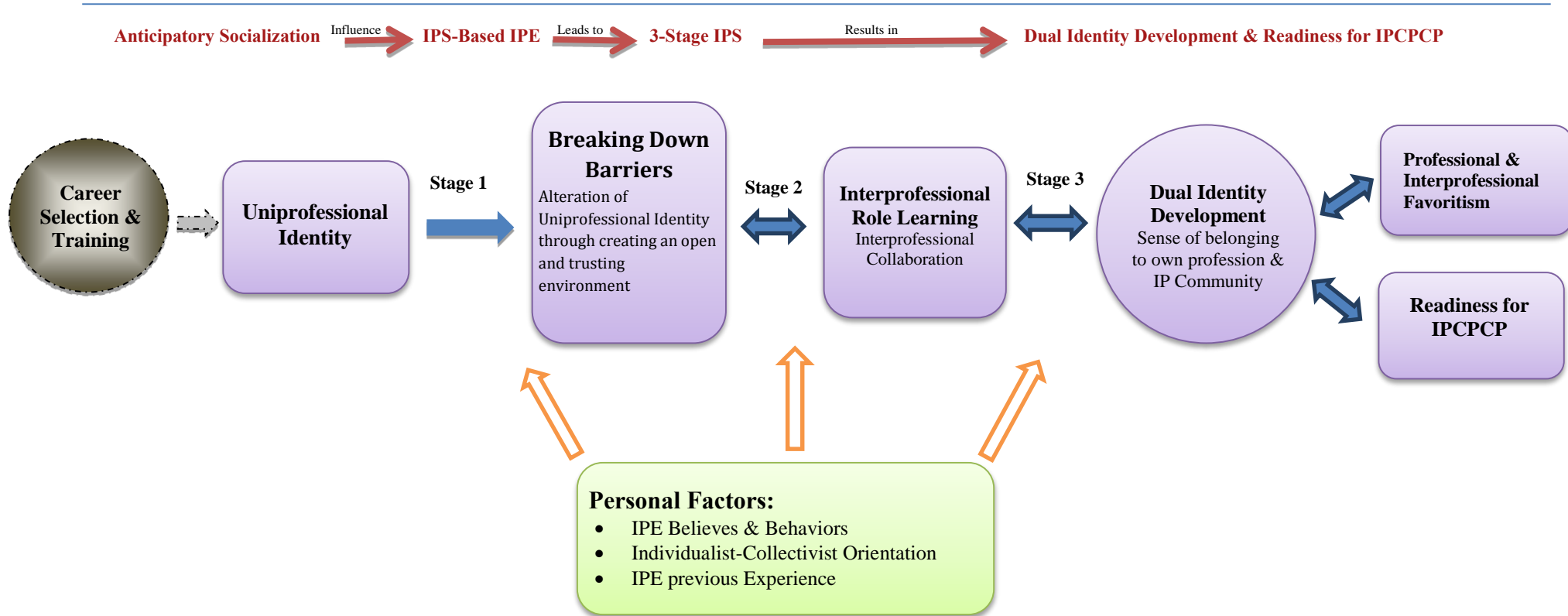


Figure 2-2. Interprofessional Socialization Framework; Development of Dual Identity

Note: The double arrows in the figure demonstrate the synergy/antagonistic of the relationship between the stages.

Stage I. Breaking down barriers

The first stage of IPS is when a) an open and trusting environment is created through the application of Pettigrew's (1998) optimal contact conditions (equal status among the students and staff and cooperation towards setting and meeting common goals) and b) barriers against interprofessional learning and collaboration are broken down through the application of Pettigrew's (1998) four interdependent cognitive processes (learning about out-groups, changing behavior, generating affective ties, and in-group reappraisal).

It is theorized that trusting would evolve from learner engagement in opportunities to gain clarity about their roles, norms, and values. According to this IPS framework, engagement could be achieved through discussion of misconceptions about other healthcare professionals leading to learners gaining insights about their own and other professions and resulting in cross-professional friendship and behavioral changes from discriminative to cooperative ones. This process is further theorized to require the creation of an open environment that is facilitated by: equal status among the group members; shared goal setting; cooperative working within common goals; and institutional support for interprofessional collaboration.

This open and trusting environment is hypothesized to assist learners to reach an openness in shifting their uniprofessional perspective. To reach an 'openness', learners are encouraged to reflect critically upon their own views and existing assumptions about their own and other professions, and reconsider previously held misconceptions. Uniprofessional perspective transformation may occur through open 'cross-disciplinary interactions' and debates in which pre-existing commonly held views are intentionally and critically challenged. This transformation in perspective is essential to help reduce turf protection behaviors and perceived threats to professional identity among learners. The outcome of this stage is developing an

adjusted 'professional identity' in which students enhance their in-profession favoritism, but reduce and eliminate their 'out-profession' discrimination. Towards the end of this stage, learners would adopt enhanced clarity about their own roles, knowledge and skills, and gain new understandings of other professions thereby increasing their readiness for interprofessional role learning. Hence, this stage is considered as the first step for the students to begin learning with and from each other and moving towards development as an interprofessional team.

Stage II. Interprofessional role learning – interprofessional collaboration

Interprofessional role learning incorporates the knowledge/skills, norms, values, and behaviors necessary for moving towards interprofessional collaboration (IPC). It is theorized that to facilitate the interprofessional role learning, learners need to be engaged in discussions around shared understanding of each other's roles, knowledge, and skills, and subsequently gaining more effective exploration of how to work collaboratively across professions. IPC is about communication with patients and across professions and requires the ability of different health professionals to work in partnerships to meet patients' needs. It is theorized that IPC would result in a "shared creation" in which interprofessional learners with their complementary skills create a shared understanding of patients' needs that none had previously possessed or could have arrived at on their own (Schrage, 1990, p 40-41). To do so, IPC requires effective communication, cooperation, and coordination among learners leading to shared leadership, decision-making, and power while respecting divergent insights and opinions. Such a process needs an open cooperative ongoing dialogue between learners, who trust and respect each other creating a sense of interdependency and partnership also called interprofessionality (D'Amour & Oandasan, 2005).

An ideal strategy for this stage of IPS is using a case-based teamwork approach (in classroom, simulation, and/or professional practice settings) focused on development of interprofessional collaboration competencies using the Canadian Interprofessional Health Collaborative (CIHC) National Competency framework (CIHC, 2010). The CIHC interprofessional competencies include: role clarification, patient/client/family/community-centered care, team functioning, collaborative leadership, interprofessional communication, and Interprofessional Conflict Resolution (CIHC, 2010). The outcome of this phase results in learners who are poised to move forward in developing their dual identity.

Stage III. Dual identity development

According to the IPS framework, dual identity for IPCPCP requires interprofessional learners to simultaneously view themselves as both, part of their own professional and of their interprofessional community. It is hypothesized that learners can adopt a dual identity through re-affirmation of their original but adjusted professional identity and adoption of an expanded interprofessional identity. Holding a dual identity would create the environment for learners to belong to an extended inclusive interprofessional community, which helps in transforming previous distrust arising from out-profession differentiation into valuing the input of all group members. At the same time each student would maintain their own professional boundaries thus preventing threats to their individual and professional integrity.

Individual's learning and working in interprofessional collaborative groups would further create collaborative team working relationships into development of holistic patient care plans. Collaborative working relationship is further theorized to assist learners to equally value, respect, and celebrate the diverse contributions of each team member. This interprofessional collaborative teamwork would further help members develop a sense of belonging to while

concurrently identifying with both their own profession and the interprofessional team/practice. The outcome would be further corrections to previous disciplinary myths and prejudices and internalizing a dual identity. As learners move towards developing a dual identity, they would be empowered to view IPCPCP through both their own professional lens and as a member of an interprofessional community. This dual identity development is theorized to increase learners' willingness to seek collaborative teamwork following graduation.

These three stages of IPS are interrelated and iterative as being shown with double arrows in the figure. As the learners begin to develop a dual identity, they will continue learning and working with each other, which in turn results in learners being more open to other opinions and perspectives leading to IPCPCP teamwork.

Conclusion

IPS Framework theorizes that for IPE to be successful in preparing future practitioners for IPCPCP, IPE's focus should shift towards interprofessional socialization assisting students transforming their uniprofessional identity to a dual identity. To do so, a three stage process is being proposed including: Breaking Down Barriers, Interprofessional Role Learning and Dual Identity Development. It is theorized that adoption of a dual identity is likely to lead to the creation of an ongoing interprofessional collaborative practice culture after graduation.

Hence, the purpose of this study was to test the IPS framework through assessing the impact of an IPS-based IPE program intervention on students' dual identity development and socialization process.

Chapter Three
Methodology

Methodology

Methodological Overview

The purpose of this exploratory study was to assess the impact of an IPS-based IPE program intervention on students' socialization process and dual identity development.

Research Questions

1. What is the effect of an IPS-based IPE program on the development of dual identity among health professional students?
2. What is the relationship between the personal factors (e.g., IPE beliefs and behaviors, past IPE experience, and individualist vs. collectivist orientation) and the dual identity development among the health professional students during the study?
3. What is the socialization process that student's move through during the development of dual identity?

Research Design

To answer the research questions, a concurrent mixed-method approach (Creswell, 2008) was used with quantitative data statistically testing the trend in dual identity development (research questions 1 and 2) and qualitative data assessing the process of dual identity development to obtain an in-depth understanding of what influenced students' interprofessional socialization (research question 3). Converging (triangulation) both quantitative and qualitative data provided a rich and deeper understanding of how learners' socialization and dual identity development occurred over time (Creswell, 2008; Greene & Caracelli, 1997; Greene, Caracelli, & Graham, 1989).

The quantitative portion of the study utilized a single-group pre-experimental design using pre-post-post measures (Hannum, Martineau, & Reinelt, 2006) to test participants' changes

towards dual identity development over time. A pre-experimental design utilizing an intervention and a purposive convenience sampling approach was chosen to ensure access to a sufficient participant pool of students to meet the needed sample size. Further, three repeated measures were used to assess changes in participants' dual identity during the study's intervention.

A qualitative descriptive approach (Braun & Clarke, 2006; Sandelowski, 2000) was used to explore the lived experience of students during their dual identity development utilizing a combination of students' reflective perceptions during and following the intervention workshops (Clark, 2009; Jasper, 2005; Kolb, 1984; Tuckett & Stewart, 2004), and tape recorded transcriptions obtained from selected student group discussions (as described in data collection section in this chapter) during the intervention sessions (Payne & Payne, 2004; Greenbaum, 1988; Bakhtin, 1981 & 1986).

Sample and Sampling

A purposive convenience sampling approach was used for the quantitative and qualitative data collection. The study participants consisted of 108 students from: Occupational Therapy (25%, n= 27), Food and Nutrition (20%, n = 22), Speech Language Pathology (15%, n= 16), Medicine (12.0%, n= 13), Nursing (11%, n = 12), Physical Therapy (6%., n= 6), and Social Work (5%, n = 5) professional programs (Figure 3-1). These seven professional programs were selected because these professional groups are found within many healthcare teams. The age mean of participants was 22.21 (SD= 5.1) years, the majority of participants were female (67.6%, n = 73), 54% (n = 59) of the participants were in their first year of their programs and 73.1% (n = 79) of the participants had no previous interprofessional learning experiences. Ninety-one percent of the 27% of the participants who reported past IPE experience, found their learning to be positive.

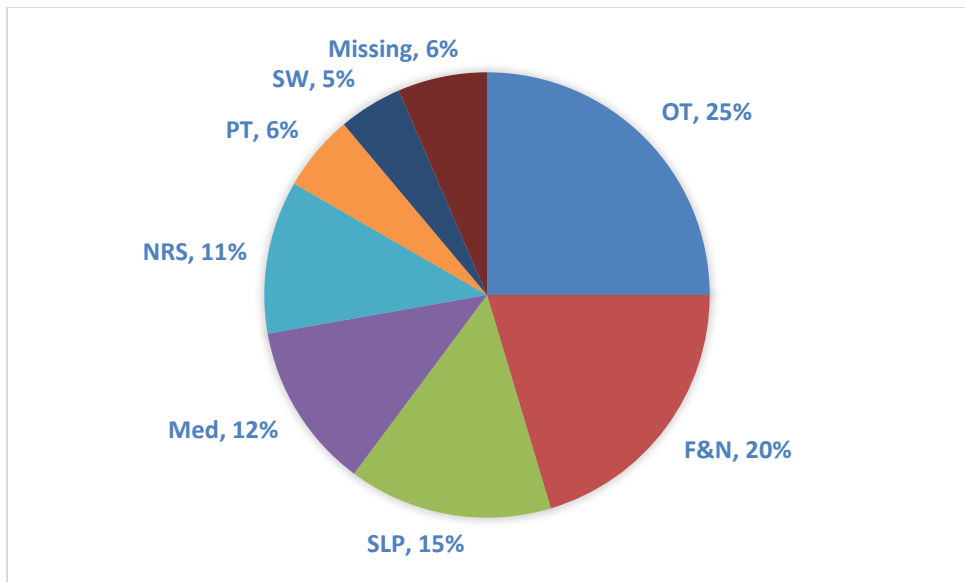


Figure 3-1. Students Sample Professional Composition

Inclusion criteria for the study were: 1) students enrolled in one of the above seven professional programs at University of Western Ontario (UWO), 2) pre-licensure health professional students in their first or second year of their educational program, and 3) willingness to participate. UWO was selected as the location for this study because it provided all of the above programs and IPE was emphasized within both the institution and many of the programs. The rationale for selecting students in their first and second year (early education) was related to the belief that students enter their programs with pre-established assumptions about their own and other professionals' roles and at this level students are either beginning or had begun their professional practice development (Carpenter & Dickinson, 2008; Pollard, et al., 2006, 2004).

Determination of sample size. In regards to the quantitative portion of the study, a power analysis was carried out using a-priori Sample Size Calculator (Soper, 2004) to reduce the risk of Type II or β errors for the quantitative data analysis. According to this method, a total sample size (N) of 84 participants at a power level of .80 and using a .05 alpha level is sufficient

to detect the hypothesized medium effect ($r^2 = .15$) of 4 predictor variables (IPE program, interprofessional beliefs and behaviors, past IPE experience, and individualist vs. collectivist orientation). However, in order to secure a sample size that takes into account participant attrition during repeated data collection periods, a sample size of 108 health professional students were obtained using purposive convenience sampling. This higher sample number also meets the requirements to run latent growth curve modeling at a power level of .80 and using a .05 alpha level according to Corbett (2010, personal conversation) and Muthén and Muthén (2002).

Sample recruitment. Participants were recruited through three means: (1) classroom promotion – Program Directors, Associate Dean or Chair of each identified health professional program were approached and asked for permission to use 10 to 15 minutes of a first- and second-year course class time to present the study and invite student participation; (2) advertisement for participants – a researcher developed poster inviting students to participate in the study was distributed through three means: (a) an electronic poster sent to Program Directors, Associate Deans, Chairs, and Coordinators, of each identified health professional program with a request to distribute the electronic poster to all their 1st and 2nd year health professional program students; (b) an electronic poster was sent to the communications officer of the London Interprofessional Healthcare Students' Association (LIHSA) with a request for its distribution by e-mail to all members; and (c) paper-copies of the poster were posted in the planned participating health program school facilities; and (3) the Coordinator of the Office of Interprofessional Health Education & Research posted an electronic copy of the poster on the UWO IPE website

<http://ipe.uwo.ca>). In addition, the Associate Dean of Undergraduate Medical Education placed the electronic poster on the Undergraduate Medical Education website.

The advertisement process resulted in most prospective participants being provided with the study information letter and/or the advertisement (including the researcher's contact information) a few days prior to their planned classes where the researcher requested their participation in the study. During this class time, the researcher discussed the study and distributed the study information letter to all potential study participants. Students were encouraged to discuss any questions or concerns regarding the study through email/phone and/or in the face-to-face meetings before signing their consent forms. Signed consent forms were obtained prior to the study's commencement (Appendix A).

Data Collection

The data collection was comprised of quantitative and qualitative evidence.

Quantitative portion. The quantitative data were obtained using three instruments [dual identity scale (DIS), interprofessional socialization and valuing scale (ISVS), and individualism-collectivism scale (ICS)] administered two to three times during the study – time one prior to the intervention (T1); time two following the first intervention workshop (T2) and time three following the second intervention workshop (T3) (Appendix B). T1 data were collected either in classroom or the researcher's office using the DIS, ISVS, and ICS, T2 data were collected after the first workshop using only the DIS and T3 data were collected at the end of the second workshop using the DIS, ISVS, and ICS (Table 3-1).

Table 3-1

Instruments and time series measures for Quantitative Data Collection

Time Series Measures	T 1 (Pre-Test) Enrollment	T 2 After Workshop 1	T 3 (Post-Test) After Workshop 2
Individualism-Collectivism Scale	√		√
Interprofessional Socialization and Valuing Scale (ISVS)	√		√
Dual identity Scale	√	√	√

Qualitative portion. The qualitative data collection for this study utilized students’ reflections on their workshop experience – reflective journals and workshop personal reflections – and the randomly selected and audio-recorded group discussion. Both sources were transcribed verbatim and then analyzed using a thematic content analysis approach (Braun & Clarke, 2006).

Reflections. Reflections on their perceived collaboration that occurred during workshop group work was used as an approach to capture personal and collective “perspective transformations” (Clark, 2009; Jasper, 2005; Scanlon, Care, & Udod, 2002; Kolb, 1984) towards dual identity. Two different methods of reflection were used to gather participants’ reflections; a) reflective journals and b) workshop personal reflections; sixty one reflections were collected through these two methods of reflection.

a) Reflective journals. Ten participants enrolled in this study volunteered to submit written reflective journals after the second workshop. These participants were given a template and instructions for completing their reflections following each workshop (Appendix C).

The reflective journal template was designed to focus on changes the students experienced in their dual identity level as an outcome of the workshops. Participants received a

reminder at the end of each workshop to complete their journal. One week after the second workshop a final email was sent requesting submission of their completed reflective journals. Only 50% (n=5) of the participants submitted their reflective journals, two other participants were unable to participate in the workshops, and the remaining participants did not respond to the two email reminders sent at two week intervals.

b) Workshop Personal reflection. Participants were asked to complete a personal reflection form at the end of the second workshop (Appendix C). This form was utilized to obtain participants reflection on their collaboration from both an individual role within the team, and also about the overall teams' work (Clark, 2009; Scanlon, Care, & Udod, 2002; Kolb, 1984). Fifty-six students completed these personal reflections.

Group discussions. At the beginning of each workshop, participants in their groups were asked about their willingness for their group discussions to be tape-recorded. No objections were voiced at either workshop. Voice digital recorders (VDRs) were placed on four tables at the first workshop and three tables at the second workshop. These tables were randomly selected using the Random Sampling technique in Microsoft Excel. From the seven recorded group discussions, five group discussions (three from first workshop and two from second workshop) were transcribed verbatim, the other two recordings had technical and software issues causing lack of data clarity and were excluded from data analysis (Payne & Payne, 2004). While the reflective journals were used to capture transformational changes in participants' identities, tape-recorded group discussions were used to: (a) capture the interprofessional socialization process occurring among and between participant group members during the two intervention workshops and (b) provide a means for the researcher to evaluate the participants' interprofessional interactions

(including attitudes and beliefs) about their socialization towards establishing a dual identity (Payne & Payne, 2004; Greenbaum, 1988; Bakhtin, 1981 & 1986).

Participants were provided with refreshments (pizza and a soft drink) during the workshop and a certificate of attendance at the end of each workshop. Participants also received a \$20 honorarium (or the adjusted amount) following completion of the 3rd set of instruments in recognition of their participation time taken.

Instruments

The three instruments used in this study included: (a) the interprofessional socialization and valuing scale (ISVS) (King, Shaw, Orchard, & Miller, 2010); (b) the individualism-collectivism scale (Wagner, 1995); and (c) the dual identity scale (DIS).

Interprofessional socialization and valuing scale (ISVS). ISVS was developed by King, Shaw, Orchard, & Miller (2010) to measure participant's perceptions about their beliefs, behaviors, and comfort in working interprofessionally with other health professionals. The ISVS consists of 34-items within three sub-scales including: comfort in working with others (9 items), ability to work with others (11 items), and value in working with others (14 items) using a 7-point Likert rating scale in which 1 represents 'Not At All', 6 indicates 'To a Very Great Extent' and 7 'Not Applicable'. Construct validity of the ISVS was established using factor analysis and the instrument has a reliability (using Cronbach's α) ranging from 0.79 to 0.90 for the total scale and its three subscales (King et al., 2010). Because of the similarity of some of the items (n=10) in the ISVS with those in the DIS, the ISVS was modified by removing these similar items. The modified version of the ISVS used in this study consisted of 24 items distributed within the above three subscales: comfort in working with others (6 item), ability to work with others (8 items), and value in working with others (10 items) using a 6-point rating Likert scale in which 1

represents 'Not At All' and 6 indicates 'To a Very Great Extent'; the rating number 7 (representing 'Not Applicable') was removed from the score calculation. This modified ISVS was used to measure participants' beliefs and behaviors towards IPE, one of the personal factors in this study at T1 and T3. The total mean score of all items is a continuous variable ranging from 1 to 6.

Individualism-collectivism scale (ICS). ICS was developed by Wagner (1995) to measure respondents' level of cooperation in groups. The 20-item ICS contains five subscales – personal independence and self-reliance, competitive success, working alone, subordination of personal needs to group interests, and personal pursuits on group productivity –rated on a 7-point agree-disagree Likert scale. Items 1-10, 12, and 18-20 in this scale are reverse-scored to preserve its consistent directionality towards collectivism (Wagner, 1995). The construct validity of the ICS was established using factor analysis and the scale/subscales' reliability ranged from 0.72 to 0.83 (Cronbach's α) (Wagner, 1995). ICS was used to assess participants' valuing of group' interest (collectivism) over their personal interests (individualism) rated on a 7-point agree-disagree Likert scale to measure a further personal factor at T1 and T3. The instrument was scored as a continuous variable with its total mean score ranging from 1 to 7, with values higher than 5 indicating collectivism.

Dual identity scale (DIS). This scale is an adaptation of two instruments: the Healthcare Stereotype Scale (Carpenter, 1995) and Multi-group Ethnic Identity Measure (MEIM) (Phinney, 1992). The resulting validated DIS (described later) is comprised of 30-items with four theoretical-based³ sub-scales: interprofessional belonging, professional belonging, dual identity

³ According to the conceptual framework of the study, dual identity development depends upon a. feeling a sense of belonging to interprofessional community; b. feeling a sense of belonging to own professional community; and c. achieving dual identity; and d. improving cross-disciplinary attitudes.

achievement and cross-disciplinary attitudes rated on a 5-point Likert scale and was used to evaluate dual identity among study participants at T1, T2, and T3. Items 5, 6, 19, 26, and 27 in this scale are reverse-scored to preserve the directionality of the scale towards dual identity where the higher score indicates greater dual identity.

The DIS is comprised of two parts. In the first part (consisted of items 1 to 4) a horizontal (characteristics) and vertical (profession) axis are used. Scoring for this first two items is carried out by summing the five characteristics (i.e., academic quality, professional competence, knowledge/skill base, team player, and attitude towards patient) on the horizontal axis using a 5-point scale from 5= very high to 1= very low on each characteristic for 'my own profession' (in item 1, or for each of the five listed professions in item 2) on the vertical axis. The total item score achieved on the five characteristics is then converted into a mean to represent the score of the first item. For example, if a participant rates their own profession as: academic quality = 4, professional competence = 5, knowledge/skill base = 4, team player = 4, and attitude towards patient = 5, the total item score would be 22. The mean score would be arrived at by dividing the total item score (22) by 5 (the number of characteristics), hence the mean would be 4.4. A similar scoring system is employed for item 2; but in item 2, participants rate five other professions (except their own profession) (on the vertical axis) against to the above five characteristics (i.e., academic quality, professional competence, knowledge/skill base, team player, and attitude towards patient) on the horizontal axis. The mean score for item 2 is arrived at by dividing the total item score (achieved on the mean rating scores for the five professions) by the total number of professions. For example, if a participant's mean rating score for the 5 professions (achieved on the above five characteristics) are the following: nursing= 4.2, Medicine=4.4, Physical Therapy=4, Occupational Therapy=3.8, and social work=4.1, the total item score for the 5

professions would be 20.5. The mean item score would be arrived by dividing this 20.5 by 5 (the number of the professions) which is 4.1.

Item 3 rates the degree of interest members have in learning and working with those from their own profession with 1 representing 'Not Interested' and 5 'Extremely Interested'. The score for item 3 is the rating selected by the respondent. Item 4 rates the degree of interest participants have in learning and working with those from other health professionals with the same rating scale as that of the item 3 (1 representing 'Not Interested' and 5 'Extremely Interested'). To obtain the item 4 mean score, the total item (achieved on the five professions) is divided by the total number of professions listed in the vertical axis (n=5). In part two items 5-30 are scored based on the respondent's ratings from 1-5 where 1 indicates 'Strongly Disagree' and 5 represents 'Strongly Agree'. The mean scale score is obtained by dividing the sum of all items' scores by the total number of items in the scale (n=30). The total mean scale score ranges from 1 to 5, as a continuous variable, and the cut off is 4 which indicates the minimum score for the dual identity.

Psychometrics analysis of DIS. Dual identity was the concept of interest in this study and no instrument was found in the published literature to measure this concept. The researcher developed the initial version of the DIS which was an adaptation of two existing validated scales, the Healthcare Stereotype Scale (Carpenter, 1995) and the Multi-group Ethnic Identity Measure (MEIM) (Phinney, 1992) and consisted of 32-items rated on a 5-point Likert scale. From its 32 items, items #1 and #2 are adapted from the Healthcare Stereotype Scale (Carpenter, 1995), items # 5 to # 32 are adapted from MEIM (Phinney, 1992) and items # 3 and # 4 are researcher

developed items based on relevant identity development literature. This 32-item DIS version was assessed for its validity (content and construct) and reliability prior to the main study.

Content validity. The content validity index (CVI) developed by Waltz and Bausell (1981) and modified by Lynn (1985) was used to assess the instrument's content validity. Seven IPE/IPC experts provided their evaluation of each DIS scale's item using a 4- point Likert-type scale with 1= not relevant, 2= unable to assess relevance without item revision, 3= relevant but needs minor attention, and 4= very relevant and succinct (Lynn, 1985). Additionally, an open-ended question asked the experts to identify any critically omitted items from the scale.

The CVI for each scale item was computed by dividing the number of experts giving a rating of either 3 or 4 by the total number of experts. According to Lynn (1985), items achieving a CVI of 0.6 or above are accepted as content valid. CVI for the DIS was arrived at by assessing the proportion of items rated content valid (more than .60) – 30 items – as compared to the number of total scale items – 32 items – (Lynn, 1986) which was .94. The CVI for 30 items of the 32 DIS items was .80 above (items were rated 3 or 4) and two items (items 25 and 26) received a CVI of less than .60 and were deleted. The remaining 30 items were validated for their content following minor revisions to 12 items – ‘culture and background’ was changed to ‘culture’; ‘a lot’ was changed to ‘often’, ‘sometimes’ was changed to ‘often’; and ‘students’ was changed to either ‘person’ or ‘member’. Hence, the resulting 30-item DIS was considered to have content validity (see appendix D for the CVI table).

Construct validity and reliability. Construct validity and reliability of the 30-item DIS was assessed using a convenience sample of 90 BScN nursing students from the compressed

time frame (CTF) program⁴ at UWO. These students were chosen because they would be excluded from the main study.

Construct Validity and Exploratory Factor analysis. The DIS was assessed for its construct validity, using the Statistical Package for the Social Sciences (SPSS) software version 19. Initially an exploratory factor analysis (EFA) was conducted to evaluate the fit of the DIS' scale structure (Levine, 2005; Thacker, Fields, & Tetrick, 1989). The adequacy of data for a factor analysis assessment was determined using Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity; in the former the score was 0.703 and in the latter it was significant (.001), both supporting the use of factor analysis (Tabachnick & Fidell, 2001). The EFA was conducted using orthogonal varimax rotation with four factors. An inspection of the scree plot (Figure 3-2) also revealed a clear break after the fourth component supporting running the factor analysis with four factors.

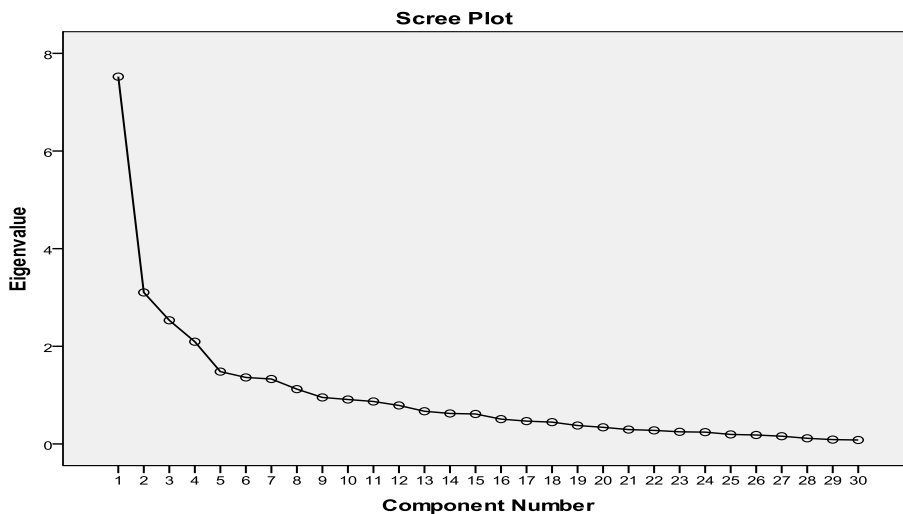


Figure 3-2. DIS Scree Plot

⁴ CTF program is a 19-month accelerated BScN program which prepares students for careers as Registered Nurses (RN). Applicants must have completed at least 10 university level full-course equivalents with a minimum 75% (3.0 GPA) average.

These four factors also reflected the DIS' theory-based sub-scales: interprofessional belonging (IPB), professional belonging (PB), dual identity achievement (DIA), and cross-disciplinary attitudes (CDA). Factor 1, 'IPB' has 8 items and accounted for 25.10% of the variance; factor 2, 'PB' contained 10 items accounted for 10.34% of the variance; factor 3, 'DIA' contained 8 items and accounted for 8.44% of the variance; and the last factor, 'CDA' contained 4 items accounting for 6.98% of the variance. These four factors explained a total of 51% of the variance (Table 3-2).

Reliability of the DIS scale was determined using Cronbach's α coefficient. The internal consistency for the total scale was 0.88 and for its four subscales ranged from 0.69 to 0.84 using Cronbach's coefficient alpha. These levels exceeded the recommended level of 0.60 for a self-report instrument (Nunnally & Bernstein, 1994) and reached the acceptable level of 0.70 (Polit & Beck, 2004), with the exception of CDA subscale with reliability of 0.69, providing the reliability of the DIS and its sub-scales to be used in this study (see Table 3-3).

Table 3-2

DIS Exploratory Factor Analysis

DIS Subscale	Item No.	Item	Loading Factors
IP Belonging	4	Indicate your degree of interest in learning and working with students from other health professions	.596
	12	I like meeting and getting to know people from other health professions	.547
	14	I feel a strong attachment towards interprofessional teams comprising cross-disciplinary health professionals	.582
	18	I am happy that I am a person who wants to learn about other health professions	.610
	19	I often feel it would be better if different health professionals work independently	.602
	27	I do not try to become friends with people from other health professions	.613
	29	I enjoy learning and collaborating with people from other health professions	.599
	30	I often feel it would be better if different health professionals work together as a team	.663
Professional Belonging	3	indicate your degree of interest in learning and working with students from your own profession	.400
	7	I am active in organizations and/or social groups that include mostly members of my own profession	.515
	11	I like meeting and getting to know people from my own health profession	.650
	13	I feel a strong attachment towards my own profession	.751
	17	I am happy that I am a member of the profession that I am currently in	.783
	20	I feel good about my own professional practice culture	.656
	22	I have a strong sense of belonging to my own profession	.762
	24	I have a lot of pride in my own profession and its accomplishments	.763
	26	I do not try to become friends with people from my own profession	.592

DIS Subscale	Item No.	Item	Loading Factors
	28	I enjoy learning and collaborating with people from my own profession	.593
DI Achievement	5	I really have not spent much time trying to learn more about the culture of my professional practice	.354
	6	I really have not spent much time trying to learn more about collaboration with other health professions	.652
	8	I am active in organizations and/or social groups/activities that bring people from different health professions together	.495
	9	I have a clear sense of my professional culture and what it means for me	.532
	10	I have a clear sense of interprofessional collaboration and what it means for me	.731
	15	I often think about how my life will be affected by my professional membership	.524
	16	I often think about how my life will be affected by my interprofessional group membership	.756
	23	I have a strong sense of belonging towards interprofessional teams comprising cross-disciplinary health professionals	.642
Cross-Disciplinary Stereotype	1	Rate your own profession based on each of the following characteristics (Academic Quality, Professional Competence, Knowledge/ skill Base, Team Player, Attitude towards patient).	.735
	2	Rate other health professions based on each of the following characteristics (Academic Quality, Professional Competence, Knowledge/ skill Base, Team Player, Attitude towards patient).	.747
	21	I feel good about sharing in health professional team cultures.	.643
	25	I have a lot of pride in other health professions who collaborate to the benefit of patients/clients.	.538

Table 3-3

Descriptive Statistical Analysis of the Preliminary Dual identity Scale and its Sub-scales

Subscale	No. of Items	Mean	SD	Cronbach α
Overall Scale	30	3.75	.79	.88
Interprofessional Belonging	8	4.11	.49	.80
Professional Belonging	10	3.94	.48	.84
Dual Identity Achievement	8	3.39	.57	.75
Cross Disciplinary Attitudes	4	3.95	.85	.69

The inter-correlation among the DIS subscales using bivariate correlation procedures, demonstrated that all the subscales, except for IPB and CDA ($r = .141$), are significantly correlated with each other with the highest correlation occurring between IPB and PB ($r = .396$) and the lowest one between PB and CDA ($r = .193$). The correlation between the subscales and the total DIS scale were also significant with the highest correlation between CDA and the total score ($r = .928$) and the lowest one between IPB and the total score ($r = .279$) (Table 3-4). The very high correlation between CDA and the total score and the non-significant correlational relationship between IPB and CDA could be related to the 'sample' for this validation pre-study. The sample was from a CTF program in which many of the students entered the program with holding a university degree mainly in another health discipline.

Table 3-4
Inter-Correlation among DIS Subscales and Total Score

	IPB	PB	DIA	CDA	DIS TS
IPB	1				
PB	.396**	1			
DIA	.262**	.347**	1		
CDA	.142	.193*	.218*	1	
DIS TS	.279**	.297**	.392**	.928**	1

** . Correlation is significant at the 0.01 level (2-tailed).

Key:

IPB: Interprofessional Belonging, PB: Professional Belonging, DIA: Dual Identity Achievement, CDA: Cross Disciplinary Attitudes, and DIS TS: DIS Total Score

In summary, the DIS instrument psychometric analysis indicated that the 30-item DIS is comprised of 4 subscales: Interprofessional Belonging, Professional Belonging, Dual identity Achievement, and Cross Disciplinary Attitudes and has an overall and subscale reliability (using Cronbach’s Alpha) ranging from 0.69 to 0.88. The DIS therefore is a reliable and valid instrument to measure dual identity for this study.

Intervention

The intervention (IPS-based IPE Program) in this study comprised two 2-hour workshops (a total of 4 hours) held on the university’s campus in a large room with moveable tables and chairs. These two workshops will be described separately below. The IPE program was purposefully developed to reflect the concepts within the IPS framework (Breaking down barriers, interprofessional role learning – IPC, and dual identity development) and the perspectives of its underpinned social identity and intergroup contact theories. The interprofessional study participants were expected to participate in both intervention workshops.

All study participants were assigned to the same small interprofessional group for both workshops. There was an attrition of about 30% from the enrolment point to the end of the study; however the professional compositions were remained similar (see Figures 3-3 and 3-4).

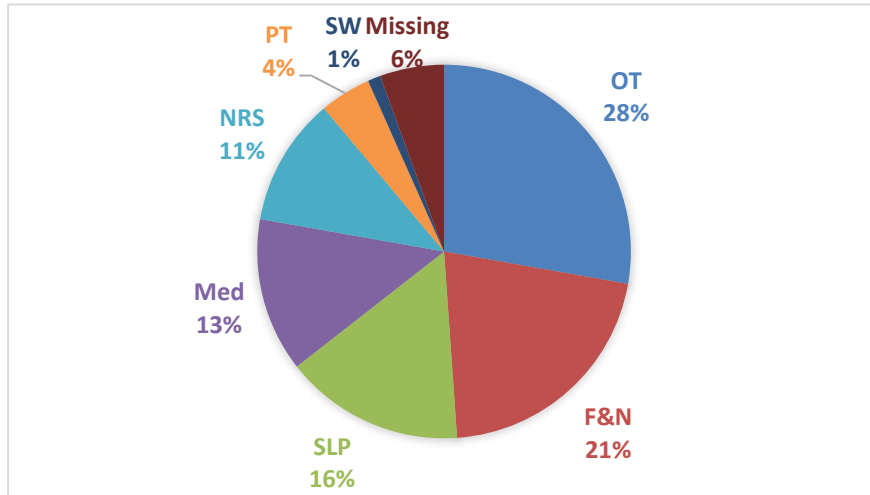


Figure 3-3. Students Professional Composition at Workshop # 1

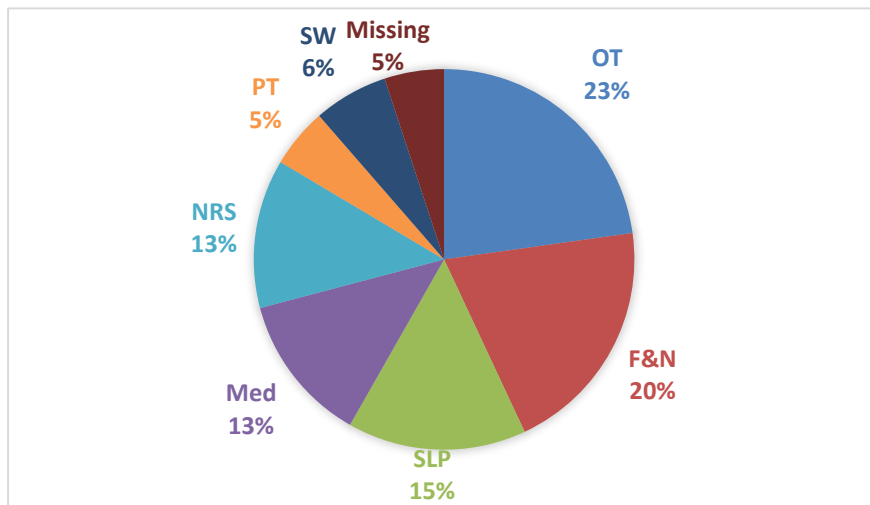


Figure 3-4. Students Professional Composition at Workshop # 2

Workshop #1: professional education and cross disciplinary collaboration. A two-hour face-to-face session was held on October 27th, 2010 with its goals to: a) break down potential barriers students held against interprofessional collaboration, and b) help students

become open towards, and learn about/with/from, each other, (c) value each other roles, and (d) understand how these values contributed to interprofessional teamwork. To meet the above goals, learners were provided with the following agenda: a) welcome and introduction (5 minutes); b) a small group activity (Activity I) to get to know each other on a personal level (10 minutes); c) a PowerPoint presentation regarding Professional Education and Cross Disciplinary Collaboration highlighting the impact of uniprofessional education on interprofessional collaboration (for 40 minutes), d) another small group activity (Activity II) to get to know each other at a professional level (10 minutes); and e) case study small group work (Activity III). Each group was facilitated by a non-study participant student facilitator who assisted each group in transforming the case study (selected from the IPHER website: <http://www.ipe.uwo.ca/Administration/case.html>) into a work plan (20 minutes). Each interprofessional learner group (IPLG) presented their work plan to the total group (20 Minutes). Finally, a workshop summary was provided.

Activity descriptions. In Activity I, each participant was asked to share one thing of interest about him/herself, as both an ice breaker and a way to get to know each other personally within their small group. In Activity II, the IPLGs at each table were provided with 10 role descriptions of different health professionals (inclusive of participants professions) to review and then to share their own professional role within the group and to listen while others shared their roles. Finally, in Activity III, each IPLG worked with the case study of 'Jane Black' (see appendix E) who is a 32 year old mother of three with diabetes and is 22 weeks pregnant. All participants had access to the case and were provided with a sheet to document their work plan for Jane Black and her family (see appendix E). Each IPLG was asked to select one of its members to role play the patient (Mrs. Black). This request was made prior to the IPLG watching a video clip of Mrs. And Mr. Black's admission interview. Group participants worked with their

‘Mrs. Black’ to complete their case study worksheet. Each IPLG’s experience was then shared with the total group of participants using the following questions:

- What surprised you the most?
- What did you gain from your group work?
- What did you learn that you will take back into your evolving professional practice?

This workshop was concluded by summarizing the session and providing three reminders to the participants: (1) about the date for the next workshop (2) the need for volunteers to do their reflective journals’ entries, and (3) to complete the Time 2 Instrument (DIS).

Workshop #2: interprofessional socialization. The second two-hour workshop session was held on November 25th, 2010 with the goals to: (a) help students learn the elements of interprofessional collaboration, and (b) develop their dual identity. To address these goals, the workshop agenda was structured as follows: a) a welcome and Workshop #1 Review (10 minutes); b) a PowerPoint presentation concerning Interprofessional Socialization; IP Collaboration and Teamwork (25 minutes); c) a small group learning activity (Activity IV) in which students were assigned an arbitrary health professional role and provided with its relevant role description (10 minutes); d) a case presentation (10 minutes); e) a further small group activity (Activity V); preparing for an interprofessional team meeting (10 minutes); and f) a final small group activity (Activity VI); second case study group work: conducting an IP team meeting (30 minutes).

Workshop activities. In Activity IV, each IPLG was again provided with a set of 10 role descriptions of different health professionals. A set of red role cards, each with the role of one of the 10 health professions from the above set were placed on each IPLG’s table. Each member of a IPLGs was asked to pick up one of the role cards (if they picked up their own profession they

were asked to return it to the set and choose another) and then to review the related role description in preparation to enact the role during the next activity. The rationale for this activity was twofold: to help the learners step out of their professional perspective in viewing the case, and to help the learners acknowledge and value the various roles, perspectives, and contributions to the team. In Activity V, the case of ‘Virginia Snow’ was presented who was a 45-year old single mother of an 11-year old daughter, Ashley who had speech impediment due to her Cleft Lip and Palate. The case was presented using a photo slide show. Then the IPLGs were provided with a work-plan sheet (see Appendix E) to discuss and assign team meeting roles (coordinating, chairing, setting the parameters, etc.) for the team meeting with ‘Virginia Snow’. Then, in the last activity (VI), the IPLG began their interprofessional meeting with ‘Virginia Snow’ (played by a non-study student facilitator at the table) with the goal of developing her collaborative care plan.

At the end of this workshop, in contrast to workshop #1, all participants were asked to write down their individual reflections on the experiences as a member of an IPLG and of their group’s overall teamwork. Further, all participants were asked to complete a set of instruments (DIS, ISVS, and ICS), and those volunteering to complete their reflective journals were asked to complete and submit these within one week.

Data Analysis

Quantitative data. Data obtained from the DIS, ISVS, and ICS were analyzed using both descriptive and inferential statistics within SPSS software version 19.0. Descriptive statistics were utilized to gain insight into correlations between participants’ year of study, professional program, age, gender, and past IPE experiences. Instrument data were analyzed using correlations and GLM repeated measures, with a level of significance set at $p < 0.05$ to determine if there

were significant differences between data collection times for each scale and for variations in the findings across the demographic variables.

To answer the research question # 1 (What is the effect of an IPE program on the development of dual identity among health professional students?) and # 2 (What is the relationship between the personal factors (e.g., IPE beliefs and behaviors, past IPE experience, and individualist vs. collectivist orientation) and dual identity development among the health professional students during the study?). Latent Growth Curve (LGC) modeling was used to assess participants' dual identity growth and change patterns across the study (Llabre, Spitzer, Siegel, Saab, & Schneiderman, 2004; Duncan, Duncan, Strycker, Li, & Alpert, 1999; Li & Acock, 1999). LGC modeling (an application of structural equation modeling [SEM]) was used to test the trajectory of change (growth rate or slope) and its direction (positive or negative) in participants' dual identity overtime (Llabre et al., 2004; McArdle, 2004).

Theoretically, LGC is a two-staged modeling process (Duncan, Duncan, & Stoolmiller, 1994; Duncan, et al., 1999; Li & Acock, 1999). In the first stage, a regression curve is calculated to fit the observed repeated measures data for each participant (intra-individual). In the second stage, latent measures are analyzed. These latent measures are the parameters for each individual's curve (mean, correlation, and covariance) and provide an underlying developmental trajectory of the group level behavior (inter-individual) (McArdle, 2004; Duncan, et al., 1994). The latent trajectory is then used to test the shape, degree, and level of change over time (Duncan, et al., 1994). Figure 3-5 demonstrates the application of LGC modeling to the study's dual identity development.

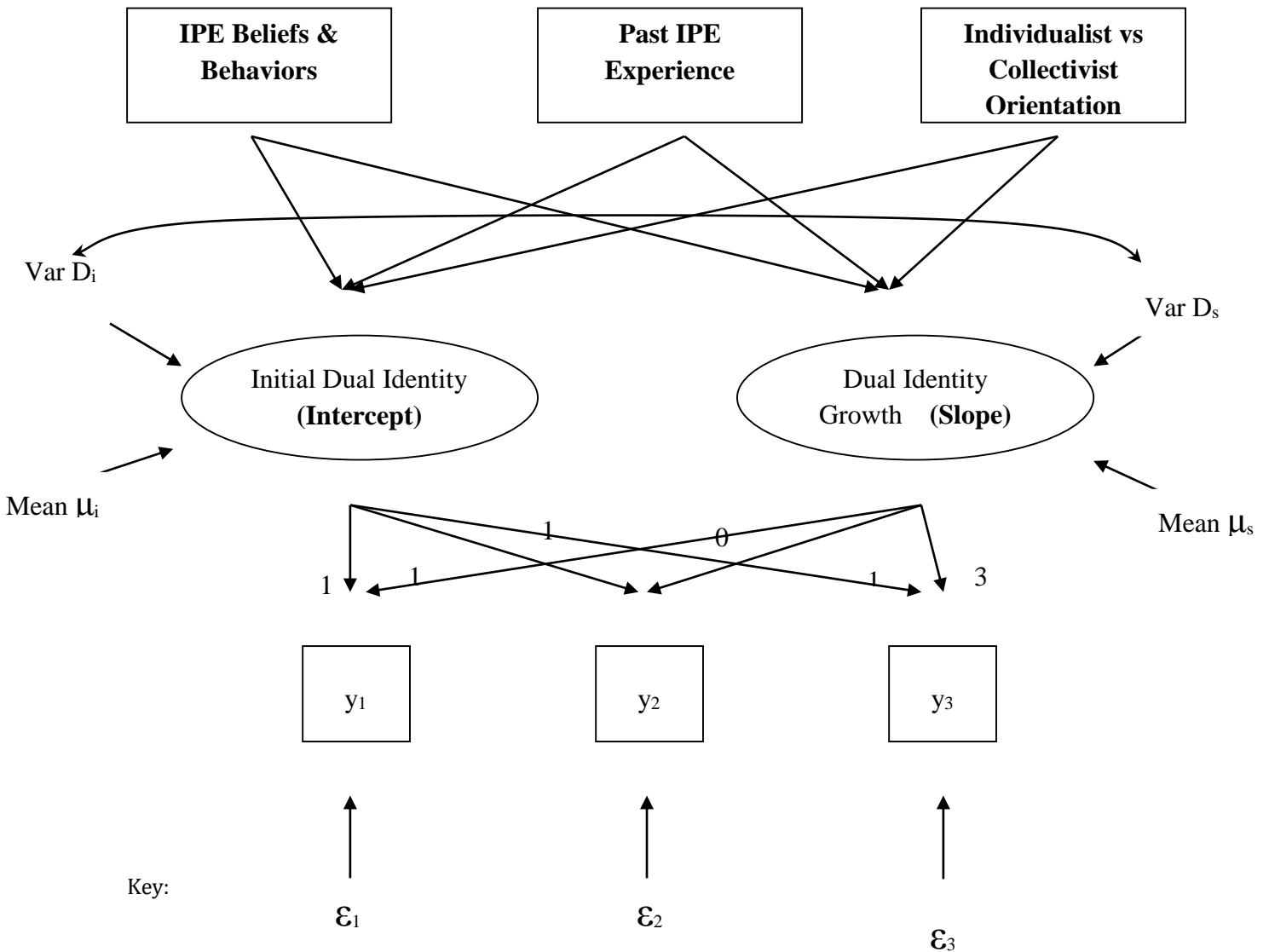


Figure 3-5. LGC Conceptual Path Diagram of the Modified Dual Identity Model

In this LGC model, dual identity was measured three times, depicted as y_1 , y_2 , and y_3 during the study; the y_1 was the level of dual identity at T1, prior to the intervention; y_2 was the same variable measured during T2 at the end of the first workshop. The T3 variable y_3 , was the dual identity measured at the end of the final workshop. The ϵ_i represented measurement errors at

each measurement time and it was anticipated that variability in the time-specific measures of dual identity were likely. The initial level of participants' dual identity measured before conducting the intervention represented the intercept of the study. The change rate of participants' level of identity was shown as the slope. The three lines from the intercept to the three measurement times (y_i 's) were all fixed at a constant value of '1' leading to a constant (initial) level of identity, when no growth occurs. There were also three lines from the slope (dual identity growth) to the three measurement times (y_i 's) and the value of these lines was fixed at 0 (y_1), 1 (y_2), and 2 (y_3) respectively, reflecting the initial and developing level of dual identity and progressing across the measurement times.

Mean μ_i related to the mean of the intercept (initial dual identity level) and Var D_i (variance D sub i) assessed its variance. The intercept variance reflected deviations in participants' initial identity. The closer the mean was to the intercept the smaller was the variance in participants' initial dual identity (intercept). Covariants in this study were the personal factors including: IPE beliefs and behaviors (measured by the ISVS), past IPE experience, and individualist vs. collectivist orientation (measured by the ICS). Variation of individuals from the mean of the intercept was assessed in relation to the personal factors covariants (IPE beliefs and behaviors; past IPE experience; and individualist vs. collectivist orientation). The intercept regression coefficient was considered as the dependent variable.

Mean μ_s related to the mean of the slope (dual identity growth) or average rate of change. The variance of the slope (Var D_s) represented the extent to which individuals had differing rates of change. The above personal factors (covariants), were modeled to explain the slope variation, similarly to the intercept, with the slope regression coefficient acting as the dependent variable.

A curved line below the personal factors represented the covariance (correlation) of the two variances ($\text{Var } D_i$ and $\text{Var } D_s$). A positive covariance (correlation) meant that participants with higher initial levels of dual identity would also have higher growth rates and conversely those with lower levels would have lower growth rates.

The covariates (personal factors) were proposed to influence both the initial level and the growth rate of participants' dual identity. Students with positive past IPE experience, high IPE beliefs and behaviors, and a collectivist orientation were expected to have higher initial levels of dual identity which would increase during this study. In contrast, those with a lack of or negative past IPE experiences, low IPE beliefs and behaviors, and an individualist orientation would have lower levels of initial and overall rate of dual identity over the study.

SEM using the full information maximum likelihood (FIML) was chosen to incorporate missing observations (data) and/or unequal data across participants and allowing all data from participants to be used (Duncan, et al., 1994; McArdle, 2004). SEM was the best method to test this LGC modeling as it provided a more flexible framework for statistical modeling than multilevel modeling (Tu, D'Aiuto, Baelum, & Gilthorpe, 2009). The LGC modeling was assessed with AMOS 19 (Tu, et al., 2009; McArdle & Epstein, 1987). This analytical choice allowed for assessment of measurement error and assessment of the fit between the dual identity model and the study data (Li & Acock, 1999).

Qualitative portion. Thematic content analysis (Braun & Clarke, 2006) was used to identify, analyse, and report themes within the qualitative data. An inductive approach (data-driven thematic analysis) was used to code the data without trying to fit the data into a pre-existing IPS framework. During the coding process, the researcher reviewed all the qualitative data set several times searching for meanings and patterns within and across the data sources.

Each data set was viewed first in its entirety without undertaking any coding, but taking notes or marking ideas for coding. Next, a summary of the experience and events was generated and coded. Then, a list of the different codes with their relevant coded data extracts were sorted into potential themes and sub-themes. Finally, a thematic map of the data was created and themes describing the lived experience of students' socialization during the intervention were captured.

Throughout data analysis, Guba and Lincoln's (2001, 1989) criteria for establishing trustworthiness and authenticity were applied. Trustworthiness strategies in this study included a) prolonged engagement with the participants over the three months of the study from their enrolment to the completion of reflective practice and audio-taping IPLG discussions, b) triangulation of data and methods (Baum, 2002; Denzin, 1989) to enrich the findings of the study. Authenticity (or accuracy) of data was established through audio-taping and verbatim transcription of group discussions (and reflections) to ensure content accuracy, and through peer checking by presenting the findings to students, faculty, and researchers in different schools/classes at UWO and Fanshawe College, and at local, national, and international conferences.

Combining Quantitative and Qualitative Findings

The findings of both quantitative and qualitative data analyses were integrated to gain a more in-depth understanding of the students' socialization process in developing their dual identity. Across-method triangulation using converging and comparing were used to integrate the findings within the conceptual framework (IPS framework) of the study and to gain agreement between these two research methodological approaches demonstrating validation of the findings. The qualitative data supporting the quantitative results were used to interpret the statistical relationships among variables, to clarify any blurred findings, and to enhance the transferability

of the results (Creswell & Plano Clark, 2006; Sandelowski, 2000; Greene & Caracelli, 1997; Green, Caracelli & Graham, 1989).

Ethics and Protection of Human Subjects

Ethics approval for this study was obtained from UWO's Non-Medical Research Ethics Board (NMREB). All prospective participants were encouraged to ask all their questions and concerns regarding the study through email/phone and/or in the face-to-face meetings before signing the consent form (Appendix A).

CHAPTER FOUR
FINDINGS

Findings

This chapter presents the findings of the data analysis from the main study which aimed to assess the impact of an IPS-based IPE intervention on interprofessional socialization and dual identity development among health professional students. Findings are reported in 3 parts. Part 1 presents the descriptive statistical analysis results from the study variables contained in the chosen instruments; Part 2 provides the quantitative findings related to the participants' dual identity development and its relationship with the participants personal factors; and Part 3 presents the findings of the qualitative data analysis.

Part 1: Descriptive Statistical Analysis Results

In this part, the results of the descriptive analysis of quantitative data will focus first on the psychometric analysis for the DIS (including: instrument reliability, factor analysis and inter-correlation) and the ISVS and ICS (instrument reliability). This will follow with the results of the analysis of variable mean comparisons and the relationships between the instrument variables and participants demographic data.

Instrument reliability. Internal consistency coefficient for each of the three study instruments and their subscales across the three data collection times were established using Cronbach's alpha (Table 4-1) which exceeded the acceptable level of 0.70 (Polit & Beck, 2004). Furthermore, the instruments' subscale reliabilities exceeded the recommended level of 0.60 and above for a (new) self-report instrument (Nunnally & Bernstein, 1994). Although this level was achieved there is variability over time in the reliabilities of some subscales which could be a result of the lower response rate at T3 data collection and/or the lower quantity of items in some subscales (Polit & Beck, 2004).

Table 4-1

Reliability of Scales and Sub-scales at Each data collection Time Point

Scale	Subscale	# of Items	Time 1	Time 2	Time 3
			Cronbach α	Cronbach α	Cronbach α
DIS	Overall Scale	30	.92	.90	.90
	Interprofessional Belonging	10	.87	.87	.79
	Professional Belonging	10	.85	.82	.84
	Dual identity Achievement	7	.79	.72	.76
	Cross Disciplinary Attitudes	3	.77	.72	.66
ISVS	Overall Scale	24	.82	NA	.84
	Comfort in working with others	6	.67	NA	.63
	Ability to work with others	8	.60	NA	.65
	Value in working with others	10	.77	NA	.73
ICS	Overall Scale	20	.83	NA	.79
	Personal independence & self-reliance	5	.85	NA	.86
	Competitive success	5	.80	NA	.82
	Working alone	3	.87	NA	.78
	Subordination of personal needs to group interests	4	.84	NA	.88
	Personal pursuits on group productivity	3	.80	NA	.64

DIS Factor Analysis. The construct validity of the DIS was initially validated using a sample from one profession (nursing). To further validate the construct validity of this scale, the interprofessional respondents of the study at T1 were used. The T1 DIS scores were run through another exploratory factor analysis (EFA) using SPSS version 19 to evaluate how well the 30 items comprising the DIS fit the scale structure (Levine, 2005; Thacker, Fields, & Tetric, 1989). The Kaiser-Meyer-Olkin Measure of Sampling Adequacy score was 0.747 and the Bartlett's Test of Sphericity was significant (.001), which indicated that the data were adequate for conducting a factor analysis (Tabachnick & Fidell, 2001). The EFA was conducted using an orthogonal varimax rotation with four factors, reflecting the DIS four sub-scales: interprofessional belonging, professional belonging, dual identity achievement, and cross-disciplinary attitudes. The four sub-scale factors explained a total of 56 % of the variance, which improved from the preliminary FA (51%). An inspection of the scree plot (Figure 4-1) also revealed a clear break after the fourth component supporting running of the factor analysis using four factors.

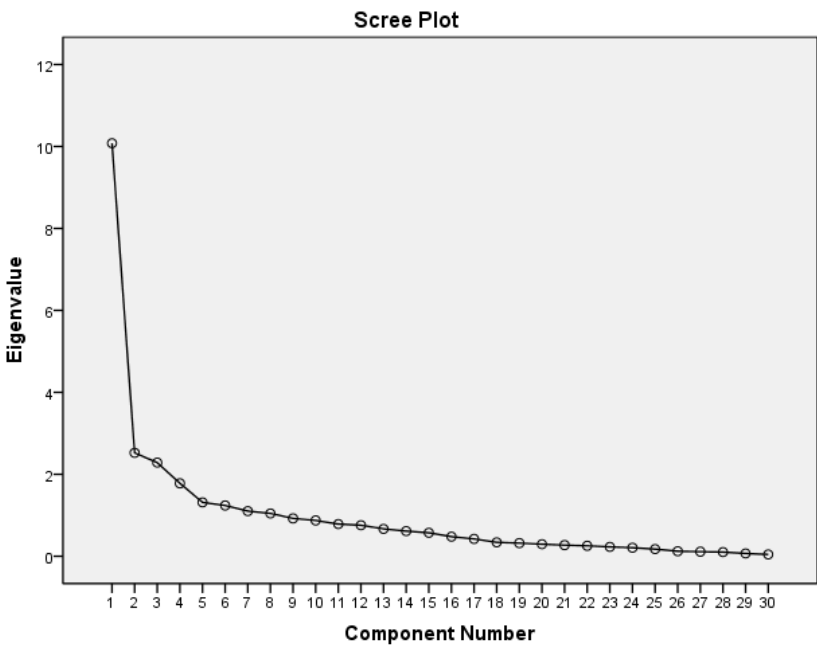


Figure 4-1: T1 DIS Scree Plot

The item loadings across the four factors were mostly the same as those in the preliminary DIS factor analysis, except item 15 (I often think about how my life will be affected by my professional membership) and item 25 (I have a lot of pride in other health professions who collaborate to the benefit of patients/clients). These two items (15 and 25) had originally loaded in the dual identity achievement and the cross-disciplinary attitudes subscales respectively were now more significantly loaded into the interprofessional belonging subscale. Hence, the number of items in a) the interprofessional belonging subscale (factor) increased to 10 items accounting for 22.10% of the variance; b) the dual identity achievement subscale decreased to 7 items accounting for 11.35% of the variance and c) the cross-disciplinary attitudes subscale also decreased to 3 items accounting for 9.86% of the variance (Table 4-2). The professional belonging subscale showed no change in its number of items (10 items) and accounted for 13.22% of the variance.

Review of the item factor loadings indicated that the factor loadings of four items — #4 (0.442), #17 (0.461), #19 (0.415) and #21 (0.465) — had decreased to lower than 0.5 as compared to the preliminary DIS factor analysis. However, all these items were kept since their loading exceeded the significant factor loading level of 0.30 (Nunnally & Bernstein, 1994).

Table 4-2

DIS Factor Analysis

DIS Subscale	#	Item	Loading Factors
			T1 DIS FA
IP Belonging	4	Indicate your degree of interest in learning and working with students from other health professions	.442
	12	I like meeting and getting to know people from other health professions	.668
	14	I feel a strong attachment towards interprofessional teams comprising cross-disciplinary health professionals	.704
	15	I often think about how my life will be affected by my professional membership	.613
	18	I am happy that I am a person who wants to learn about other health professions	.795
	19	I often feel it would be better if different health professionals work independently	.415
	25	I have a lot of pride in other health professions who collaborate to the benefit of patients/clients	.607
	27	I do not try to become friends with people from other health professions	.716
	29	I enjoy learning and collaborating with people from other health professions	.721
	30	I often feel it would be better if different health professionals work together as a team	.626
Professional Belonging	3	indicate your degree of interest in learning and working with students from your own profession	.708
	7	I am active in organizations and/or social groups that include mostly members of my own profession	.657
	11	I like meeting and getting to know people from my own health profession	.603
	13	I feel a strong attachment towards my own profession	.631
	17	I am happy that I am a member of the profession that I am currently in	.461

DIS Subscale	#	Item	Loading Factors
			T1 DIS FA
	20	I feel good about my own professional practice culture	.611
	22	I have a strong sense of belonging to my own profession	.708
	24	I have a lot of pride in my own profession and its accomplishments	.657
	26	I do not try to become friends with people from my own profession	.603
	28	I enjoy learning and collaborating with people from my own profession	.631
DI Achievement	5	I really have not spent much time trying to learn more about the culture of my professional practice	.663
	6	I really have not spent much time trying to learn more about collaboration with other health professions	.571
	8	I am active in organizations and/or social groups/activities that bring people from different health professions together	.623
	9	I have a clear sense of my professional culture and what it means for me	.647
	10	I have a clear sense of interprofessional collaboration and what it means for me	.601
	16	I often think about how my life will be affected by my interprofessional group membership	.600
	23	I have a strong sense of belonging towards interprofessional teams comprising cross-disciplinary health professionals	.526
Cross-Disciplinary Stereotype	1	Rating of own profession based on each of the following characteristics (Academic Quality, Professional Competence, Knowledge/ skill Base, Team Player, Attitude towards patient).	.845
	2	Rating of other health professions based on each of the following characteristics (Academic Quality, Professional Competence, Knowledge/ skill Base, Team Player, Attitude towards patient).	.808
	21	I feel good about sharing in health professional team cultures.	.465

DIS Inter-Correlation Analysis. The inter-correlation among and between DIS subscales and the total score across T1, T2, and T3 was assessed using bivariate correlation procedures which indicated some level of improvement as compared to the preliminary psychometric DIS analysis. The results revealed the presence of significant moderate correlations among the four subscales with the highest correlation between T3 PB and T3 CDA ($r = .704$) and the lowest one between T1 IPB and T1 DIA ($r = .428$). The inter-correlation between the subscales and the total DIS scale were at the high level ranged from .710 (between T3 IPB and the T3 total score) to .879 (between T3 PB and the T3 total score) (Table 4-3). These results indicated that while the whole scale measured one construct (the dual identity), each subscale measured different aspects of dual identity.

Table 4-3

Inter-Correlation Among and Between DIS Subscales and Total Score Across Time

	Time 1 Correlation					Time 2 Correlation					Time 3 Correlation				
	T1 IPB	T1 PB	T1 DIA	T1 CDA	T1 DIS TS	T2 IPB	T2 PB	T2 DIA	T2 CDA	T2 DIS TS	T3 IPB	T3 PB	T3 DIA	T3 CDA	T3 DIS TS
IPB	1					1					1				
PB	.589**	1				.510**	1				.499**	1			
DIA	.428**	.572**	1			.484**	.628**	1			.359**	.704**	1		
CDA	.507**	.687**	.531**	1		.557**	.695**	.640**	1		.422**	.638**	.539**	1	
DIS TS	.758**	.875**	.794**	.831**	1	.752**	.844**	.856**	.864**	1	.710**	.879**	.831**	.790**	1

** . Correlation is significant at the 0.01 level (2-tailed).

Key: IPB: Interprofessional Belonging, PB: Professional Belonging, DIA: Dual Identity Achievement, CDA: Cross Disciplinary Attitudes, and DIS TS: DIS Total Score

Variables Mean Comparisons. Means (M) and standard deviations (SD) across times were computed for each of the main study variables including: dual identity measured by the DIS, interprofessional beliefs and behavior measured by the ISVS, and individualist and collectivist orientation measured by the ICS (see Table 4-4).

The observed mean score for dual identity was 3.95 (SD = .59) at T1 increased to 4.19 (SD = .35) at T2, and further improved to 4.26 (SD = .36) at T3. The repeated measures GLM analysis demonstrated that there was a significant difference in dual identity level across the three time points [$F(2, 84) = 42.482, p = .001$]. A post hoc analysis further revealed that the T2 and T3 dual identity levels were significantly higher than the dual identity level at T1 ($p = .001$). A similar pattern of significant improvement was found for each of the four DIS subscales [IPB: $F(2, 86) = 5.188, p = .007$; PB: $F(2, 86) = 65.369, p = .001$; DIA: $F(1.693, 71.125) = 20.354, p = .001$; CDA: $F(2, 86) = 13.376, p = .001$].

Furthermore, the overall ISVS and its subscales scores and the overall ICS score significantly improved from T1 to T3 ($p < .01$). Interestingly only the ‘personal pursuits on group productivity’ sub-scale for the ICS increased from T1 to T3 of the study ($p = .04$). The other ICS subscale scores had small non-significant increases, with the exception of subscale 2 (competitive success) which decreased from 5.09 at T1 to 5.04 at T3 (Table 4-4).

Table 4-4

Means and Standard Deviations (SD) of Scales at Each Time Point

Scale	Subscale	Time 1		Time 2		Time 3	
		Mean	SD	Mean	SD	Mean	SD
DIS	Overall Scale	3.95	0.54	4.19	0.36	4.26	0.36
	Interprofessional Belonging	4.14	0.50	4.34	0.39	4.42	0.43
	Professional Belonging	3.71	0.53	4.26	0.39	4.38	0.42
	Dual Identity Achievement	3.33	0.65	3.73	0.53	3.81	0.53
	Cross Disciplinary Attitudes	4.13	0.50	4.40	0.43	4.41	0.40
ISVS	Overall Scale	4.73	0.49	-	-	5.08	0.46
	Comfort in working with others	4.55	0.74	-	-	4.86	0.70
	Ability to work with others	4.92	0.52	-	-	5.31	0.47
	Value in working with others	4.72	0.64	-	-	5.07	0.53
ICS	Overall Scale	5.10	0.68	-	-	5.24	0.61
	Personal independence & self-reliance	4.86	1.38	-	-	5.05	1.29
	Competitive success	5.09	1.13	-	-	5.04	1.15
	Working alone	4.78	1.10	-	-	5.06	1.01
	Subordination of personal needs to group interests	5.51	0.83	-	-	5.53	0.95
	Personal pursuits on group productivity	5.26	1.07	-	-	5.54	1.08

A mean comparison of the participants' demographic data (age, gender, profession, year of study, past IPE experience) with the study variables (appendix F) revealed that a significant difference between gender and among professions at T1 for the DIS and the ISVS. Female students rated themselves stronger in their DIS ($M = 4.01$) and ISVS ($M = 4.77$) than male students (DIS $M = 3.82$, ISVS $M = 4.57$) at T1, but by T3 there were no significant differences in either scales between genders (female DIS $M = 4.31$, male DIS $M = 4.20$; female ISVS $M = 5.10$, male ISVS $M = 5.03$).

Relationships between T1 DIS and participants profession found that Speech Language Pathology (SLP) students (M= 4.24) rated themselves significantly higher than did other professional students, while Occupational Therapy (OT) and Medical students (M= 3.85) both rated themselves lower than did other professional students in that time. By the end of the study there were no significant DIS rating differences between professions at T3. When comparing the ISVS variables with student professions at T1, Social Worker (SW) students (M = 5.099) rated themselves significantly higher than Medical students (M = 4.576) and OT students (M = 4.599). A similar pattern was found when the ICS means were compared; SW students rated themselves significantly higher than other professionals (except SLP) in T1 (M = 5.780) and T3 ICS (M = 6.056). There were no other significant demographic variations among participants in relation to these three instruments (See Appendix F).

Correlations amongst variables. There was a low-moderate correlation amongst the three variables (DIS, ISVS and ICS) across the three data collection times – at T1 the DIS score was positively and significantly correlated with both the ISVS ($r = .48$) and the ICS ($r = .23$) which could be related to a self-selection bias amongst participants since participation in this study was voluntary; at T3 the DIS was also correlated with both the ISVS ($r = .56$) and the ICS ($r = .27$) that could be related to the intervention. Furthermore there was a positive correlation between the T2 DIS and the T1 ISVS ($r = .36$), T3 DIS ($r = .68$) and the T3 ISVS ($r = .42$) (see Table 4.5).

These correlations indicated that students who held more positive IPE beliefs and behaviors and were more collectivistic in their orientation, they reported higher dual identity levels at T 1 and T 3.

Table 4-5

Means, SD, and Correlation among the Instruments

	Mean	SD	Correlation							
			T1 DIS	T1 ISVS	T1 ICS	T2 DIS	T3 DIS	T3 ISVS	T3 ICS	
T1 DIS	3.95	0.54	1							
T1 ISVS	4.73	0.49	.48**	1						
T1 ICS	5.10	0.68	.23*	.24**	1					
T2 DIS	4.19	0.36	.64**	.36**	.03	1				
T3 DIS	4.26	0.36	.67**	.52**	.21	.68**	1			
T3 ISVS	5.08	0.46	.48**	.77**	.04	.42**	.56**	1		
T3 ICS	5.24	0.61	.15	.23	.82**	.21	.27*	.16	1	

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

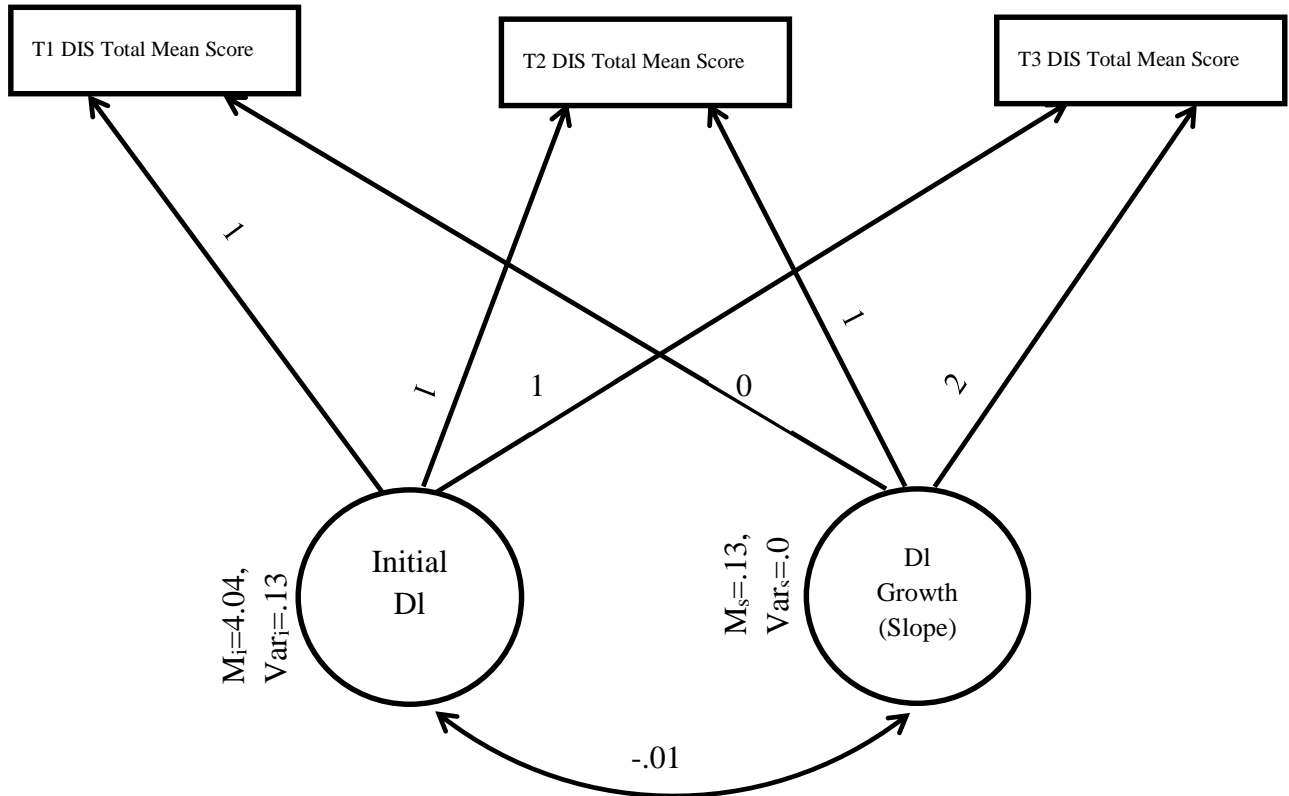
Part 2: Testing the IPS Framework: A Latent Growth Curve Analysis

Latent Growth Curve (LGC) Analysis was undertaken to answer the following research questions:

1. What is the effect of an IPS-based IPE program on the development of dual identity among health professional students?
2. What is the relationship between the personal factors (e.g., IPE beliefs and behaviors, past IPE experience, and individualist vs collectivist orientation) and the dual identity development (change) among the health professional students during the study?

Research question 1: dual identity development growth; unconditional model. To answer research question 1 an unconditional model, without the influence of covariants (personal

factors) was tested using AMOS 19 to obtain a trajectory of dual identity changes over the course of the study (Figure 4-2).



Key:

- M_i the mean of the intercept,
- Var_i the variance of the intercept
- M_s the mean of the slope,
- Var_s the variance of the slope

Figure 4-2. Unconditional Latent Growth Model for Dual identity Development*

* For clarity purposes, the errors were removed from this figure.

The goodness-of-fit indices of this unconditional model approached a fair level since two indices [the comparative fit index (CFI = .90) and incremental fit index (IFI = .91)] reached the acceptable level of .90 and another index [the normalized fit index (NFI = .88)] approached this acceptable level (Munro, 2005; Ullman, 2001). According to Munro (2005) and Ullman (2001), a good fit occurs when, at least any three of the following indices reach or approach their

acceptable levels: (1) the chi-square statistic should not be significant (which was not the case for this model, $X^2 = 7.38$, $df = 2$; $p = .025$); (2) the model should show a CFI, an IFI and/or a NFI of 0.90 or greater (which was the case); and (3) the root mean square error of approximation (RMSEA) should be less than 0.08 (which was not the case, $RMSEA = 0.158$). Thus the hypothesized model was (at borderline) suitable to capture the overall construct of dual identity.

The latent growth curve model trajectories for its intercept (the initial level of participants' dual identity) and slope (the growth rate of dual identity among participants) were assessed. In this analysis the model's intercept was significant ($\mu = 4.04$, $p = 0.001$); therefore, at T1 (prior to the intervention) the dual identity level was significantly different from zero indicating participants had initial dual identity levels but with significant variances ($v = .13$, $p = .001$). This variation suggested that participants came into the study with significant differences in their dual identity levels (these inter-individual differences are discussed in the Path Analysis subsection in this chapter).

The Mean slope of the model, or the dual identity growth rate over the course of the study from T1 to T3, was also significant ($\mu = .13$, $p = .001$) which indicated that dual identity levels among the participants significantly and consistently improved over the course of the study (Table 4-6).

Table 4-6

Estimate and P Values for the Unconditional Model

Variable	Estimate	P
Mean Intercept	4.04	.001
Mean Slope	.13	.001
Variance Intercept	.13	.014
Variance Slope	0*	
Intercept <--> Slope	-.01	>.05

* Constant to zero

Testing for the slope variance (inter-individual differences in the above dual identity growth) resulted in a non-significant negative value of - 0.2. The negative variance can be interpreted as the absence of inter-individual differences among the participants' dual identity growth (Wilk, 2011, personal conversation). The constant improvement of the dual identity scores among all participants over the course of the study regardless of their personal traits, gender and profession, supports the conclusion that there might not have been inter-individual differences in dual identity development among the study participants. However, there might also be two other reasons for the negative slope variance in this model including: a) the small sample size for the study – although the sample size for the study was above 100, it might still be insufficient to test for the inter-individual growth differences among the participants; b) the possibility of a non-linear growth rate – testing for non-linearity of the growth rate generally requires at least 4 time points of data collection. The original plan for the study was for four data collections however, one data point was reduced in order to accommodate the Ethics Board concern regarding students' survey fatigue. Thus, we were unable to test the current data for non-linearity of the growth rate. Hence, the slope variance or the inter-individual differences in the growth rate for this model was set at zero in order to run the model.

In summary, students started the IPE program intervention with an average initial dual identity level of 4 (out of 5). The LGC results demonstrated that the students' dual identity was significantly improved over time during the study that may have been as a result of their participation in the IPE program intervention in this study (the research question 1). It seems that the IPE program appeared to help students significantly improve their dual identity over the course of the study by a growth rate of 0.13 (for each point of measurement time). However, by only having one study group (intervention), it is impossible to conclude a cause-effect

relationship between the intervention and students' dual identity development. The qualitative findings, as being described later, might help to better understand the impact of the IPS-based IPE program on dual identity development among students.

Research question 2: predictors of dual identity development; conditional models.

To answer research question # 2, LGC modeling was used to determine if a positive significant slope variance occurred. However, a negative slope variance occurred, meaning that there was no variation in the growth rate amongst individual participants. In other words, the pattern of the growth rate was statistically the same amongst the participants; hence, this finding eliminates the need to test for a relationship between participants' personal factors and their dual identity development (as a trajectory) (Wilk, 2012, personal conversation). Cross-sectional analysis between the personal factors and T1, T2, and T3 dual identity was carried out as post-hoc.

Post-hoc path analysis. Although there was no relationship between dual identity growth rate trajectory and personal factors, a path analysis (PA) with structural equation modeling (SEM) using AMOS 19 was employed to test the model for significant cross-sectional relationships between the personal factors and the level of participants' dual identity at each data collection time, in particular at T3 (Figure 4-3).

The model's goodness of fit was assessed. The chi-square of the model was non-significant ($\chi^2 = 16.17$, $df = 9$, $p = .063$), and the Normed Fit Index (NFI) and Comparative Fit Index (CFI) were higher than .90, all indicating a good model fit (NFI = .941 and CFI = .969). Furthermore, the Root Mean Square Error of Approximation (RMSEA) for this model was .086 which resulted in an acceptable model fit level.

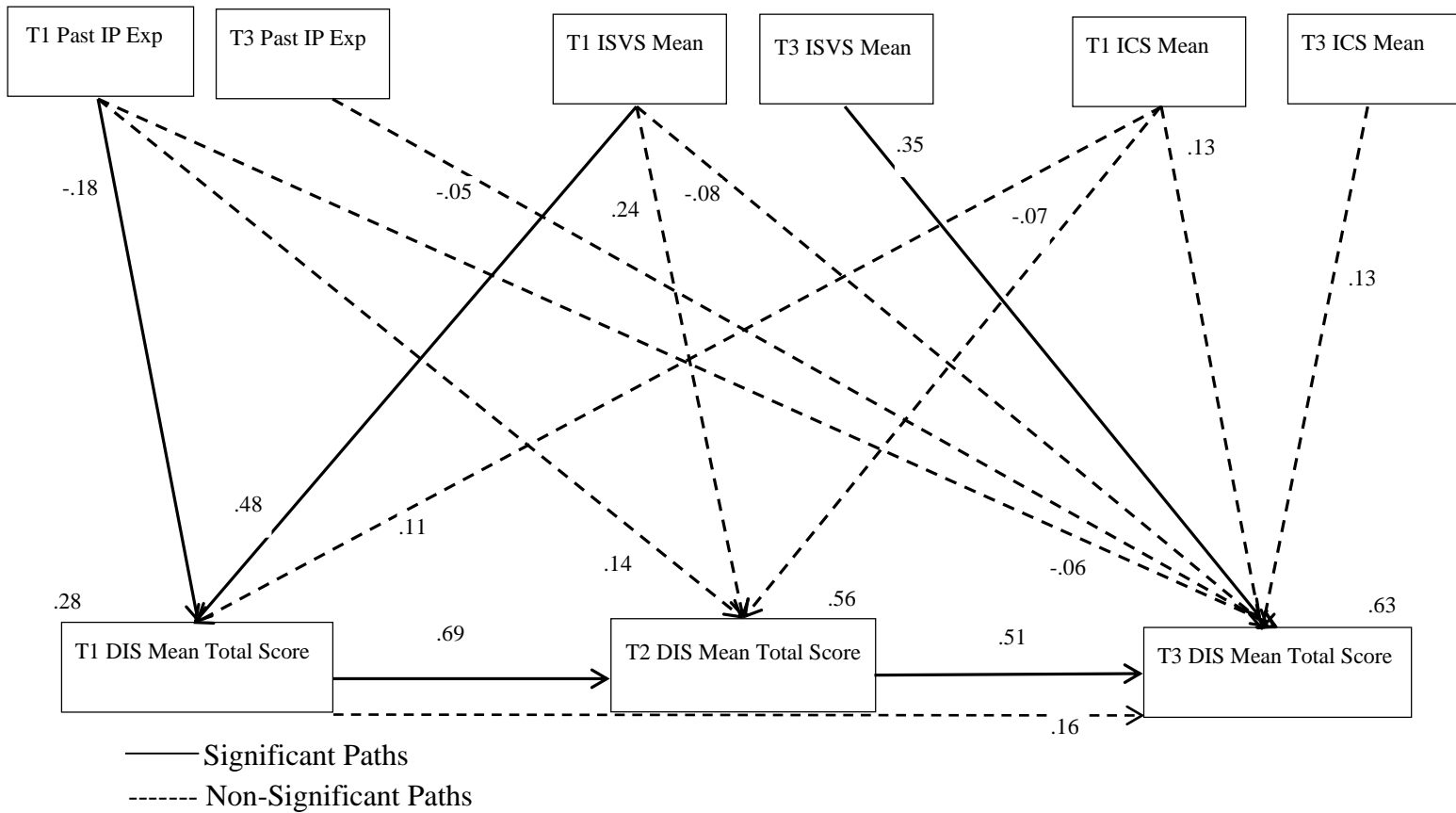


Figure 4-3. Post-hoc path analysis of dual identity and personal factors across each data collection times*

* For clarity purposes, the covariant correlation and errors were removed from this figure.

The squared multiple regression for the T1 dual identity was .279 indicating personal factors as a whole were accounting for 28% of the total T1 variance of dual identity. According to the standardized regression weights, among the T1 personal factors, two factors – IPE beliefs and behaviors ($b = .48$) and past IPE experience ($b = -.18$) – were positively related with the T1 dual identity level, indicating that individuals with either higher IPE beliefs and behaviors, or previous IPE experience reported higher dual identity level at the beginning of the study. The regression weight for individualist/collectivist orientation was 0.11 which was non-significant,

indicating that there was no significant relationship between dual identity level and individualist/collectivist orientation at T1 (Table 4-7).

The squared multiple regression for the T2 dual identity was .555 indicating that the T1 dual identity along with the T1 personal factors were accounting for 56% of the total variance of T2 dual identity. The standardized regression weights for T2 dual identity indicated that only T1 dual identity ($b = .69$) was significantly related to the T2 dual identity. The regression weights for T1 personal factors were non-significant, indicating that none of the T1 personal factors (IPE beliefs and behaviors, individualist/collectivist orientation and past IPE experience) were predictors of the dual identity level at T2 (Table 4-7).

At Time 3 data collection, the Time 2 dual identity level ($b = .51$) and the T3 IPE beliefs and behaviors ($b = .35$) were significantly related to the T3 dual identity level and together accounted for 63% of the T3 dual identity total variance. The regression weights of other personal factors (individualist/collectivist orientation and past IPE experience) and T1 dual identity were not significant (Table 4-7). All this indicated that at T3 data collection, of the personal factors only the T3 IPE beliefs and behaviors were significantly related to the dual identity level at T3. Thus individuals with higher IPE beliefs and behaviors at T3 reported higher dual identity levels at that time.

In conclusion, the post-hoc path analysis revealed a cross sectional significant relationship between the IPE beliefs and behaviors and the dual identity level at T1 and T3. T1 past IPE experience was positively related to dual identity at T1, but not at T2 and T3. However, there was no relationship found between the T1 personal factors (past IPE experience, IPE beliefs and behaviors and individualism and collectivism), and T2 dual identity level. The ICS variable was found to be unrelated with the dual identity level at any data collection time.

Table 4-7

Standardized Regression Weights

	Estimate	S.E.	C.R.	P
T1 DIS Total Score <--- T1 Past IPE experience	-.182	.106	-1.916	.055
T1 DIS Total Score <--- T1 ISVS Total Score	.483	.091	5.150	.001
T1 DIS Total Score <--- T1 ICS Total Score	.110	.055	1.172	.241
T2 DIS Total Score <--- T1 DIS Total Score	.688	.080	7.157	.001
T2 DIS Total Score <--- T1 Past IPE experience	-.140	.097	-1.343	.179
T2 DIS Total Score <--- T1 ISVS Total Score	.240	.129	1.506	.132
T2 DIS Total Score <--- T1 ICS Total Score	-.067	.101	-.320	.749
T3 DIS Total Score <--- T1 DIS Total Score	.156	.106	1.114	.265
T3 DIS Total Score <--- T1 Past IPE experience	-.064	.094	-.576	.565
T3 DIS Total Score <--- T1 ISVS Total Score	-.082	.114	-.533	.594
T3 DIS Total Score <--- T1 ICS Total Score	.134	.082	.717	.473
T3 DIS Total Score <--- T2 DIS Total Score	.510	.122	3.803	.001
T3 DIS Total Score <--- T3 Past IPE experience	-.054	.096	-.420	.675
T3 DIS Total Score <--- T3 ISVS Total Score	.354	.117	2.421	.015
T3 DIS Total Score <--- T3 ICS Total Score	.128	.095	.685	.493

In summary, the LGC modeling demonstrated that the growth rate trajectory for dual identity was statistically significant, supporting research question 1. This growth rate trajectory, however, was the same across all participants and neither IPE beliefs and behaviors nor individual differences relating to individualist/collectivist orientation or past IPE experience significantly explained these dual identity changes. The main reason for consistent dual identity growth might have been the IPS-based IPE program intervention.

The post-hoc path analysis of cross sectional data at each data collection time, revealed a significant relationship between IPE beliefs and behaviors and dual identity level at T1 and T3. The T1 past IPE experience was also positively related with T1 dual identity.

Part 3: Qualitative Findings

Findings of the thematic content analysis of the qualitative data were used to answer research question 3 – What is the socialization process that student move through during the development of dual identity? Data comprised audio-taped group discussions and written reflections (journals and workshop personal reflections). The above data sets were transcribed verbatim and the transcripts were read by the researcher while simultaneously either listening to the taped discussions, or reading the reflective journals to guarantee the accuracy of the transcription. An inductive approach to the thematic content analysis (data-driven thematic analysis) using Braun and Clarke’s approach (2006) was used to identify, analyze, and report themes within the data set without trying to fit the data into the pre-existing IPS framework. This analysis revealed five main themes related to students’ IPE experience – Uniprofessional Education as a barrier, IPS-based IPE Program as an Eye-Opener, Learning to Collaborate, Collective Unified Team, and Interprofessional Team Meetings, (Table 4-8). For clarity purposes, these themes are being presented in the context of the three stages of the IPS framework.

Table 4-8

Qualitative Data Analysis: Themes and Sub-Themes

Themes	Sub-themes	Codes
Uniprofessional Education as a Barrier	Lack of Awareness	Lack of knowledge of other professions' roles Lack of knowledge of the wide range of different professions Turf protection behaviors Uniprofessional perspective Misperception & stereotyping
	Lack of confidence in IPC	Lack of interprofessional experience Lack of teamwork skills
IPE Program as an Eye-Opener	Reaching Openness	Openness to different perspectives Openness to discussion
	Gaining Insight	Gaining insight about other professional practice Gaining insight about unique and shared knowledge Gaining insight about professional limitation
Learning to Collaborate	Role clarification	
	Role valuing	
	Patient-centered care	
	Team functioning	
	Team commitment and diversity	
	Collaborative leadership	
	IP communication & effective listening	
Collective Unified Team	IP conflict resolution	
	Collective collaborative team	
	Different ways of practice	
	Holistic patient care	
	Dual identity internalization	
Interprofessional Team Meetings	Participant empowerment for future practice	
	Personal Interest vs Group Interest in Team Meeting Previous IPE Experience	

IPS Stage I: Breaking Down Barriers. The IPS framework proposed a new IPE perspective focused on (re-)socialization and dual identity development within future practitioners. The first stage of the IPS framework (breaking down barriers) theorized that a: the current profession-specific socialization model of education (uniprofessional education) may cause students to develop uniprofessional identity (resulted in out-group discrimination and developing misperception, prejudices, stereotypes about other professions) leading to turf protection which can act as barriers towards learning and practicing IPCPCP; b: ‘cross-disciplinary interactions’ in an open and trusting environment where these barriers are intentionally and critically challenged should facilitate the elimination of these barriers by employing Pettigrew’s intergroup contact conditions (equal status among the group members; cooperating towards common set goals; and institutional support) and his four interdependent cognitive processes (learning about out-groups, changing behavior, generating affective ties, and in-group reappraisal) (1998).

'Uniprofessional Education as a Barrier'. This theme related to both lack of awareness (of barriers) and confidence in interprofessional collaboration. Being educated in only one “professional knowledge” (quote, Medical student) was broadly raised by the participants as a main reason for being unaware of the roles and responsibilities of other health professionals that facilitated their need to learn IPCPCP for practice.

”I think in our profession and in our education right now, ...you’re learning so much about your own profession, [but] it really was nice to just take a step back and realize when we do get out in the job field, we will have to work with other people....” [SLP student]

”I was not sure about what each of [the] professions is about, and I also did not have a clear picture of the wide range of professions.” [F&N student]

Surprisingly many participants expressed that they were not aware of many different health professions in the health system.

“I was very happy to be learning about all the different health care professions that I never even knew existed.” [Nursing Student]

This lack of awareness about other professions may have occurred because of the lack of awareness of the interconnectivity amongst different health professions in practice, as one student commented...

“... I had previously thought that each profession is completely separated and different from the other professions but it is totally the opposite of what I thought.” [F&N student]

Participants also reflected on being unaware of their misperceptions and stereotypes held against other professionals and the impact of these on their everyday collaborative practice.

“I always thought that Doctors knew everything, and they could take care of a patient themselves, along with a nurse or two. However, after attending the first workshop, I realized that with a complex case like the one we were given, we NEEDED other health care allied professions, such as an OT, PT, and SLP. Doctors cannot do the job by themselves, and the more people looking after the patient will affect the quantity and quality of care they are provided with.” [Nursing student]

Many participants at the first workshop realized they were being restricted by their narrow professional perspective that made it hard for them to think and see the bigger patient picture beyond their profession...

“... It is difficult to think outside of your own profession (because it is what I/we know) even if the client may benefit more from another professional.”[SLP student]

This narrow uniprofessional perspective along with lack of awareness of other professional's roles and perspectives caused participants to feel the need to protect "their turf" as stated by an Occupational Therapy (OT) student. The 'turf protection' behaviors at the first workshop led a medical student to send a reflective email to the researcher following the workshop in which he stated:

"...It seems like sometimes the cancerous work environment and culture of the health care professional also extends its influence to students in training.There were some individuals who without provocation seemed to aggressively defend their perceived roles and skill sets, sometimes ostracizing members of the group in the process."

Students also talked about a lack of confidence in working with other professionals that was seen to be caused by their lack of interprofessional interactions. This absence led some participants to have difficulty sharing their ideas and voicing their opinion/concerns at the first workshop.

"I think I may have difficulty speaking up for my profession. I know what is important for SLP, but not what is important for other professionals." [SLP student]

"Barriers [against IPCPCP] are attitudes of others who may not have interdisciplinary [experience] or are not open to team work or collaboration." [student from unidentified profession]

The 'uniprofessional education as a barrier' theme supports the IPS framework indicating that the current uniprofessional model of education/socialization is causing students to be unaware of other profession's roles and scopes of practice and limited their exposure to other professions. Furthermore, participants realized that the current uniprofessional education model caused them to develop a profession only identity in which they saw their profession not only as distinct from others, but in many cases as more critical than other health professionals. This

sense of professional identity promoted “in-profession” and “out-profession”, or ‘turf protection’ behaviors, that were seen as the main barriers to learn with, from and about each other ; creating a realization that they had to first deal with these behaviors before discussing the workshop case study. Many of the participants in this study reflected on their lack of awareness of the roles and contributions of other health professionals, and some also indicated an absence of knowledge about the existence of such an array of health professionals.

IPS-Based IPE Program as an Eye-Opener’. This theme included the categories of openness to different perspectives arrived at through discussions, and led to gaining insights. The participants identified that the IPE intervention program was an eye-opener for them, making them aware of the barriers (as discussed above) towards working together and the need for interprofessional collaboration (IPC) in the real work world.

“I never really heard so much about working with, like a psychiatrist or a psychologist or a nurse or something like that so coming to the workshop definitely was an eye-opener to what the real world is like especially for a clinical nutritionist and that’s my area of interest.” [F&N student]

By realizing the importance of IPC in the real practice field, the participants began to be open to different opinions and perspectives, and to accommodate other professionals’ roles.

“[when I look back over how well ‘our’ team worked I can see our team was] open to the views of other health care professionals, they listen and are more accommodating of the individual professional roles.” [PT student]

The participants found less turf protection of their respective disciplines in the second workshop as reflected by a Speech Language Pathologist (SLP):

“I found everybody was quite open to hearing the opinions and then making educated choice not feeling really defensive about their profession or trying to defend it.” [SLP student]

Reaching the openness to various perspectives helped the participants to recognize and gain insights about the importance of other health professionals’ roles, perspectives, and contributions to quality of care.

“I found that while assessing the case study, I was a little envious of the vast knowledge and care other members could provide.” [Nursing Student]

“We also found that it is difficult to solve a case without all different disciplines to share their knowledge.” [SW student]

Gaining insights about other professionals also helped participants to recognize and value the unique and shared knowledge and expertise of each team member in providing care.

“Each ...professional has [a] different focus and there are some overlapping [areas]. There are patient problems that need to be addressed by more than one professional.
[F&N student]

The IPE program also assisted participants to recognize and accept the limitation of each professional’s knowledge and expertise. Participants realized that there are situations where the expertise of some other professionals is more relevant to the patients’ situations, and hence, they may or may not be the key health professional for that person’s care. Hence at times they can take a secondary role in the care while still being valued and respected.

“Accepting that I may not always have a huge role to play but know that I am still valued as a member and my input is still respected”. [OT student]

The theme '*IPS-based IPE program as an eye-opener*' reinforced the IPS framework that bringing interprofessional learners together within an open and trusting environment led learners to transform their uniprofessional perspectives into an adjusted professional one in which the 'out-group discrimination' behaviors were reduced. Participants indicated that participation in this IPS-based IPE program provided them with opportunities for interprofessional communication, open interactive discussions (where their opinions and perspectives were critically challenged) and reflection (upon their own views and existing assumptions about their own and other professions). Understanding their own professional perspective and its developmental process helped participants to gain insight into their misperceptions, prejudice, and stereotypes about other health professionals, and to reconsider their pre-existing assumptions. Awareness led to openness to the viewpoints and contributions of other professionals. This transformative process enabled participants to see and think outside of their own profession, gaining new awareness of the value that can be gained by working as an interprofessional team.

These two themes ("uniprofessional education as a barrier" and "IPS-based IPE program as an eye-opener") together are supporting the first stage of the IPS framework, '*breaking down barriers*'. Participants in this study, as theorized in the first stage of IPS, reflected on the current profession-specific socialization/education as a barrier towards interprofessional collaboration. Participants realized that the current model of education isolated them from learning and working with students from other health professions, and led them to develop a profession specific identity. This isolationist identity caused participants to demonstrate 'turf protection' behaviors in the first workshop hindering interprofessional collaboration towards their group's shared outcomes. As theorized in the first stage of IPS, participants recognized that in order to

learn how to work as an effective interprofessional team, they had to first deal with these obstructive behaviors.

This awareness seemed to have led students to experience a transformation in their perspectives which could enable participants to gain new insight about their own and other professionals increasing their readiness for interprofessional role learning.

IPS Stage II: Interprofessional Role Learning – IPC. The second stage of the IPS framework is theorized to create the environment for helping open-minded interprofessional learners to learn/apply the interprofessional competencies: role clarification; person-centered care; team functioning; collaborative leadership; interprofessional communication; and interprofessional conflict resolution as outlined by CIHC (CIHC, 2010). In this framework, the integration of role clarification, team functioning, collaborative leadership, and a person-centered focus to care/services is supported through interprofessional communication. And further that effective interprofessional communication is dependent on the ability of teams to deal with conflicting viewpoints and reach reasonable compromises. During the workshops student participants seemed to demonstrate the beginning of several of these competencies as described below through the qualitative themes that emerged.

'Learning to Collaborate'. The theme *'learning to collaborate'* incorporated the above CIHC competencies in which the role clarification/valuing and a focus on patient-centeredness were brought together through team functioning. This team functioning was achieved through interprofessional communication and listening, and guided by collaborative leadership, in which

team conflicts are attended to and resolved leading to a team commitment as discussed in the following.

The IPE program seemed to provide the participants with an opportunity to get a better understanding of their own and others professional roles in providing patient care as stated by a student...

“It was nice to get a better understanding of different health care professionals and especially hearing what individuals thought about their own professions as well as others (especially my own).” (Medical student)

This understanding led to role clarification among the participants that was seen as needed in their collaborative practice voiced by a student:

“Disciplines have to be clear about what they do and understand what other professions do, so everyone knows best how to work as a team.” [OT student]

While many participants were aware of the roles of physicians and nurses in a team, there was some confusion between the roles of OTs and PTs, and of clinical psychologists and clinical psychiatrists.

“...I wasn’t really clear about what the difference was between an OT and a PT. And having PTs at my table helped me understand their roles and how they differ.” [F&N student]

“Our team was unsure what a clinical psychologist did and found the outline provided to still be vague. There was a little misunderstanding about what exactly is the difference between a clinical psychologist and clinical psychiatrist. If this role was more clearly defined, it would help the team be more effective so we could all know our roles better, thus more effectively helping the client.”[SW student].

Although the role descriptions of 10 different health professions were provided at the workshops, it seemed those role descriptions were helpful only if there was a member of that profession represented at the table who could articulate the role.

Role clarification was also seen as necessary for identifying the right person to be involved in addressing specific patient's needs. This was a challenge for some teams as a student stated...

"[we were] Struggling with identifying the roles of professionals we were unfamiliar with to see if they could be involved and how they could help." [F&N student]

Understanding and clarifying the roles of other professionals assisted participants to value each other's contributions in providing the patient care as one student commented:...

"How difficult it is to take the role of another healthcare professional without education and training. I realized no matter the profession, each role has a particular skill-set that should be valued." [OT Student]

In addition to role clarification and role valuing, participants seemed to recognize that effective teamwork collaboration required the team being a) patient-centered and b) functional as one student stated...

"[IPC teamwork] requires a good understanding of disciplines, important in establishing team dynamics, need to have patient to share their illness experience." [Medical student]

Some participants initially had difficulty engaging and putting the patient at the center of their discussion; but once they engaged with the patient, they found patient-centeredness was a natural process as a student commented...

“We spent a lot of time talking to one another as professionals before we had dialogue with the patient. It seemed as if things moved more smoothly after getting the patient involved.”[Medical Student]

Partnering with the patient was also seen as essential for effective communication, but difficult to achieve, as a couple of IPLGs were initially provider-centered causing ‘too much information’ to be given to the patient as a student shared...

“... Areas that need work during group discussions/team meetings are communicating with the client. We tried to give out too much information at once, and it is more than the client can handle.” [SW student]

Focusing on team functioning also appeared to create a strong foundation for many IPLGs, to cooperate with each other and this in turn seemed to lead to collaboration among and across group members representing a variety of professions as one student stated....

“[we were] cooperative and [we] collaborated professionally; we had an understanding on the main issue and knew exactly what we wanted to do for our client.” [Nursing student]

However, a few IPLGs raised concern that the IPLG's success was also heavily dependent on a) the team being inclusive of all required health professionals and b) individuals being committed to the team meetings. Attrition of IPLG members (in three IPLGs) from workshop 1 to workshop 2 was perceived to have an impact on their teams' success and left remaining members with feelings of disappointment as a student commented...

“Due to the fact that many individuals in our group didn't come to the second workshop, I felt as though I was let down and disappointed (even though I hadn't established a

tremendous amount of rapport and realized that apparent scheduling difficulties).” [OT Student]

“We were lacking a lot of members of the team-we had two med students, two OT students, 1 nutrition student and no representation from the other professions.” [Medical student]

Leading and coordinating the IPLG was also seen as an important component to their team functioning. The leader was needed to encourage everyone to share their opinions while also tying ideas together to help the IPLG generate the best collaborative care plan. Some participants seemed to hesitate in being an IPLG leader possibly either because of their lack of confidence or feeling leadership would impede their need to be the dominant person as students stated...

“I feel that I am not confident as a leader in group situations.” [F&N student]

“[My challenges were] taking a lead and sharing my knowledge/opinion; trying to include everyone; not dismissing anybody’s idea or perspective getting the ball rolling and keeping on track.” [Medical student]

The workshops appeared to give the participants hope and confidence in their capability to share their professional knowledge and to collaboratively lead an interprofessional team as a student shared....

“Interpersonal superiority has been evident on other multidisciplinary teams that I have been on. However, tonight this team gave me hope and confidence that I will be able to handle the situation if it should happen again.” [student from an unidentified profession]

Some conflict did occur in the first workshop related to role issues, however as an outcome of the knowledge gained, participants viewed conflicts positively and learned that knowing about different professionals’ knowledge, skills and roles in a team improved their team’s collaborative practice. To arrive at this point however, the participants appeared to need to acknowledge and

appreciate each other's opinions and adjust their own views to meet an agreed upon common patient's goal as shared by a student.

"It was interesting to see how we all had to adjust to understanding other's roles and skills to offer." [OT student]

Overall, student participants seemed to realize that interprofessional communication and listening skills were enablers for their knowledge and power sharing, and may have allowed for shared decision-making in setting shared goals leading to development of comprehensive and inclusive patient care plans as reported by a student...

"It [the IPE program] definitely taught me to listen first and give opportunity for others to say what's on their mind and give their idea on how to tackle the situation. I mean I have had a lot of teamwork experience and not just necessarily with my profession... so I don't have a problem working with a team but it definitely, [was] this workshop [that] taught me that you have to listen, that's part of working with a team." [F&N student]

'*Learning to collaborate*' seemed to reveal that effective interprofessional team collaboration was gained through role clarification and positive attitude towards other professional roles and perspectives within their team functioning and when focused on the patient's needs helped to support their team commitment. However, to achieve these outcomes the team members seemed to be facilitated by a collaborative leader who helped them with their, interprofessional communication and dealing with interprofessional conflict resolution. This finding appears to support the second stage of the IPS framework, '*interprofessional role learning -IPC*'.

Furthermore, for the participants in this study 'team commitment' and 'team diversity' appear to be seen as necessary as other interprofessional competencies (i.e., the CIHC IP Competency Framework) for successful IPCPCP. Team inclusiveness appears to be a driver for health

professionals to challenge them to learn about the roles and contributions of all team members which in turn allowed the group to provide holistic quality care. To achieve these outcomes team members found that all members needed to commit to participate in the team meetings.

In summary, participants who were provided with opportunities to establish team commitments and apply these in working through case scenarios were able to learn and practice interprofessional competencies which supported the second stage of the IPS framework.

IPS Stage III. Dual identity development. The third stage of the IPS framework theorized that continuing with learning and practicing interprofessional competencies will create strong interprofessional teams where learners equally value, respect, and celebrate the diverse contributions of each member into the development of a holistic plan of care for patients. This interprofessional collaborative teamwork was further theorized to assist members in developing a sense of belonging to and concurrently identify with both their own profession while also fitting into the interprofessional team/work. The outcome is expected to facilitate further corrections of previous disciplinary myths/prejudices and the internalizing of a dual identity. As learners move towards developing a dual identity, they would appear to be empowered to view IPCPCP through both their own professional lens and as a member of an interprofessional community which potentially increase their willingness to seek collaborative teamwork during their programs and following graduation. The following themes provide some support to the above.

'Collective Unified Team'. As participants learned and applied interprofessional competencies in action, their teamwork seemed to evolve into collective collaborative work in

which everyone's opinions, perspectives, roles, and contributions was valued, respected, and shaped their care planning around team agreed upon patient goals. Students commented...

“Everyone has an equal role in the care of the patient, and we are all working together to achieve the goals of the patient. All considerate of each other’s discipline.” [OT student]

“I was most surprised that there are so many professions in the health field, and it is really hard to properly solve a case study without having everyone involved in some way. All the professions tie together.” [F&N student]

Acknowledging and valuing the expertise of different professionals seemed to build trust among members which further led participants to feel collaborative as a unified team. A student shared...

“It is helpful to have a team where other members are more valuable than myself in specific aspects of care in which I’m not familiar.” [Medical student]

Working as a team member provided the participants with opportunities to share their different professional knowledge/ skills to develop an appropriate comprehensive care plan that likely would have been more limited if they had developed it on their own. This view was provided by students who stated...

“I felt very accomplished about the comprehensive treatment and plan that we put together. I don’t feel that without the different perspectives we would have identified all of the strategies we did.” [OT student]

“That everyone is working on the page towards one goal. As well, everyone has something to contribute from their own profession.” [Another OT student]

Through working as a collaborative team, students realized that there are many different ways to provide equally effective patient care solutions.

“I enjoyed it [the teamwork] and found it interesting how many different ways there are to address one problem; All are effective in their own way.” [student from an unidentified profession]

All this team work led participants to acknowledge that the interprofessional collaborative teams improved the quality of care they provided as one student suggested...

“I enjoy working as a team. I feel cross-disciplin[ary practice] allows professionals to better treat the client, providing holistic care; multiple heads are better than one”.
[student from unidentified profession]

Gaining further insight about other health professionals in meeting a patient’s needs facilitated participants to embrace a dual sense of belonging to their own profession and the interprofessional community. When students realized they are not alone but have other colleagues in different professions to assist in developing and providing care, this was a key moment for many participants. This insight helped them see themselves as part of a broader interprofessional community, which has the potential to assist participants in internalizing their values towards IPCPCP. One student commented...

“I will make major changes in thinking about my own profession and that of other professions. I was very biased in my thinking, always considering my profession better and more useful than others. After participating in this IPE study, I have realized that no one profession is better than any other, and their usefulness all depends on the case the client presents with. We are all a part of a huge team that depends on each other when the time comes, and we must work together to provide the best care.” [Nursing student]

When participants reflected on what they had learned to integrate into their forming professional practice the most predominant outcome was how working together collaboratively can benefit them in providing patient care. One student stated...

“My impression after this collaboration is that it is great to get so many different views and input on one case, and how everyone worked together very well sharing background knowledge, skills, (and) tolerance in order to move forward.” [SW student]

Participants reported changes in their views and perspectives about healthcare and healthcare professionals. Viewing themselves as part of an interprofessional community seemed to empower participants for future interaction with other health professionals.

“Since I now have a better understanding of each profession, I will be able to interact more easily with people working in these fields, and actually be confident that I know what their profession is about.” [F&N student].

The theme ‘*collective unified team*’ illustrated that learning and practicing interprofessional competencies in a trusting environment seemed to help the participants to build a unified but collective team where each cross-disciplinary professional felt equally valued, respected, and connected to the team. The collective unified team was seen to provide comprehensive holistic care to patients beyond what they individually could achieve by sharing and valuing different ways of sharing their expertise and skills. All this may have assisted participants to make significant shifts in their perspectives towards IPCPCP through internalizing their dual identity. This dual identity development has the potential to empower participants to feel confident in their future interprofessional interactions towards IPCPCP.

This ‘*collective unified team*’ theme resonated with the third stage of the IPS framework ‘*dual identity development*’. As theorized in the dual identity development stage, the provision of

the interprofessional interactions within the open and trusting environment, which supported participants working collaboratively, and the time for reflection on their learning appeared to help participants experience the development and internalization of a sense of belonging to both their own profession and the interprofessional community. All this led participants to value the synergy of interprofessional teamwork through celebrating the diverse professional expertise and contributions of each individual member into the team's work in developing care plans.

The above four themes (Uniprofessional Education as a barrier, IPS-based IPE Program as an Eye-Opener, Learning to Collaborate, Collective Unified Team) supported the three stages of the IPS framework (breaking down barriers, interprofessional role learning-IPC, and dual identity development). The final theme interprofessional team meetings is associated personal factors within participants which will be discussed below.

'Interprofessional Team Meetings'. Although all participants viewed IPCPCP as a valuable model of practice, there were a few participants who believed that interprofessional team meetings were unrealistic in practice. They thought the lack of health system resource/funding would prevent health professionals having ongoing face-to-face interprofessional meeting for patient care. Students shared their viewpoints...

"We discussed how realistic it is to have so many members of a team meeting to address a client's case in our society, with lack of resources, funding, etc. [OT student]

"These team meetings seem unrealistic. It would probably be more one-on-one meetings with a point person; (however, there is a role for most professionals on any given case."

[Medical student]

Some participants commented that a few participants in their team did not feel they were needed to participate in all meetings attending to the team set goals; rather they were interested in following their own goals.

“I feel like we worked well as a team but the issue was people feeling like they shouldn’t attend specific goal meetings even though other health care professionals would have liked them there.” [Medical student]

There was an appreciation that those with previous IP experience had less challenges with the collaborative teamwork.

“No [challenges], I think in part to some of the exposure to Interprofessionalism in my current course work and the course work of others there seems to be a universal respect for each other’s roles.” [OT Student]

The 'interprofessional team meeting' theme is related to the personal (and systemic) factors proposed in the IPS framework. Participants found that their previous IPE experience along with being individualist or collectivist had the potential to affect their collaborative teamwork and participation in team meetings.

Summary

The qualitative findings provided support for the three stages of the IPS framework (breaking down barriers, interprofessional role learning-IPC, and dual identity development) in this study. Participants found they were able to learn about, with and from each other. To do so they had to first address their barriers about each other caused by the profession-specific education and uniprofessional identity. Participants found that the study program’s open and trusting environment helped them to gain awareness of barriers they had to other professions. Learning about each other created interactional learning through social bridges leading

potentially to reaching openness in gaining insights about other professionals which is congruent with the first stage of the IPS framework (Breaking Down Barriers). Working in the IPLGs assisted participants to gain some level of competence in interprofessional collaboration needed for IPCPCP which is consistent with the second stage of the framework (Interprofessional Role Learning-IPC). Finally participants experienced transformation of their previous uniprofessional identity towards merging their adjusted professional one with their collaborative teamwork resulting in a dual identity. This dual identity development was seen to potentially empower participants in seeking future IPCPCP practice. Thus, to answer the 3rd study research question [What is the socialization process that student's move through during development of their dual identity?] the qualitative data supported the value of the 3-stage IPS framework in socializing students to develop this dual identity.

A further qualitative finding was the impact that students who did not share a collective view of their teamwork may have had on the work of the team. 'Personal interest vs group interest' is congruent with individualist-collectivist orientation while 'previous IPE experience' is another personal factor identified in the framework.

Conclusion

The quantitative findings of this study demonstrated that students' dual identity was significantly improved overtime in the study that may be as a result of students' participation in the IPS-based IPE program intervention in this study, providing support for the first research question. There were no significant variations in the dual identity development among the participants that might indicate the personal factors were not the mediators in this dual identity growth process, which did not support the second research question. The post hoc path analysis however found a cross sectional significant relationship between the IPE beliefs and behaviors

and the dual identity level at T1 and T3 data collection points. Furthermore, T1 past IPE experience was positively related to dual identity at T1.

The qualitative findings revealed five main themes (uniprofessional education as a barrier, IPE program as an eye-opener, learning to collaborate, unified team but with different expertise, and interprofessional team meetings) explaining the socialization process participants underwent to develop dual identity. The first four themes supported the three stages of the IPS framework and the last theme (interprofessional team meetings) was related to the personal (and systemic) factors in the IPS framework.

The integrated quantitative and qualitative findings seemed to support the impact of the IPS-based IPE program intervention on the development of dual identity in this study.

CHAPTER FIVE

DISCUSSION

Discussion

Overview

The purpose of this study was to assess the impact of an IPS-based IPE intervention (developed based on the IPS framework) on interprofessional socialization and dual identity development among health professional students. The IPS framework incorporates the principles of both social identity (SIT) and the intergroup contact (ICT) theories. This study is one of a few studies to examine the impact of incorporating SIT and ICT in IPE. While some previous research has examined the impact of intergroup contact conditions on students' attitudes towards IPE/IPC, at the time this study was conducted, it appeared to be the first study to investigate the impact of an IPE program on dual identity development in students.

This chapter discusses the study findings informing further knowledge of interprofessional socialization and dual identity development among health professional students. A summary of the study findings will first be presented followed by discussion of the integrated quantitative and qualitative findings associated with the research questions. Finally, limitations of this study and its implications for education, practice, and research are discussed.

Summary of Findings

The quantitative findings of the study revealed a significant growth trajectory in participants' dual identity development over time. This dual identity growth was found to be unaffected by their personal factors tested in this study. Rather, this dual identity growth appeared to be the result of students' participation in the IPS-based IPE intervention in this study.

The complementary themes that emerged from the qualitative content analysis appeared to support the three stages of the IPS framework and its two underpinned theories (social identity

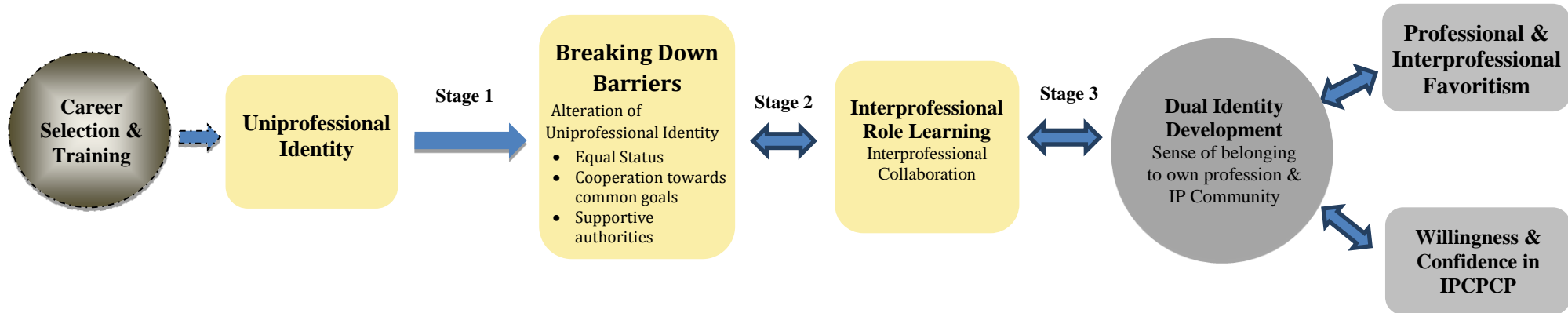
and intergroup contact theories) that shaped the intervention workshops, and appeared to transformed students from their uniprofessional identity into a dual professional/interprofessional identity. This transformation occurred as an outcome of the open and trusting environment of the intervention, and its planned learning activities which seemed to help students to break down their misperceptions about each other. This process laid the foundation for students to explore their existing beliefs and reflect on inaccuracies. For many this reflection appeared to lead to an openness in seeing new perspectives about their own and other professionals. The outcome of these activities prepared students to learn to collaborate interprofessionally. Practicing IPC within the cross disciplinary learning groups further appeared to assist students to develop a sense of interprofessionalism leading to creation of collaborative teamwork in which some team members internalized their dual identity (research question # 3).

The integration of the quantitative and qualitative findings of this concurrent mixed-method study (Creswell, 2008) occurred through both comparing and converging of these findings. The quantitative findings revealed a significant improvement in participants' dual identity over the course of this study. This finding was supported by the qualitative themes indicated that participants began to experience a transformation in their identity from a uniprofessional one to a dual identity. Furthermore, qualitative findings did not appear to support the impact of the personal factors as mediators on this transformation towards dual identity development. A similar finding to that of the quantitative data. However, these personal factors seemed to have some influence on the initial level of dual identity development and the participants' collaborative teamwork during the study.

The fit of the quantitative and qualitative data were considered within the conceptual framework (IPS framework) of the study. While the quantitative data seemed to support the dual

identity development possibly as a result of participation in the study intervention, the qualitative findings assisted in understanding of how the participants underwent development of their dual identity. This process appeared to support the three stages proposed in the IPS framework. The outcome of this integration of quantitative and qualitative findings appeared to show some support for a revised IPS framework in which the socialization stages were retained (breaking down barriers, interprofessional learning-IPC, and dual identity development). However, the personal factors were revised into factors that might influence the overall socialization process, rather than directly influencing each stage of the socialization process (Figure 1-5). This revised framework requires further investigation.

Anticipatory Socialization $\xrightarrow{\text{Influence}}$ IPS-Based IPE $\xrightarrow{\text{Leads to}}$ 3-Stage IPS $\xrightarrow{\text{Results in}}$ Dual Professional & Interprofessional Identity & Readiness for IPCPCP



Personal Factors:

- IPE Beliefs & Behaviors
- Individualist-Collectivist Orientation
- IPE previous Experience

Figure 5-1. Revised Interprofessional Socialization Framework

Note: The double arrows in the figure demonstrate the synergy/antagonistic of the relationship between the stages.

Integrated Findings Related to Research Questions

Research Question 1: What is the effect of an IPS-based IPE program on the development of dual identity among health professional students?

The effect of the IPS-based IPE program on dual identity development was studied using the LGC and the GLM repeated measures models. These models demonstrated a significant increase in dual identity among students over time which seemed to result from the application of the IPS-based IPE intervention. The development of this intervention was guided through the IPS framework, underpinning the intergroup contact and social identity theories. In this study, interprofessional students from seven different health programs were brought together to create an open and trusting environment where students could feel their input was equally valued. During the workshops, participants were exposed to awareness about and encouraged to critically reflect on their own and others professional perspectives carried out through use of a variety of group learning activities (as discussed in chapter 3) within their interprofessional small groups. Facilitated group discussions utilized critical reflection and adult education strategies, which created an environment for students to focus on their stereotypical attitudes towards each other. This focus led to an openness to consider their previous perspectives and generate new thinking among participants. This openness to new perspectives provided the means for students to begin learning about, with, and from each other, which resulted in building their collective, unified team. Thus, the above reflected the application of Pettigrew's (1998) intergroup contact conditions.

While all the four DIS subscale concepts significantly improved over time, professional belonging (PB) and dual identity achievement (DIA) demonstrated the greatest improvement following the intervention. DIA and interprofessional belonging (IPB) improvement were

expected to increase while PB improvement might not. These findings may be explained by: a) the voluntary participation in this study leading to a potential self-selection bias towards those who had an interest in IPE, b) recent IPE movement at the university may have sensitized students towards IPE causing the initial high IPB mean score which limited further improvement, c) being early on their professional education, students were still evolving their professional identity which may have caused the lower PB mean score prior to the intervention, and finally d) the new DIS scale although validated to measure ‘dual identity’ may be weak in its ability to measure students’ professional perspectives. As such the DIS may be weak in measuring ‘in-group and out-group behaviors’, hence, it requires further validation.

While the impact of the IPS-based IPE intervention on dual identity development has not been previously studied to compare these findings against, there are IPE studies that have evaluated the application of Pettigrew’s (1998) intergroup contact conditions. These studies explored intergroup contact conditions such as: equal status among participants, shared goal setting, cooperating towards common goals, and institutional support, and/or the IPE teaching/learning strategies in designing IPE interventions on students’ stereotypical attitudes towards IPE/IPC (Mohaupt et al., 2012; Ateah et al., 2011; Curran et al., 2010; McFadyen et al., 2010; Carpenter et al., 2006; Pollard et al., 2006; Tunstall- Pedoe et al., 2003; Barnes et al., 2000; Carpenter & Hewstone, 1996; Carpenter, 1995; Hewstone et al., 1994).

In an evaluation of a 1-day to 1-week mandatory IPE programs for medical, nursing and social work students which integrated intergroup contact conditions (Carpenter & Hewstone, 1996; Carpenter, 1995; Hewstone et al., 1994) overall improvements in students’ stereotypical attitudes towards other professions over the course of the program was reported; supporting the findings from this study. A similar pattern of improvement was found in a controlled before-after

(CBA) study conducted by Ateah and colleagues in which 51 randomly assigned students from seven health programs including: dental hygiene, dentistry, medicine, nursing, pharmacy, occupational therapy (OT) and physical therapy (PT) into either one control and two experimental groups. The experimental groups intervention included: a) an IPE education-only group in which students participated in two and half consecutive days of interactive education and presentations based on the intergroup contact conditions, and b) an IPE immersion group in which the sub-groups of four students were sent into four different immersion practice sites, after completing the above two and half days of IPE with the previous group. All students completed the Student Stereotypes Rating Questionnaire (SSRQ) (Hean, Macleod Clark, Adams, Humphris, & Lathlean, 2006) four times during the study (before and after the IPE education-only intervention, following the IPE immersion experience, and four months post IPE immersion experience). The researchers reported significant improvements in students stereotypical attitudes towards other health professionals on nine characteristics; a similar finding in this current study.

In a more recent study, Mohaupt and colleagues provided students from pharmacy technician, paramedic, nursing, OT assistant and PT assistants programs (2012) with a 1-day IPE clinical simulation experience that utilized intergroup contact conditions. Results demonstrated a significant improvement in students' perceptions towards IPE in three subscales of the interdisciplinary education perceptions scale (IEPS) (Luecht, Madsen, Taugher, & Petterson, 1990) – “competency and autonomy”, “perceived need for collaboration,” and “perceptions of actual collaboration” – following the intervention. No changes were found in the fourth subscale “attitudes toward the contributions of others”. This finding was also reported by McFadyen and colleagues' (2007) study (as being discussed later in this section), who suggested this outcome may be partially related to the scale's psychometric properties.

While the above studies reported a positive impact when intergroup contact conditions were applied in IPE learning, the evaluation of two mandatory IPE programs (1 day for 2 years) with both community health service workers (Barnes, Carpenter, & Dickinson, 2000) and pre-licensure nursing, social work, and occupational therapy students (Carpenter, Barnes, Dickinson, & Wooff, 2006) found no statistically significant changes in participants' stereotypical attitudes. The researchers concluded that some of the conditions for intergroup contact (i.e., equal status and cooperation towards setting common goals) had not been met and this might explain why an absence of changes in stereotypical attitudes was found. In another study, Tunstall-Pedoe and colleagues (2003) reported on a mandatory 10-week mixed classroom and clinical IPE program for first year medical, physical therapy, radiography and nursing students. They found that excluding the integration of all intergroup contact conditions might have caused students to develop more negative stereotypes during the program. Alternative explanations might relate to the didactic learning used in the program and/or the inability of the instrument (30-point semi-structured questionnaire adapted from Carpenter's stereotypical scale) to accurately measure changes in stereotypical views about students' own and others' professions.

In McFayden and colleagues study (2010) cited above, utilized their adapted version of the readiness for interprofessional learning scale (RIPLS) (Parsell & Bligh, 1999) and IEPS (Luecht et al., 1990) to assess the impact of a 4-year IPE intervention on 573 undergraduate health professional students. They reported that students' negative stereotypical attitudes were strengthened following participation in their IPE program. In their study participants were assigned to either a control (n=260), receiving 'usual' education or experimental group (n=313) who received an IPE intervention. Statistical analysis of changes overtime indicated that the RIPLS mean subscale scores in the control group remained consistent across time while the

experimental group scores tended to decline over time indicating lower levels of readiness for interprofessional learning. This reduction in participants' readiness for IP learning from a perceived-very-high baseline scores was consistent with findings of Pollard and colleagues' (2006) as discussed later in this section. The IEPS results in McFayden and colleagues (2010) study showed a similar pattern to the RIPLS in which the control group means for all three subscales showed little variation across time while a slight decline occurred in the experimental group mean scores. The researchers echoed what Curran et al. (2010) pointed out (as discussed in the following), suggesting the possibility that the effects of the teaching and learning strategies utilized in IPE intervention programs may be attributed to these outcomes. Other factors cited were the possibility of the clinical intervention's timing, duration, style or content. McFadyen et al. (2010) used a formal module covering themed topics relevant to all professional groups once per semester throughout their program. In addition, all students were integrated into healthcare professional teams and were provided with facilitated problem-oriented seminar discussions for three hours per week over 24 weeks. However, neither McFayden and colleagues (2010), nor Tunstall- Pedoe and colleagues (2003), adopted Pettigrew's (1998) intergroup contact conditions (equal status among the students and staff and cooperation towards setting and meeting common goals), or the IPS teaching/learning strategies (critical reflection on own and others perspectives, utilization of trained IPE facilitators/educators, and interprofessional client-centered collaboration) in their interventions. In this present study, despite initial high scores on interprofessional attitudes and belonging (i.e., CDA and IPB subscales), the integration of Pettigrew's (1998) intergroup contact conditions and the IPS teaching/learning strategies appeared to assist students to further improve their attitudes towards IPE/IPC over the course of the study.

In two other similar longitudinal studies conducted by Pollard and colleagues (2006) and Curran and colleagues (2010) cited above, the researchers evaluated the effect of IPE initiatives on the attitudes of students from several different health programs towards IPE and teamwork. The results of these studies revealed that the IPE initiatives did not appear to have a significant positive effect on attitudes towards IPE or interprofessional teamwork over time. Pollard and colleagues (2006) further found a negative shift in students' attitudes towards interprofessional learning and interprofessional interaction following a 3-year IPE intervention embedded in the professional curricula of ten different programs. The researchers suggested this change may be due to a combination of factors: a) the idealistic and unrealistic perceptions of students towards IPE and IPCPCP at the beginning of their program, and/or b) the inability of the IEPS used in the study to effectively measure students' perceptual changes (Pollard, 2006). Curran and colleagues (2010) suggested their findings might be due to the lack of interactive, reflective and experiential learning activities in the IPE curriculum. According to Parsell and Bligh (1999), the application of interactive, reflective and experiential learning approaches are required if IPE programs are to assist students in adopting an interprofessional affinity for interprofessional teamwork. This present study affirms this suggestion.

In summary, from all above cited studies, those in which intergroup contact conditions were fully met reported significant improvements in students' stereotypical attitudes towards other professions and IPE/IPC (Mohaupt et al., 2012; Ateah et al., 2011; Carpenter & Hewstone, 1996; Carpenter, 1995; Hewstone et al., 1994) which provide support for the application of the intergroup contact conditions in changing students perspectives which is in line with the present study demonstrating the application of the intergroup contact conditions in transforming uniprofessional perspective towards dual identity among participants. The rest of the studies,

either those that did not integrate all of the intergroup contact conditions (Carpenter et al., 2006; Tunstall- Pedoe et al., 2003; Barnes et al., 2000), or those in which the programs were devoid in integrating social identity and intergroup contact perspectives (Curran et al., 2010; McFadyen et al., 2010; Pollard et al., 2006), reported no improvement in students attitudes, and in some instances, authors reported a negative impact of the intervention on students IPE/IPC attitudes (McFadyen et al., 2010; Pollard et al., 2006; Tunstall- Pedoe et al., 2003). These reports also provide support for the application of the intergroup contact conditions in assisting students in transforming their uniprofessional perspectives by revealing that the lack of integration of these conditions would result in no improvement towards IPE/IPC. Further to that, these latter studies also provide support for the application of the IPS teaching/learning strategies in this transformation process.

In conclusion, the integrated findings of this present study indicate that there was a significant improvement in students' dual identity during the study that could be as a result of participation in the study's IPS-based IPE program, supporting research question 1. The integrated findings also provide support for the application of the IPS framework and the integration of the intergroup contact and social identity theories to assist students in their dual identity development.

Research Question # 2: What is the relationship between personal factors (e.g., IPE beliefs and behaviors, past IPE experience, and individualist vs collectivist orientation) and dual identity development among health professional students during the study?

The relationship between demographic variables (gender and profession) and dual identity development over time will first be presented.

Demographic variables & Dual Identity. Although there were no significant relationships found between participants gender, their professions, and dual identity development

over time, there were significant differences in T1 DIS scores between students' gender and their professions. Students who self-identified as female students rated themselves higher on their dual identity than male students at the beginning of the study, which is consistent with previous studies by Adams and colleagues (2006) and Pollard and colleagues (2006) indicating that female students rated their attitude towards IPE higher at the outset of the study. By the end of this study (T3) no significant differences between genders in dual identity development were found. Therefore, students' gender did not have a significant impact on the development of their dual identity following the IPS-based IPE program. In contrast with these findings, in Goelen and colleagues CBA study of 177 undergraduate medical, nursing, and PT students attitudes post IPE module introduction (2006) a significant improvement in the attitudes of the male participants (versus female students) in the experimental group was found. The researchers found no selection bias towards male students but provided no further explanation for this result. Future studies should consider whether gender has a statistically significant relationship with IPE interventions.

In this present study the findings in students DIS at T1 revealed that SLP students initially rated themselves significantly higher than did other professionals, whereas OT and Medical students rated themselves lower than did other professionals. By the end of the study no significant differences among participants from different professions on their dual identity levels were found, which suggests 'profession' as a variable might not have impacted the students' dual identity development. However, these results need to be treated by causes considering the low representation of some of the professions in the study. In the literature there are mixed reports on the mediating effect of 'profession' on IPE attitudinal changes. Medical students were reported to be less positive with regards to their attitudes towards IPE (Curran et al, 2010; Salvatori et al.,

2007; Morrison, Boohan, Moutray, & Jenkins, 2004; Tunstall-Pedoe et al., 2003). In Morrison and colleagues (2004) cross-sectional study of nursing and medical students, it was found that medical students, while being enthusiastic about learning about the roles of other professionals, were generally less positive (than the nursing students) to learn about other roles and about IPE, and were more invested in learning about their own profession. In this present study, medical students also rated themselves significantly lower than other professions (except for OT) on both dual identity and IPE beliefs and behaviors. This finding may confirm that medical students' predominant focus is on their own role development versus seeing their fit within a team of several health professionals. Such a conclusion resonates with the findings of Horsburgh et al (2006), who employed a cross-sectional study of medical, nursing and pharmacy students to explore students' professional subcultures when entering their program of study. Researchers found that medical students, unlike the other health care provider participants, perceived the work of healthcare in more individualistic ways. Salvatori et al. (2007) in their 2-year pilot study of 136 students from medical, nursing, OT, PT, and midwifery programs found a difference in IPE attitudes (measured by IEPS) among professions. PT and OT students held more positive attitudes towards IPE than did medical students at both pre- and post-intervention levels. In this present study, although OT students were enthusiastic participants in the IPE workshops, they along with the medical students scored themselves lower than others on their dual identity development. This finding might be related/effected by the perceived ambiguity of OT professional role (versus PT) among the IP team members.

Personal Factors & Dual Identity. No relationship between students' personal factors and their dual identity development was found in this study. When the growth trajectory of dual identity was tracked using LGC analysis no significant variation in the dual identity growth

trajectory among the participants was found. This may indicate that students' dual identity developed consistently at a similar rate over the course of the study, regardless of their personal factors. An alternate explanation for this lack of significant inter-individual differences in dual identity growth might be due to only collecting data at three time intervals. LCG normally requires a 4th data collection to test the non-linearity of the growth trajectory. Despite the initial intent to collect data at four time periods, one data point was cut off in order to accommodate the Ethics Board's concerns regarding student's time and survey fatigue. This limitation eliminated the possibility of testing the model for non-linearity of the growth rate. Regardless, these results were unexpected since the theorized IPS framework predicted that students' personal factors would mediate the impact of the intervention on their dual identity growth. An explanation for these unexpected results could be that the well-designed IPE intervention overcame the mediating effect of students' personal factors in this study. As was previously discussed, the IPE intervention was designed based on the application of the IPS three-stage framework developed through an extensive literature review on IPE and socialization, and underpinned by the two socio-psychology theories of SIT and ICT.

When a post-hoc path analysis was carried out the presence of a cross-sectional relationship between IPE beliefs and behaviors and dual identity level at the beginning (T1) and at the end (T3) of the study were found. These findings indicated that students with higher IPE beliefs and behaviors also had a stronger dual identity at these data collection times. This is an expected correlational result considering that it is believed the dual identity develops through commitment and positive attitudes towards IPE/IPC. However, the correlation between students' IPE beliefs and behaviors and dual identity at the beginning of the study did not predict the dual identity level at the study's T2 or T3. It can be concluded that IPE beliefs and behaviors was not

a mediator for dual identity growth. It is also important to (re)mention that the ISVS used in this study was a modified shortened version of the total instrument in which ten out of 34 items were removed because of their similarity with items in the DIS. This shortening of the instrument may have altered its subscale psychometrics and further impacted the above relational findings.

The post-hoc results further revealed that students who began the study with previous IPE experience had stronger dual identity before the intervention, which was an expected result based on the IPS framework and the existing published literature. Adams and colleagues (2006), Coster and colleagues (2008) and Pollard and colleagues (2006) similarly found that students with previous interprofessional learning experiences demonstrated higher attitudes and readiness for IPE/IPC in their studies. At the same time the relationship between IPE experience and dual identity neither continued to increase at T2 and T3 nor was the T1 experience a predictor for dual identity levels at T2 or T3. These findings further support the non-mediating effect of past IPE experience on the interventions' impact on dual identity development in this study.

Surprisingly post-hoc results revealed no cross-sectional relationship between individualism/collectivism and participants' dual identity at any time across the study. Consequently being an individualist or collectivist did not influence or was not related to dual identity development among students. However, since students entered the study program already perceiving themselves as collectivists, as evidenced by high mean score of T1 ICS, may have skewed this result. Thus this finding should be treated with caution and further investigation of this relationship is warranted. The self-selection by participants in this study might also have caused this high initial score in ICT. In the IPE literature despite a general perception of the interrelationship between collectivism and IPE/IPC, no study was found that

investigated the relationship between participants IPE/IPC and their individualist/collectivist orientation.

Overall, the analysis of quantitative data found that while there was a correlational relationship between students' IPE beliefs and behaviors, and their dual identity level at T1 and T3, along with a correlation between previous IPE experience and T1 dual identity, no significant differences were found in the LGC trajectory of dual identity growth that could be explained by their personal factors. This was an unexpected finding, but may support the field suggestion that well-structured IPE can bring changes in students' perspective in favor of IPE/IPC (Carpenter & Dickinson, 2008; Curran et al., 2010).

Qualitative findings revealed that the 'interprofessional team meeting' theme was related to two of the personal factors (previous IPE experience and individualist-collectivist orientation). Participants with previous IPE experiences described themselves as more comfortable communicating and working within their interprofessional group. This finding is consistent with the post-hoc related findings, and may indicate the relationship between previous IPE experience and dual identity in this study. Adams and colleagues (2006), Clarke and colleagues (2005) and Coster and colleagues (2008) similarly found that previous interprofessional work experience helped improve individuals' confidence in meeting and learning with and from students across professions. A couple of participants from two different groups in this present study commented in their reflections that a minority of participants within their groups were more interested in following only their own personal goals than those of the group. Those team members who focused on their own individual goals were perceived as interfering with the interprofessional collaborative group learning. This response fits with the IPS framework in which members have either an individualist or collectivist orientation to their work from the outset.

In conclusion, the integrated findings of this study found that while participants' personal factors might have had some influence on their level of dual identity prior to the intervention; participants' growth in dual identity following the intervention may not have been affected by either these factors, or by demographic variables. These findings did not support the second research study question.

Research Question #3: What is the socialization process that students move through during the development of dual identity?

The thematic content analysis of qualitative data provided insight into how the intervention assisted students in their socialization transition in developing a dual identity. This transitional process seemed to follow the three stages theorized in the IPS framework. The first two emerged themes of the qualitative data – *uniprofessional education as a barrier and IPS-based IPE program as an 'eye-opener'* related to the 'breaking down barriers' stage; the next theme – *learning to collaborate* – related to the 'interprofessional role learning: interprofessional collaboration' stage; and the fourth theme – *collective unified team* – related to the 'dual identity development' stage of the IPS framework. The final theme – *interprofessional team meetings* – may relate to the personal factors identified in the IPS framework. These themes are further discussed within each IPS stage.

Breaking Down Barriers. Findings from the first two themes (uniprofessional education as a barrier and IPS- based IPE program as an eye-opener) suggested there is still a gap in moving students' abilities into collaborative teamwork. Participants pointed out that they were still learning in isolation from other professional programs students, and that this was a limitation to their awareness of: a) roles and responsibilities of other health professionals, b) existence of an array of health professionals in healthcare, c) interconnectivity amongst different health

professions in practice, and d) uniprofessional identity each brings and its impact on collaborative practice. The uniprofessional identity was seen to restrain participants' thinking beyond the 'boundaries' of their profession, causing them to develop some 'turf protection' behaviors. Participants identified 'turf protection' behaviors as barriers to their further IPC during the first intervention workshop. These findings are in line with the IPS framework indicating that the current model of uniprofessional education is causing students to develop a uniprofessional identity. Such a focus creates an in-group cohesion with like-minded students which facilitated them to share trusting and rewarding relationships ("in-group favoritism") with each other and created the perception of out-group hostility through distancing and information holding to those outside of their in-group (out-group discrimination) (Mitchell, Parker, & Giles, 2011; Tajfel & Turner, 1986). These in-group and out-group behaviors are theorized to be one of the main barriers towards IPC. A number of IPE authors have also identified the current professional education model as causing students to hold negative stereotypes, prejudices and misperceptions about other professionals potentially causing them to resist interprofessional collaboration (Arndt, et al., 2009; Carpenter & Dickinson, 2008; Russell, Nyhof- Young, Abosh, & Robinson, 2006; Wakefield, et al., 2006; Barnes, et al., 2000; Carpenter, 1995).

The finding of this present study supported the application of Pettigrew's (1998) intergroup contact conditions (equal status among participants, shared goal setting, cooperating towards common goals, and institutional support) into the workshops that facilitated the creation of an open and trusting workshop environment. This environment allowed participants to get actively involved in discussing and reflecting upon their misperceptions.

These findings are also supported by research carried out by several authors who found that bringing cross-disciplinary students together in an open and trusting environment facilitated

by intergroup contact conditions had provided students with opportunities for challenging their existing stereotypical attitudes (Carpenter, 1995; Carpenter & Hewstone, 1996; Hewstone et al, 1994), which resulted in creating a climate for building interprofessional relationships and team working skills (Bainbridge & Wood, 2012; Hind et al, 2003). While the research literature substantiates the need to correct cross-professional prejudices and stereotypes as a critical initial step for building interprofessional student teams (Clouder, Davies, Sams, & McFarland, 2012; Wakefield et al., 2006), it also fails to address how to correct misperceptions or what process(es) are involved in breaking down these uniprofessional perspectives. The findings of this present study suggests ‘why’ changes are needed, and extended our understanding of the process (how and what) that can be applied to break down barriers.

The study findings supported the application of Pettigrew’s four interdependent cognitive processes: a) learning about out-groups, b) changing behavior, c) generating affective ties, and d) in-group reappraisal (1998) in bringing down barriers towards IPC. Participants pointed out that interprofessional interactions within the intervention workshops helped them to begin to learn more about each other at both a personal and professional level (learning about out-groups) leading to a new openness towards understanding what each member brought into the IPLG interface (changing behavior). Participants reported that this awareness and openness led to cooperation in setting common ‘patient’ goals (further changing behavior) and to friendships that extended beyond the workshop setting (generating affective ties). These insights led participants to gain new perspectives into their own and others professional roles, and to reach a greater openness to begin shifting their uniprofessional perspectives towards an adjusted consideration of a professional identity in which they valued and favored their own professional perspective, while reducing discrimination towards other group members’ perspective. This openness to other

professional perspectives provided students with opportunities to be less biased in their interactions within IPLGs leading to less of a need to protect their own profession, readying them to begin learning how to collaborate as a team, beginning their in-group reappraisal. Mitchell and colleagues (2011) found that interprofessional openness was a significant mediator for team effectiveness – firstly, by reducing the perceived threat to professional identity thus reducing turf protection behaviors, and secondly, by enhancing team identity; a finding supported in this present study.

In summary, the interprofessional interaction and reflection created in the intervention workshops of this study created the momentum to begin students moving away from out-group discrimination towards other professionals in the group. This movement was seen as a necessary antecedent to learn interprofessional collaboration, and to accomplish the team’s agreed upon ‘patient’ goals facilitated during the interprofessional role learning stage.

Interprofessional Role Learning – IPC. The findings of the third theme revealed that working together within the IPLG not only assisted participants to eliminate their ‘out-group’ discrimination, it also facilitated participants to extend their positive ‘in-group’ attitudes to all group members and to move towards learning the essential IPC components as a team. IPLG learning the IPC components by working through the case study activities appeared to provide the needed structure for students to build their unified interprofessional team. This team building included: a) discovering their perspectives, roles, and contributions of team members, and b) valuing, respecting, and appreciating the complementarity of each other in shaping shared holistic care around the team’s agreed upon ‘patient’ goals. In fact, students’ interprofessional collaborative teamwork assisted them in placing a priority on collaboration leading to team interdependence in addressing collective goals. This interprofessional team focus seemed to

enhance the cohesiveness and integration among team members which may have led to development of a new sense of ‘interprofessionalism’ (D’Amour & Oandasan, 2005). These findings seem to support the second stage of the IPS framework -interprofessional role learning – IPC – which theorizes the need for students’ to build their interprofessional teams by demonstrating the CIHC interprofessional collaboration competency domains.

These identified IPC components are also consistent with the literature which highlights the need for interprofessional student teams to improve their competence in role clarification/role valuing (CIHC, 2010; Curran, Casimiro, Banfield, Hall, Lackie, et al., 2009; Suter et al., 2009; Carpenter & Dickinson, 2008; Orchard, Curran, & Kabene, 2005; Barr, 1998;), team functioning (CIHC, 2010; Curran et al., 2009; Barr, 1998), patient-centeredness (CIHC, 2010; Curran, et al., 2009; Carpenter & Dickinson, 2008; Orchard, Curran, & Kabene, 2005; Barr, 1998), interprofessional communication (CIHC, 2010; Curran, et al., 2009; Suter, et al., 2009; Carpenter & Dickinson, 2008; Orchard, Curran, & Kabene, 2005; Barr, 1998), collaborative leadership (CIHC, 2010; Carpenter & Dickinson, 2008; Orchard, Curran, & Kabene, 2005) and conflict management (CIHC, 2010; Curran, et al., 2009; Carpenter & Dickinson, 2008; Orchard, Curran, & Kabene, 2005; Barr, 1998).

In conclusion, these findings seem to provide support for the second stage of the IPS framework which theorizes the need for students’ to build their interprofessional teams by demonstrating interprofessional collaboration competence.

Dual identity development. The findings of the fourth emerged theme revealed that the transformation to dual identity occurred through participants developing a) an adjusted ‘professional identity’, in which they eliminate their ‘out-group discrimination’ through interaction and critical reflection and by reaching openness to learn and collaborate with other

professionals and b) a sense of interprofessionality achieved through extending their ‘in-group’ status to those in the interprofessional team who were likely to be previously perceived as ‘out-groups’. This evolving dual identity development, in which students simultaneously identify themselves as part of both their own profession and an interprofessional community, led students on one hand to maintain their professional solidarity by reducing their fear of ‘identity loss’, and on the other hand to develop a sense of belonging to the interprofessional community. This dual identity may overcome the negative consequences of out-group discrimination. Hence, if sustained this dual identity may further be theorized to prepare students to seek IPC team work following graduation.

This dual identity through ‘in-group reappraisal’ as theorized by both ICT and SIT, was not limited to students in their own workshop teams, but seemed to expand to other workshop participants as evident in their individual reflections. For example, following the workshops some of the participants organized a social get together leading to the establishment of an interprofessional group to develop more learning opportunities at the university (i.e., IP student team initiative). Thus the beginning of an interprofessional community evolved albeit on a social level, as an unanticipated, but desirable outcome of their involvement in this study.

Wakefield et al. (2006) in their IPE intervention study with nursing and medical students found that participants strongly valued interprofessional collaborative teamwork, but at the same time appreciated retaining their distinctive professional role/identity in their team. They viewed the above as ‘teamwork; but not a blurring of their professional boundaries’, which resonates with the dual identity development in this present study. In a further study Mitchell and colleagues (2011) found that ‘perceived threat to professional identity’ had a negative impact on students interprofessional team effectiveness by stimulating hostility towards other professions

which was seen as detrimental to members' performance. This effect was reversed when little threats to their professional identity was perceived, an outcome that may occur because members were more likely to share and utilize their professional expertise. At the same time, the researchers found when team members shared their knowledge and expertise within the team it led to 'perceived team identity' that had a significant positive effect on the effectiveness of interprofessional teams. However, in the absence of a strong sense of team identity, professional diversity in the team had a negative impact on team effectiveness (Mitchell, et al., 2011). These findings provide further support for the importance for interprofessional team members to have a dual identity as a condition for improved teamwork as theorized in this present study.

The above findings are consistent with the third stage of the IPS framework, dual identity development. Findings suggest that integration of the SIT and ICT principles along with the IPS teaching/learning strategies into interprofessional team building processes may result in developing a sense of belonging and simultaneous identification with both individual's own profession and the interprofessional community, thus a dual identity. This dual identity development was further theorized to help members maintain their professional cohesion while extending their positive 'in-group' attitudes and trust towards the interprofessional community thus controlling 'out-group' discrimination.

The first four themes that emerged from the qualitative data provided support for the three stages of the IPS framework –*breaking down barriers*, *interprofessional role learning*, and *dual identity development* – and its two main underpinning theories of social identity (Tajfel & Turner, 1986) and intergroup contact (Pettigrew, 1998).

The qualitative findings through the final theme –*interprofessional team meetings* – further suggest that although participants' personal factors – individualist-collectivist orientation

and the previous IPE experience – likely did not affect participants’ dual identity development, these factors appeared to be influencing team collaboration.

In summary, the qualitative findings of this study revealed that participants found that in order to be interprofessionally socialized, they had to first become aware of and address their uniprofessional perspective, perceived to be caused by their uniprofessional model of education. Providing learning environments and strategies designed to incorporate social identity and intergroup contact theories, created openness among participants towards new perspectives of their role and that of other health providers. When this openness was achieved, participants gained the capacity to learn about, with, and from each other across professions leading them to improve their interprofessional collaborative skills while gaining new insights about their own and other professions. Students appeared to be empowered to move towards building an interprofessional team by creating a sense of belonging and identification to both their own profession and that of their interprofessional group. In doing so, they appeared to eliminate their out-group discrimination and transfer their previous in-group favoritism to the interprofessional community which further has the potential to overcome negative consequences of out-group discrimination thus supporting the premises of SIT and ICT. This in turn, may improve their seeking of IPC teams for future practice and if sustained, may support their preference for practicing IPC following graduation.

These qualitative findings provide further explanatory insight into the quantitative findings in which participants’ dual identity was significantly improved over time. The study’s intervention may have played a role on the above findings. According to the integrated findings of this present study, the effect of the IPE intervention on participants seemed to depend on the effectiveness of the learning structure and the socialization environment to assist students

transforming their uniprofessional perspectives towards a dual professional and interprofessional one. Therefore, dual identity development seems to occur when the following conditions are in place: (1) when a learning intervention is designed around both social identity and intergroup contact theories, and (2) interprofessional groups of students are socialized into interprofessional teamwork through the application of the IPS framework and its teaching/learning strategies. The sustainability of these changes is not known to date. Therefore, a longitudinal study tracking students into their beginning practice years is needed to determine if such dual identity development impacts their future graduate practice.

Limitations of the Study

The limitations of the study are presented based on the potential biases for a quantitative pre-experimental research design proposed by Campbell and Stanley (1963) and Cook and Campbell (1979). The main limitation of this research study is a one-group design, which made it difficult to establish any cause and effect relationship between the intervention and the study results. However, to overcome this limitation the followings strategies were employed: first: a pre-post-post design, in which the data were collected at three measurement times before, during and at the end of the intervention; and second: a concurrent mixed method approach, in which the qualitative data were collected as complementary to assess the process and lived experience of the participants going through the intervention.

The other limitation of this study is the self-selection bias. The data used in this study were from a purposive convenience sample of voluntary participants from seven different health professional programs located in a single Canadian university. These participants may not be representative of all students in their respective programs, or other post-secondary educational institutions, and could have resulted in response bias, possibly yielding a more collectivistic

group of participants than the norm. Consequently, the study findings addressing the relationship between ICS and dual identity should be interpreted cautiously. The participants' history bias, is another potential limitation, which was attempted to be overcome through controlling the impact of participation in any other concurrent IPE activity than the study intervention as a mediator (T2 and T3 past IPE experience). The maturation bias could be another limitation in this study. However, the length of the study was about three months, and this length of time might not have been long enough for impact on participants' maturation. The testing bias could also be another source of limitation although the utilization of the LGC modeling might have helped overcome this limitation by measuring the latent growth trajectory among participants.

There was also an overall 30% study attrition rate which further may have resulted in non-representation across the participating professional programs. To overcome this weakness the full information maximum likelihood (FIML) approach was used which allowed the inclusion of missing and/or unequal data across all participants in the LGC analysis (McArdle, 2004; Duncan, et al., 1994). The other limitation of the study was the inability to evaluate the non-linearity of the dual identity growth rate due to the only three versus four data collection points as recommended for LGC. A further issue was utilizing a modified version of the ISVS in this study by removing 10 items of the scale that were similar to those of DIS might have affected the relationship between the IPE belief and behavior and dual identity in this study. Finally, the high inter-correlation between some DIS subscales and the total scale in the psychometric analysis of the scale along with the weakness of the scale in measuring the 'in-group and out-group behaviors' might have influenced the study results.

Implications for Interprofessional Education and Practice

The findings of this study contribute to our understanding of students' interprofessional socialization, and the process and strategies through which the stages of IPS could facilitate forming and developing dual identity within interprofessional students. This dual identity is believed to promote an affinity towards interprofessional collaborative teamwork. This contribution may inform efforts by educators and curriculum developers to facilitate development of health professional students' dual identity, as a first step towards IPC.

The revised IPS framework could be embedded in professional educational program curricula to further assist in students' transformation to an IP team collaborative perspective. It is recommended that for the first year or two of professional education programs the curriculum focus on stage 1 and partially stage 2 of the IPS framework. During the first stage of the framework, (breaking down barriers), IPS-based IPE program should facilitate elimination of students' previous misconceptions related to the roles and contribution of other professionals. Learning should be facilitated in such a way as to provide an open and trusting environment – an environment that encourages students to critically challenge and reflect on their own and each other's perspectives. By doing so, students may gain an awareness of their narrow professional perspectives and its impact on their IP collaboration, which may encourage them to broaden their perspectives towards the value of teams of different health professionals working collaboratively.

As students move forward in their professional education, the focus should build towards interprofessional collaboration and dual identity development (the stages 2 and 3 of IPS framework). This openness to developing new perspectives should be facilitated through interprofessional role learning and collaborative team practice, assisting learners to adopt a dual

identity. Thus having students learning together across professional programs is key to dual identity development.

The IPS may also be relevant in post-licensure continuing professional education, but this assumption will need to be tested to confirm its applicability. Since health professionals already have an established uniprofessional identity, expanding to a dual identity may require more focused challenges to existing multi-disciplinary working relationships to embrace those that are both interprofessional and patient-centered. The framework may also be used to support the anticipatory socialization of pre-health and pre-social program students. Early exposure to the various health provider roles may assist in helping these learners to formulate appropriate career choices, as well as create an openness early on towards understanding cross disciplinary practice – before uniprofessional socialization is firmly entrenched.

From a systems perspective, the successful implementation of IPS-based IPE programs requires educational institutions to take steps to foster a cultural shift towards interprofessional education for collaborative person-centered practice (Cameron, 2011; Hall, 2005; Ho, 2006; Gilbert, 2005). This cultural shift will require governance and management structures that encourage collaborative environments for developing joint curricula and for the sharing of resources amongst all professions (Ho, 2006). Sustainability and effectiveness of this cultural shift requires formal leaders and champions strategies to establish structures and parameters for implementation and evaluation in guiding this change. Thus, having IPC champions across a variety of stakeholders (e.g., faculty/educators, administrative, clinicians, managers) who advocate for the allocation of both human and fiscal resources fosters the above change in health professional education (AIPHE, 2011; D'Amour & Oandasan, 2005; Ho, 2006; Oandasan & Reeves, 2005).

It is also important that professional governing bodies and governments shift from a professional-only approach to scopes of professional practice legislation and regulation to a more collaborative approach supporting their members working together with other regulatory bodies. A more integrative approach to interprofessional team practice across professions may be achievable by integrating common interprofessional competencies, such as the CIHC's IPC competency framework within professional practice and the quality assurance programs (Cameron, 2011; Ho, 2006; Gilbert, 2005; CIHC, 2010).

Recommendations for Further Research

Findings from this investigation indicated that the IPS-based IPE program may successfully assist in transforming cross-disciplinary students' uniprofessional identity to a dual identity. It appears that incorporating all or replicating parts of this IPS-based IPE program into health professional schools curricula would have an impact on developing/enhancing dual identity among the students studied. Further replications of this mixed-method study are needed with larger random samples with control group comparisons in other institutions and across multiple sites to support these findings. The impact of this IPS-based IPE utilizing a longitudinal approach with four repeated measures (or more) within a similar demographic group of health professional students to see if the changes in dual identity are retained in practice over time needs to be studied. Furthermore, it would be valuable to compare the impact of the IPS-based IPE program utilizing a virtual audio-video version in bringing interprofessional students together for team meetings as compared with that of the traditional face-to-face team meetings.

It would be interesting to follow this study's participants (or a cohort of graduates of such a program) into their health care practice to determine the sustainability and impact of their dual identity development following graduation to determine which activities/strategies should be

retained/removed or modified in the IPS-based IPE curriculum. Further research is also required to investigate the relationship between dual identity and participants' IPE beliefs and behaviors and their collectivist orientations. In addition, a study evaluating the IPE workshop's effectiveness over time using a staggered innovation design may provide valuable insights into which aspects of the program are attributed to students' dual identity development. Further psychometrics analysis of the DIS is required.

Conclusion

The findings of this study, in particular the qualitative findings, supported the application of the theorized 3-stage IPS framework for the development of IPE programs to transform a uniprofessional identity into a dual identity among health professional learners as the first step for successful IPCPCP teamwork.

Several insights have been gained from this research study. Findings revealed that interprofessional socialization seemed to facilitate dual identity transformation when the IPE program is based on SIT and SCT and guided through three socialization stages. During the first stage, breaking down barriers, learners explored their previous misconceptions related to the roles and contributions of other professions. This process required creation of an open, trusting, and cooperative environment where interprofessional learners were able to feel their input was equally valued, and decisions arrived at through shared goal setting (Allport, 1954; Carpenter & Dickinson, 2008; Pettigrew, 1998). Students developed interactional collaborative bridges amongst team members, generated affective ties, and gained insights to their perspectives towards each other (Carpenter & Dickinson, 2008; Pettigrew, 1998). By the end of the IPS stage I, students looked beyond and shift their uniprofessional perspectives to an adjusted professional one in which they were open to learn with and from other professional perspectives. Students

were then guided through interprofessional role learning to build their interprofessional team competencies (stage II of the IPS). IPS-based IPE then created opportunities, through use of patient-centered case studies, for learners to measure their interprofessional teamwork against the CIHC interprofessional competencies. Reflection on the interprofessional team building process and the value of each member's contribution to team-based care outcome assisted learners to move towards adopting a dual identity (the stage III of the IPS).

Development of a dual identity was an outcome of IPS and laid a foundation for IPCPCP teamwork. Further research is needed to investigate the impact of dual identity development on IPCPCP in practice. The enhanced understanding of the IPS process and the dual identity development achieved through this dissertation study both informs and invites the evolution of health professional and interprofessional educational programs.

References

- Accreditation of Interprofessional Health Education (AIPHE). (2011). *AIPHE Interprofessional Health Education Accreditation Standards Guide. Phase 2 – Funded by Health Canada.*
- Accreditation of Interprofessional Health Education (AIPHE). Retrieved from http://www.cihc.ca/files/resources/public/English/AIPHE%20Interprofessional%20Health%20Education%20Accreditation%20Standards%20Guide_EN.pdf
- Adams, K., Hearn, S., Sturgis, P., & Macleod Clark, J. (2006). Investigating the factors influencing professional identity of first-year health and social care students. *Learning in Health and Social Care, 5* (2), 55–68
- Allport, G. W. (1954/1979). *The nature of prejudice*. Cambridge, MA: Perseus Books.
- Arndt, J., King, S., Suter, E., Mazonde, J., Taylor, L., & Arthur, N. (2009). Socialization in health education: Encouraging an integrated interprofessional socialization process. *Journal of Allied Health, 38*(1): 18-23.
- Ashford, B., & Meal, F. (1989). Social identity theory and the organization. *Academy of Management Review, 14*, 20-39.
- Ateah, C. A., Snow, W., Wener, P., MacDonald, L., Metge, C., Davis, P., ... & Anderson, J. (2011). Stereotyping as a barrier to collaboration: does interprofessional education make a difference? *Nurse Education Today, 31* (2), 208–213.
- Baggs, J. G., & Schmitt, M. H. (1988). Collaboration between nurses and physicians. *IMAGE. Journal of Nursing Scholarship, 20*, 145 – 149.
- Bainbridge, L., & Matthews, M. L. (1996). *Towards new strategies for managing change in the health professions: a joint initiative*. Health Management Resources Group, Vancouver, BC.

- Bainbridge, L., & Wood, V. I. (2012). The Power of Prepositions: Learning with, from and about others in the context of interprofessional Education. *Journal of Interprofessional Care*, 26(6), 452-458. doi:10.3109/13561820.2012.715605
- Bakhtin, M. (1981). "Discourse in the Novel." *The Dialogic Imagination: Four Essays*. Ed. Michael Holquist. Trans. Caryl Emerson and Michael Holquist. University of Texas Press Slavic Studies 1. 1975 (Russian). Austin: University of Texas Press, 1981. 259-422.
- Bakhtin, M. (1986). *The Problem of Speech Genres. Speech Genres and Other Late Essays*. Trans. Vern W. McGee. (Ed), *Caryl Emerson and Michael Holquist* (60-102). University of Texas Press Slavic Series 8. 1979 (Russian). Austin: University of Texas Press.
- Barnes, D., Carpenter, J., & Kickinson, C. (2000). Interprofessional education for community mental health: attitudes to community care and professional stereotypes. *Social Work Education*, 19(6), 555-583.
- Barr, H. (1998). Competent to collaborate: Towards a competency-based model for interprofessional education. *Journal of Interprofessional Care*, 12, 181-187.
- Barr, H., Koppel, I., Reeves, S., Hammick, M., & Freeth, D. (2005). *Effective interprofessional education: Assumption, argument and evidence*. London: Blackwell.
- Baker, L., Egan-Lee, E., Martimianakis, M. A., & Reeves, S. (2011). Relationships of power: implications for interprofessional education. *Journal of Interprofessional Care*, 25, 98–104. DOI: 10.3109/13561820.2010.505350
- Baum, F. (2002). *The New Public Health*. South Melbourne, VIC: Oxford University Press.
- Becker, H. S., Geer, B., Hughes, E. C. & Strauss, A. L. (1961). *Boys in White*. Chicago: University of Chicago.

- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3 (2). 77-101. ISSN 1478-0887
- Cameron, A. (2011). Impermeable boundaries? Developments in professional and inter-professional practice. *Journal of Interprofessional Care*, 25, 53–58. doi: 10.3109/13561820.2010.488766.
- Campbell, D., & Stanley, J. (1963). *Experimental and quasi-experimental designs for research*. Chicago, IL: Rand-McNally.
- Canadian Interprofessional Health Collaborative (CIHC) Competencies Working Group. (2010). A National Interprofessional Competency Framework. Vancouver, BC: Canadian Interprofessional Health Collaborative. Retrieved from http://www.cihc.ca/files/CIHC_IPCompetencies_Feb1210.pdf
- Canadian Patient Safety Institute (2011). *Teamwork and Communication in Healthcare; a Literature Review Needs Assessment, Evaluation of Training Tools and Expert Consultations*. Canadian Patient Safety Institute, Alberta, Canada
- Carpenter, J., & Dickinson, H. (2008). *Interprofessional Education and Training*. Bristol: The Policy Press.
- Carpenter, J., & Hewstone, M. (1996). Shared Learning for Doctors and Social Workers: Evaluation of a Programme. *Social Work*, 26, 239-257.
- Carpenter, J. (1995). Interprofessional Education for Medical and Nursing Students: evaluation of a program. *Medical Education*, 29(4), 265-275.
- Carpenter, J., Barnes D., Dickinson, C., & Woof, D. (2006). Outcomes of interprofessional education for Community Mental Health Services in England” The longitudinal

- evaluation of a postgraduate programme. *Journal of Interprofessional Care*, 20(2), 145-161.
- Cerra, F., & Brandt, B. F. (2011). Renewed focus in the United States links interprofessional education with redesigning health care. *Journal of Interprofessional Care*, 25(6), 394-396.
- Clark, P. G. (1994). Social, Professional, and Educational Values on the Interdisciplinary Team: Implications for Gerontological and Geriatric Education. *Educational Gerontology*, 20(1), 35-51.
- Clark, P. G. (1997). Values in health care professional socialization: Implications for geriatric education in interdisciplinary teamwork. *The Gerontologist*, 37, 441 – 451.
- Clark, P. G. (2009). Reflecting on reflection in interprofessional education: Implications for theory and practice. *Journal of Interprofessional Care*, 23(3), 213-223.
doi:10.1080/13561820902877195
- Clarke, B., Laphorn, C., & Miers, M. (2005). *Evaluation of the Interprofessional Pre-Qualifying Curriculum. Study 2. Student Learning in Interprofessional Modules: Evidence from Student Interviews and Assignments*. Bristol: University of the West of England.
- Closson, T., & Oandasan, I. (2007). Interprofessional care a blueprint for action in Ontario. Report prepared for HealthForceOntario.
- Clouder, D. L., Davies, B., Sams, M., & McFarland, L. (2012). “Understanding where you're coming from”: Discovering an [inter] professional identity through becoming a peer facilitator. *Journal of Interprofessional Care*, 26(6), 459-464.
- Cook, T. D., & Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis issues for field settings*. Boston, MA: Houghton Mifflin Company.

- Cook, A., Davis, J., & Vanclay, L. (2001). Shared learning in practice placements for health and social work students: a feasibility study. *Journal of Interprofessional Care, 15* (2), 185-190.
- Cook, D. (2004). *Models of Interdisciplinary Learning*. Ottawa: Health Canada.
- Corbett, B. (2010). UWO Research Data Centre Analyst (Personal conversation; Scheduled appointment, April 8th, 2010).
- Coster, S., Norman, I., Murrells, T., Kitchen, S., Meerabeau, E., Sooboodoo, E., & d'Avray, L. (2008). Interprofessional attitudes amongst undergraduate students in the health professions: A longitudinal questionnaire survey. *International Journal of Nursing Studies, 45*(11), 1667-1681.
- Creswell, J. W., & Plano Clark, V. L. (2006). *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage.
- Creswell, J. W. (2008). *Research Design: Qualitative, Quantitative and Mixed Method Approaches*. (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Curran, V. R., Sharpe, D., Flynn, K., & Button, P. (2010). A longitudinal study of the effect of an interprofessional education curriculum on student satisfaction and attitudes towards interprofessional teamwork and education. *Journal of interprofessional care, 24*(1):41-52.
- Curran, V., Casimiro, L., Banfield, V., Hall, P., Lackie, K., Simmons, B., ... & Oandasan, I. (2009). Research for interprofessional competency-based evaluation (RICE). *Journal of Interprofessional Care, 23*, 297-300.

- Currie, G., Finn, R., & Martin, G. (2007). Spanning boundaries in pursuit of effective knowledge sharing within networks in the NHS. *Journal of Health Organisation and Management*, 21(4-5):406-417.
- D'Amour, D., & Oandasan, I. (2005). Interprofessionality as the field of interprofessional, practice and interprofessional education: An emerging Concept. *Journal of Interprofessional Care*, 19 (S1), 8–20.
- D'Amour, D., Ferrada-Videla, M., San-Martin Rodriguez, L., & Beaulieu, M. (2005). The conceptual basis for interprofessional collaboration: core concepts and theoretical frameworks. *Journal of Interprofessional Care*, 19 (S1), 116-131.
- Denzin, N. (1989). *Research Act A Theoretical Introduction to Sociological Methods*. Third edition. Englewood Cliffs, NJ, Prentice Hall
- Dovidio, J. F., Gaertner, S. L., & Saguy, T. (2007). Another view of “we”: Majority and minority group perspectives on a common ingroup identity. *European Review of Social Psychology*, 18, 296-330.
- Duncan, T. E., Duncan, S. C., & Stoolmiller, M. (1994). Modeling Developmental Processes Using Latent Growth Structural Equation Methodology. *Applied Psychological Measurement*; 18, 343-354. doi: 10.1177/014662169401800405
- Duncan, T. E., Duncan, S. C., Strycker, L. A., Li, F., & Alpert, A. (1999). *An introduction to latent variable growth curve modeling: Concepts, issues, and applications*. Mahwah, NJ: Lawrence Erlbaum.
- Epstein, R. M., & Hundert, E. M. (2002). Defining and assessing professional competence. *Journal of the American Medical Association*, 287(2), 226–235.

- Fallsberg, M. B., & Wijma, K. (1999). Student attitudes towards the goals of an inter-professional training ward. *Medical Teacher*, 21(6), 576-8.
- Felten, S., Cady, N., Metzner, M. H., & Burton, S. (1997). Implementation of collaborative practice through interdisciplinary rounds on a general surgery service. *Nursing Case Management*, 2(3), 122-126.
- Fineberg, I. C., Wenger, N. S., & Forrow, L. (2004). Interdisciplinary education: evaluation of a palliative care training intervention for pre-professionals. *Academic Medicine*, 79 (8), 769-776.
- Fiske, S. T. (1998). *Stereotyping, prejudice, and discrimination*. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.). *The handbook of social Psychology* (pp. 357-411). Hoboken, NJ: Wiley.
- Flanagan, E. M., (1979). *Professional socialization practices utilized by nursing education in selected baccalaureate nursing program in the Southeastern United States*. University of Southern Mississippi, University Microfilms International.
- Frenk, J., Chen, L., Bhutta, Z. A., Cohen, J., Crisp, N., Evans, T., ... & Zurayk, H. (2010). Lancet Commission Report on Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. *The Lancet* - 376, (9756), 1923-1958, DOI: 10.1016/S0140-6736(10)61854-5.
- Gieryn, T. F. (1983). Boundary-work and the demarcation of science from non-science: strains and interests in professional ideologies of scientists. *American Sociological Review*, 48, 781-795.
- Gilbert, J. H. (2005). Interprofessional learning and higher education structural barriers. *Journal of Interprofessional Care*, 19 (S1), 87-106.

- Gilbert, J. H., Camp II, R. D., Cole, C. D., Bruce, C., Fielding, D. W., & Stanton, S. J. (2000). Preparing students for interprofessional teamwork in health care. *Journal of Interprofessional Care, 14*(3), 223-235.
- Goelen, G., De Clercq, G., Huyghens, L., & Kerckhofs, E. (2006). Measuring the effect of interprofessional problem-based learning on the attitudes of undergraduate health care students. *Medical Education, 40* (6), 555–561.
- Greenbaum, T. (1988). *The practical handbook and guide to focus group research*. Lexington: Lexington Books, D.C. Heath and Company.
- Greene, J. C., & Caracelli, V. J. (Eds.). (1997). *Advances in mixed-method evaluation: The challenges and benefits of integrating diverse paradigms (New Directions for Evaluation, No. 74)*. San Francisco: Jossey-Bass.
- Greene, J. C., Caracelli, V. J., & Graham, W. F. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Educational Evaluation and Policy Analysis, 11*, 255–274.
- Guba, E. G., & Lincoln, Y. S. (2001). *Guidelines and checklist of constructivist (a.k.a. Fourth Generation) evaluation*. Retrieved from:
<http://www.wmich.edu/evalctr/checklists/constructivisteval.pdf>.
- Guba, E. G., & Lincoln, Y. S. (1989). *Fourth generation evaluation*. Newbury Park, CA: Sage Publications.
- Hall, P. (2005). Interprofessional teamwork: professional cultures as barriers. *Journal of Interprofessional Care, 19* (S1), 188-196.
- Hammick, M., Freeth, D., Koppel, I., Reeves, S., & Barr, H. (2007). A best evidence systematic review of interprofessional education. *Medical Teacher, 29*, 735–751.

- Hannum, K. M., Martineau, J. W., & Reinelt, C. R. (Eds.). (2006). *Leadership development evaluation handbook*. San Francisco, CA: Jossey-Bass.
- Health Canada (2004/2005). *Health Human Resource Strategy Annual Report*. Health Canada. Retrieved from: <http://www.hc-sc.gc.ca/hcs-sss/hhr-rhs/strateg/index-eng.php>.
- Hean, S., Macleod Clark, J., Adams, K., Humphris, D., & Lathlean, K. (2006) Being seen by others as we see ourselves: the congruence between the ingroup and outgroup perceptions of health and social care students. *Learning in Health and Social Care*, 5(1), 10–22.
- Henneman, E. A. (1995). Nurse-physician collaboration: A poststructuralist view. *Journal of Advanced Nursing*, 22, 359 – 363.
- Hershey, J. L. (2007). *The Lived Experience of Becoming a Professional Nurse For Associate Degree Nursing Graduates: A Phenomenological Study*. Doctoral dissertation. Available from ProQuest Dissertations and Theses database.
- Hewstone, M., & Brown, R. (1986). *Contact and conflict in intergroup encounters*. Oxford, UK: Basil Blackwell.
- Hewstone, M., Carpenter, J., Franklyn-Stokes, A., & Routh, D. (1994). Intergroup Contact between Professional Groups: two evaluation studies. *Journal of Community and Applied Social Psychology*, 4, 347-363.
- Hind, M., Norman, I., Cooper, S., Gill, E., Hilton, R., Judd, P., & Jones, S. C. (2003). Interprofessional perceptions of health care students. *Journal of Interprofessional Care*, 17 (1), 21–34.
- Ho, K. (2006). *Facilitating the integration of interprofessional education into quality health care: Strategic roles of academic institutions*. Continuing Professional Development and Knowledge Translation. UBC. Retrieved from

- Hojat, M., Nasca, T. J., Cohen, M. J., Fields, S. K., Rattner, S. L., Griffiths, M., ... & Garcia, A. (2001). Attitudes toward physician-nurse collaboration: A cross-cultural study of male and female physicians and nurses in the United States and Mexico. *Nursing Research*, *50*(2), 123-128.
- Hornsey, M. J. (2008). Social Identity Theory and Self-categorization Theory: A Historical Review. *Personality and Social Psychology Compass*, *2*, 204 – 222.
- Horsburgh, M., Perkins, R., Coyle, B., & Degeling, P. (2006). The professional subcultures of students entering medicine, nursing and pharmacy programmes. *Journal of Interprofessional Care*, *20*(4), 425-431.
- Jasper, M. A. (2005). Using reflective writing within research. *Journal of Research in Nursing*, *10*, 247. doi: 10.1177/174498710501000303
- Julia, M. C., & Thompson, A. (1994). Essential elements of inter-professional teamwork task and maintenance functions. In R. M. Casto, & M. C. Julia (Eds.), *Inter-professional care and collaborative practice: commission on inter-professional education and practice* (pp. 44-57). Pacific Grove, California, USA: Brooks/Cole.
- Khalili, H., Orchard, C., Laschinger, H. K., & Farah, R. (2013). An interprofessional socialization framework for developing an interprofessional identity among health professions students. *Journal of Interprofessional Care*, Early Online, 18, 06.
doi:10.3109/13561820.2013.804042
- King, G., Shaw, L., Orchard, C. A., & Miller, S. (2010). The interprofessional socialization and valuing scale: A tool for evaluating the shift toward collaborative care approaches in health care settings. *Work: A Journal of Prevention, Assessment and Rehabilitation*, *35*(1), 77-85.

- Kolb, D.A. (1984). *Experiential Learning: Experience as the source of learning and development*. New Jersey: Prentice Hall.
- Lapkin, S., Levett-Jones, T., & Gilligan, C. (2013). A systematic review of the effectiveness of interprofessional education in health professional programs. *Nurse education today*, 33, 90–102
- Levine, T. R. (2005). Confirmatory factor analysis and scale validation in communication research. *Communication Research Reports*, 22, 335–338.
- Li, F., & Acock, A. C. (1999). *Latent Curve Analysis: A Manual for Research Data Analysts*. Eugene, OR: Oregon Research Institute.
- Llabre, M. M., Spitzer, S., Siegel, S., Saab, P. G., & Schneiderman, N. (2004). Applying latent growth curve modeling to the investigation of individual differences in cardiovascular recovery from stress. *Psychosomatic Medicine*, 66: 29–41.
- Lloyd J. V., Schneider, J., Scales, K., Bailey, S., & Jones, R. (2011). Ingroup identity as an obstacle to effective multiprofessional and interprofessional teamwork: findings from an ethnographic study of healthcare assistants in dementia care. *Journal of Interprofessional Care*, 25 (5), 345-351
- Luecht, R. M., Madsen, M. K., Taugher, M. P., & Petterson, B. J. (1990). Assessing professional perceptions: design and validation of an Interdisciplinary Education Perception Scale. *Journal of Allied Health*, 19 (2), 181.
- McArdle, J. J. (2004). Latent Growth Curve Analysis Using Structural Equation Modeling Techniques. In Douglas M. Teti (Ed), *Handbook of Research Methods in Developmental Science* (pp. 340-366). Malden, MA: Blackwell Publishing.

- McArdle, J. J., & Epstein, D.B. (1987). Latent growth curves within developmental structural equation models. *Child Development, 29*, 110–33.
- McCallin, A. M. (2001) Interdisciplinary practice – a matter of teamwork: An integrated literature review. *Journal of Clinical Nursing 10*(4), 419–428.
- McFadyen, A. K., Webster, V. S., Maclaren, W. M., & O'Neill, M. A. (2010). Interprofessional attitudes and perceptions: results from a longitudinal controlled trial of preregistration health and social care students in Scotland. *Journal of Interprofessional Care, 24*(5), 549–564.
- Melia, K. (1987). *Learning and Working: The Occupational Socialisation of Nurses*. London: Tavistock.
- Merton, R. K., Reader, G. G., & Kendall, P. L. (1957). *The Student Physician*. Cambridge, Massachusetts: Harvard University.
- Mitchell, R. J, Parker, V., & Giles, M. (2011). When do interprofessional teams succeed? Investigating the moderating roles of team and professional identity in interprofessional effectiveness. *Human Relations, 64*, 1321-1343.
- Mohaupt, J., van Soeren, M., Andrusyszyn, M. A., MacMillan, K., Devlin-Cop, S., & Reeves, S. (2012). Understanding interprofessional relationships by the use of contact theory. *Journal of Interprofessional Care, 26*(5), 370-375.
- Morrison, S., Boohan, M., Moutray, M., & Jenkins, J. (2004). Developing pre-qualification interprofessional education for nursing and medical students: Sampling student attitudes to guide development. *Nurse Education in Practice, 4*, 20–29.
- Munro, B. (2005) *Statistical Methods for Health Care Research*, 5th edn. Philadelphia, PA: Lippincott Williams and Wilkins.

- Muthén, L. K. & Muthén, B. O. (2002). How to use a Monte Carlo study to decide on sample size and determine power. *Structural Equation Modeling, 4*, 599-620.
- Newman, D. (2005). Sociology: Exploring the Architecture of Everyday Life, Chapter 5. *Building Identity: Socialization*. California: Sage Publication Inc..
- Nunnally, J., & Bernstein, I. (1994). *Psychometric theory*. New York: McGraw-Hill.
- Oandasan, I., & Reeves, S. (2005). Key elements for interprofessional education. Part 1: the learner, the educator and the learning context. *Journal of Interprofessional Care; 19*, 21-38.
- Olesen, V., & Whittaker, E. W. (1970). Critical notes on sociological studies of professional socialization. In J. A. Jackson (Ed.), *Professions and professionalization* (pp. 179-221). London: Cambridge University Press.
- Orchard, C., & Curran, V. (2003). Centers of excellence for interdisciplinary collaborative professional practice. Prepared for Office of Nursing Policy: Health Canada.
- Orchard, C., Curran, V., & Kabene, S. (2005). Creating a culture to interdisciplinary collaborative practice. *Medical Education On-line, 10*(11), 1-13. Retrieved from <http://www.med-ed-online.org>
- Parsell, G., & Bligh, J. (1999). The development of a questionnaire to assess the readiness of healthcare students for interprofessional learning (RIPLS). *Medical Education, 33*, 95 – 100.
- Payne, G., & Payne, J. (2004) *Key Concepts in Social Research*. London: Sage.
- Pettigrew, T. F. (1997). Generalized intergroup contact effects on prejudice. *Personality and Social Psychology Bulletin, 23*(2), 173-185.
- Pettigrew, T. F. (1998). Intergroup contact theory. *Annual Review of Psychology, 49*, 65–85.

- Phinney, J. S. (1992). The Multi-group Ethnic Identity Measure: A new scale for use with diverse groups. *Journal of Adolescent Research*, 7, 156-176.
- Polit, D. F., & Beck, C. T. (2004). *Nursing research. Principles and methods* (7th ed.). Philadelphia: Lippincott.
- Pollard, K. C., Miers, M. E., Gilchrist, M., & Sayers, A. (2006). A comparison of interprofessional perceptions and working relationships among health and social care students: the result of a 3 year intervention. *Health and Social Care in the Community*, 14 (6) 541-552.
- Ponzer, S., Hylin, U., Kusoffsky, A., Lauffs, M., Lonka, K., Mattiasson, A., & Nordstrom, G. (2004). Interprofessional training in the context of clinical practice: goals and students' perceptions on clinical education wards. *Medical Education*, 38(7), 727–736.
- Pullon, S. & Fry, B. (2005). Interprofessional postgraduate education in primary health care: is it making a difference? *Journal of Interprofessional Care*, 19(6), 569-578.
- Quality Management at Murdoch University (2002). Quality Assurance of Learning & Teaching. Author, Murdoch University. Retrieved from <http://www.murdoch.edu.au/quality/management/academic.html>
- Reeves, S. (2000). Community-based interprofessional education for medical, nursing and dental students. *Health and Social Care in the Community*, 8, 269 – 276.
- Reeves, S., & Freeth, D. (2006) Re-examining the evaluation of interprofessional education for community mental health teams with a different lens: understanding presage, process and product factors. *Journal of Psychiatric Mental Health Nursing*, 13, 765-770.
- Reeves, S., & Freeth, D. (2002). The London training ward: An innovative interprofessional learning initiative. *Journal of Interprofessional Care*, 16, 41 - 52.

- Reeves, S., Perrier, L., Goldman, J., Freeth, D., & Zwarenstein, M. (2013). Interprofessional education: Effects on professional practice and health care outcomes. (update). *Cochrane Database of Systematic Reviews*. 3, CD002213.
- Reeves, S., & Pryce, A. (1998) Emerging Themes: an exploratory research project of a multidisciplinary education module for medical, dental and nursing students. *Nurse Education Today*, 18, 534 - 541.
- Reeves, S., Lewin, S., Espin, S., & Zwarenstein, M. (2010). *Interprofessional Teamwork for Health and Social Care*. London: Wiley-Blackwell.
- Reeves, S., MacMillan, K., & van Soeren, M. (2010). Leadership of interprofessional health and social care teams: A socio-historical analysis. *Journal of Nursing Management*, 18, 258–264.
- Reeves, S., Zwarenstein, M., Goldman, J., Barr, H., Freeth, D., Hammick, M., & Koppel, I. (2008). Interprofessional education: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews*, Issue 1. Art. No.: CD002213. DOI: 10.1002/14651858.CD002213.pub2.
- Russell, K. M., & Hymans, D. (1999). Interprofessional education for undergraduate students. *Public Health Nursing*, 16, 254 – 262.
- Russell, L., Nyhof-Young, J., Abosh, B., & Robinson, S. (2006). An exploratory analysis of an interprofessional learning environment in two hospital clinical teaching units. *Journal of Interprofessional Care*, 20(1), 29-39.
- Salvatori, P., Berry, S., & Eva, K.W. (2007). Implementation and evaluation of an interprofessional education initiative for students in the health professions. *Learning in Health and Social Care*, 6, 72-82.

- Scanlon, J. M., Care, W.D., & Udod, S. (2002). Unravelling the unknowns of reflection in classroom teaching. *Journal of Advanced Nursing*, 38(2), 136–143.
- Schrage, M. (1990). *Shared minds*. New York: Random House.
- Simpson, I. H. (1967). Patterns of socialization into professions: The case of the student nurses. *Sociological Inquiry*, 37, 47-59.
- Soper, D.S. (2004). A-priori Sample Size Calculator for Multiple Regression. California State University. Retrieved from <http://www.danielsoper.com/statcalc/calc01.aspx>.
- Suter, E., Arndt, J., Arthur, N., Parboosingh, J., Taylor, E., & Deutschlander, S. (2009). Role understanding and effective communication as core competencies for collaborative practice. *Journal of Interprofessional Care*, 23, 41-51.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). New York: Harper & Row.
- Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33-48). Belmont, CA: Wadsworth, Inc.
- Tajfel, H., & Turner, J. C. (1986). The social identity theory of inter-group behavior. In S. Worchel and L. W. Austin (Eds.), *Psychology of Intergroup Relations*. Chicago: Nelson-Hall.
- Tajfel, H., & Turner, J. C. (2004). An integrative theory of intergroup conflict. In M. J. Hatch & M. Schultz (Ed.s), *Organizational identity: A reader* (pp. 56-65). Oxford: Oxford University Press,.

- Thacker, J. W., Fields, M. W., & Tetrick, L. (1989). The factor structure of union commitment: An application of confirmatory factor analysis. *Journal of Applied Psychology, 74*(2), 228-232.
- Tropp, L. R., & Pettigrew, T. F. (2005). Differential Relationships Between Intergroup Contact and Affective and Cognitive Dimensions of Prejudice. *Society for Personality and Social Psychology, 31*(8), 1145-1158.
- Tschannen, D. (2004). The effect of individual characteristics on perceptions of collaboration in the work environment. *MedSurg Nursing, 13*(5), 312-318.
- Tu, Y-K., D'Aiuto, F., Baelum, V., & Gilthorpe, M.S. (2009). An introduction to latent growth curve modelling for longitudinal continuous data in dental research. *European Journal of Oral Sciences, 117*, 343-350. doi: 10.1111/j.1600-0722.2009.00638.
- Tuckett, A. G., & Stewart, D. E. (2004). Collecting qualitative data: Part II Journal as a method: experience, rationale and limitations. *Contemporary Nurse, 16*, 240–251.
- Tunstall-Pedoe, S., Rink, E., & Hilton, S. (2003). Student attitudes to undergraduate interprofessional education. *Journal of Interprofessional Care, 17*, 161–172.
- Ullman, J. B. (2001). Structural equation modeling. In B. G. Tabachnick & L. S. Fidell (Eds.), *Using multivariate statistics* (4th ed., pp. 653-771). Needham Heights, MA: Allyn & Bacon.
- Wagner, J. A. (1995). Studies of individualism-collectivism: Effects on cooperation in groups. *Academy of Management Journal, 38*(1), 280-303.
- Wakefield, A. B., Boggis, C.R. M., & Holland, M. (2006). Team Working but no Blurring Thank You! *Learning in Health and Social Care, 5*(3), 142-154.

- Wilk, P. (2012). Assistant Professor, Epidemiol & Biostats Department, UWO, (Personal conversation; scheduled appointment, April 24th, 2012)
- Wilk, P. (2011). Assistant Professor, Epidemiol & Biostats Department, UWO, (Personal conversation; scheduled appointment, April 11th, 2011)
- World Health Organization (2010). *Framework for Action on Interprofessional Education & Collaborative Practice*. Health Professions Networks. World Health Organization, Geneva.
- World Health Organization (2005). Preparing a health care workforce for the 21st century: The Challenge of Chronic conditions. Noncommunicable Disease and Mental Health Cluster, Chronic Disease and Health Promotion Department, Author.
- World Health Organization [WHO], 1988. Learning together to work together for health. Report of a WHO Study Group on Multiprofessional Education for Health Personnel: The Team Approach. World Health Organization, Geneva.
- World Health Organization (1978). Alma Ata declaration. World Health Organization, Geneva.
- Xyrichis, A., & Lowton, K. (2008). Teamwork: a concept analysis. *Journal of Advanced Nursing* 61(2), 232-241.
- Yarborough, M., Jones, T., Cyr, T., Phillips, S., & Stelzner, D. (2000). Interprofessional education in ethics at an academic health sciences center. *Academic Medicine*, 75, 793–800.
- Zwarenstein, M., & Reeves, S. (2006), Knowledge translation and interprofessional collaboration: Where the rubber of evidence-based care hits the road of teamwork. *The Journal of Continuing Education in the Health Professions*, 26, 46–54. doi: 10.1002/chp.50

Appendix A:

Information Letter and Consent Form



Title of Study: Interprofessional Socialization: Dual Professional and Interprofessional Identity Model

Researcher:

Date:

Dear health program student:

You are being invited to participate in a study conducted by Hossein Khalili, a PhD candidate because you are a student in food & nutrition, medicine, nursing, occupational therapy, physical therapy, or social work program.

In order to decide whether you want to be a part of this study, you should understand what is being asked of you and the potential risks and benefits. This form gives information about the study, which will be discussed with you. Please take your time when making your decision and feel free to ask questions.

WHY IS THIS STUDY BEING DONE?

This study is being done so that we can learn how students may develop dual professional and interprofessional identity through improvement of cross-disciplinary collaboration by the use of face-to-face workshops.

Your participation in this study is voluntary.

WHAT IS THE PURPOSE OF THIS STUDY?

The main purpose of this study is to examine the effect of an Interprofessional Education (IPE) program on development of a dual professional and interprofessional identity among cross-disciplinary health program participants.

WHO IS CONDUCTING THE STUDY?

Hossein Khalili, a PhD nursing student at the University of Western Ontario.

WHAT WILL MY RESPONSIBILITIES BE IF I TAKE PART IN THIS STUDY?

If you take part in this study, you would be asked to:

- Participate in an interprofessional education program that includes the following:
 - 2-hour introductory workshop entitled “Professional Education and Cross Disciplinary Collaboration”:
 - Goals of workshop: To address
 - Professional Socialization and Uniprofessional Perspective
 - Intergroup Bias & Cross Disciplinary Collaboration
 - Social Identity Theory & Intergroup Contact Theory
 - Teaching/learning strategies:
 - Case Study & Group Discussion
 - Unidisciplinary Group
 - Cross-disciplinary Group
 - PowerPoint Presentation
 - 2-hour final workshop entitled “Interprofessional Socialization”:
 - Goals of workshop: To address
 - Interprofessional Collaboration
 - Dual professional and Interprofessional Identity
 - Teaching/learning strategies:
 - PowerPoint Presentation
 - Case Study & Group Discussion
 - Cross-disciplinary Group to develop a Collaborative Plan

* IPE Program materials including the workshops’ PowerPoint presentations will be made available to students through the IPHER website.

- Complete a set of instruments including:
 - demographic information
 - The Individualism-Collectivism Scale (before starting the first workshop and after completing the 2nd workshop),
 - Interprofessional Socialization and Valuing Scale (before starting the first workshop and after completing the 2nd workshop), and
 - Dual Identity Scale (before starting the first workshop, after completing the 1st and the 2nd workshops).
- In addition you may choose to provide a completed reflective journal about your experience in participating in the small group work during the study (N.B. this will be limited to up to only 20 students). This reflective journal will take one hour to be completed and must be submitted within a week after the 2nd workshop.
- And/or you may choose to volunteer to participate in a one hour tape-recorded focus group session to be held two months following the 2nd workshop (N.B. this will be limited up to only 20 students)**

* A random selection of small group discussions will be tape-recorded during the 1st and 2nd workshops. Students will have the opportunity to refuse to have these discussions tape-recorded and will be reviewed by the investigator as a source of research data.

** Focus group members are asked to keep everything they hear confidential and not to discuss it outside of the meeting. However, we cannot guarantee that confidentiality will be maintained by group members.

HOW WILL PARTICIPANTS BE SELECTED?

A convenience sample of 1st and 2nd year students enrolled in one of the following health programs: Medicine, Nursing, Occupational Therapy, Physical Therapy, in the University of Western Ontario (UWO) and Social Work (King's University College) and Foods and Nutrition (Brescia University College) will comprise the sample for this study.

HOW LONG WILL MY PARTICIPATION TAKE?

The IPE program components will take 4 hours. Each evaluation package completion will likely take 15-20 minutes which in total will be 1 hour for three times completion. The reflective journal and the focus group which you might be interested to participate in will take one hour each.

The total required time for students who just participate in the workshops and complete the set of instruments will be 5 hours over one month.

This time requirement for those who choose to provide a completed reflective journal or to participate in a one hour tape-recorded focus group session will be 6 hours.

If you choose to both provide a reflective journal and participate in the focus group session, your time requirement will be 7 hours over 2-3 months.

HOW MANY PEOPLE WILL BE IN THIS STUDY?

Approximately 100 students participating from UWO.

WHAT ARE THE POSSIBLE RISKS?

There are no known or expected risks associated with participating in this study.

WHAT ARE THE POSSIBLE BENEFITS FOR ME AND/OR SOCIETY?

Participating in this study may provide you with the opportunity to learn knowledge, skills, and attitudes required for interprofessional client-centered care. Further, this study may provide you with the opportunity to learn with other health professional students in developing teamwork skills to use in your future practice. You may also increase your knowledge and skills on some health care topics and your involvement may lead to better patient care in the future.

A summary and interpretation of your scores to the above instruments will be provided to you upon request to (email). These individual results might help you to better understand your attitudes, beliefs, and values regarding your ability to work both professionally and interprofessionally in teams.

COMPENSATION

If you participate in this study you will receive \$20 following completion of the 3rd set of instruments in recognition of your time participating in this study. Participants must complete two sets of the instruments to be eligible to receive the adjusted amount of honorarium based on \$5 for each evaluation series.

A certificate of participation in the workshops will be provided at the end of each workshop. Refreshments will also be served during the workshops.

WHAT INFORMATION WILL BE KEPT PRIVATE?

All the information collected will be kept private. Your information will be viewed only by the researcher, his supervisor (Dr. Carole Orchard). Personal information such as your name will be removed from the data you provide and will be replaced by an ID number. Information will be kept in a secure computer for 5 years.

Your group discussions will be audio-taped. You may request to review your transcripts before analysis begins. All tapes and transcripts will be destroyed at the end of the study.

If the results of the study are published your name will not be used and no information that discloses your identity will be released or published. Your identity will be confidential and there is no way you can be identified.

CAN PARTICIPATION IN THE STUDY END EARLY?

Participation in this study is voluntary. You may refuse to participate, refuse to answer questions or withdraw from the study at any time. Your participation will not affect your academic status or education at UWO. If you withdraw from the study, please note that any data collected up to that point will still be used, however no further data will be collected.

IF I HAVE ANY QUESTIONS OR CONCERNS, WHOM CAN I CALL?

If you have any questions about this study, you can call the researcher at (phone), or contact through email (email) or mail through the address of (room #), Arthur Labatt Family School of Nursing, Faculty of Health Sciences, The University of Western Ontario, London, ON, N6A 5C1. If you have any questions regarding your rights as a research participant, contact

Office of Research Ethics,
The University of Western Ontario,

CONSENT STATEMENT

SIGNATURE OF RESEARCH PARTICIPANT

I have read the preceding information thoroughly. I have had the nature of the study explained to me and I agree to participate. All questions have been answered to my satisfaction.

Name of Participant

Signature of Participant

Date

Consent form administered and explained in person by:

Name and title

Signature

Date

<ul style="list-style-type: none"> <input type="checkbox"/> Food and Nutrition <input type="checkbox"/> Medicine <input type="checkbox"/> Nursing <input type="checkbox"/> Occupational Therapy <input type="checkbox"/> Physiotherapy <input type="checkbox"/> Social Worker <input type="checkbox"/> Other: <ul style="list-style-type: none"> ↳ please specify: _____ 																		
<p>8. In what degree level are you enrolled?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Undergraduate <input type="checkbox"/> Graduate <input type="checkbox"/> Other: <ul style="list-style-type: none"> ↳ please specify: _____ 																		
<p>9. What year are you in your program (e.g., 1st year, 2nd year)? _____</p>																		
<p>10. Have you participated in any interprofessional activity before?</p> <p style="padding-left: 40px;"><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, please proceed to the other questions.</p>																		
<p>11. Please indicate in which interprofessional events and how many times did you participate?</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 80%;"></th> <th style="text-align: right; width: 20%;">How Many Times</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> IPE Workshop offered by the OIPHER</td> <td style="text-align: right;">_____</td> </tr> <tr> <td><input type="checkbox"/> Other interprofessional workshop</td> <td style="text-align: right;">_____</td> </tr> <tr> <td><input type="checkbox"/> Interprofessional Lecture</td> <td style="text-align: right;">_____</td> </tr> <tr> <td><input type="checkbox"/> Interprofessional Online Course/Module</td> <td style="text-align: right;">_____</td> </tr> <tr> <td><input type="checkbox"/> Interprofessional Placement</td> <td style="text-align: right;">_____</td> </tr> <tr> <td><input type="checkbox"/> Interprofessional Conference</td> <td style="text-align: right;">_____</td> </tr> <tr> <td><input type="checkbox"/> Other:</td> <td style="text-align: right;">_____</td> </tr> <tr> <td style="padding-left: 20px;">↳ please specify: _____</td> <td style="text-align: right;">_____</td> </tr> </tbody> </table>		How Many Times	<input type="checkbox"/> IPE Workshop offered by the OIPHER	_____	<input type="checkbox"/> Other interprofessional workshop	_____	<input type="checkbox"/> Interprofessional Lecture	_____	<input type="checkbox"/> Interprofessional Online Course/Module	_____	<input type="checkbox"/> Interprofessional Placement	_____	<input type="checkbox"/> Interprofessional Conference	_____	<input type="checkbox"/> Other:	_____	↳ please specify: _____	_____
	How Many Times																	
<input type="checkbox"/> IPE Workshop offered by the OIPHER	_____																	
<input type="checkbox"/> Other interprofessional workshop	_____																	
<input type="checkbox"/> Interprofessional Lecture	_____																	
<input type="checkbox"/> Interprofessional Online Course/Module	_____																	
<input type="checkbox"/> Interprofessional Placement	_____																	
<input type="checkbox"/> Interprofessional Conference	_____																	
<input type="checkbox"/> Other:	_____																	
↳ please specify: _____	_____																	
<p>12. How do you describe your experience of participating in any of the above activity?</p> <p style="padding-left: 40px;"><input type="checkbox"/> Positive <input type="checkbox"/> Negative</p> <p>Please explain: _____</p> <p>_____</p>																		

Date (dd/mm/yy): ____ / ____ / ____

Last Four-Digit Student ID:

Dual Identity Scale

1. Please indicate how you rate your own profession based on each of the following characteristics where 1 indicates ‘very low’ and 5 ‘very high’.

	Academic Quality ^a	Professional Competence ^b	Knowledge/skill Base	Team player ^c	Attitude towards patient	Mean Score <i>For Researcher</i>
My Own Profession						

a. Academic quality encompasses the value placed on the learning environment that is available to students by others (i.e., evaluators) (Quality Management at Murdoch University, 2005).

b. Professional competence is the consistent and thoughtful use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served (Epstein & Hundert, 2002).

c. A team player is one who works in a coordinated effort with other members of a team to meet a common goal/s.

2. Please indicate how you rate other health profession based on each of the following characteristics when 1 indicates ‘very low’ and 5 ‘very high’. (please do not rate your own profession again)

	Academic Quality	Professional Competence	Knowledge/skill Base	Team player	Attitude towards patient	Mean Score <i>For Researcher</i>
Dieticians						
Nurses						
Occupational Therapists						
Physicians						
Physiotherapists						
Social Workers						

3. Please indicate your degree of interest in learning and working with students from your own profession when 1 represents ‘Not Interested’ and 5 represents ‘Extremely Interested’:

	Extremely Interested	Very Interested	Somewhat Interested	Moderately Interested	Not Interested
My own Profession	5	4	3	2	1

4. Please indicate your degree of interest in learning and working with students from other health professions when 1 represents 'Not Interested' and 5 represents 'Extremely Interested': (please do not rate your own profession again)

	Extremely Interested	Very Interested	Somewhat Interested	Moderately Interested	Not Interested
Medicine	5	4	3	2	1
Nursing	5	4	3	2	1
Physiotherapy	5	4	3	2	1
Occupational Therapy	5	4	3	2	1
Social work	5	4	3	2	1
Food & Nutrition	5	4	3	2	1

For the following questions, please indicate the extent to which you agree with the provided statements when 1 indicates 'Strongly Disagree' and 5 represents 'Strongly Agree'.

Strongly Agree Agree neutral Disagree Strongly Disagree
 5 4 3 2 1

5. I really have not spent much time trying to learn more about the culture of my professional practice.
6. I really have not spent much time trying to learn more about collaboration with other health professions.
7. I am active in organizations and/or social groups that include mostly members of my own profession.
8. I am active in organizations and/or social groups/activities that bring people from different health professions together.
9. I have a clear sense of my professional culture and what it means for me.
10. I have a clear sense of interprofessional collaboration and what it means for me.
11. I like meeting and getting to know people from my own health profession.
12. I like meeting and getting to know people from other health professions.
13. I feel a strong attachment towards my own profession.

5	4	3	2	1
5	4	3	2	1
5	4	3	2	1
5	4	3	2	1
5	4	3	2	1
5	4	3	2	1
5	4	3	2	1
5	4	3	2	1
5	4	3	2	1
5	4	3	2	1

Interprofessional Socialization and Valuing Scale

Please circle the number that best represent your feeling about each of the following statements when 1 represents ‘Not At All’ and 6 represents ‘To a Very Great Extent’ and 7 ‘Not Applicable (NA)’:

NA	To a Very Great Extent	To a Great Extent	To a Moderate Extent	To a Small Extent	To a Very Small Extent	Not At All
7	6	5	4	3	2	1

In regards to an interprofessional student team

1. I feel confident in taking on different roles in a team (i.e. leader, participant)
2. I am comfortable debating issues within a team
3. I highly value open and honest communication with team members
4. I am unable to listen to other members on a team
5. I have a good understanding of my own approach to care within a team
6. I believe that interprofessional practice is a waste of time
7. I have an awareness of my own role on a team
8. I am able to share and exchange ideas in a team discussion
9. I have a perception of myself as someone who engages in interprofessional practice
10. I feel comfortable being the leader in a team situation
11. I feel uncomfortable in speaking out within the team when others are not keeping the best interests of the client in mind
12. I feel less comfortable in describing my professional role to another team member
13. I believe that it is important to work as a team.
14. I believe that interprofessional practice will give me the desire to remain in my profession
15. I have an awareness of roles of other professionals on a team

7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1

16. I have an appreciation for the importance of having the client and family as members of a team

17. I am comfortable engaging in shared decision making with clients

18. I feel comfortable in accepting responsibility delegated to me within a team

19. I feel uncomfortable clarifying misconceptions with other members of the team about the role of someone in my profession

20. I feel able to act as a fully collaborative member of the team

21. I feel comfortable initiating discussions about sharing responsibility for client care

22. I believe that interprofessional practice is difficult to implement

23. I am uncomfortable in sharing decision making with other professionals on a team

24. I have realistic expectations of other professionals on a team

7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1

Individualism-Collectivism Scale

Please indicate the extent to which you agree or disagree with each of the following statements when 1 represents 'Strongly Disagree' and 7 represents 'Strongly Agree':

	Strongly Agree 7	Agree 6	Somewhat Agree 5	Neutral 4	Somewhat Disagree 3	Disagree 2	Strongly Disagree 1
1. Only those who depend on themselves get ahead in life	7	6	5	4	3	2	1
2. To be superior a person must stand alone	7	6	5	4	3	2	1
3. If you want something done right, you've got to do it yourself	7	6	5	4	3	2	1
4. What happens to me is my own doing	7	6	5	4	3	2	1
5. In the long run the only person you can count on is yourself	7	6	5	4	3	2	1
6. Winning is everything	7	6	5	4	3	2	1
7. I feel that winning is important in both work and games	7	6	5	4	3	2	1
8. Success is the most important thing in life	7	6	5	4	3	2	1
9. It annoys me when other people perform better than I do	7	6	5	4	3	2	1
10. Doing your best isn't enough; it is important to win	7	6	5	4	3	2	1
11. I prefer to work with others in a group rather than working alone	7	6	5	4	3	2	1
12. Given the choice, I would rather do a job where I can work alone rather than doing a job where I have to work with others in a group	7	6	5	4	3	2	1
13. Working with a group is better than working alone	7	6	5	4	3	2	1
14. People should be made aware that if they are going to be part of a group then they are sometimes going to have to do things they don't want to do	7	6	5	4	3	2	1
15. People who belong to a group should realize that they're not always going to get what they personally want	7	6	5	4	3	2	1
	7	6	5	4	3	2	1

16. People in a group should realize that they sometimes are going to have to make sacrifices for the sake of the group as a whole
17. People in a group should be willing to make sacrifices for the sake of the group's well-being
18. A group is more productive when its members do what they want to do rather than what the group wants them to do
19. A group is most efficient when its members do what they think is best rather than doing what the group wants them to do
20. A group is more productive when its members follow their own interests and concern

7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1
7	6	5	4	3	2	1

Thank you!

Appendix C:

Reflective Journal Template

This is a template for writing your lived reflective journal during your participation in this study. Please enter your reflection based on the provided questions (vertical axis) after each workshop in regards to your development of dual professional and interprofessional identity.

	Workshop #1	Workshop #2
What surprised you most?		
Did you have any of your previous ideas challenged?		
What emotions came to your awareness?		
Will you make any changes in your thinking about your own profession and that of other professions?		
What did you learn?		

Personal Reflections Worksheet

Instructions: You have just work with your team to develop a collaborative plan for Virginia Snow. This is an opportunity to individually reflect on this collaboration and consider your strengths and challenges in working in a team.

1. What is your first impression after this cross-disciplinary collaboration?

2. What are the issues that need to be addressed to help this team become more effective?

3. When working in your team, the focus was on how you and the team are:

- A. Listening effectively
- B. Communicating across different disciplines
- C. Communicating with the 'client'
- D. Negotiating to set goals
- E. Helping to identify areas needing interventions
- F. Accepting and supporting roles/responsibility distribution
- G. Helping to manage any disagreement

3b. When I look back over how well 'our' team worked

4. When I think of myself working in a team, I feel I am good at:

5. When I think of myself working in a team, I feel some of my challenges are:

6. I think some of the barriers to overcoming the challenges listed above are:

Appendix D

Dual Identity Scale; Content Validity Expert Judgment

Item	rating	Comment
1	4 (N=2), 3 (N=3),	<ul style="list-style-type: none"> • Responses would be dependent on level of student in program, ie how much they know about their profession (LM) • Assuming that demographic info would be collected so you'd be able to account for that in some way (LM) • Make definitions of the terms larger - easier to find and use. (SH) • Comment: Knowledge/skill base might need a further explanation (knowledge of what?) as well as attitude towards patient – not sure if we can discern differences in attitudes; should the focus be on patient-centeredness? (ES) • Academic Quality definition is not a clear one. (VC) • I would use one term or the other (knowledge/skills). I don't think they're interchangeable? (JL) • At first I thought that this item would be irrelevant as I assumed that everyone would give their own profession the highest ratings, but then I realized that this is an effective measurement of one's own perception and identity with one's profession which of course is relevant to the purpose of this tool. (MBB)
2	4 (N=2), 3 (N=2)	<ul style="list-style-type: none"> • Is 'very high' attitude toward patient mean a positive attitude? (LM) • Is 'very high' knowledge base specific to what I perceive re them possessing their own professional knowledge base or in general (LM) • Based on what criteria am I to compare academic quality from one profession to the other: length of program, intern or not, etc? (LM) • I would repeat definitions, especially if this questions fall on another page. (SH) • I find this is impossible for me to make a fair judgment of these professions; I would like to think that as a profession, all these people are highly competent (ES)
3	4 (N=3), 3 (N=2),	<ul style="list-style-type: none"> • Is the assumption that I am 'only' working with them or is it the assumption that I am working with others too in addition to 'my own'. (LM) • You say this scale is for students and professionals, but this particular question is only for students? If so, make that clear by directing non-student participants to skip this question. If it is intended for both students and professionals, you will need to re-word it. (SH) • Shouldn't the scale go from 1 to 5 instead of 5 to 1? (just like you did for the item evaluation scales above and below) (JL)
4	4 (N=4), 2 (N=1),	<ul style="list-style-type: none"> • Same comment as one for Question 3. (SH)
5	4 (N=4), 2 (N=1)	<ul style="list-style-type: none"> • 2 different concepts (Culture and Background) (VC)

Item	rating	Comment
6	4 (N=4), 2 (N=1)	• 2 different concepts (Culture and Background) (VC)
7	4 (N=4), 3 (N=1)	No Comment
8	4 (N=4), 3 (N=1)	No Comment
9	4 (N=5)	No Comment
10	4 (N=5)	No Comment
11	4 (N=5)	No Comment
12	4 (N=5)	No Comment
13	4 (N=5)	No Comment
14	4 (N=4), 2 (N=1)	No Comment
15	4 (N=4), 2 (N=1)	<ul style="list-style-type: none"> • Items 15 and 16 “a lot” is ambiguous – could mean frequently, which is what I think you want, or it could be read similarly to “I think a lot of myself” – as in being proud/conceited. (SH) • Unclear (VC)
16	4 (N=4), 2 (N=1)	<ul style="list-style-type: none"> • Items 15 and 16 “a lot” is ambiguous – could mean frequently, which is what I think you want, or it could be read similarly to “I think a lot of myself” – as in being proud/conceited. (SH) • Unclear (VC)
17	4 (N=4), 3 (N=1)	• Item 17, 18, 30, and 31 all have the same problems as items 3 and 4 (SH, VC)
18	4 (N=4), 3 (N=1)	• Item 17, 18, 30, and 31 all have the same problems as items 3 and 4 (SH, VC)
19	4 (N=4), 3 (N=1)	• Why gradient (sometimes)? (VC)
20	4 (N=4), 2 (N=1)	• 2 different concepts (Culture and Background) (VC)
21	4 (N=4), 2 (N=1)	<ul style="list-style-type: none"> • 2 different concepts (Culture and Background) (VC) • I don’t know that very many would say they “feel good” about other health professional cultures. A better term may be “respect” (MBB)
22	4 (N=5)	No Comment
23	4 (N=4), 3(N=1)	No Comment
24	4 (N=3), 3(N=1), 2(N=1)	• Unclear (VC)
25	4 (N=3), 3(N=1), 2(N=1)	<ul style="list-style-type: none"> • Question 25 is confusing...what is the intent? (LM) • Unclear (VC)
26	4 (N=5)	No Comment
27	4 (N=4), 3(N=1)	No Comment
28	4 (N=5)	What is the significance of the ‘friends’ questions (28 and 29)? (LM)
29	4 (N=5)	What is the significance of the ‘friends’ questions (28 and 29)? (LM)
30	4 (N=4), 3 (1)	Item 17, 18, 30, and 31 all have the same problems as items 3 and 4 (SH, VC)
31	4 (N=4), 3 (1)	Item 17, 18, 30, and 31 all have the same problems as items 3 and 4 (SH, VC)

Item	rating	Comment
32	4 (N=4), 3 (1)	<ul style="list-style-type: none"> • Why gradient (sometimes)? (VC) • take out the word “sometimes” as it is difficult to answer if one feels that this is always the case, not just sometimes (MBB) • I’d be interested to know the response to a question: “How easy was it to complete the form...ie readability, perception of IPE”. (LM) • Assumption that students would know the meaning of ‘culture of their profession’—does this need to be defined in the preamble? (LM) • I appreciate the value statements. (LM) • Is there a way to categorize the statements for organization purpose—help participant with response in context to intent of question? (LM) • Jargon re interprofessional teams, cross- disciplinary ...do the meaning mean the same thing in each profession? (LM) • Very few negative response items – may get someone just circling all the same number (1 or 4) without really reading the item carefully. (SH)
Question To Add		
Comment		

Appendix E

Case Study; Workshop # 1

Case of Jane Black

Jane Black is a 32 year old mother of three who has just been admitted into the hospital unit that you are working on today. She has diabetes and is 22 weeks pregnant. She was found at home by her husband after she became drowsy and was having difficulty focusing. She has an IV of D5W running and was given a loading dose of insulin. Since she is a newly diagnosed diabetic who also has to deal with her pregnancy she has been admitted to hospital by Dr. Johansen. Mrs. Black's three children came in with her and her husband as there was no one else at home to take care of them. They are two girls- 3 years old and 7 years old and a boy who is 5 years old.

They live in a 3 bedroom apartment that they rent. In talking to Mr. Black you learn that one of their daughters (7 year-old) has Cystic Fibrosis and requires a great deal of his wife's time to ensure her lungs remain as clear as possible. Mr. Black asks if there is anywhere he can smoke. You notice that he has tobacco stained fingers. He also is somewhat overweight. Mr. Black comments to you that he is concerned about how he can manage the children with his wife in the hospital and wonders how quickly she can be discharged home. Mrs. Black also informs you that she has weakness in the right side of her body because of a previous 'small stroke' she had 5 years ago. She tells you she is worried that she may need to take insulin by injection because she is right handed and does not have the full use of her hand because of the stroke.

On assessing Mrs. Black, you find out from her that she experiences a great deal of thirst and has had frequency for a while, but thought it was just due to her pregnancy. She also tells you that her mother is a diabetic. Her mother has had a lot of problems with her eyesight and recently her doctor told her that her kidneys are starting to fail.

Group Work Sheet; Workshop # 1

#	What Are The Client Health Needs?	How/Who To Address/ Meet The Needs?	What Are The Expected Outcomes?

Case Study; Workshop # 2

The Case of Virginia Snow

Virginia Snow is a 45-year old single mother. She has been divorced for 8 years and has an 11-year old daughter, Ashley. Her ex-husband lives in London and works intermittently. He rarely sees Ashley and provides only occasional financial support. Virginia's mother died of breast cancer 13 years ago and she has no other supports aside from a neighbour who comes over for a coffee or glass of wine a few times each week.

Virginia had arthroscopic surgery on her right knee due to a tear in the cartilage in 1998. 2 years later she became very depressed after suffering a back injury acquired at work. She acquired the injury while transferring an obese patient. She was then on sick leave for the next 2 years. But after this time, the Workers' Safety Insurance Board (WSIB) assessed her and determined that she was able to return to work. When she tried to return she found her back pain unrelenting and she finally was forced to quit her job as a personal care worker.

Virginia was not able to find any work she could do that did not exacerbate her back pain. This caused her to become more depressed. Her family physician put her on Naproxen for her back pain but this in turn caused acid reflux syndrome. She was then taken off the Naproxen and now takes Norflex for the pain and Tylenol #3 as needed. She takes Pantoloc for the acid reflex. She is also on Monpril for high blood pressure partly as a result of weight gain due to her reduced activity and her inability to lift more than 5 kilos.

After the birth of her daughter in 1996, both she and the baby almost died due to Hemolysis, Elevated Liver Enzymes, and Low Blood Platelets (HELLP) Syndrome at the time of her delivery. Her daughter was born 5-weeks premature but she does not appear to have any ill effects from her prematurity and continues to meet normal growth and development parameters.

Virginia is experiencing more difficulty getting up in the mornings. She is also sleeping longer into the day. Her daughter must get herself up, fed, lunch made, and to school most days on her own. Virginia feels guilty about not being a "good mother" but just does not seem to be able to pull herself together. Lately she has returned to smoking and consumes about 1 pack of cigarettes a day. She also has been drinking about 3-4 glasses of wine a day. She believes this helps to control her pain and makes her feel better.

She and her daughter live in a subsidized 2-storey London Housing Unit. She is able to meet her rental payments with her Ontario Works (welfare) income to stay in this unit but worries whether she can continue to manage the stairs much longer. Lately she has begun sleeping on the downstairs living room sofa. She has heard that to move to an apartment that has elevators would present an unsafe environment for her daughter because of youth bullying and drug abuse. These worries are adding to her depression. Recently Virginia took her daughter out to ice-skate on a local frozen pond. But on her way back Virginia slipped on ice and fell onto her buttocks. This caused a sharp pain in her back that is still present. She has increased her meds, Tylenol and alcohol consumption to try and control the pain without benefit. She is seeking immediate help to deal with her pain and arrives at the Family Health clinic in her housing complex (a much easier alternative to the 45 minute bus ride to her family doctor's office).

Interprofessional Teamwork Sheet; Workshop # 2

#	What Are The Client Health Needs?	How/Who To Address/ Meet The Needs?	What Are The Expected Outcomes?	Develop A Collaborative Plan Of Care/Intervention

Scale		DIS						ISVS						ICS					
Time Series		Time 1		Time 2		Time 3		Time 1		Time 2		Time 3		Time 1		Time 2		Time 3	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age Group	17-20 years	3.991	.512	4.238	.400	4.2478	.083	4.816	.477	NA	NA	5.082	.442	4.97	.655	NA	NA	5.334	.677
	21-22 years	3.916	.471	4.076	.409	4.3665	.098	4.531	.411	NA	NA	5.050	.431	4.68	1.12	NA	NA	5.000	.491
	23-24 years	3.984	.446	4.328	.421	4.3509	.088	4.703	.402	NA	NA	5.078	.498	4.86	.619	NA	NA	5.204	.563
	25 => years	3.887	.443	4.100	.312	4.4063	.117	4.761	.578	NA	NA	5.090	.534	5.43	.572	NA	NA	5.610	.625
Gender	M	3.820	.522	4.070	.364	4.204	.439	4.570	.411	NA	NA	5.032	.388	4.853	.651	NA	NA	5.304	.665
	F	4.010	.419	4.284	.362	4.313	.318	4.768	.485	NA	NA	5.099	.494	5.004	.856	NA	NA	5.216	.594
Profession	F&N	3.944	.520	4.259	.274	4.246	.379	4.731	.515	NA	NA	4.999	.527	4.780	1.218	NA	NA	5.103	.494
	Med	3.856	.403	4.0043	.330	4.141	.436	4.576	.425	NA	NA	5.013	.444	4.856	.678	NA	NA	5.149	.652
	NRG	3.916	.336	4.0930	.540	4.465	.087	4.819	.324	NA	NA	5.267	.148	4.629	.546	NA	NA	4.791	.449
	OT	3.849	.475	4.2241	.350	4.259	.327	4.599	.409	NA	NA	5.038	.426	4.930	.568	NA	NA	5.199	.562
	PT	3.920	.367	4.1374	.364	4.669	.	4.611	.370	NA	NA	5.369	.	4.939	.674	NA	NA	4.920	.
	SW	3.823	.577	.	.	4.348	.536	5.099	.600	NA	NA	5.202	.552	5.780	.487	NA	NA	6.056	.532
	SLP	4.240	.465	4.3843	.394	4.353	.335	4.819	.599	NA	NA	5.153	.614	5.312	.612	NA	NA	5.481	.689
Education Year	1	3.990	.495	4.282	.225	4.257	.358	4.722	.447	NA	NA	5.086	.422	4.918	.867	NA	NA	5.303	.66
	2	3.876	.395	4.077	.315	4.313	.321	4.618	.489	NA	NA	5.053	.528	4.913	.672	NA	NA	5.021	.404
	3	3.963	.424	4.213	.380	4.298	.493	4.990	.500	NA	NA	5.127	.526	5.425	.740	NA	NA	5.587	.725
T1 Pre IPE Exp.	Yes	4.077	.346	4.253	.314	4.438	.226	4.633	.490	NA	NA	5.104	.535	5.083	.671	NA	NA	5.198	.401
	No	3.923	.484	4.206	.374	4.229	.378	4.733	.470	NA	NA	5.071	.444	4.914	.832	NA	NA	5.258	.671
T2 Pre IPE Exp.	Yes	3.963	.333	4.117	.395	4.206	.368	4.504	.436	NA	NA	4.878	.405	5.059	.608	NA	NA	5.025	.418
	No	3.944	.496	4.239	.315	4.293	.343	4.764	.455	NA	NA	5.2	.465	4.762	.988	NA	NA	5.263	.666
T3 Pre IPE Exp	Yes	3.953	.563	4.191	.421	4.336	.354	4.748	.531	NA	NA	5.123	.517	5.196	.672	NA	NA	5.239	.597
	No	3.928	.359	4.177	.312	4.218	.359	4.710	.461	NA	NA	5.081	.423	5.025	.694	NA	NA	5.214	.627

Curriculum Vitae

E-mail:

Phone:

Hossein Khalili

- Education**
- PhD - Leadership in Nursing Education 2013**
Western University (UWO), London, ON, Canada
- MScN - Nursing Education - Medical/Surgical 2000**
Shahid Beheshti University of Medical Sciences, Tehran, Iran
Master of Nursing Education- Medical/Surgical
Acquired 19.40 out of 20 on the thesis
- BScN - Baccalaureate of Nursing 1997**
Sabzevar School of Medical Sciences, Khorasan, Iran
- The distinguished student with the GPA of 18.10 out of 20
- Professional experience**
- 01/09/2013-Present**
Coordinator, BIEN & International Projects & Partnerships, School of Nursing, Fanshawe College
- 16/08/2010-Present**
Professor (Full-Time), Fanshawe College
- NRS-7064 Health Informatics within Nursing; Year 2 Collaborative BScN Program
 - NRS-4496 Preceptorship: Independent Practice in Nursing; Year 4 Collaborative BScN Program
 - NRS-7050 Adult Health Nursing Practice: Clinical Simulation Practice; Year 2 Collaborative BScN Program
 - NRS-7049 Professional Nursing Practice I
 - NRS-3011 Healing & Episodic Health Challenges
 - NRS- 1017 Laboratory Practice 2
- 01/10/2011-Present**
CRNE/CRPNE Prep Exam Developer and Instructor
- The CARE Centre for Internationally Educated Nurses
- 13/07/2009- August 2011**
Registered Nurse, LHSC (Casual)
- University Hospital, 9th Floor Inpatients (Orthopaedics)
- 01/09/2008-September 2010**
Lecturer (Part-Time), UWO
- Summer Externship Program, Collaborative BScN program; 4th Year, Strathroy Hospital, Medicine (Summer 2010)

- Professional Nursing Practice II: Adult Acute Care. Compressed Time Frame (CTF) program: level 2, London Health Sciences Centre (LHSC), University Hospital (UH) 4th Floor (General Medicine), (Winter 2010)
- Professional Nursing Practice I: Assessment of Health and Illness. CTF program; level 1, Mount Hope Centre for Continuing Care (Fall 2009)
- Professional Nursing Practice II: Adult Acute Care. CTF program: level 2, LHSC, UH9 (Orthopedics) (Winter 2009)
- Professional Nursing Practice II: Adult Acute Care. Collaborative BScN Program; 2nd Year, LHSC, UH5 (Cardiology) (Fall 2008)

Course Facilitator, UWO (Summer 2010)

- Interprofessional Communication Online Module

Interprofessional Practice Facilitator, UWO (Fall 2008)

- Interprofessional Community Placement
 - Facilitating interprofessional teamwork practice among cross-disciplinary health program students, the Middlesex London Health Unit.

01/03/2006 – 08/2010

Graduate Research Assistant (GRA), UWO

- **Coordinator, Health Zone Nurse Practitioner-Led Clinic Application**, the Office of Interprofessional Health Education and Research (OIPHER)
- **Analyzing Qualitative and Quantitative IPE Workshops data**
- **Evaluating IECPCP Projects and IP literature to develop some ‘Best Practices Guidelines for Interprofessional Teaching/Learning Strategies’; A Health Canada Project** (January 2009- March, 2009)
- **Co-Developing a Self-Learning Online Communication Module**, OIPHER, August 20, 2008- November, 2008
- **Curriculum Inventory Report from 20 Health Canada Funded IECPCP Projects**; Canadian Interprofessional Health Collaborative (CIHC) Project (May 2008-August 2008).

Research Assistant, UWO

- **The Institute of Interprofessional Health Sciences Education Project; An Online Institute** (April 2006-June 2008)
 - Participating in developing a series of IP Team Development modules
 - Cooperation in interprofessional placements of health program students (as IP teams) in MLHU
 - Cooperation in designing and implementing the Community Practice-Health Promotion on-line course
 - Interviewing students and practitioners (focus-group & individual) as part of evaluation phase
- **Simulation Laboratory Project** (August 2006-June 2007)
 - Co-preparing the hi-tech simulated patients based on the scenarios
 - Co-training nursing students how to holistically assess and care for simulated patients with heart failure and upper respiratory infection

- Data collection & analysis
- **RNs Mentoring Nursing Students Project** (April 2006-August 2006).
 - Co-developing Mentor and Mentee’s Manuals
 - Creating Online Questionnaire through Survey Monkey

09/2000 –08/2005

Faculty Member (Full -Time), Semnan University of Medical Sciences, Nursing and Para medicine Faculty, Semnan, Iran

- Designing and Teaching Med/Surg Nursing courses (Endocrine, Cardiology, Neurology, Cancer, GI, and Respiratory)
- Teaching Fundamentals & Concepts of Nursing (at classroom and simulation labs)
- Clinical Teaching/Training and Supervision of Nursing Students

1997-2000

Clinical instructor (Part–Time), Tehran University of Medical Sciences, Nursing and Midwifery Faculty, Tehran, Iran

- Clinical teaching/training and supervision of students in Critical Care Units (in particular CCU), Emergency Departments, Internal and Surgical Neurology, Cardiology, Cancer, GI, Orthopedic, and General Medicine and Surgery Wards
- Teaching clients/families: Health Maintenance and Health Promotion

02/1998-07/1998

Clinical instructor (Part–Time), Iran University of Medical Sciences, Nursing & Midwifery Faculty, Tehran, Iran

- Clinical teaching/training and supervision of nursing students in Emergency Department

1997- 1998

First-Aid and Emergency Services instructor, Jihad Daneshghahi Institute; A branch of Tehran University of Medical Sciences

- Teaching and practice ‘First Aid’ and ‘Medical Emergencies’ in classroom and skill laboratory for public learners

1995 – 1997

Staff, Student Nurse , Sabzevar Teaching Hospitals

- General Medicine and Surgery Wards

**Research/
Education
Advisory
Activities**

Student Name	University	Program	Activity Description
McFadden, Janice	University of Victoria	MN Nurse Educator	Host Educator, September 2012 to December 2012
Fox, Caitlin	The University of Western Ontario	BScN	Research Placement Advisor, January 2012 to April 2012; International research Network in IPE/IPP: CIHR Meeting and Planning Grant

Fry, Erin	The University of Western Ontario	BScN	Research Placement Advisor, January 2012 to April 2012; International research Network in IPE/IPP: CIHR Meeting and Planning Grant
Mcgill, Adam	The University of Western Ontario	BScN	Research Placement Advisor, January 2012 to April 2012; Interprofessional Socialization Framework Project
Theresa Robinson	The University of Western Ontario	BScN	Research Placement Advisor, January 2011 to April 2011; Interprofessional Socialization Study
Kirsten Victoria Stuempfle	The University of Western Ontario	BScN	Research Placement, January 2011 to April 2011; Interprofessional Socialization Study

Recent Honours & Awards

- 2013 School Nominee, President's Distinguished Achievement Award for Research/Innovation, School of Nursing, Fanshawe College
- 2012 Travel Award, participation and presentation at ATBH Conference, Kobe, Japan, October 5th-8th, 2012, Fanshawe College
- 2012 Travel Award, participation and presentation at BC Lab Educators Conference, May 14-15, 2012, Fanshawe College and The University of Western Ontario
- 2011 Travel Award, participation and presentation at 2011 Nursing Academic Leadership Conference, the Faculty of Health Sciences, The University of Western Ontario
- 2011 Graduate Research Thesis Award, Faculty of Health Sciences, UWO**
- 2010 Recognition of Excellence in Teaching, Faculty of Health Sciences, UWO**
- 2010 Award of Excellence in Teaching, USC Teaching Honour Roll Award, University Student's Council, UWO**
- 2010 Provincial Nurse Educators Interest Group (PNEIG) Award, Registered Nurses' Foundation of Ontario (RNFOO)**
- 2010** School Nominee, PNEIG Award, School of Nursing, The University of Western Ontario
- 2010 Student Travel Award, participation and presentation at IPE Ontario Conference 2010, the Faculty of Health Sciences, The University of Western Ontario
- 2009 Student Travel Award for presentation at the Collaborating Across Borders II: Building Bridges Between Interprofessional Education and Practice (CAB II) Conference in Halifax, Nova Scotia. Interprofessional Health Education & Research Office, The University of Western Ontario
- 2009 Student Travel Award for participation at the Developing a Research and Evaluation Agenda and Strategies for Interprofessional Education and Collaborative Practice Meeting, CIHC
- 2008 The Dean's Award for Research Excellence – Second Place in Presentation – 21th annual Western Research Forum, UWO**
- 2008 Student Travel Award for participation and presentation at the 1st International Interprofessional Education and Practice, Manchester, UK (July 1-3, 2008), Interprofessional Health Education & Research Office and the Faculty of Health Sciences, The University of Western Ontario

- 2008 Student Travel Award for participating at the National Student Collaborative Conference; Students Changing the Face of Health Care Education, May 4th, 2008 Montreal, Quebec
- 2007 Student Travel Award for participation and Co-presentation at the Collaborative across Borders in Minnesota (October 24-26, 2007), Interprofessional Health Education & Research Office, The University of Western Ontario
- 2006 The Graduate Student Research Award, VP Research and Faculty of Health Sciences, The University of Western Ontario**

**Recent
Funded
Projects**

<u>Investigators</u>	<u>Source</u>	<u>Project Title</u>	<u>Amount</u>	<u>Dates</u>
Khalili, H. Katsademas, K., Krahn, M.A., Harrison, H., Ranieri, L., DeLuca, S.	Fanshawe College, Research Innovation Fund (RIF)	Knowledge to Action in Nursing Education; The impact of Clinical Simulation Practice on students' competence, confidence and collaboration in their real clinical practice	7,000	2013
Grymonpre, R., Atack, L., Gilbert, J., Khalili, H. , O'Riordan, A., Tam, S.	CIHR Meeting and Planning Grant	International research Network in IPE/IPP	25,000	2012-2013
Gaffney, D., Orchard, C., Khalili, H. , Hodes, T.D., Cardinal, M.	Canadian Health Service Research Foundation	Engagement of Patients and Families on Hospital Unit Action Councils	\$89,000	2011-2013
Regan, S., Orchard, C., Khalili, H.	MOHLTC, Ontario Health Human Resources Research Network (OHHRRN)	Policy Analyses of standards for Interprofessional Collaboration	\$38,000	2011-2013
Khalili, H.	Fanshawe College, RIF	Testing the Interprofessional Socialization Framework; Disseminating the Findings, Phase 1	\$6575.00	2012

Elliott, J., Butler, C., Masse, S., Sippel, M., Khalili, H.	Fanshawe College, RIF	The Impact of Interprofessional Team Development Education on Interprofessional Collaboration between Human Service and Nursing students on an international placement.	\$ 6,000	2011
--	--------------------------	---	----------	------

**Pending
Projects**

1. Khalili, H. & Elliott, J. IEN Re-socialization Workplace Integration Program project. A Pilot System Change Project To Be Submitted to Ontario MCI on Oct 1st, 2013 (\$234,000)

**Scholarly
and
Professional
Activities:**

A) Paper Reviewer

- 01/2011-Present Journal of Interprofessional Care, UK
 2010-present Journal of Research in Interprofessional Practice and Education (JRIPE), CIHC, Canada
 2007-Present Nursing Inquiry Journal, Toronto, Canada
 2004-2005 Nursing & Midwifery Journal of Shahid Beheshti University of Medical Sciences
 2003-2005 Journal of Koomesh of Semnan University of Medical Sciences

B) Abstract Reviewer

- 01/2012-present All Together Better Health Conference (ATBH)
 02/2008- 2010 21st & 22nd Annual Research Conference, Iota Omicron Chapter of Sigma Theta Tau, School of Nursing, UWO
 2007-03/2008 The 4th National Health Sciences Students' Association (NaHSSA) Conference

C) Book Reviewer

- 2001-2005 Semnan University of Medical Sciences

Invited Participation/Presentations (Non-Refereed)

- Nov 2012 Interprofessional Collaborative Patient-centered Practice, Continuing Education, Fanshawe College
 Oct 2012 Interprofessional Education and Collaborative Practice, Practical Nursing program, Fanshawe College
 February 2012 Fanshawe College Interprofessional Charter; Child and Youth Network, Interprofessional Community of Practice Committee, London, ON
 October 2011 Interprofessional Collaborative Patient-centered Practice, Continuing Education, Fanshawe College
 Nov 2011 Interprofessional Education and Practice, Practical Nursing program, Fanshawe College
 May 2011 Interprofessional Socialization: Dual Professional and Interprofessional Identity; Child and Youth Network, Interprofessional Community of Practice Committee, London, ON
 February 2011 Interprofessional Team Development Workshop, Costa Rica 2011, Fanshawe College

- October 2010 Nursing as an International Profession, Alumni Nurses Homecoming 2010, UWO
- October 2010 Interprofessional Collaborative Patient-centered Practice, Continuing Education, Fanshawe College
- November, 2010 Interprofessional Education and Practice, Practical Nursing program, Fanshawe College
- May 2010 Canadian Health Human Resources Research Network (CHHRRN), Consultation Meeting, Toronto
- February 2009 Developing a Research and Evaluation Agenda and Strategies for Interprofessional Education and Collaborative Practice Meeting, CIHC, Winnipeg, Manitoba,
- November 2008 Interprofessional Education Panel; Canadian Society for Life Sciences Research (CSLSR) Conference facilitated by NaHSSA, Toronto
- June, 2007 Graduate Nursing Education in Canada; Master Program, Nursing & Midwifery Faculty, Iran University of Medical Sciences, Tehran, Iran
- June, 2007 Graduate Nursing Education in Canada; PhD Program, Nursing & Midwifery Faculty, Iran University of Medical Sciences, Tehran, Iran

Professional Membership:

- 2011-Present Canadian Health Human Resources Research Network (CHHRRN)
- 2010-Present Ontario Health Human Resources Research Network (OHHRN)
- 2010-Present Lawson Health Research Institute, London, ON
- 2010-Present Registered Nurses' Association of Ontario (RNAO)
- 2010-Present RNAO Provincial Nurse Educator Interest Group (PNEIG)
- 2010-Present RNAO Nursing Research Interest Group (NRIG)
- 2007-Present Canadian Interprofessional Health Collaborative (CIHC)
- 2007-Present London Interprofessional Healthcare Students Association (LIHSA)
- 2007-Present National Health Sciences Students' Association (NaHSSA)
- 2006-2010 Sigma Theta Tau International Honor Society of Nursing, Iota Omicron
- 2006-Present Institute of Reflective Practice, London, UK
- 2005-Present College of Nurses of Ontario, Toronto, ON.
- 2003-2006 Iranian Nursing Organization, Tehran, Iran
- 2000-2005 Iranian Nursing Association, Tehran, Iran
- 1993-2000 Iranian Research & Development Students Association.

Administrative Duties:

A) Fanshawe College

- 11/2012-09/2013 Table Lead, Accreditation, Western-Fanshawe Collaborative BScN Curriculum
- 02/2012-Present Member, Appreciative Inquiry Committee, Faculty of Health Sciences and Human Services
- 03/2011-Present Lead, Fanshawe Interprofessional Charter, Faculty of Health Sciences and Human Services
- 01/2011-Present Fanshawe College Representative, Interprofessional Community of Practice sub-committee, Child and Youth Network, London, Ontario
- 03/2011- Present Member, Planning Committee, Transition Party

- 09/2010-Present Member, BScN Curriculum Development Committee, Holistic Health Assessment & Ways of Knowing; Research, Informatics in Nursing Courses
- 09/2010-Present Member, Inter-professional Simulations
- 09/2010-Present Member, Lab Simulation Pilot Project BScN Year 1
- 09/2010-Present Program of Research

B) Others

- 11/2012-Present Vice/Chair, Center of Hope Family Health Team Board
- 12/2012-Present Member, Quality Committee, Center of Hope Family Health Team Board
- 05/2012-Present Co-Lead, Global Research Interprofessional Network (GRIN)
- 06/2012-Present, Member, Curriculum Committee, The Office of Interprofessional Health Education and Research (IPHER), UWO
- 02/2010-Present Member, Planning Group, IPE Teaching Certificate Workshop, IPHER, UWO
- 12/2009-Present Chair, CIHC-ResearchNet, Research and Evaluation Committee, CIHC
- 07/2009-08/2010 Part-Time Faculty Representative, Faculty of Health Sciences Council
- 01/2009-08/2010 Coordinator, Interprofessional Graduate Knowledge Exchange, IPHER, UWO
- 09/2008-08/2009 Member, Conference Planning Committee, Iota Omicron Chapter of Sigma Theta Tau, School of Nursing
- 2007-02/2008 Chair, Abstract Committee, 4th National Health Sciences Students' Association's (NaHSSA) Conference
- 2007-02/2008 Member, Program Committee, 4th NaHSSA Conference
- 2007-08/2008 Communication Director, London Interprofessional Healthcare Students Association (LIHSA)
- 2007-2008 Executive Member, Molana Rumi Seminar; Celebrating the 1000th Anniversary of An Ancient Iranian Poem, CHRW Farsi Radio Show
- 2006-2008 Member, Steering & Evaluation Committees, Creating Inter Professional Collaborative Teams for Comprehensive Mental Health Services Project (*CIPHER-MH*)
- 2006-2008 Director, CHRW Farsi Radio Show
- 2001-2005 Member, Quality Promotion Committee, Semnan University of Medical sciences, Semnan, Iran
- 2001-2005 Member, Communication & Information Committee, Semnan University of Medical sciences
- 2003-2004 Member, Nursing Staff Recruiting and Development Committee, Semnan University of Medical sciences
- 1997-1998 Executive member, Investigation the Different Aspects of Iranian Nursing Organization Seminar, Tehran, Iran
- 1994-1999 Executive Member, Iranian Research & Development Students Association.

Publications

Books:

- 1- Colin P.H. (2007). *Dictionary of Nursing*. (F. Mosavi, M. Jaberi & **H. Khalili** Trans.). Tehran: Yadvare Ketab. (Original work Published 2003).
- 2- Soleimani M., **Khalili H.** (2004). *Brief description on Chest X-Ray, handbook*. Tehran, CA: Boshra publication.
- 3- Babamohamadi H., **Khalili H.** (2002). *Client with Hemodialysis; a self-care guidance handbook*. Tehran, CA: Ronas publication.

Peer-reviewed papers:

- 1- **Khalili, H.**, Hall, J., Deluca, S. (in Press). Historical Analysis of Professionalism in Western Societies: Implications For Interprofessional Education and Collaborative Practice. *Journal of Interprofessional Care*
- 2- **Khalili, H.**, Orchard. C., Laschinger, H. K, Farah, R. (2013). An interprofessional socialization framework for developing an interprofessional identity among health professions students. *Journal of Interprofessional Care*. 27, 448- 453; DOI: 10.3109/13561820.2013.804042.
- 3- Thistlethwaite JE, **Khalili H**, Grymonpre R, Atack L, Gilbert J, Espin S, Donnelly C, Iglarsh A, Green C, Riva JJ, Hean S, Namavarian A. (2013). Introducing the Global Research Interprofessional Network (GRIN). *Journal of Interprofessional Care*; 27, 107-109; DOI: 10.3109/13561820.2012.718814.
- 4- Orchard, C., King, G., **Khalili, H.**, Bezzina, M.B., (2012). Assessment of interprofessional Team Collaborative Practice (AITCS): development and testing of the instrument. *Journal of Continuing Education in the Health Professions*, 32(1), 58–67.
- 5- Vingilis, E., Forchuk, C., Orchard, C., Shaw, L., King, G., McWilliam, C., **Khalili, H.**, Edwards, B. (2011). Development, implementation and formative evaluation of pre-licensure workshops using participatory action research to facilitate interprofessional, client-centred mental health care. *Journal of Research in Interprofessional Education (JRIPE)*, 2.1, 25-48.
- 6- Suter, E., Lait, J., MacDonald, L., Wener, P., Law, R., **Khalili, H.**, McCarthy, P. (2011). A strategic approach to building research capacity in interprofessional education and interprofessional collaboration. *Healthcare Quarterly* 14(2):54-60
- 7- Babamohamadi H., **Khalili H.** (2005). Critical Thinking Skills of Nursing Students in Semnan University of Medical Sciences. *Iranian Journal of Medical Education of Isfahan University of Medical Sciences*, 12(4),21-31.
- 8- Shafiee S., **Khalili H.** Mesgrani, M. (2004). Evaluation of Critical Thinking Skills among Nursing Students in Zahedan University of Medical Sciences. *Iranian Journal of Teb va Tazkieh*, 53,20-24.
- 9- **Khalili H.**, Babamohamadi H., Hajji Aghagani S. (2004). The effects of two educational methods, classic and critical thinking strategies (CTS), on the stable learning of nursing students. *Koomesh Journal of Semnan University of Medical Sciences*, 5, 53-63, Supp. Medical Education (in Persian).
- 10- **Khalili H.**, Babamohamadi H., Hajji Aghagani S., Qods A. A. (2003). The effects of two educational methods, classic and critical thinking strategies (CTS), on the stable learning of nursing students. *Journal of Medical Education*, 3(2), 71-76.

- 11- **Khalili H.**, Hossein Zadeh M., (2003). Investigation of Reliability, validity and normality of the Persian Version of the California Critical Thinking Skills Test Form B (CCTST). *Journal of Medical Education*, 3(1), 29-32.
- 12- **Khalili H.**, Soleimani M., (2003). Investigation of Reliability, validity and normality of the Persian Version of the California Critical Thinking Skills Test Form B (CCTST). *Journal of Babol University of Medical Sciences*, 84-90, Second Special Issue Supp. Medical Education (in Persian).
- 13- Babamohamadi H., **Khalili H.** (2003). Determination of the efficacy of pelvic muscle exercises (kegel) in treatment of signs & symptoms of urinary incontinence in aging (In Persian), *Journal of Yazd University of Medical Sciences*, 11(3), 61-67 (supplement 2, Nursing & midwifery).
- 14- Zarei M., Abavisani S.A., **Khalili H.**, Ghasemi S.H. (1997). Study of hypertension in the people over the age of 35 in Sabzevar city (In Persian), *Goomes Journal of Sabzevar School of Medical Sciences*. 3(2)

d) Invited Articles in Scientific Newsletters

1. Khalili, H. (2013). How to Prepare Future Health/social Professionals for Interprofessional Collaborative Person-Centered Practice. Newsletter, The Network: Towards Unity For Health. 31(1), 22.

Technical Reports

- 1- **Khalili, H.** (2012). *Interprofessional Charter*. Prepared for Faculty of Health Sciences and Human Services, Fanshawe College.
- 2- **Khalili, H.**, Orchard, C. (2009). *Best Practices Guideline for Interprofessional Teaching/Learning Strategies; Final Report*. Prepared for Office of Nursing Policy: Health Canada.
- 3- **Khalili, H.**, Orchard, C. (2008). *Curriculum Inventory Report from 20 Health Canada Funded IECPCP Projects*. Prepared for Curriculum Committee: Canadian Interprofessional Health Collaborative.

e) Recent Presentations with Abstracts in Conference Proceedings

- 1- **Khalili, H.** Orchard, C., Laschinger, H.K, Farah, R. Interprofessional Socialization Study Findings: How to Develop Dual Professional and Interprofessional Identity, Accepted for Presentation, Collaborating Across Borders (CAB) IV, June 12-14, 2013, Vancouver, BC
- 2- **Khalili, H.**, Grymonpre, R. Gilbert, J. Attack, L., Thistlethwaite, J., Hean, S., Espin, S., Donnelly, C., Iglarsh, A., Green, C. Knowledge To Action in IECPCP: Global Research Interprofessional Network (GRIN), Accepted for Presentation, CAB IV, June 12-14, 2013, Vancouver, BC
- 3- Regan, S., Orchard, C., **Khalili, H.**, Brunton, L, Leslie, K. Legislating Interprofessional Collaboration: Policy Analysis of Health Professional Regulatory Legislation, Accepted for Presentation, CAB IV, June 12-14, 2013, Vancouver, BC
- 4- **Khalili, H.** Orchard, C., (October 18 - 20, 2012). How to Socialize Future Healthcare Professionals for Aging Population in a Changing World. Accepted for Oral Presentation, Aging in a Changing World Conference, Canadian Association on Gerontology (CAG), Vancouver, British Columbia

- 5- Khalili, H.** Orchard. C., Laschinger, H.K, Farah, R. (October 9-14, 2012). How to Prepare Future Health/social Professionals for Interprofessional Collaborative Client-Centered Practice. Accepted for Oral Presentation, Rendez-vous 2012 Conference. Thunder Bay, Ontario, Canada
- 6- Khalili, H.** (October 9-14, 2012). 'High Fidelity Clinical Simulation Practice; An Innovative Approach to Improve Interprofessional Collaboration. Accepted for Oral Presentation. Rendez-vous 2012 Conference. Thunder Bay, Ontario, Canada
- 7- Khalili, H.,** McLaughlin, P., De Luca, S., Fieber, S., Griffith, C. (October 5-8, 2012). Fanshawe College Interprofessional Charter; Development and Implementation. Accepted for Workshop Presentation. ATBH-IV Conference, Kobe Japan
- 8- Khalili, H.,** Orchard. C., Laschinger, H.K, Farah, R. (October 5-8, 2012). How to Prepare Future Health/social Professionals for Interprofessional Collaborative Client-Centered Practice. Accepted for Oral Presentation. ATBH-IV Conference, Kobe Japan
- 9- Khalili, H.** (October 5-8, 2012). 'High Fidelity Clinical Simulation Practice; An Innovative Approach to Improve Interprofessional Collaboration. Accepted for Oral Presentation. ATBH-IV Conference, Kobe Japan
- 10- Khalili, H.** (May 14-15, 2012). High Fidelity Clinical Simulation Practice: An Innovative Approach to Improve Interprofessional Collaboration. BC Lab Educators, BCIT, Burnaby, BC
- 11- Khalili, H.** (May 7th-10, 2012). High Fidelity Clinical Simulation Practice: An Innovative Approach to Improve Nursing Students' Practice. CASN Nursing Research Conference 2012, Toronto, ON
- 12- Khalili, H.,** Gilbert, J., Soubhi, H., Grymonpre, R., Tam, S., Atack, L, et.al. (November 19-21, 2011). Canadian Interprofessional Health Collaborative Research Network (CIHC-ResearchNet); Make it a Global Initiative. Discussion Presentation, 2011 Collaborating Across Borders III, Tucson, Arizona, USA
- 13- Khalili, H.,** Orchard. C., Laschinger, H.K, Farah, R. (November 19-21, 2011). Interprofessional Socialization Study; Dual Professional and Interprofessional Model: Preliminary Findings. Poster Presentation, 2011 Collaborating Across Borders III, Tucson, Arizona, USA
- 14- Khalili, H,** Butler, C., Brown, G, Lorusso, L. (June, 2011). High Fidelity Clinical Simulation As A Means to Introduce Interprofessional Education (IPE) Into Nursing Education. Poster Presentation, Twenty-Ninth Annual International Technology Conference, Rutgers College, Cambridge MA, USA
- 15- Khalili, H.,** Orchard. C., Laschinger, H.K, Farah, R. (May, 2011). Dual Professional And Interprofessional Identity Scale; Development And Psychometric Analysis. Oral Presentation, 24th Annual Research Conference, Promoting Excellence in Nursing Practice through Research, UWO.
- 16- Khalili, H.** (May 2nd - 5th, 2011). Nursing Education and Interprofessional Education (IPE); How to Integrate IPE into Nursing Education. Poster Presentation, 2011 Nursing Academic Leadership Conference, CASN, Quebec, QC
- 17- Khalili, H.,** Tam, S., Riva, J., Grymonpre, R., & Gilbert, J. (January, 2011). Canadian Interprofessional Health Collaborative Research Network. Workshop Presentation, IPE Ontario 2011 Conference, Toronto.

- 18- **Khalili, H.**, Orchard. C., Laschinger, H.K, Farah, R. (January, 2011). *Development and Psychometric Analysis of Dual Identity Scale*. Oral Presentation, IPE Ontario 2011 Conference, Toronto.
- 19- Orchard, C., Gorman, E., Bezzina, M.B., **Khalili, H.** Dill, S., Burke, N. (January, 2011). Preparing Clinical Teachers for Interprofessional Guided Learning in Students And Practitioners. Oral Presentation, IPE Ontario 2011 Conference, Toronto.
- 20- **Khalili, H.**, Orchard. C., Laschinger, H.K, Farah, R. (March, 2010). Dual Professional and Interprofessional Identity Model. Oral Presentation, 6th NaHSSA Conference, Hamilton, Ontario.
- 21- **Khalili, H.**, Orchard. C., Laschinger, H.K, Farah, R. (January, 2010). Interprofessional Socialization; A Conceptual Framework. Oral Presentation, IPE Ontario 2010 Conference, Toronto.
- 22- **Khalili, H.** IPE and Duality, as a Common Challenge, When Integrated Into Interprofessional Practice. Oral Presentation, IPE Ontario 2010 Conference, Toronto.
- 23- **Khalili, H.**, Orchard. C., & Kabene, S. M. (May 20-22, 2009). Interprofessional Socialization; Development Dual identity Among Health Program Students. Oral Presentation, Collaborating Across Borders II (CAB II), Halifax, Nova Scotia.
- 24- **Khalili, H.**, Merritt, J., Akande, V., & Orchard. C. (May 20-22, 2009). Effective Communication with Clients from Diverse Community. Oral Presentation, CAB II, Halifax, Nova Scotia.
- 25- Wells, D., Dietrich, P., Bezzina M.B., **Khalili, H.**, Hastie, K., Jackson, K., & Serratore, T. (May 20-22, 2009). Development of the IPE Practice Facilitator Role: Discoveries and Challenges. Oral Presentation, CAB II, Halifax, Nova Scotia.
- 26- **Khalili, H.**, & Orchard. C. (July 1-3, 2008). Socializing Healthcare Students through IPE; An Integrative Literature Review, Oral Presentation, 1st International Interprofessional Education and Practice, Manchester, UK.
- 27- **Khalili, H.**, Orchard. C., & Kabene, S. M. (June 2-5, 2008). Socializing Healthcare Students through Interprofessional Education, Poster Presentation, All Together Better Health IV conference in Stockholm, Sweden.
- 28- **Khalili H.** Orchard. C., (May 2nd, 2008). Socializing Healthcare Students through Interprofessional Education; An Integrative Literature Review. Oral Presentation, the 21st Annual Research Conference: ‘Celebrating Research and Innovation in Achieving Nursing Excellence’, UWO.
- 29- **Khalili, H.**, (March 29, 2008). Socializing Healthcare Students through Interprofessional Education; Creating Interprofessional Communities of Practice 21th annual Western Research Forum, UWO.
- 30- **Khalili, H.**, & Orchard. C., Laschinger, K. H., Farah, R., & Kabene, S. M. (March 5-8, 2008). Professional and Interprofessional Identification. Ozzawa 2008 Conference, Melbourne, Australia.
- 31- Orchard, C., Solomon, P., Brassat, A., Cartier, R.S., King, S., Jenkins, K. & **Khalili, H.** (October 24-26, 2007). Creating Interprofessional Collaborative Teams to Support Student Development. Paper accepted for presentation at the Collaborative across Borders Conference in Minnesota, USA.

- 32- Khalili H.** (1- 4 July, 2007). A Model of Students' Attitude Change in Interprofessional Education. Paper Accepted at the Second International Clinical Skills Conference, Prato Monash Centre, Italy.
- 33- Khalili H.** (19-21 April, 2007). Nursing Education; Interdisciplinary Versus Transdisciplinary. Paper Accepted at the 7th Evidence-Based Practice in Nursing: Paradigms and Dialogue Conference, Hong Kong.
- 34- Khalili H.** (19-20 April, 2007). Nursing Educators and Critical Thinking; A Feeling of Disempowerment, Paper Accepted at The 14th National Evidence-Based Practice Conference, US.
- 35- Khalili H.** (13 April, 2007). Interprofessional Attitude Change Model based on Pettigrew's Intergroup Contact Theory & Orchard's Conceptual Model of IDCPP. Oral Presentation, the 20th Annual Research Conference: 'Celebrating Research and Innovation in Achieving Nursing Excellence'. UWO. London. Ontario.
- 36- Khalili H.** Ahmadi J. M. (October 26-27, 2006). Critical Thinking in Distance Learning; A forgotten Issue. Oral Presentation, the 3rd International Conference Embracing the Future of Nursing: Educating Tomorrow's Nurses, RNAO, Toronto.
- 37- Khalili H.** (May 20-24, 2006). Critical Thinking and Clinical Education; the Role of Students and Educators. Oral Presentation, the 12th International Ottawa Conference in New York.

**Workshops
Completed**

- Faculty Development workshop, Curriculum Accreditation, December 7th, 2013, Western-Fanshawe Collaborative BScN Program, Fanshawe College
- CEDP: Phase 3, Lambton College, June 5-7, 2012
- Faculty Development workshop, April 12th, 2012, Western-Fanshawe Collaborative BScN Program, Fanshawe College
- Cultural safety Workshop, Audrey Lawrence, December 2011, Fanshawe College
- Faculty Development workshop, December 8th, 2011, Western-Fanshawe Collaborative BScN Program, Fanshawe College
- CEDP: Phase 2, St. Clair College, May 10-12, 2011
- Phenomenology Workshop, Dr. Patricia Munhall, April 26-27th, 2011, Fanshawe College
- Faculty Development workshop, April 8th, 2011, Western-Fanshawe Collaborative BScN Program, Fanshawe College
- Faculty Development workshop, Dec 15th, 2010, Western-Fanshawe Collaborative BScN Program, Fanshawe College
- CEDP: Phase 1, Conestoga College, August 16-20, 2010
- Interprofessional Socialization Workshop, UWO, Nov 25, 2010, **as presenter**
- Professional Socialization & Cross-Disciplinary Collaboration Workshop, UWO, Oct 27, 2010, **as presenter**
- IPE Teaching Certificate Workshop, UWO, August 31, 2010, **as presenter**
- Research Proposal Development Workshop, UWO, (April 28, 10)
- Writing for Publication Workshop presented by Dr. Marilyn Oermann, Fanshawe College (January 2010)
- Advanced Statistic (SPSS) workshop. UWO, (Dec, 2009)

- Summer Teaching with Technology Institute, Instructional Technology Resource Centre and the Teaching Support Centre, UWO, (May 25 - 27, 2009)
- IPE Workshop series in Acute Care, OIHER, UWO (2007-2009), **as facilitator**
- Interprofessional Breakfast of Champion Workshop series, OIHER, UWO (2007-2008), **as facilitator**
- IPE Workshop series provided by the CIPHER-MH Project, UWO (2006-2008)
- Communication in Canadian Classroom (Basic & Advance), Teaching Support Center, UWO (2006)
- Mixed Method Research Workshop, UWO (2007)
- Writing for Publication Workshop at Semnan University (2004)
- Quantitative Research Methods Workshop at Semnan University (2004)
- Advanced Quantitative Research Methods Workshop at Semnan University (2005)
- Qualitative Research Methods Workshop at Semnan University (2005)
- Teaching Methods Workshop at Semnan University (2002)
- The Art of Composition: Teaching, Learning, & Student Workshop, Tehran University (2000)
- Ten-full-Day Workshop (short-term course) of the Behavioral Neuroscience at Tehran Rehabilitation University (2003)
- Documenting in Nursing workshop at Semnan University (2002)
- CPR Workshop at Shahid Beheshti University (1998)
- Breast-Feeding Workshop at Shahid Beheshti University (1997)
- Children Care with Acute Respiratory Infection Diseases Workshop at Sabzevar School (1996).