

University of Denver

Digital Commons @ DU

Electronic Theses and Dissertations

Graduate Studies

1-1-2016

Development of a Measure of Interprofessional Collaboration Among School Mental Health Professionals

Jessica I. Colebrook
University of Denver

Follow this and additional works at: <https://digitalcommons.du.edu/etd>



Part of the [Education Commons](#)

Recommended Citation

Colebrook, Jessica I., "Development of a Measure of Interprofessional Collaboration Among School Mental Health Professionals" (2016). *Electronic Theses and Dissertations*. 1234.
<https://digitalcommons.du.edu/etd/1234>

This Dissertation is brought to you for free and open access by the Graduate Studies at Digital Commons @ DU. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of Digital Commons @ DU. For more information, please contact jennifer.cox@du.edu, dig-commons@du.edu.

Development of a Measure of Interprofessional Collaboration Among School Mental Health Professionals

Abstract

Collaboration is frequently put forth as one way to improve academic, behavioral, and social-emotional outcomes for K-12 students. Yet to date, there is little evidence-based research supporting this claim (Mellin, 2009; Trach, 2012). In order to collect such research, collaboration must be a measurable variable. This study was a first step in understanding interprofessional collaboration specifically among school mental health professionals such as school psychologists, school social workers, school counselors, and other school-based mental health professionals. The purpose of this study was to develop a measure of school mental health professionals' current perceptions of interprofessional collaboration with and among their school mental health colleagues. The measure was entitled the *School Mental Health Interprofessional Collaboration (SMHIC)*.

Through five distinct phases of research - focus groups, cognitive interviews, expert evaluations, a pilot administration, and a field administration - the *SMHIC* was developed. Exploratory factor analysis and Rasch model analysis were used to assess the factor structure and unidimensionality of the *SMHIC*. Results of these analyses indicated that the *SMHIC* measures one factor, perceptions of interprofessional collaboration, with items being relatively easy to agree with. Analysis of group differences showed a significant difference in perceptions of interprofessional collaboration among school mental health professionals by school mental health group (e.g., school psychologists perceived interprofessional collaboration in their school differently than school counselors). Cronbach's alpha for the original and revised versions of the measure were .92 and .90, respectively. Study limitations, implications for the field of school mental health, and future directions for the *SMHIC* were discussed.

Document Type

Dissertation

Degree Name

Ph.D.

Department

Child, Family and School Psychology

First Advisor

Gloria Miller, Ph.D.

Second Advisor

Kathy Green

Third Advisor

Cynthia Hazel

Keywords

Collaboration, Interprofessional, K-12 mental health, Rasch analysis, School mental health, Survey development

Subject Categories

Education

Publication Statement

Copyright is held by the author. User is responsible for all copyright compliance.

DEVELOPMENT OF A MEASURE OF INTERPROFESSIONAL COLLABORATION
AMONG SCHOOL MENTAL HEALTH PROFESSIONALS

A Dissertation

Presented to

the Faculty of the Morgridge College of Education

University of Denver

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

by

Jessica I. Colebrook

November 2016

Advisor: Gloria Miller, Ph.D.

©Copyright by Jessica I. Colebrook 2016

All Rights Reserved

Author: Jessica I. Colebrook
Title: DEVELOPMENT OF A MEASURE OF INTERPROFESSIONAL
COLLABORATION AMONG SCHOOL MENTAL HEALTH PROFESSIONALS
Advisor: Gloria Miller, Ph.D.
Degree Date: November 2016

Abstract

Collaboration is frequently put forth as one way to improve academic, behavioral, and social-emotional outcomes for K-12 students. Yet to date, there is little evidence-based research supporting this claim (Mellin, 2009; Trach, 2012). In order to collect such research, collaboration must be a measurable variable. This study was a first step in understanding interprofessional collaboration specifically among school mental health professionals such as school psychologists, school social workers, school counselors, and other school-based mental health professionals. The purpose of this study was to develop a measure of school mental health professionals' current perceptions of interprofessional collaboration with and among their school mental health colleagues. The measure was entitled the *School Mental Health Interprofessional Collaboration (SMHIC)*.

Through five distinct phases of research—focus groups, cognitive interviews, expert evaluations, a pilot administration, and a field administration—the *SMHIC* was developed. Exploratory factor analysis and Rasch model analysis were used to assess the factor structure and unidimensionality of the *SMHIC*. Results of these analyses indicated that the *SMHIC* measures one factor, perceptions of interprofessional collaboration, with items being relatively easy to agree with. Analysis of group differences showed a significant difference in perceptions of interprofessional collaboration among school mental health professionals by school mental health group (e.g., school psychologists

perceived interprofessional collaboration in their school differently than school counselors). Cronbach's alpha for the original and revised versions of the measure were .92 and .90, respectively. Study limitations, implications for the field of school mental health, and future directions for the SMHIC were discussed.

Acknowledgements

Collaboration was a crucial component of the success of this dissertation research and writing. It would not have come to realization without the encouragement, support, love, and laughter of many people. Most importantly, I want to thank my family—from my parents, Linda Tajirian, Mark Colebrook, and Ann Marie Colebrook, who accepted this journey of mine with excitement and pride; to my brothers and sister-in-law, Donald, Matt, and Heather, for understanding when I had to go incommunicado and, Donald and Matt in particular, for keeping my ego in check the way only brothers can; and to my nieces and nephew, Hadley, Rose, and Emmett, who were a constant reminder that there are more important things in this world than yet another degree. Thank you to my soul sister, Asia Snyder. I could not have done this without your uncanny ability to zero in on exactly what I needed to hear in my best and worst moments over the past four years.

A very special thank you to Dr. Brittany Sovran Greiert and Dr. Jessica Reinhardt, dear friends and colleagues who supported me, encouraged me, commiserated with me, and who were always available for a writing or wine session. You are both so pretty and smart and nice. I am beyond grateful CFSP brought us together. You are two of the most ambitious and inspiring women I know, and I will be forever blessed to call you my friends.

Finally, thank you to my committee, particularly Dr. Gloria Miller, for pushing me beyond where I thought I could go and believing that I would—eventually—get there. Our collaboration was at the heart of this research.

Table of Contents

Abstract.....	ii
Acknowledgements.....	iv
Chapter One: Introduction and Study Purpose.....	1
Mental Health in U.S. Children and Adolescents.....	1
The school as treatment setting.....	2
Defining Interprofessional Collaboration.....	4
A Framework for School Mental Health Interprofessional Collaboration.....	5
Using an organization development and social capital lens.....	6
Collecting a baseline of interprofessional collaboration.....	7
Statement of the Problem.....	8
Research questions.....	10
Definition of Terms.....	11
Chapter Two: Review of the Literature	13
School Mental Health: Past and Present.....	13
Who are school mental health providers.....	15
Reform efforts in school mental health.....	18
Multi-tiered systems of support for mental health.....	20
Expanded school mental health.....	23
Interprofessional Collaboration in School Mental Health Services.....	26
Research on interprofessional collaboration.....	30
Measures used to assess interprofessional collaboration.....	38
Summary of Review of Literature.....	43
Chapter Three: Methodology	46
Phase One: Planning and Focus Groups.....	46
Focus groups.....	47
Phase Two: Item Development, Cognitive Interviews, and Item Revision.....	50
Item pool development.....	50
Cognitive interviews.....	52
Item revision.....	53
Phase Three: Expert Evaluation and Item Revision.....	54
Item revision.....	55
Phase Four: Pilot Study and Item Analysis.....	56
Pilot study.....	56
Item analysis.....	57
Phase Five: Field Study and Analysis.....	57
Field study analysis.....	58
Summary of Methodology.....	65
Chapter Four: Results.....	66
Phase One: Focus Groups.....	66
Phase Two: Item Development, Cognitive Interviews, and Item Revision.....	71
Item pool development.....	71
Cognitive interviews results.....	75

Item revision	80
Phase Three: Expert Evaluation.....	87
Expert evaluation results.....	88
Phase Four: Pilot Study.....	101
Participant characteristics.....	101
Pilot reliability.....	102
Pilot instrument revision.....	102
Phase Five: Field Administration.....	106
Participant characteristics.....	107
Factor analysis.....	108
Rasch analysis.....	112
Analysis of variance.....	119
Instrument revision.....	120
Summary of Results.....	125
Chapter Five: Discussion.....	138
Research Questions.....	138
Content validity.....	139
Factor structure.....	140
Reliability.....	141
Unidimensionality.....	141
Group differences.....	145
Conclusions.....	146
Limitations of the Study.....	147
Focus groups.....	147
Uneven sample distribution.....	148
Lack of construct validity.....	148
Item agreement.....	149
Lack of clarity in terms.....	150
Implications for Interprofessional Collaboration in School Mental Health.....	151
Assessing interprofessional collaboration for student outcome data.....	151
Integrated services.....	152
Professional development for school mental health professionals.....	157
Training for pre-service SMH professionals.....	159
Organization development and social capital theory.....	160
Future Directions for the SMHIC Scale.....	162
Conclusion.....	163
References.....	165
Appendices.....	188
Appendix A: IRB Exemption Letter.....	189
Appendix B: Focus Group Recruitment Email.....	191
Appendix C: Focus Group Information Sheet.....	192
Appendix D: Focus Group Opening Statements.....	194
Appendix E: Focus Group Questions and Probes.....	195
Appendix F: Cognitive Interviews Recruitment Email.....	196
Appendix G: Cognitive Interviews Information Sheet.....	197

Appendix H: Cognitive Interviews Survey Form.....	199
Appendix I: Expert Evaluation Recruitment Email.....	208
Appendix J: Expert Evaluation Information Sheet.....	209
Appendix K: Expert Evaluation Survey Form.....	211
Appendix L: Complete List of SMHIC Items.....	220
Appendix M: Pilot Study Recruitment Email.....	224
Appendix N: Pilot Study Information Sheet.....	225
Appendix O: SMHIC Pilot Study Instrument.....	226
Appendix P: Field Study Recruitment Email.....	232
Appendix Q: Field Study Information Sheet.....	233
Appendix R: SMHIC Field Study Instrument.....	235
Appendix S: SMHIC - Final Version.....	241

List of Tables

Table 1: Phase One: Participant Demographics.....	67
Table 2: Phase One: Qualitative Data.....	68
Table 3: Phase Two: Item Pool Development.....	72
Table 4: Phase Two: Participant Demographics.....	75
Table 5: Phase Two: Cognitive Interviews' Results.....	76
Table 6: Phase Two: Open Ended Questions.....	81
Table 7: Phase Two: Item Refinement.....	83
Table 8: Phase Two: New Items.....	87
Table 9: Phase Three: Expert Evaluation Results.....	91
Table 10: Phase Three: Item Revisions.....	95
Table 11: Phase Three: Final Domain Clusters.....	97
Table 12: Phase Four: Participant Demographics.....	102
Table 13: Phase Four: Items Deleted.....	103
Table 14: Phase Four: Items Retained.....	105
Table 15: Phase Five: Participant Demographics.....	108
Table 16: Phase Five: Component Matrix.....	111
Table 17: Phase Five: Summary Fit Statistics.....	114
Table 18: Phase Five: Infit and Outfit MNSQ Values for Misfitting Items.....	115
Table 19: Phase Five: Rating Scale Diagnostics.....	116
Table 20: Phase Five: ANOVA Summary Table.....	119
Table 21: Phase Five: ANOVA Post Hoc Test Results.....	120
Table 22: Phase Five: Summary of Item Deletion.....	121
Table 23: Phase Five: Logit Position by Group for Items with DIF.....	122
Table 24: Phase Five: Summary Fit Statistics, Final Version of the SMHIC.....	123
Table 25: Phase Five: Rating Scale Diagnostics for Final Version of the SMHIC.....	123
Table 26: Summary of SMHIC Scale Development.....	128
Table 27: Summary of Domain Conceptualization.....	131

Chapter One: Introduction and Study Purpose

This chapter is an overview of mental health in children and adolescents and mental health in schools. Interprofessional collaboration is defined and discussed as a necessary component of working with students and families with mental health concerns. The roles of school mental health (SMH) professionals is considered. Using the concept of organization development as a framework, interprofessional collaboration is examined as a human behavior within the work environment of a school setting. Definitions of interprofessional collaboration, mental health, organizational development, SMH professionals, and SMH services are provided.

Mental Health in U.S. Children and Adolescents

Mental health is a vital factor in the academic performance of children and adolescents. It indicates how youth will approach schoolwork such as homework and tests, as well as how they approach socializing with peers and others in the school community. Mental health can be defined as

a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community. (World Health Organization [WHO], 2015, para. 1)

In addition, the Collaborative for Academic, Social, and Emotional Learning (CASEL) identified five main social and emotional competencies necessary for children to

experience positive academic and life outcomes (CASEL, 2015; Christenson, Whitehouse, & VanGetson, 2008). These are: (1) self-awareness; (2) social awareness; (3) self-management; (4) relationship skills; and (5) responsible decision-making.

Almost two decades have passed since the Surgeon General released his report on the status of mental health in the U.S. (1999). This report found that approximately one in five youth experience symptoms of a mental health disorder. In response to the Surgeon General's report (1999), the National Institute of Mental Health (NIMH) assessed adolescents and found: 31.9% of U.S. adolescents experienced anxiety disorders; 19.1% behavior disorders; 14.3% mood disorders; and 11.4% substance abuse disorders (Merikangas et al., 2010). Additionally, 40% of the participants in the National Comorbidity Survey-Adolescent Supplement (NCS-A) survey met the criteria for two classes of disorders (Merikangas et al., 2010). These numbers are shockingly high. Childhood and adolescence is a time of intense cognitive, social, and emotional development, and it is of crucial importance for the adults who work with all youth to support their mental health needs through a combination of services.

The school as the treatment setting. As a social institution, it is the school's mission to "provide students with the knowledge and skills necessary to lead productive and successful lives" (Doll & Cummings, 2008, p. 2). Mental health is an integral part of students' ability to lead such lives, and so is equally important to students' academic success. Additionally, with high-stakes testing a current reality for the majority of children and adolescents in the U.S., schools have a responsibility to ensure all students are mentally and emotionally prepared to take such tests (Vanderbleek, 2004). As such,

schools are a major provider of mental health services for children (Rones & Hoagwood, 2000). Population-based SMH services that are designed to be implemented at the individual, class-wide, school-wide, or district-wide levels can meet the needs of all students (Doll & Cummings, 2008). At the individual level, with such a high percentage of youth in need of mental health services and so few able to access those services in the community due to cost, transportation issues, and simple lack of availability, schools have inadvertently become the best option for offering mental health services to youth. Adelman and Taylor (2012) note that schools have easy access to the students and families who need such services, and that in order to support academic performance and student well-being, schools have a duty to comprehensively address the psychosocial and mental concerns of students. One way of doing so is by combining the expertise and skills that different mental health disciplines bring in to schools. Interprofessional collaboration ensures the whole child is being considered and cared for by integrating the experience of the SMH colleagues who are charged with supporting the emotional and behavioral needs of students.

Collaboration between school psychologists, social workers, counselors, and community mental health professionals in the school setting is crucial in supporting students and families with mental health concerns. Each of these professions interacts on a daily basis with students with a wide array of mental health needs. The stability and functioning of these students' systemic environments directly impacts their academic performance and the responsibility of ensuring these students have access to learning falls heavily on SMH professionals. By working together and combining their skills and

knowledge, SMH professionals make sure no stone goes unturned and that students' and families' needs are being wholly addressed.

Defining Interprofessional Collaboration

Barriers to learning such as family problems, poverty, and emotional and behavioral issues (Anderson-Butcher, Stetler, & Middle, 2006) are linked across school and family systems (Mellin et al., 2010). In order to most effectively address these systemic barriers and support students and families, school administrators and personnel must embrace interprofessional collaboration. Interprofessional collaboration can be defined as an interactive process of (a) shared responsibilities, decision-making, philosophies, values, and data; (b) partnerships characterized by open and honest communication, mutual trust and respect, and an awareness of and value of the contributions of each professional; (c) interdependency due to a common goal of addressing a particular need that maximizes individual contributions; and (d) shared power among professionals that recognizes and is based on each professional's knowledge and expertise (D'Amour, Ferrada-Videla, San Martin Rodriguez, & Beaulieu, 2005). This definition of interprofessional collaboration is particularly suitable for SMH services, as the three professions most commonly found in school systems—school psychologists, social workers, and counselors—who share in the responsibility of providing educational and behavioral support to students are each called upon to engage in collaborative practices with teachers, administrators, other school personnel, families, and community members by their respective professional standards (American School Counselor Association [ASCA], 2012; National Association of School Psychologists

[NASP], 2010; National Association of Social Workers [NASW], 2012). While a variety of terms are used in the literature regarding collaboration between professionals, such as interdisciplinary and multidisciplinary collaboration, the current study will use the term ‘interprofessional collaboration’ to highlight the collaborative practices among professionals with similar roles and responsibilities.

A Framework for Mental Health Interprofessional Collaboration in Schools

When considering interprofessional collaboration among SMH professionals, industrial/organizational (I/O) psychology is a natural field to reference. I/O psychology is the study of human behavior in and the application of psychology to the workplace (Jex & Britt, 2014). Topics that are associated with the industrial side of the field include recruitment, selection, classification, compensation, performance appraisal, and training, while topics associated with the organizational side of the field are socialization, motivation, health and well-being, leadership, social norms, and fairness (Jex & Britt, 2014). Organizational psychology is the study of individual and group patterned behavior in formal organizational settings in which the behavior is determined by organizations’ policies, job descriptions, and values (Jex & Britt, 2014; Katz & Kahn, 1978). Thus, when school and district administrators value interprofessional collaboration, SMH professionals are influenced by this, and in turn more frequently engage in collaborative behaviors with one another. Importantly, Porras and Robertson (1992) suggest that changes in topics related to industrial psychology will not lead to overall systemic change until changes in topics related to organizational psychology are successful.

Using an organization development and social capital lens. Organization development is a specialization that falls under I/O psychology. Cummings and Worley define organization development as “a system-wide application and transfer of behavioral science knowledge to the planned development, improvement, and reinforcement of the strategies, structures, and processes that lead to organization effectiveness” (2009, p. 1-2). Others add that organization development is about understanding “how the system functions” (Creasey, Jamieson, Rothwell, & Severini, 2016, p. 334). By understanding the system, in this case interprofessional collaboration among SMH colleagues, school administrators can more effectively design interventions through trainings and professional development to modify the organization structures, systems, processes, and relationships that influence interprofessional collaboration.

Social capital theory is popular within the social science disciplines due to its usefulness in investigating “general problems of collective action” (Adler & Kwon, 2002, p. 17; Bordieu, 1986; Granovetter, 1973). The foundation of social capital theory is that social links between individuals can be used for different reasons (Adler & Kwon, 2002). What guides these social links is the goodwill that individuals have for one another, such as sympathy, trust, and forgiveness (Adler & Kwon, 2002). There are two different school of thought on social capital. One highlights the external relations between individuals and is called the ‘bridging view.’ Bridges are the ties between social networks over which information is passed (Granovetter, 1973). The bridging view of social capital suggests that the direct and indirect connections individuals and groups have with other social networks aid in the actions of those individuals and groups (Adler & Kwon, 2002).

Knoke (1999) describes the bridging view as the way individuals create and use their connections within and between social networks to access the other's resources. The other school of thought in social capital theory focuses on internal relations between individuals, called the 'bonding view.' The bonding view highlights internal characteristics of individuals and the importance of investing in social relationships that then impact respect and/or rights between members of a group (Bourdieu, 1986). It is the connections between individuals within a group that allows for cohesiveness and encourages the undertaking of a common goal (Adler & Kwon, 2002). It is this view of social capital theory that informed the current study.

Collecting a baseline of interprofessional collaboration. Knowing how SMH professionals currently perceive interprofessional collaborative practices with and among their SMH colleagues is a crucial first step in understanding if and how interprofessional collaboration is impacting student academic, behavioral, and social-emotional outcomes. By identifying what may be barriers to SMH professionals sharing their knowledge and resources with one another, school administrators can use this data to plan professional development activities that target those barriers and open the path to more effective interprofessional collaboration. Administrators may find that it is the organization's (i.e., the school's) environment, processes, or procedures that are hindering interprofessional collaboration, in which case those must be closely examined to identify constraints and gaps (Gupta, 1999). Once school administrators understand how SMH professionals currently perceive interprofessional collaborative practices with and among their SMH colleagues, they can design effective system-wide and individual interventions.

Statement of the Problem

The ASCA, NASW, and NASP—the three professional organizations representing school counselors, school social workers, and school psychologists—all list collaboration as an expected standard of best practice for the three SMH professions (2012; 2012; 2010). Collaboration is assumed to have a positive impact on those it is intended to support, yet little research has been conducted on the outcomes of collaboration (Cooper, Evans, & Pybis, 2016; Gable, Mostert & Tonelson, 2004). More research is needed to examine how collaboration impacts student outcomes. Understanding how SMH professionals perceive interprofessional collaboration with and among their colleagues is a first step in ensuring that interprofessional collaboration leads to positive student outcomes is occurring.

Interprofessional collaboration is an interactive partnership process among colleagues characterized by shared decision-making, responsibilities, values, goals and open communication, as well as an awareness of the contribution of each professional and interdependency among one another. Such a definition expands upon collaboration in general as it represents a communal approach for professionals in related disciplines to partner together. For district and school administrators who wish to encourage such interprofessional collaborative practices in their school systems, it is important to first have a way of assessing SMH professionals' beliefs about such collaboration in order to know when and what type of professional development may be needed that will lead to improved student outcomes. Understanding how school psychologists, social workers, and counselors and other school-based mental health professionals work together is

particularly important for effective collaboration as these professions often find themselves with overlapping roles in the school setting.

To date there are no reliable and valid instruments designed to specifically measure SMH professionals' perceptions of effective interprofessional collaboration. Much of the research on collaboration in K-12 education is focused on collaboration between families and school employees, general and special education teachers, school systems and community agencies, K-12 and institutions of higher education, as opposed to collaboration between school employees in related disciplines (Goddard, Goddard, & Tschannen-Moran, 2007; Knowlton, Fogleman, Reichsman, & de Oliveria, 2015; Whitbread, Bruder, Fleming, & Park, 2007; van Garderen, Stormont, & Goel, 2012). Additionally, much of the research on interprofessional collaboration comes from the healthcare field, particularly on how to educate healthcare workers to collaborate with other professionals (D'Amour et al., 2005; D'Amour et al., 2008; Hollenberg & Bourgeault, 2011; Kvarnström, 2008). While the amount of research being conducted on interprofessional collaboration in K-12 settings is increasing, a measure has not yet been developed to assess current perceptions of SMH professionals on interprofessional collaboration among their SMH colleagues.

The purpose of this study is to develop a tool that could be used as a first step to improve interprofessional collaboration among SMH professionals. A new measure will be developed to be distributed to SMH professionals to assess current perceptions of interprofessional collaboration among SMH colleagues at their work sites. Once developed, this measure could be used as a baseline measure of interprofessional

collaborative practices that could also identify factors that need to be addressed to improve interprofessional collaborative practices within a school or district. This measure is titled School Mental Health Interprofessional Collaboration (SMHIC).

Research questions. The central question of this dissertation is: Can a psychologically valid and psychometrically sound measure of interprofessional collaboration among SMH professionals be developed. Specific subquestions addressed by this study are:

1. What is the evidence for content validity of the School Mental Health Interprofessional Collaboration measure (SMHIC)?
 - a. Do a panel of expert judges concur that items are i) relevant, ii) specific, iii) clear, and iv) useful indicators of the factors that make up interprofessional collaboration among SMH professionals?
2. What is the underlying factor structure of the SMHIC?
 - a. Do SMHIC items reflect a common underlying construct or separate functional domains?
3. Does the SMHIC demonstrate adequate reliability?
4. Are the SMHIC items consistent with the Rasch model assumption of unidimensionality?
5. Does the SMHIC differentiate among the SMH professionals (i.e., school psychologists, school social workers, school counselors, and other school-based mental health professionals)?

Definition of Terms

Key terms to be used throughout this study are defined below.

Industrial/organizational psychology: the scientific study of individual, group, and organizational behavior in the workplace (APA, 2016a).

Interprofessional collaboration: an interactive process of (a) shared responsibilities, decision-making, philosophies, values, and data; (b) partnerships characterized by open and honest communication, mutual trust and respect, and an awareness of and value of the contributions of each professional; (c) interdependency due to a common goal of addressing a particular need that maximizes individual contributions; and (d) shared power among professionals that recognizes and is based on each professional's knowledge and expertise (D'Amour et al., 2005)

Mental health: a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community. (WHO, 2015, para. 1).

Organization development: a system-wide application and transfer of behavioral science knowledge to the planned development, improvement, and reinforcement of the strategies, structures, and processes that lead to organization effectiveness (Cummings & Worley, 2009, p. 2).

School counselor: a certified or licensed professional who helps every student improve academic achievement, personal and social development, and career planning through comprehensive, developmental, results-based school counseling programs (American Counseling Association [ACA], ASCA, & National Education Association [NEA], 2016)

School mental health services: assessment, prevention, intervention, postvention, counseling, consultation, and referral services provided in the school and by a school-employed professional (NASP, n.d.).

School psychologist: a state and nationally credentialed professional that provides direct support and interventions to students; consults with teachers, families, and other school-employed mental health professionals (i.e., school counselors, school social workers) to improve support strategies; works with school administrators to improve school-wide practices and policies; and collaborates with community providers to coordinate needed services (NASP, 2014).

School social worker: a trained mental health professional with a degree in social work who provides services related to a person's social, emotional and life adjustment to school and/or society and who is the link between the home, school, and community in providing direct as well as indirect services to students, families, and school personnel to promote and support students' academic and social success (School Social Work Association of America [SSWAA], 2012).

Chapter Two: Review of the Literature

A review of the relevant literature related to school mental health services is presented next. The chapter begins with a review of the history and current state of the SMH movement followed by a section on key providers of SMH services and major school reform movements that have led to the need for collaboration between SMH providers. Interprofessional collaboration is presented as a crucial avenue for supporting the mental health needs of students and families. The chapter ends with a review of factors necessary for effective interprofessional collaboration, along with frequently identified challenges to such practices in school settings.

School Mental Health: Past and Present

School mental health services were born out of the idea that students could not learn effectively when in poor health (Flaherty, Weist, & Warner, 1996). In the early 20th century, nurses were the first health professionals to be employed in schools. As the baby boomer generation reached adolescence in the late 1960s and early 1970s, school health services began to focus on comprehensive services for students. This focus increased in the 1980s as the number of school-based health clinics grew (Flaherty, Weist, & Warner, 1996). Most importantly, with the passage of Public Law 94-142, the Education for All Handicapped Children Act of 1975, legal mandates from the federal government began to have a direct impact on SMH services (Flaherty, Weist, & Warner, 1996).

Mental health services in schools include a broad array of programs. The purpose of these programs is to provide prevention, early intervention, crisis intervention, treatment, and the “promotion of positive social and emotional development” (Adelman & Taylor, 2003). Specific examples are individual counseling, group counseling, threat and risk assessments, psychoeducational assessments, and school-wide programs focused on positive social relationships and developing resilience. SMH services vary by school, district, and state (Forman, Olin, Hoagwood, Crowe, & Saka, 2009), which may be due to inconsistencies in mandated laws and how SMH practices are actually implemented (Vidair, Sauro, Blocher, Scudellari, & Hoagwood, 2014).

Anglin proposes that the federal government’s involvement in SMH services has been influenced by six different forces (2003). The first was Public Law 94-142, now known as the Individuals with Disabilities Education Act (IDEA). IDEA expanded SMH by requiring schools to provide a free and appropriate education in the least restrictive environment to children between the ages of three and 21, including those diagnosed with a serious emotional disturbance (SED) (Anglin, 2003; Yell, 2012). IDEA also required schools to promote these students’ ability to learn by providing mental health services (Anglin, 2003). The second influence comes out of the systems of care movement. In a systems of care approach, all agencies and sectors involved in the provision of services to children and their families collaborate as a network of care to “strengthen services and improve outcomes for children and adolescents with serious emotional disturbances” (Anglin, 2003, p. 90; Hess, Short, & Hazel, 2012). The third influence on the school-based health care movement is that the federal government began to recognize that

schools have the best access to youth for addressing their mental health needs (Adelman & Taylor, 2012; Anglin, 2003). Anglin (2003) suggests that the fourth and fifth influences were the increasing prevalence of adolescent alcohol and drug use with associated mental health concerns and the rise of school safety programs due to concerns regarding student-perpetuated violence. Finally, the sixth factor influencing the federal government's attention to mental health in schools was the increase in school violence that resulted in multiple student and faculty deaths (Anglin, 2003; Wike & Fraser, 2009). These six influences have resulted in a broad array of mental health services that are now offered in schools (Cammack, Brandt, Slade, Lever, & Stephan, 2014; Stephan, Weist, Kataoka, Adelsheim, & Mills, 2007). It is important to understand who is charged with providing these school mental health services.

Who are school mental health service providers? School psychologists, school social workers, and school counselors are all SMH providers, each with a specific skill set and expertise that, when used collaboratively, ensures optimal learning environments and outcomes for the students with whom they work. All are trained to be “systems thinkers” who seek to understand the ways in which students interact with and are impacted by the various environments they participate in each day.

School psychology is an area of professional psychology that requires specialized knowledge in developmental psychology, learning processes, classroom management techniques, and effective instruction (APA, 2015). School psychologists help schools improve academic achievement; promote positive behavior and mental health; support diverse learners; create safe, positive school climates; strengthen family-school

partnerships; and improve school-wide assessment and accountability (NASP, 2014). A major component of the school psychologist's role in the school is to provide psychoeducational, cognitive, and adaptive assessments for students who exhibit different learning and behavioral needs. The results of such assessments indicate where the child needs the most support, whether it is in reading, math, or appropriate classroom behavior. Once the student's needs have been determined, the school psychologist will consult with both the teacher and parents, design and monitor a specific intervention for that student, and modify the intervention if needed.

School social work is a specialty practice of the social work profession. Of the three main SMH professions, school social workers have been active in school settings longer than either school psychologists or school counselors (Altshuler & Webb, 2009; Phillippo & Blosser, 2013). The role of the school social worker is to help students and their families' access community resources, facilitate student adjustment by working with the school and family, and counsel children and families using individual and group counseling techniques (Agregta, 2004). With their background in social welfare, school social workers support students in public schools who are considered to be vulnerable and disenfranchised, such as students experiencing homelessness, students living in poverty, and students who have immigrated to the U.S. These high risk students lack environmental support outside of school and benefit from social services.

School counseling is a specialty area of professional counseling with a focus on academic advising, academic scheduling, vocational guidance, college advising, and individual and group counseling (Agregta, 2004). These functions serve to create a school

counseling program that ensures all students have access to educational opportunities (DeKruyf, Auger, & Trice-Black, 2013). The role of the school counselor varies by school, district, and state and so may be defined differently depending on the location of practice. Students in professional counseling graduate programs receive extensive training in individual and group counseling theories and techniques, and are well-qualified to provide such services in school systems. In addition, the school counseling graduate student may take additional coursework that will guide him or her in understanding: leadership principles and theories; high-risk students and resiliency; learning theories and classroom instruction; collaboration with stakeholders such as parents, teachers, administrators, and community leaders; and legal, ethical, and professional issues in pre-K-12 schools (ASCA, 2012). However, despite their counseling training, in many school districts, the school counselor's role has become one of planning class schedules with students, administering tests, and providing students guidance on college and career choices (Epstein & Van Voorhis, 2010).

In addition to these three SMH disciplines, schools may join forces with community mental health agencies to increase the availability and intensity of SMH services (Weist, Ambrose, & Lewis, 2006). Such a partnership may result in other licensed mental health professionals placed in the school setting. These professionals may include licensed professional counselors (LPCs), licensed mental health counselors (LMHCs), marriage and family therapists (MFTs), and clinical psychologists. While such disciplines may not have received training on working in K-12 settings, they often have clinical backgrounds and bring with them a wide variety of experiences and expertise that

their colleagues and students benefit from. Partnerships such as these between community mental health agencies and school systems are one important outcome of reform efforts that have been made in improving SMH services for youth.

Reform efforts in school mental health. Reform efforts in education have been a source of political and social debate for decades and more recently have included school mental health in the conversation. It is now well documented that psychosocial problems affect learning and academic performance (Adelman & Taylor, 2012). Historically, however, reform efforts to address youth mental health remain fragmented and marginalized as policy makers focus their attention on achievement.

In 1983, “A Nation at Risk” was published. This report suggested drastic reform was needed in the areas of higher educational standards for teacher preparation, academic curriculum, expectations for students, and time devoted to learning (National Commission on Excellence in Education, 1983; Zeng et al., 2013). “A Nation at Risk” pointed to an educational crisis and led to the development of the eight National Education Goals in 1989, to be realized by the year 2000 (Zeng et al., 2013). These goals included: (1) ready to learn; (2) school completion; (3) student achievement and citizenship; (4) teacher education and professional development; (5) mathematics and science; (6) adult literacy and lifelong learning; (7) safe, disciplined, and alcohol- and drug-free schools; and (8) parental participation (The National Education Goals Panel, 2002). At the same time, Healthy People 2000 presented national health goals, one of which was to increase the high school graduation rate to 90%, an outcome often

associated with youth mental health (U.S. Department of Health and Human Services, 1991). Over two decades later, the U.S. is still falling short of these goals.

In 2003, the final report of the President's New Freedom Commission on Mental Health (2003) listed "early mental health screening, assessment, and referral to services are common practice" as one of its six goals. Components of this goal include promoting the mental health of young children; improving and expanding school mental health programs; screening for co-occurring mental and substance use disorders and linking with integrated treatment strategies; and screening for mental disorders in primary health care, across the life, and connecting to treatment and supports (President's New Freedom Commission on Mental Health, 2003). Four years later, *The 2007 Progress Report* called on school officials to be involved in enhancing children's mental health interventions (President's New Freedom Initiative; Adelman & Taylor, 2010). Along with the aforementioned initiatives, the U.S. Departments of Education and Justice and Substance Abuse and Mental Health Services Administration (SAMHSA) came together to jointly sponsor the Safe Schools/Healthy Students Initiative (Adelman & Taylor, 2010). School districts who received grants to implement this new initiative were required to address the goals and mandates of the U.S. Departments of Education and Justice and SAMHSA. These mandates included the promotion of a safe school environment; alcohol and other drugs and violence prevention and early intervention; school and community mental health preventive and treatment intervention services; early childhood psychosocial and emotional development services; educational reform; and clearly stated safe schools policies (Furlong, Paige, & Osher, 2003). Many of these reform efforts encourage

collaborating with families and view all school personnel and community agencies as partners in the provision of such family and youth services (Adelman & Taylor, 2012; Furlong, Paige, & Osher, 2003). Since these groundbreaking initiatives, reform efforts continue to focus on service integration and the role of the school in children and adolescent's mental health.

Two notable trends in SMH services are multi-tiered systems of support (MTSS) and expanded school mental health (ESMH). A MTSS is an approach to SMH and academic supports that offers students and families a continuum of care that increases in intensity as one moves up the tiers. Expanded school mental health is an approach committed to broadening the type of services as well as the student populations receiving those services through partnerships between school and community agencies.

Multi-tiered systems of support for mental health. School mental health is characterized by the services offered to students at an individual, classroom, or school-wide level by SMH professionals. A comprehensive approach to SMH services means that schools are “promoting healthy development and preventing problems, intervening early to address problems..., and assisting with chronic and severe problems” (Adelman & Taylor, 2010, p. 86). Multi-tiered systems of support (MTSS) accomplish these tasks by integrating academic support and social, emotional, and behavioral support. Through MTSS, schools and districts are able to align academic standards and behavioral expectations by organizing resources to promote the academic performance of all students (Colorado Department of Education [CDE], 2013). MTSS is characterized by shared leadership; data-based problem solving and decision-making; layered continuum

of supports; evidence-based instruction, intervention, and assessment practices; and universal screening and progress monitoring (CDE, 2013). MTSS blends academic, behavior, and mental health supports in schools through a framework that is based on:

prevention and wellness promotion, universal screening for academic and behavioral barriers to learning, implementing evidence-based interventions that increase in intensity as needed, monitoring the ongoing progress of students in response to implemented interventions, and engaging in systematic decision making about programming and services needed for students based upon specific student outcome data (Vaillancourt, Cowan, & Skalski, 2013, para. 1).

As its title implies, programs and interventions in the MTSS framework are provided in multiple tiers. At Tier 1, universal prevention, all students receive academic instruction and behavioral and social-emotional instruction based on the needs of the whole school (Florida's Positive Behavior Support Project, 2011). Students who do not show improvement in performance at Tier 1 move into Tier 2, selected prevention, where they receive additional instruction and intervention support (Florida's Positive Behavior Support Project, 2011.). At Tier 2, performance expectations for academic and behavioral and social-emotional outcomes are the same as Tier 1. If there are students who still are not performing up to expectations after Tier 2 support and interventions, these few students move on to Tier 3, indicated prevention. Students at Tier 3 face significant academic, behavioral, and social-emotional challenges and require intensive interventions and support services provided by specialized staff (Florida's Positive Behavior Support Project, 2011).

Vaillancourt and colleagues (2013) note four major benefits to utilizing an MTSS framework for SMH services: (1) MTSS that include prevention and intervention services improve behavior; (2) MTSS improve access to needed services and resources; (3) MTSS

improve engagement and collaboration among the home, school, and community; and (4) service delivery in MTSS increase student engagement and improve achievement.

Through universal screening, schools can determine what mental health issues are common among their students and implement a school-wide, evidence-based social-emotional curriculum. By monitoring students throughout this curriculum, schools are then able to identify those students who are still struggling with a mental health concern and provide support services, such as group counseling (Florida's Positive Behavior Support Project, 2011). If a student's mental health concerns still have not improved after Tier 2 interventions, Tier 3 interventions are put in place. Tier 3 typically consists of a wrap-around service delivery that involves SMH professionals as well as families, community agencies, and social services (Florida's Positive Behavior Support Project, 2011). While interprofessional collaboration is utilized at all tiers, an essential component in Tier 3 is collaboration within and between systems in order to provide the intensive interventions these students need in order to have access to learning. When used effectively, interprofessional collaboration throughout a tiered system of support influences how students with social-emotional and behavioral challenges experience success in school when all adults, particularly the SMH professionals' students work closely with, are supporting them by sharing knowledge and resources.

Expanded school mental health. While efforts to address the issue of poor mental health in U.S. children and adolescents were made in response to the Surgeon General's report on the status of mental health in the U.S. (U.S. Department of Health and Human Services, 1999), one framework, expanded school mental health (ESMH),

has even earlier roots in the late 1980s (Weist & Evans, 2005). Proponents of ESMH understood that school systems were overburdened and under-resourced, and that broadening the types of services and service providers through community partnerships would bolster school systems' abilities to support the varying mental health needs of students.

The foundation of ESMH programs was expected to foster partnerships between school systems and community health/mental health organizations (Weist, Sander, Axelrod-Lowrie, & Christodulu, 2002). ESMH programs are not limited to students in special education. Rather, such programs augment school psychologists', school social workers', and school counselors' expertise and allow students in general education to access the mental health services they need but otherwise may not receive (Weist et al., 2002). Ten best practice principles for ESMH have been developed to support quality assessment and improvement of ESMH programs (Weist et al., 2005). These principles include the following:

- All youth and families are able to access appropriate care regardless of their ability to pay.
- Programs are implemented to address needs and strengthen assets for students, families, schools, and communities.
- Programs and services focus on reducing barriers to development and learning, are student and family friendly, and are based on evidence of positive impact.
- Students, families, teachers, and other important groups are actively involved in the program's development, oversight, evaluation, and continuous improvement.

- Quality assessment and improvement activities continually guide and provide feedback to the program.
- A continuum of care is provided, including school-wide mental health promotion, early intervention, and treatment.
- Staff hold to high ethical standards, are committed to children, adolescents, and families, and display an energetic, flexible, responsive, and proactive style in delivering services.
- Staff are respectful of, and completely address developmental, cultural, and personal differences among students, families and staff.
- Staff build and maintain strong relationships with other mental health and health providers and educators in the school, and a theme of interdisciplinary collaboration characterizes all efforts.
- Mental health programs in the school are coordinated with related programs in other community settings.

The benefits of ESMH programs include increased access to mental health services, improved outreach to youth who do not identify as needing special education but still require mental health support, and increased staff productivity (Center for Health and Health Care in Schools [CHHCS], 2003; Hunter, 2001; Weist, Ambrose, & Lewis, 2006; Weist, Myers, Hastings, Ghuman, & Han, 1999). Baltimore City in Maryland is one example of a historically successful ESMH program. Baltimore City Public School System (BCPSS) partnered with a variety of community-based mental health programs to increase the availability of mental health services to students in BCPSS (Walrath, Bruns,

Anderson, Glass-Siegal, & Weist, 2004). The first established partnership between BCPSS and a community-based mental health center occurred in 1988. By the 1997-1998 school year, 40% of Baltimore City Public Schools supported a ESMH program (Walrath et al., 2004). Walrath and colleagues (2004) investigated ESMH programs in BCPSS and found that ESMH clinicians reported an increase in mental health awareness and improved school climate as the two main benefits of ESMH programs. Additionally, while the reported referral rate and service delivery rate “indicated an impressive service capacity” (Walrath et al., 2005, p. 485), clinicians reported that the number of service hours available did not meet the needs of students.

A major component of ESMH is collaboration since the expertise and skills of SMH professionals and community-based clinicians are integrated to offer a continuum of services to students and families. This collaboration is projected to overcome the common barriers of service duplication and fragmentation that often plague SMH services (Michael, Berstein, Owens, Albright, & Anderson-Butcher, 2014). Collaboration in ESMH begins with the school leaders, SMH professionals, community agency leaders, and community clinicians (Weist, Ambrose, & Lewis, 2006) to ensure that schools are better able to address the mental health needs of students by ensuring that youth can access mental health support that they likely otherwise would not have access to (Weist, Ambrose, & Lewis, 2006). This type of service delivery system requires education staff, community mental health staff, and school and community stakeholders to understand and agree on what interprofessional collaboration is, how it functions within a school setting, the benefits of working with other service providers, and that barriers of such

collaboration can be overcome (Streeter & Franklin, 2002; Weist, Ambrose, & Lewis, 2006).

Interprofessional Collaboration in School Mental Health Services

Interprofessional collaboration is a necessary step in meeting the aforementioned reforms that are designed to provide a more comprehensive array of SMH services to youth and their families. A variety of synonymous terms for interprofessional collaboration has been used in the literature to date. Similar concepts are multidisciplinary collaboration, interdisciplinary collaboration, and transdisciplinary collaboration. Each of these terms can refer to SMH professionals and community mental health professionals joining forces to integrate health-promoting and preventive efforts in order to better serve students and their families *where they are* (Weist, Evans, & Lever, 2003). However, despite their commonalities, each term represents a different level of collaboration.

Choi and Pak (2006) conducted a literature review based on dictionaries, Google, and MEDLINE searches to better define multidisciplinary, interdisciplinary, and transdisciplinarity. Based on the results of this literature review, they defined multidisciplinary as “draw[ing] on knowledge from different disciplines but stay[ing] within the boundaries of those fields” (Choi & Pak, 2006, p. 359; Natural Sciences and Engineering Research Council of Canada [NSERC], 2012). Multidisciplinary is the basic level of collaboration. On a multidisciplinary team, a team leader is identified who team members report to. Team members “function as independent specialists...the child or the family is assessed individually by several professionals...” (Choi & Pak, 2006, p.

355; Kessler, 1999). Interdisciplinarity was defined as “analyz[ing], synthesiz[ing], and harmoniz[ing] links between disciplines into a coordinated and coherent whole” (Choi & Pak, 2006, p. 355; Canadian Institutes of Health Research [CIHR], 2005). On an interdisciplinary team, each team member conducts individual assessments of the child or family, then comes together to discuss the assessments and create a joint service plan (Choi & Pak, 2006). Lastly, transdisciplinarity is defined as “integrat[ing] the natural, social and health sciences in a humanities context, and in so doing transcends each of their traditional boundaries” (Choi & Pak, 2006, p. 359; Soskolne, 2000).

Transdisciplinary teams are the highest level of collaboration, often considered to be the “gold standard” (Athanasίου & Riley, 2008, p.2047). Members of a transdisciplinary team share roles while helping one another gain new skills related to each specialists’ expertise (Choi & Pak, 2006; Kessler, 1999). Kessler writes that such a phenomenon requires each specialist to accept that others can do what he or she was trained to do, while also accepting that a person’s job may extend beyond what one was trained to do (1999).

Interprofessional collaboration falls between interdisciplinary and transdisciplinary collaboration. As an interactive process that is based on shared responsibilities, decision-making, and values and partnerships characterized by trust, respect, and honest communication (D’Amour et al., 2005), interprofessional collaboration is very similar to interdisciplinary collaboration. The difference is that in interprofessional collaboration, professionals partner together through every step of the process, including when conducting assessments. In interprofessional collaboration,

professionals value the contributions of each specialist, exhibiting a shared power that recognizes and is based on each professional's knowledge and expertise (D'Amour et al., 2005), such as they would in transdisciplinary collaboration. Interprofessional collaboration does not transcend the boundaries of each discipline, but does emphasize strong interdependency (D'Amour et al., 2005), which could be considered an important component of transdisciplinary collaboration.

There is no evidence-based model or best practices guide for interprofessional collaboration in schools. Additionally, there is little research on collaborative practices specifically among school psychologists, school social workers, and school counselors, despite research that finds social and emotional learning (SEL) outcomes for students show greater improvement when SEL programs are provided by school employees rather than non-school employees (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Maras, Thompson, Lewis, Thornburg, & Hawks, 2014).

The research that has been conducted has been in areas analogous to interprofessional collaboration. A group of researchers have sought to investigate collaboration in children's mental health services (Gallagher, Malone, & Ladner, 2009; Horwath & Morrison, 2007; Lee et al., 2013), while others have investigated collaboration in SMH services (Laundy, Nelson, Abucewicz, 2011; Weist et al., 2012), and still more have specifically researched *interprofessional* collaboration in children's mental health services, which includes SMH services, among others (Mellin et al., 2010; Odegard, 2005, 2006; Odegard & Strype, 2009; Rousseau, Laurin-Lamothe, Nadeau, Deshaies, & Measham, 2012).

The current study will explore the term *interprofessional* collaboration to refer to such collaboration among colleagues and across disciplines. There are two essential prerequisites to interprofessional collaboration. The most important prerequisite is ensuring a balance of power by avoiding status differentials (Rappaport, Osher, Greenberg Garrison, Anderson-Ketchmark, & Dwyer, 2003). This is typically accomplished when the individual disciplines have similar values, trust and respect one another, and share goals. The second prerequisite is the ability of the different professions to “appreciate and build on the competencies of” the other disciplines (Rappaport et al., 2003, p. 108). By having these two components in place, interprofessional collaboration is more effective in offering support, primary prevention, early intervention, and intensive treatment, making it far easier to avoid the challenges of a lack of resources, fragmented services, and redundant services (Rappaport et al., 2003).

Interprofessional collaboration in SMH services occurs in several different forms and is a process that takes time (Hess, Short, & Hazel, 2012). Many individuals automatically think of the collaboration between SMH professionals and teachers. It also occurs between SMH professionals and community mental health professionals as when schools contract with community agencies to place community mental health professionals in the school setting (Rappaport et al., 2003). For these professionals, the effectiveness of the collaboration depends on how well the community mental health professional is fully integrated into the school’s culture (Rappaport, 2003). A lack of integration indicates that the prerequisites of interprofessional collaboration (i.e., shared power and an appreciation of each disciplines’ competencies) are not in place. More

relevant to the current study, however, is interprofessional collaboration among school psychologists, school social workers, school counselors, and community clinicians.

Research on interprofessional collaboration. While some research has been conducted on this issue within a specific discipline (i.e., social work) or focused on efforts between teachers, nurses, SMH professionals, and community clinicians (Mellin et al., 2010), there is a lack of research on interprofessional collaborative practices within the school setting. There exists an important gap in the literature on the effectiveness of interprofessional collaboration (Zwarenstein, Goldman, & Reeves, 2009; Martin, Ummenhofer, Manser, & Spirig, 2010; Lutfiyya, Brandt, Delaney, Pechacek, & Cerra, 2015). A review of recent articles published in the *Journal of Interprofessional Care* suggests that the field is still very much focused on incorporating interprofessional collaboration into the education of healthcare workers (i.e., nurses and physicians), as opposed to establishing evidence-based research on its effectiveness in professional practice and individual outcomes. Much of the research on interprofessional collaboration comes from the healthcare field, specifically on interprofessional collaboration practices between nurses and physicians and the pre-service education of healthcare workers.

In an effort to address the lack of education and training medical students receive in regards to nurses, Jain and colleagues (2012) implemented a nurse-shadowing program for first year medical students. Students shadowed nurses for a four-hour shift and completed a pre- and post-program survey. Results of the post-program survey showed that 57% of students had an increased ability to communicate with nurses and 75% had an increased level of respect for the knowledge and skills of nurses (Jain, Luo, Yang,

Purkiss, & White, 2013). These results indicate that exposing individual disciplines to one another during training can have a positive influence on factors necessary for effective interprofessional collaboration such as communication and respect.

Schmutz and Manser (2013) conducted a literature review to better understand the effect patient care teams processes (i.e., communication, leadership, coordination, and decision-making) have on clinical performance. Clinical performance was defined as outcome performance (i.e., mortality, morbidity, or fall rates) and process performance (i.e., operating time, length of stay, or time until a specific treatment is given). They found that most studies included in the review reported strong effects for the influence team processes have on clinical performance (Schmutz & Manser, 2013). In other words, communication, leadership, coordination, and decision-making within a team context led to better health outcomes for patients.

A second literature review conducted to investigate the evidence-base for the relationship between interprofessional collaboration and patient outcomes (Martin et al., 2010) looked at 14 randomized control trials from the U.S., Europe, Australia, and Canada. All interventions were based on interprofessional collaboration and included one of the following: a bio-psycho-social assessment; an individualized, evidence-based treatment plan; coordination of care; monitoring of health status; coaching on disease self-management; and promotion of community-based services (Martin et al., 2010). The outcomes that were measured included mortality; clinical, functional, and social outcomes; use of medical services; patient-reported quality of life; patient-reported activities of daily living; and patient-reported satisfaction with care (Martin et al., 2010).

Overall, interventions based on interprofessional collaboration resulted in at least one improved patient outcome (Martin et al., 2010). These outcomes included fewer deaths; longer survival in patients with chronic heart failure; improved physical, emotional, or social functioning; a reduction in medical service use; increased health and life satisfaction; an increase in social activities; and a significant increase in satisfaction with medical care (Martin et al., 2010). While focused on nurses and physicians, this literature highlights the positive impact interprofessional collaboration has on the outcomes of those receiving coordinated services.

A smaller study on interprofessional collaboration worthy of notice comes from the SMH research. Sosa and McGrath (2013), one a school social worker and the other a school psychologist in a suburban high school, formed a partnership with the shared goal of changing how services were delivered to students. The authors formed collaborative partnerships not just with one another, but with teachers, administrators, community resources, and families (Sosa & McGrath, 2013). They evaluated roles that should be shared and roles that required each professional's unique expertise, which minimized redundant services and maximized the skills and strengths of each (Sosa & McGrath, 2013). The authors reported that these collaborative practices helped them develop stronger relationships with parents and advocate for the appropriate student support services (Sosa & McGrath, 2013). They also found that members of the clinical team became an important social support system for one another, which was critical for the sustainability of the interprofessional collaborative efforts (Sosa & McGrath, 2013).

Diaz (2013) used her own experience as a consultant to schools and as a social worker to reflect on interdisciplinary team processes using a group dynamics framework. She discussed a case where she was involved with a public elementary school in New York City to address the social emotional needs of the students. Diaz noted that a “cohesive understanding of the team goal” (2013, p. 44) took time to develop but was an important component of the team process that provided the team with clear direction. Other factors Diaz found to be necessary for interdisciplinary collaboration were teacher buy-in, which included participation on the team and flexibility with the classroom curriculum; strong administrative support as evidenced by administrator participation and administrators reaching out to absent team members; annual pre-planning to discuss the goals of the team, the agenda for the year, and pre-referrals for students; follow-through with interventions and case status updates by team members; and flexibility by all team members regarding length of team meetings and individual roles (Diaz, 2013). Interestingly, Diaz observed that as the team grew used to the interdisciplinary process, team members became more comfortable with discussing and brainstorming interventions for students they were not familiar with, as opposed to only discussing students they were familiar with. Diaz also found that team members began to branch out of their own disciplines to intervene with students, such as the physical education teacher mentoring a student who struggled with social interactions (Diaz, 2013). Such flexibility, i.e. expanding one’s reach outside of one’s discipline, is considered to be an important feature of collaboration (Mellin, 2009; Bronstein, 2003).

Factors necessary for effective interprofessional collaboration. The above research suggests that there are critical features of effective interprofessional collaboration. Diaz (2013) lists understanding the team's goal, buy-in from stakeholders, administrative support, annual team planning, follow through with intervention services, team updates, and flexibility as critical features. Mellin (2009) and Bronstein (2003) provide support for Diaz's findings regarding flexibility, as both regard expanding one's reach outside of one's discipline to be necessary. Sosa and McGrath (2013) found that interprofessional collaboration is effective when the participating professionals evaluate the roles that can be shared among one another versus the roles that require one individual discipline's particular expertise. Another necessary factor in effective interprofessional collaboration is funding—a school's ability to partner with a community agency may depend on a particular funding stream, as oftentimes the two share the financial responsibilities (Weist, Ambrose, & Lewis, 2006). Positive communication is key in establishing effective interprofessional collaboration (Weist, Ambrose, & Lewis, 2006). Finally, Jain and colleagues (2013) found that early exposure to other disciplines during training can later increase the effectiveness of interprofessional collaboration in the job setting.

Challenges to interprofessional collaboration. While the research on the effectiveness of interprofessional collaboration is minimal, there is a dearth of literature on the challenges and obstacles to such work. Weist and colleagues (2012) cite confidentiality concerns, resource and funding issues, and restricted coordination mechanisms as challenges. Reese and Sontag (2001) add to this list a lack of knowledge

of other disciplines' training, expertise, and skills and conflicts due to differences in values. Territoriality is the most commonly cited challenge to interprofessional collaboration, particularly in schools (Rose, 2011), and is related to limited interdisciplinary teamwork (Weist et al., 2012), overlapping roles, a lack of willingness to share the work equally, and power differentials (Reese & Sontag, 2001).

SMH professionals are covered under the Family Educational Rights and Privacy Act (FERPA), which allows access to student records only by family and relevant school staff (Weist et al., 2012). However, community mental health professionals are covered under the Health Insurance Portability and Accountability Act (HIPPA), which requires guardian consent before the mental health professional can access the child's records (Weist et al., 2012). Because of these two different laws, confidentiality becomes a concern for interprofessional collaboration between school staff and community mental health providers. Each law limits the ability of one professional to share with the other (Weist et al., 2012).

Resource and funding issues can have a negative impact on collaboration efforts as they lead to competition (Weist et al., 2012). These resources include private office space, computer access, a secure place to keep confidential documents, and access to assessments, therapeutic materials, and office supplies (Weist et al., 2012). Many of these resources are directly related to a lack of funding. School mental health services rely on a variety of funding sources, either directly from the school or from local, state, and federal grants (Weist et al., 2012).

Restricted coordination mechanisms refers to how services are often fragmented and isolated from one other (Weist et al., 2012). When providers aren't aware of what one another are doing, or are unable to coordinate services because of inconsistent scheduling and limited resources, the student does not receive the comprehensive care he or she deserves (Adelman & Taylor, 2010). The most efficient way to address these coordination issues is by seeking administrative and organizational support. This will ensure a climate where interdisciplinary teamwork becomes a norm for those practicing in the schools, thereby reducing the issue of territoriality that may occur when different disciplines work together in schools (Weist et al., 2012).

When a lack of knowledge of the other disciplines and conflicts due to differences in values presents challenges to interprofessional collaboration, team norms should be established that focus on respecting one another's knowledge and communicating in a similar language (Reese & Sontag, 2001). A lack of knowledge occurs when professionals are trained in isolation from one another (Lister, 1980). In order to overcome this challenge, all individuals involved in the collaborative process must be exposed to the skills, training, and expertise of the others (Reese & Sontag, 2001). This can be accomplished in team meetings by having each member share with the group areas of expertise, early and continuing involvement in training, and past experiences that highlight these. This will also provide an opportunity for the different disciplines to explore the values each other holds and to recognize where, as helping professionals, those values converge (Reese & Sontag, 2001) and how new values may be created that

benefit not only the student or client, but the entire interprofessional collaborative process, as well (Austin, 2011).

Territoriality is perhaps the biggest challenge to interprofessional collaboration. Turf issues may arise due to different goals for a program or treatment, different approaches to a program or treatment, varying responsibilities, and concerns about job security (Weist et al., 2012). Limited interdisciplinary teamwork can be one outcome of territoriality. This can be resolved with administrative support and by building time into the school year and school day for interdisciplinary training and building teamwork practices (Weist et al., 2012). Increasing interdisciplinary teamwork can lead to team members feeling emotionally supported by one another (Gallagher, Malone, & Ladner, 2009), which in turn leads to more effective interprofessional collaboration.

Overlapping roles may also lead to turf issues through a competition between disciplines (Agresta, 2004). If the disciplines have similar responsibilities and a lack of role clarity exists, then the disciplines may compete for the roles each considers to be rightfully his or hers (Agresta, 2004). The issue of overlapping roles is related to a lack of willingness by the different disciplines to share work equally and to perceived power differentials (Reese & Sontag, 2001). If some professionals consider themselves as being better trained than others, he or she may be reluctant to share in the necessary work. This also suggests that the team member believes him or herself to be higher on the professional hierarchy. Establishing team norms and encouraging team members to learn about one another's skills and training are two ways to avoid these obstacles (Reese & Sontag, 2001). By respecting the expertise that each professional brings to the table,

redundant services can be addressed by designating them according to specific training, school needs, and clinical interests (Laundy, Nelson, & Abucewicz, 2011).

Territoriality is related to what professionals understand to be their own and others' specific roles (Rose, 2009). Including time throughout the school year and day for the different professionals to explore one another's trainings and expertise can allow for each professional to better understand each other's role in the school and how to most effectively integrate those roles. By being familiar with one another's areas of expertise, team members may find they have similar values as one another, develop a new level of trust and respect for one another, and discover they share the same goals for their client as one another, thus limiting territoriality and other challenges to interprofessional collaboration. In order to better measure how interprofessional collaboration is perceived by the involved disciplines or how interprofessional collaboration is specifically practiced, a tool is needed for school administrators to use to assess perceptions of current interprofessional collaboration among colleagues.

Measures used to assess interprofessional collaboration. Only three reliable and valid measures to assess interprofessional collaboration have been identified in the literature. These are: (1) the Index for Interdisciplinary Collaboration (IIC), intended to measure collaboration between social workers and other professionals (Bronstein, 2002); (2) the Index of Interprofessional Team Collaboration for Expanded School Mental Health (IITC-ESMH), a refinement of the IIC to be used in schools (Mellin et al., 2010); and (3) the Perception of Interprofessional Collaboration Model-Questionnaire (PINCOM-Q), developed in Norway to measure interprofessional collaboration in child

mental health (Ødegård, 2006). Each are discussed in more detail below followed by a discussion of the limits of these measures.

The IIC is based on a model of interdisciplinary collaboration developed by Bronstein (2003). The purpose of the IIC is to measure interdisciplinary collaboration among professional social workers. Bronstein drew from four theoretical frameworks to develop this model (2003). These were a multidisciplinary theory of collaboration, services integration, role theory, and ecological systems theory. Using these theories and indicators found in the literature, Bronstein defined five components and four influencing factors, all of which make up the model of interdisciplinary collaboration. The five components of interdisciplinary collaboration are interdependence, newly created professional activities, flexibility, collective ownership of goals, and reflection on process. The four influencing factors are professional roles, structural characteristics (i.e., administrative support, time and space for collaboration, caseload), personal characteristics (i.e., ability to understand and trust one another), and history of interdisciplinary collaboration. From this model, the IIC was developed. The IIC is a 49-item scale with a strong test-retest reliability score of .824 ($p < .01$). Factor analysis indicated the scale is unidimensional (Bronstein, 2002), suggesting the scale represents elements of interprofessional collaboration (Mellin et al., 2010). Examples of items from the scale include: I utilize other (non-social work) professionals for their particular expertise; I can define those areas that are distinct in my professional role from that of professionals from other disciplines with whom I work; Working with colleagues from other disciplines leads to outcomes that we could not achieve alone; and My colleagues

from other disciplines and I talk together about our professional similarities and differences, including role, competencies, and stereotypes (Bronstein, 2002). A thorough review of the literature found no evidence that the IIC has been used to measure interdisciplinary collaboration among professional social workers.

The development of the IITC-ESMH came out of a need to better understand how interprofessional teams in ESMH services function and to further refine Bronstein's Model for Interdisciplinary Collaboration (Mellin et al., 2010; Bronstein, 2003). As such, the IITC-ESMH used Bronstein's IIC (2003) and a review of the collaboration literature for item development (Mellin et al., 2010). The purpose of the IITC-ESMH is to measure collaboration in ESMH. Fifty-one items were initially developed. Participants included school employed professionals (e.g., school counselors and school nurses) and community-based mental health professionals (e.g., psychologists) (Mellin et al., 2010). After establishing content validity with experts on improving collaboration between mental health professionals and schools (Mellin et al., 2010) and conducting an item analysis, 25 items were deleted. The final version of the IITC-ESMH is a 26-item measure of interprofessional collaboration that reflects four factors: reflection on process; professional flexibility; newly created professional activities; and role interdependence (Mellin et al., 2010). Reliability estimates were not provided. Examples of items from the IITC-ESMH include: The team informally and/or formally evaluates how they work together; There are "turf" issues among members of the team; Team members focus on understanding the perspective of others rather than defending their own specific opinions; and The team makes distinctions among the roles and responsibilities of each member

(Mellin et al., 2010). Similar to the IIC, no evidence has been found that the IITC-ESMH has been used to measure collaboration in ESMH.

The PINCOM-Q was designed to assess “how professionals perceive interprofessional collaboration in service delivery to children with mental health problems” (Ødegård, 2006, pp. 3). The underlying construct being measured by the PINCOM-Q is *perception of interprofessional collaboration* and is based on a model developed by the author titled, **Perception of Interprofessional Collaboration Model** (PINCOM) (Ødegård, 2006). This model is based on organizational and social psychology, as well as 12 constructs identified in a pilot study of the model (Ødegård, 2005). The 12 constructs are grouped into three levels—individual, group, and organizational—and are measured by the PINCOM-Q (Ødegård, 2006). The constructs are individual aspects as represented by role expectations, personality style, and work motivation; group aspects as represented by leadership, coping abilities, communication, and social support; and organizational aspects as represented by organizational culture, organizational environment, organizational aims, and organizational domain (Ødegård, 2006). The PINCOM-Q is a 48-item self-report questionnaire with a strong reliability of $\alpha = .87$ (Ødegård, 2006). Examples of items from the PINCOM-Q include: I get to use my creativity and imagination when I work in interprofessional groups; If some professionals had greater insight in their behavior, collaboration would be easier; I get relevant feedback on my contributions in the interprofessional groups I participate in; and The other services have definite and clear aims regarding interprofessional collaboration (Ødegård, 2006).

In summary, the IIC, the IITC-ESMH, and the PINCOM-Q share important similarities. All scales were developed to measure interprofessional collaboration as an attempt to address a gap in the literature on measuring the effectiveness of interprofessional collaboration in the mental health field. The IIC is specific to social workers and their collaboration with other professionals (Bronstein, 2002). The IITC-ESMH further refines the IIC for use in schools to measure collaboration in expanded school mental health services, which includes collaboration among teachers, SMH professionals, school nurses, and community mental health professionals (Mellin et al., 2010). The PINCOM-Q was designed to measure perceptions of interprofessional collaboration in children's mental health care (Ødegård, 2006). The three scales also share common themes of different disciplines clearly defining their roles, giving and receiving feedback on both services provided and the collaborative process, and the different disciplines understanding and supporting one another. There also are important differences and limitations to these scales. One difference and a major limitation is that more psychometric testing is needed to further investigate the reliability and validity of these scales (Bronstein, 2002). The IITC-ESMH does attempt to do so, but needs further psychometric refinement since test-retest reliability has not been assessed, nor has a confirmatory factor analysis been conducted on a separate sample, which would provide further support of the four factors representing interprofessional collaboration (Mellin et al., 2010). Additionally, the PINCOM-Q used a small convenience sample, which limits the interpretability of the item and factor analysis (Ødegård, 2006). Overall, the limitation the three scales have in common and that makes use of these scales difficult is the scales

do not measure *how* disciplines are exhibiting interprofessional collaboration or *what* the factors that make up interprofessional collaboration look like in the work place. The IIC, IITC-ESMH, and PINCOM-Q are measuring perceptions of interprofessional collaboration (Ødegård, 2006). But before one can measure perceptions of interprofessional collaboration, one must determine the factors that make up interprofessional collaboration to determine if these factors, and so interprofessional collaboration, are in place. Another limitation was that the IIC and the PINCOM-Q were not developed to be used in schools. Additionally, none of these scales included all three SMH professionals most likely to work together in schools in their sample population. Due to these limitations, these scales could not be used to correlate scores of the SMHIC with an older, validated test for the purposes of convergent validity (Benson & Clark, 1982). However, despite the limitations discussed, each scale does provide the advantage of addressing common challenges to interprofessional collaboration, such as turf issues, differences in values, and respect for one another's discipline.

Summary of the Review of Literature

The purpose of this literature review was to make a connection between school mental health services and the need for effective interprofessional collaboration among SMH professionals. With the education and mental health fields acknowledging that not all youth who require mental health services are accessing them, a multi-tiered system of support (MTSS) that provides a comprehensive approach to SMH services and academic supports can complement an expanded school mental health (ESMH) framework. A tiered-system of care may work best in schools because SMH professionals have easy

access to students and their families, while an ESMH program ensures that general education students not requiring intensive services are still receiving mental health support through a variety of avenues.

A major component of both MTSS and ESMH is interprofessional collaboration, yet most of the research on interprofessional collaboration comes mainly out of the healthcare field, not the education or mental health fields. Interprofessional collaboration integrates the expertise and skills of individual mental health disciplines, ensuring that all mental health needs of a student are being identified and supported. A few of the factors necessary for effective interprofessional collaboration found in the research include buy-in of all involved stakeholders, administrative support, flexibility of SMH professionals, and exposure to other disciplines during training (Bronstein, 2003; Diaz, 2013; Jain et al., 2013; Mellin, 2011; Sosa & McGrath, 2013).

Despite a stronger understanding of the factors necessary for effective interprofessional collaboration, prior researchers also point to the challenges to interprofessional collaboration, such as territoriality, funding issues, and conflicts due to differences in values. These challenges can be overcome or avoided altogether by better understanding what is needed for effective interprofessional collaboration. Only a few studies have been conducted on how to assess such collaborative practice. Unfortunately, the scales developed to date do not assess SMH professionals' perceptions of *current* interprofessional collaboration with and among their SMH colleagues. Such a scale is needed to guide professional development for current and future school-based mental health practitioners.

Chapter Three: Methodology

This chapter outlines the methodology that was used to develop and provide evidence of the validity of a new School Mental Health Interprofessional Collaboration (SMHIC) measure. The survey development occurred in five phases: (1) planning research and facilitating focus groups, (2) developing SMHIC items and conducting cognitive interviews of the new survey, (3) revising items and collecting expert evaluations of the revised SMHIC, (4) further revising items and piloting the SMHIC, and (5) further revising items and conducting a final field administration of the SMHIC. These phases allowed for the critical evaluation and meaningful interpretation of the data the SMHIC provides (Furr & Bacharach, 2008). Permission from the University of Denver's IRB was sought prior to the start of each phase; hence, permission was obtained a total of five times. The IRB Exemption Approval form is included in Appendix A.

Phase One: Planning and Focus Groups

Phase One of instrument development is the planning phase and involved three steps. The first step was to begin a thorough literature review of topics related to interprofessional collaboration among SMH professionals. The literature review is included as Chapter Two of this study. The second step was to identify the target population for the survey. The target population for the SMHIC is school psychologists, school social workers, school counselors, and community mental health professionals

practicing in K-12 settings who have been in professional practice for a minimum of one year. The third step was to facilitate focus groups with SMH professionals. The intention was to hold a minimum of three focus groups, but due to the time and travel commitment required of participants, recruitment was difficult and only two focus groups occurred. This phase includes the development of a statement of purpose for the SMHIC. The purpose of the SMHIC is to determine a baseline of SMH professionals' attitudes toward current interprofessional collaboration with and among their colleagues in order for school administrators to plan trainings and professional development activities to influence interprofessional collaborative processes and relationships between SMH professionals.

Focus groups. In order to facilitate an effective focus group, a framework is needed to guide the focus group process, analysis and interpretation of focus group data, and development of survey items. The purpose of the focus group was to help the researcher learn how subjects talk about a specific topic of interest, which then guided the item creation and development process (Redmond & Curtis, 2009; Stewart, Shamdasani, & Rook, 2007). The topic of interest is interprofessional collaboration among SMH professionals when working with students and families with mental health concerns. Information that the subjects provided includes how they think about interprofessional collaboration, who they collaborate with most often in the school setting, what elements they believe are necessary for successful interprofessional collaboration, and what advantages and barriers they believe are common to interprofessional collaboration.

Subjects were asked to have a dialogue with one another about interprofessional collaboration when working with students and families with mental health concerns.

Focus group recruitment occurred over a period of two weeks in November 2015. Snowball sampling was used as the researcher contacted acquaintances in local Colorado school districts to recruit subjects. Recruitment emails were sent via current student and alumni listservs in the school counselor, school psychologist, and school social worker graduate programs at one Colorado university. Mental health directors and coordinators from four Colorado school districts were contacted via email and asked to send a recruitment email to their mental health teams. The recruitment email is provided in Appendix B. Six subjects were recruited in total. Two focus groups were conducted with three subjects in each. The subjects in Focus Group 1 included two school counselors and one school psychologist. The subjects in Focus Group 2 included two school psychologists and one school social worker. All subjects were licensed by the Colorado Department of Education as a special service provider and had been in practice for a minimum of one year. Subjects excluded individuals not working in schools; school nurses, school speech-language pathologists, school audiologists, school physical therapists, school occupational therapists, and school orientation and mobility specialists and other school staff not licensed as a special service provider in the state of Colorado; and graduate students and interns.

Once subjects were recruited, the researcher emailed to confirm the date, time, and location of the specific focus group which the subject was a part of and to confirm his or her willingness to participate. A reminder email was sent two days prior to the

scheduled day and time. The focus groups occurred in Katherine Ruffato Hall at the University of Denver. Subjects were provided with refreshments and snacks as well as a \$10 gift card to Starbucks as an incentive. Per the University of Denver's IRB's guidance, an information sheet outlining the purpose of the focus group, compensation, and risks to participation was attached to the reminder email and a hard copy was provided to subjects upon arrival at the focus group. A copy of the information sheet can be found in Appendix C. Consent to participate was considered to be participants' arrival. Demographic information was also collected. Each focus group was 60 to 90 minutes. The researcher acted as the focus group moderator and opened each focus group with a welcome statement, a brief overview of the topic, and an explanation of the purpose of the focus group (Krueger & Casey, 2000; Redmond & Curtis, 2009). An example of the opening statement is included in Appendix D. Subjects were then asked six open-ended questions with follow up probes relating to interprofessional collaboration among SMH professionals when working with students and families with mental health concerns. The six questions with probes are included in Appendix E. All emails, forms, statements, and questions were consistent with each focus group. The focus groups were audio recorded and transcribed by an outside contracted individual. Audio recordings were deleted upon transcription.

As with any research study, there are risks and benefits to participating. The risks associated with participating in the focus groups for the current study were minimal. Due to the nature of a focus group, confidentiality could not be guaranteed even when all subjects were asked not to repeat what was said in the focus group. There were benefits

to participating in the focus groups for the current study. Subjects had an opportunity to hear from others in their specific professional field on how they utilize interprofessional collaboration practices, and thus were able to bring that information back to each individual's school community. Subjects' professional practice may have been enhanced after discussing how interprofessional collaboration is related to providing comprehensive services to students and families with mental health concerns.

Phase Two: Item Development, Cognitive Interviews, and Item Revision

Phase Two of the development of the SMHIC was item development and cognitive interviews. This phase included the creation of objectives of the instrument that support the purpose stated in Phase One (Benson & Clark, 1982). For the current study, the objectives were as follows: (1) the SMHIC will provide a baseline of SMH professionals' attitudes toward current interprofessional collaboration with and among their SMH colleagues; and (2) the SMHIC will provide school administrators data on areas of interprofessional collaboration where their SMH employees might benefit from professional development activities.

Item pool development. The focus group transcriptions were analyzed for evidence of patterns and themes among respondents' answers to the scripted questions. Quotes relating to interprofessional collaboration were highlighted and labeled. Highlighted quotes were then grouped together by theme to develop an initial pool of 48 items for the cognitive interviews. These themes became the initial factors that influence effective interprofessional collaboration among SMH professionals and included

interpersonal characteristics, school characteristics, outcomes of interprofessional collaboration, and prior training on interprofessional collaboration.

The pool of 48 items was generated based on the information obtained in the focus groups and supported with the literature review on interprofessional collaboration. Six of these items were open-ended and were intended to be answered only in the cognitive interviews to compensate for conducting only two focus groups, as opposed to the three originally planned. Because of the difficult nature of recruiting participants for focus groups due to the time and travel commitment, only six individuals responded to the focus group recruitment emails and these individuals could not all meet at the same time. The purpose of the open-ended questions was to determine if there was any information relating to interprofessional collaboration that was not discussed during the focus groups.

A five-point Likert scale was used as the response format. All items were presented as a declarative sentence and were followed by five response options: strongly agree, agree, unsure, disagree, and strongly disagree. The advantage of using a Likert scale is that it allows for a continuum in responses (DeVellis, 2012). Half of the items were negatively worded in order to avoid agreement bias (i.e., the respondent's tendency to agree with any item) (DeVellis, 2012). Each Likert item reflected the participants' attitudes toward interpersonal characteristics, the influence of school characteristics, outcomes, and prior training for effective interprofessional collaboration practices among SMH professionals.

Cognitive interviews. In-person cognitive interviews were conducted with five subjects. The purpose of the cognitive interview is to evaluate sources of response error (Willis, 1999). The focus is on the questions and the cognitive processes used to respond to the questions. Cognitive interviewing can explore several important issues: (1) how the respondent comprehends the question (i.e., what the question is asking and the meaning of specific words in the question); (2) how the respondent retrieves relevant information from his or her memory (i.e., what information is needed in order to answer the question and what strategies are used to retrieve the information); (3) the decision process used by the respondent to answer the question (i.e., if sufficient mental effort is used to answer the question and if the respondent is telling the truth); (4) if the respondent's response matches the response categories; and (5) if the respondent has suggested revisions to the questions (Tourangeau, 1984; Willis, 1999).

Cognitive interview participants were recruited similarly to focus group participants, and snowball sampling was also used. The cognitive interview recruitment email is included in Appendix F. All three SMH disciplines were represented by the five cognitive interview subjects. Two were school psychologists, two were school counselors, and one was a school social worker. All were employed at the high school level with an experience range of one to twelve years. Inclusion criteria for these subjects included graduation from an accredited graduate level program and a minimum of six months' employment in a school setting. Exclusion criteria included had not graduated from an accredited institution and had not been employed in a school setting for more than six months.

Subjects were provided with an information sheet that stated the purpose of the cognitive interview and a statement that there was minimal risk for participating. This form is included in Appendix G. Subjects completed the survey while being observed by the researcher. The purpose of the observation was for the researcher to note if the subject took a long time in responding to a specific item. If the subject did, the researcher made a note for that item and followed up with the subject when the survey was complete. Subjects were allowed to ask the researcher questions as they completed the survey and to make notes on the survey as they saw fit. Subjects were provided with a pen to make notes on a hard copy of the measure. Before beginning the survey, subjects were asked to define interprofessional collaboration in their own words and to define who they considered to be SMH professionals. See Appendix H for an example of how the SMHIC was provided to cognitive interview participants and all cognitive interview questions. There were no risks or benefits to participating in the cognitive interviews. Subjects received a \$10 Starbucks gift card for participating.

Item revision. Before beginning the next phase of the study, items were revised based on the results of the cognitive interviews. Items were reworded according to interviewees' feedback. Some items were deleted for being too easy to agree with, while new items were created to better reflect the experiences of SMH professionals with interprofessional collaboration. At the end of Phase Two, the SMHIC consisted of 48 items.

Phase Three: Expert Evaluation and Item Revision

Phase Three consisted of expert evaluation of the revised set of items to assess content validity. Based on feedback from the cognitive interviews, items were revised and new items were created for this phase of the study. Forty-eight items in total were evaluated by a panel of four expert judges. Assessing content validity ensures that the instrument reflects the domains that influence effective interprofessional collaboration (Furr & Bacharach, 2008). Two open-ended questions were included to continue to gain input on the definitions of *interprofessional collaboration* and *school-mental health professionals* that were guiding the study. Expert status of the judges was determined by length of time in professional practice and experience in training SMH professionals. Length of time in professional practice was a minimum of ten years and experience in training SMH professionals was a minimum of three years. Judges were selected who had published in the SMH field. Judges must have earned a doctorate and must have worked in a school setting at some point in their career. Individuals who did not meet these criteria were not selected as experts for content validation. Due to the specific nature of these criteria, demographic information would have identified experts and so was not collected.

Judges were invited through e-mail and were informed of the purpose of the study and their role in the content validation step of the study. An example of the recruitment email is provided in Appendix I. An information sheet that included the purpose of the study and the expert judges' role, as well as a statement that there was zero to minimal risk of participating, is included in Appendix J. Once the judges agreed to participate, the

researcher followed up with an e-mail detailing the rules and instructions for evaluating the SMHIC items. The evaluation was conducted online via Qualtrics. The link to the evaluation was included in the follow up email. The judges were asked to complete their review of the items within two weeks of receiving them. Judges who did not respond within two weeks received a follow-up email asking them to complete the evaluation. If the judge did not complete the evaluation within one week of receiving the follow-up email, a new judge was recruited. One initial judge did not complete the evaluation and so a new judge was identified and recruited.

Judges were asked to read each item and to select the factor they believe it represented—interpersonal characteristics, school characteristics, overall beliefs of interprofessional collaboration, or training in interprofessional collaboration. Judges were also able to provide any feedback they may have had on each item before moving on to the next. An example of the item evaluation format is included in Appendix K. There were no risks or benefits to participating in the content validation step.

Item revision. Results of the expert evaluation were analyzed to determine how to revise items for the next phase of the study. Items were either revised, moved to a new factor cluster, or deleted based on the expert judges' evaluations of the instrument. Factors were examined for evidence of trends based on levels of agreement and revised if a pattern was evident. One factor label was changed after examination. Items with 100% agreement on the correct factor among judges were kept. Items with 75% agreement on the correct factor were examined and all kept. Items with 50% agreement on the correct factor were examined for trends and were revised or deleted based on the results of that

examination. Items with 25% agreement on the correct factor were revised, moved to a different factor cluster, or deemed better fitting with the newly created factor label.

Following this analysis, 45 items were included in the pilot version of the SMHIC. The items reflect the two objectives as stated in Phase One of the study. Eight demographic items were also included.

Phase Four: Pilot Study and Item Analysis

Phase Four of instrument development was quantitative evaluation of the survey based on a small pilot study, followed by an item analysis to determine initial reliability of the scale. Phase Four provided data on each item to assist in deciding which items should be retained, revised, or deleted for the final larger field study (Benson & Clark, 1982).

Pilot study. The purpose of the pilot study is to gather data on each individual item and to calculate the initial reliability of the measure (Benson & Clark, 1982). The pilot study was administered in Colorado using a convenience sample of 60 SMH professionals. Similar to Phase One, recruitment emails with a Qualtrics survey link were sent via current student and alumni listservs in the school counselor, school psychologist, and social work graduate programs at several Colorado universities. Snowball sampling was also utilized as participants were encouraged to share the Qualtrics survey link with their SMH colleagues. The pilot study recruitment email is included in Appendix L. All 45 items remaining after the expert evaluation were included on the pilot measure, in addition to eight demographic items. The first page of the Qualtrics link was the pilot

study information sheet that outlined the purpose, risks, and compensation of the study. This is included in Appendix M.

Item analysis. A copy of the SMHIC pilot study instrument can be found in Appendix N. The results of the pilot study were analyzed using SPSS. The items that were negatively worded were reverse scored (DeVellis, 2012) before analysis. An item analysis was conducted to produce item means, item standard deviations, and item-total correlations. Cronbach's alpha was calculated to determine the initial reliability of the measure. An acceptable value of Cronbach's alpha was .70 or greater. A reliability estimate of .70 or greater indicates the measure is consistent over time and is a consistent reflection of the knowledge, beliefs, or abilities of the person responding (Benson & Clark, 1982). Twelve problematic items were deleted based on the results of the pilot study item analysis. The number of items included on the measure after analyzing the pilot study data was reduced to 33. No items were rewritten or added at this point of the study.

Phase Five: Field Study and Analysis

The purpose of Phase Five was to conduct a field study to obtain data that allowed for the evaluation of the psychometric properties of the measure. Content validity was obtained in Phase Three of the study, and reliability estimates were obtained in Phase Four. As this instrument was the first of its kind, convergent validity, or correlating scores on the SMHIC with scores on an older, validated test (Benson & Clark, 1982), was not possible. Previous scales discussed in Chapter Two have focused directly on interprofessional collaboration rather than individual attitudes towards current

interprofessional collaboration among colleagues, and so could not be used for the purposes of convergent validity. Phase Five began with a final item revision based on results of the pilot study and concluded with a Rasch analysis of response processes, factor analysis, and examination of the factor structure of the SMHIC to obtain evidence of construct validity.

Field study analysis. One purpose of the field administration was to determine the underlying factor structure of the measure and obtain an estimate of reliability based on a broader sample. The measure was administered nationwide to a convenience sample of SMH professionals ($n = 456$). The state association of each SMH discipline was contacted by email to request that a recruitment email with the Qualtrics survey link be sent out on the association's listserv. Additionally, graduate programs of each SMH discipline in each state were contacted and asked to send out the same recruitment email with Qualtrics survey link on their alumni listserv, if they had one. An example of this recruitment email can be found in Appendix O. Similar to the SMHIC pilot study instrument, the first page of the Qualtrics link was the field study information sheet that outlined the purpose, risks, and compensation of the study. This is included in Appendix P. A copy of the SMHIC field study instrument can be found in Appendix Q.

The results of the field administration were analyzed using SPSS and Winsteps. Item analysis was again conducted. Factor analysis was conducted to determine the underlying factor structure of the measure, define what those factors were, and identify how well items were performing (DeVellis, 2012). Cronbach's alpha was calculated to

determine the reliability for each factor, if more than one factor emerged, and also overall reliability.

A second purpose of the field administration was to establish evidence of validity as recommended by the *Standards for Educational and Psychological Testing* (Standards; American Educational Research Association [AERA], American Psychological Association [APA], & National Council on Measurement in Education [NCME], 1999). The *Standards* outline five types of validity. These are test content, response processes, internal structure, associations with other variables, and consequences of use. The types of validity that were examined in this study were test content, response processes, and internal structure. Test content validation occurred in Phase Two. Item response theory, specifically Rasch model analyses, were conducted in order to examine response processes. Internal structure was examined using factor analysis.

Factor analysis. The internal structure of the measure was analyzed using factor analysis. Factor analysis is used to show how a set of items relate to a latent variable and to determine the number of latent variables, or constructs, that are represented in a measure. An item set may be characterized by several specific constructs or one broad construct (DeVellis, 2012). The researcher is able to explain variation by condensing information into a smaller number of variables, rather than attempting to explain variation among many items (DeVellis, 2012). Additionally, factor analysis identifies groups of items that covary and so provides a guide for defining what the constructs represent (DeVellis, 2012). Factor analysis was used in this study to determine how many

factors the final version of the SMHIC represent in regards to attitudes toward current interprofessional collaboration among SMH professionals.

In conducting the factor analysis, factorability, or appropriateness of the data for submission to a factor analysis was first assessed. To be factorable, three indices are computed: the matrix determinant, which should be greater than 0.0, the Kaiser-Meier-Olkin (KMO) test, which should take a value greater than .60, and Bartlett's test, which should be statistically significant. If data are factorable, parallel analysis is then employed to determine how factors could be considered nonrandom. Parallel analysis is a Monte Carlo simulation technique in which data matrices of random values that have the same dimensions of the collected data are factor-analyzed. Eigenvalues from the parallel analysis of random data are compared to the eigenvalues from a principal components analysis (a form of factor analysis) of collected data. If the eigenvalue from the collected data exceeds that of the random data, the factor is considered to be interpretable. This process is called extraction and is used to decide how many factors to retain.

Once the factors have been extracted, factor rotation is used to determine how the items load on to the separate extracted factors. Rotation allows for a better interpretation of factors, with the goal of rotation being to have each item load on as few factors as possible (Rummel, 1970). Factor rotation is used to maximize loadings on one factor and minimize loadings on the others (Field, 2013). The two types of rotation include orthogonal, which assumes the factors are unrelated, and oblique, which assumes that there is a relationship between factors (Field, 2013).

Once the factors have been rotated, the strength of the relationship between the factor and item needs to be determined (Yong & Pearce, 2013). An acceptable cut-off for a statistically meaningful factor loading is .32 with a sample size of at least 300 (Tabachnick & Fidell, 2007; Yong & Pearce, 2013). An item that loads at .32 or higher on two or more factors is crossloading. An item that is crossloading may be dropped if interpreting the crossloading is difficult (Yong & Pearce, 2013). The next step in factor analysis is naming the factors, which should be done in a way that best represents the group of items within each factor (Yong & Pearce, 2013). Finally, an item analysis is conducted a second time to determine the final reliability of the measure.

Rasch analysis. The Rasch model is the simplest member of the item response theory (IRT) family (DeVellis, 2012; Furr & Bacharach, 2008). IRT is an alternative psychometric approach to classical test theory. IRT assumes that the items included on a measure assess a unidimensional construct. The focus is on the quality of the items and an individual's response to each item (Furr & Bacharach, 2008). How individuals respond to particular items is influenced by the level of the trait being measured and the item's difficulty level (DeVellis, 2012; Furr & Bacharach, 2008). Items represent a continuum of a trait that, for example, increases or decreases in frequency or sensitivity, depending. Item difficulty influences the probability of a particular response to a particular item (Furr & Bacharach, 2008). The more difficult the item, the harder it is for an individual to agree with. Item difficulty and item trait level are connected to one another as items that are more difficult to agree with require a higher trait level (Furr & Bacharach, 2008). IRT also allows researchers to differentiate between individuals who

have high and low trait levels through item discrimination (Furr & Bacharach, 2008). Items are assigned a discrimination value which represents how relevant each item is to the trait being measured (Furr & Bacharach, 2008). Positive discrimination values indicate the item is relatively consistent with the trait, while a discrimination value of zero suggests the item is unrelated to the trait and negative discrimination values indicate the item is inversely related to the trait (Furr & Bacharach, 2008).

Response processes were analyzed using the Rasch model, “a mathematical formula that specifies the form of the relationship between the persons and the items that operationalize a single trait” (Chiang, Green, & Cox, 2009, p. 4). In the Rasch model, an individual’s trait level and the difficulty of the item determine the individual’s response (Furr & Bacharach, 2008). While the Rasch model is typically used with binary items (i.e., true/false), it can be used with items that have polytomous responses (Chiang, Green, & Cox, 2009), such as a Likert scale. This version of the Rasch model is called a rating scale model and is often used in attitude surveys.

Dimensionality refers to the concept of a unitary construct. Multidimensionality influences the principal components analysis (PCA) by affecting the eigenvalue pattern (Linacre, 2016), thus impacting the ability to make decisions based on the scale results. Unidimensionality indicates that a latent dimension is not confounding the results (Williams, Brown, & Boyle, 2012). Dimensionality of the items on the SMHIC was assessed by using principal components analysis of residuals. This indicated if multidimensionality was a concern or if the measure was reasonably unidimensional. Unidimensionality is indicated if the variance explained by the measure is relatively

strong, suggesting that there is a single, dominant dimension being measured by the scale. Linacre (2016) recommends that the variance explained by the measure be greater than 40%, with the eigenvalue of the first contrast less than 2.0 or 3.0 and the variance explained by the first contrast less than 5%.

Fit refers to how well the data fit the Rasch model. If the data do not fit the model, the data can be incrementally changed in order to see if better fit can be achieved. This is accomplished by modifying the scale or by removing persons whose responses misfit. Overall fit is assessed by examining the global fit (i.e., the outfit and infit statistics) of the data to a unidimensional model. Fit statistics include the average fit of persons and items. The expected values of the mean square (MNSQ) fit indices are 1.0. “Infit” is weighted by the distance between person location and item location and “outfit” location is an unweighted measure. Linacre and Wright (1994) suggest that with a sample size of about 100, the MNSQ should be $1 \pm .2$ and with a sample size of about 200, the MNSQ should be $1 \pm .14$. Individual item fit and individual person fit are examined to see if any items and persons misfit the model. Mean square infit and outfit statistics are interpreted similarly to the global fit statistics described above. In addition, Linacre (2002) suggests that as a rule of thumb, item MNSQ fit values between .70 and 1.4 are acceptable.

To understand how participants are using the scale, three main indices are investigated. The first is response category fit, i.e. how the participants are using the response options based on percentages. Should items be too easy or difficult to agree with on a polytomous response scale, response options may be collapsed into fewer options. Scale use is also analyzed by looking at the observed average, or the average logit

position, which should be ordered from low to high indicating no inversion. Additionally, structure calibration is analyzed to determine if there is consistency when a participant moves from one response to the next. Structure calibration should also be ordered from low to high. Finally, the category probabilities graph is analyzed to investigate appropriate use of the scale. The graph should be evenly shaped, indicating that all response options are likely to be used by participants.

Person and item separation and reliability of separation is assessed to determine if the instrument spreads across the trait continuum (Chiang, Green, & Cox, 2009). Separation should be greater than 1.0 for an instrument to be minimally useful (Chiang et al., 2009). Person reliability is similar to Cronbach's alpha and is independent of sample size. To improve person reliability, one may test participants with a wider range of abilities or lengthen the instrument (Linacre, 2016). Item reliability is independent of test length and function of persons (Linacre, 2016). Low reliability suggests that the sample is not big enough to precisely locate the items on the latent variable. To improve item reliability, one may increase item difficulty variance or increase the person sample size.

Differential item functioning (DIF) refers to invariance in item position. DIF investigates the interactions between each item and groups of participants (Linacre, 2016). Items should be invariant to the characteristics of participants, such as age or sex. DIF investigates items to determine if item functioning is interacting with participant characteristics. An invariant measure will not indicate DIF. DIF contrast, or the difference in item locations, should be close to less than .5 with a probability of more than .05.

Analysis of variance. In order to determine if there are differences in attitudes toward interprofessional collaboration among SMH professionals, an analysis of variance (ANOVA) can be conducted. ANOVA uses the *F-ratio* to test the overall fit of a linear model (Field, 2013). The *F-ratio* is the ratio of the average variability in the data that the model can explain to the average variability unexplained by the same model (Field, 2013). A large *F-ratio* indicates that there are significant differences between than the groups. ANOVA compares the differences between the means of more than two groups, but it does not explain how the groups differ.

Summary of Methodology

This study occurred in five phases. Phase One consisted of planning the instrument development and facilitating focus groups. Phase Two included item pool development, conducting cognitive interviews, and revising the items based on the feedback from the cognitive interviews. Phase Three assessed the items for content validity through expert evaluation and revision of the items and associated factors based on the results. Phase Four consisted of the pilot study and subsequent item analysis. Items were deleted at this point, but no new items were added. The final phase of the study, Phase Five, was the field study. Following the final data collection, factor analysis was used to explore the underlying factor structure, while item response theory, specifically Rasch analysis, was used to investigate participants' item response processes. Group differences were examined through analysis of variance.

Chapter Four: Results

This chapter presents the results from Phases One, Two, Three, Four, and Five of the study. The study resulted in the development of the *School Mental Health Interprofessional Collaboration (SMHIC) Scale*. Results of Phase One include the interpretation of the focus group findings and subsequent item development. Results of Phase Two include analysis of the cognitive interview findings and subsequent item revision. Results of Phase Three include analysis of the expert evaluation, interpretation of judges' feedback, and subsequent item revision. Results of Phase Four include an item analysis following the pilot study and subsequent item revision. Results of Phase Five include a factor analysis, an analysis of variance to determine if there were differences among the school mental health professional groups, and a Rasch analysis to assess how the survey items performed.

Phase One: Focus Groups

In Phase One, participants were recruited from the Denver-metro area K-12 schools. Six participants participated in two focus groups. Demographic information of Phase One participants is included in Table 1.

Table 1

<i>Phase One: Participant Demographics</i>			
Personal Characteristics	N (%)	Practice Characteristics	N (%)
Sex		School Level	
Female	3 (50%)	Preschool	2 (33.3%)
Male	3 (50%)	Elementary	4 (66.7%)
		Middle	5 (83.3%)
		Secondary	6 (100%)
Age		School Region	
30 or under	2 (33.3%)	Rural	2 (33.3%)
31-40	1 (16.7%)	Suburban	4 (66.7%)
41-50	2 (33.3%)	Urban	4 (66.7%)
51-60	1 (16.7%)	Other	1 (16.7%)
Title		Population Served	
School Psychologist	3 (50%)	White	6 (100%)
School Counselor	2 (33.3%)	Black	6 (100%)
School Social Worker	1 (16.7%)	Latino/Hispanic	6 (100%)
		Indian/Alaskan Native	5 (83.3%)
		Asian	5 (83.3%)
		Other	2 (33.3%)
Years in Practice			
1-10	2 (33.3%)		
11-20	3 (50%)		
21-30	1 (16.7%)		

Participants were asked to discuss their responses to six questions and follow-up probes posed by the researcher on interprofessional collaboration when working with students and families with mental health concerns. These questions are provided in Appendix H. The purpose of these questions was to generate an initial pool of items based on identified themes discussed by the focus group participants. Based on the focus group transcriptions and feedback, six themes were initially identified: individual characteristics, school characteristics, training in and previous experience with interprofessional collaboration, advantages of interprofessional collaboration, barriers to

interprofessional collaboration, and critical components of interprofessional collaboration. A summary table of the themes and related focus group quotes are located in Table 2.

Table 2

Phase One Qualitative Data

Themes	Quotes
A: Individual Characteristics	<p>“...in my role I’m doing a ton of stuff.”</p> <p>“...people are competitive and emotionally attached.”</p> <p>“It just depends on the boundaries of the people you are working with.”</p> <p>“People’s personal issues.”</p> <p>“We all see one another as a team, on the same level, even if we’re bringing different things to the table.”</p> <p>“It’s about who is willing to come to the table and who is not.”</p> <p>“Are they going to be engaged? Are they going to be open to the feedback of others?”</p> <p>“I think personality is such a big piece of it.”</p> <p>“I think when it comes to personality, sometimes people get defensive.”</p> <p>“When individuals think their discipline is superior.”</p> <p>“It’s ego.”</p>
B: School Characteristics	<p>“I just have a very strong team.”</p> <p>“The needs seem to get more and more in the schools.”</p> <p>“We have less resources district wide.”</p> <p>“Besides that I have a strong mental health team, I have a very strong admin team.</p> <p>“We have a shared power with admin, even though they’re above us, because we all have a different kind of role that’s not classroom-based.”</p> <p>“Within the same building, you run into that low SES/high SES and that factors into who you collaborate with.”</p> <p>“...schools sometimes get defensive because there are limited resources and then there’s not collaboration. There’s an adversarial relationship.”</p> <p>“...in other areas, based on the personalities and politics of the organization, or the building, or the district...there are power brokers.”</p> <p>“It’s really just as basic as just talking to people and establishing roles and building relationships.”</p> <p>“We need funding.”</p>

- C: Training and Experience
- “In the schools, we’re trained to do our specific job and not cross over.”
 - “Everyone wants to differentiate completely. The training has become more broader scoped and shallow.”
 - “That’s one of the things that sets social work aside from psychology at times, is the difference between the partnership model and expert model.”
 - “...sometimes it is from training, how we got to a difference conclusion...”
 - “I think there could be better training and collaboration.”
 - “The training is silo-ed.”
 - “The training I think needs a lot more of the practitioner model rather than the academic.”
 - “They don’t tell us what it looks like on the ground.”
 - “I think when we do lectures and academic, we’re quick with the tools but we’re not taught the technique.”
 - “I don’t want to hear you lecture, I want to see you do your craft.”
- D: Advantages
- “We try to balance based on what our strengths are.”
 - “I feel that my social worker and I have different strengths, even different strategies for mental health work with kids and when we come together sometimes we’ll have ‘ah-ha’ moments just by working through stuff.”
 - “When you feel like you all have your role, you’re kind of sharing in those responsibilities.”
 - “...getting together to support the needs of kids and families.”
 - “It’s just pulling different ideas from different disciplines. And really, truly ‘problem-solving.’”
 - “They bolster my training and my ability to do my job; and then, just kind of learning with them.”
 - “The best information comes from those meetings, not all the information I bring to the table, but based on the conversation that we had at the table.”
 - “By itself, my information means very little. So, you have to put that picture together to take everybody’s information, to create the ‘whole.’”
 - “The idea of having support.”
 - “I value interdisciplinary teams because I don’t want to cut a kid short, based on my biases or my perspective.”
 - “Accountability.”
 - “I can’t imagine doing my job without those people. It seems unethical, to be making decisions based on areas outside my level of expertise. And so I value those relationships. Those partnerships.”
- E: Barriers
- “One of the hard things about that is, everything kind of does get blurred together, so finding those boundaries is difficult.”

“Everybody can overlap a little bit in what they do.”

“We all wanted to work together, which is great, but efficiency wasn’t so good. Because it was getting too collaborative...”

“...it’s also a hindrance of time, too, if that person’s trying to work with a kid who doesn’t want to work with them anymore, when they can talk to someone else.”

“When you can get into the schools, there are still those roles and they may be antiquated and ‘only this person does this’—and maybe we all need assignments, certainly, but even for hiring purposes, we can all do the same job. It’s just, what is your assignment? And that’s where it gets territorial.”

“I just feel like there’s a lot of pressure to do everything: social work and counseling and psych are all kind of treated the same way.”

“When you don’t have buy in, you have don’t the presence of mind.”

“...it’s not about the kid, it’s about fiduciary responsibility.”

“You have these different people, kind of fighting and getting into shouting matches.”

“Some of the people entering this interdisciplinary conversation now are people that care a lot about privacy acts.”

“If you don’t follow the prescribed model, you don’t have access to the resources you need.”

“Different resources coming together.”

“...to have all that team together is even more important.”

“No drama amongst the adults.”

“I’m so thankful to have a team that’s such a good fit. Work-wise, personality-wise.”

“It’s really about working together and respecting one another.”

“I think if you can get to the point where you can challenge someone, on something, in a healthy way, that’s a productive thing.”

“Whatever we can do as a team to make families feel comfortable, and supported, and heard, is super important.”

“Really being able to listen and hear sort of new information and hear how information can be integrated with, say, our specific knowledge base.”

“To set aside time to bring together those multiple sources of information.”

“And I think you also set norms. At the beginning. If it’s about shared decision-making, then let’s lay that on the table in full disclosure at the beginning. We are all equitable members.”

“I think there has to be a lot of conversation up front about the kinds of things that you’re looking for so that you’re not coming in with two separate sets of data; and they have to cross paths somehow.”

F: Critical
Components

Phase Two: Item Pool Development and Cognitive Interviews

Following review of the focus group transcriptions and creation of the six initial themes, Phase Two of the study began. This phase consisted of developing an initial item pool and conducting cognitive interviews with the sample population.

Item pool development. Items were developed based on information provided in the Phase One focus groups. After creating each theme, the quotes associated with those themes were coded based on recurring patterns. As patterns emerged, it became clear that the themes “Barriers to Interprofessional Collaboration” and “Critical Components of Interprofessional Collaboration” could be subsumed into the other four themes. Once codes were determined within each theme, 42 items were developed by the researcher that reflected these codes. The items were then reviewed by an expert for wording and content. Items were phrased according to the Likert response scale options of Strongly Agree, Agree, Unsure, Disagree, and Strongly Disagree. See Table 3 for codes and initial items.

Table 3

Phase Two Item Pool Development

Themes (codes)	Items
A: Individual Characteristics (relational factors; personal histories; influence of personality)	A1. The school mental health professionals in my school compete with one another for resources.
	A2. My school mental health colleagues and I are able to collaborate in a mature, professional manner.
	A3. One or more of my school mental health colleagues become defensive when discussing their treatment and intervention choices.
	A4. One or more school mental health professionals think they are superior to the others.
	A5. Personality clashes between my school mental health colleagues have a negative impact on the ability to collaborate.
	A6. Limited respect for the different competencies of different school mental health colleagues is a barrier to interprofessional collaboration.
	A7. My school mental health colleagues are generally easy to get along with.
	A8. A barrier to interprofessional collaboration is not being willing to share results.
	A9. School mental health professionals are more alike than they are different.
	A10. A barrier to interprofessional collaboration is not finding common ground.
	A11. My relationships with my school mental health colleagues influence my ability to access needed resources.
	A12. My school mental health colleagues and I work well together.
B: School Characteristics (structure; climate; organizational practices; administration)	B13. My school administration supports interprofessional collaboration.
	B14. Funding is a barrier to interprofessional collaboration.
	B15. I have received professional development through my district on inter-professional collaboration.
	B16. Administrations that believe all school mental health professionals do the same job are a barrier to interprofessional collaboration.
	B17. My school employs an appropriate number of school mental

health staff.

B18. My school employs all of the following: school psychologists, school social workers, and school counselors.

B19. The structures in my school support collaborating with families.

B20. Overlapping responsibilities is a barrier to interprofessional collaboration.

B21. The climate in my school promotes respect among staff.

B22. My school administration promotes positive staff relationships throughout our building.

C: Training and Experience (exposure to other SMH trainees; understanding other SMH roles; observation; field work)

C23. My graduate training included collaborating with other school mental health professions such as school psychologists, school social workers, and school counselors.

C24. I am satisfied with the exposure I had to other school mental health trainees throughout my graduate training.

C25. I learned about other school mental health professionals' roles and functions during my graduate training.

C26. I was able to observe interprofessional collaboration during my graduate training.

C27. My graduate training needed more field work experience in interprofessional collaboration.

D: Advantages (perceptions of positive outcomes)

D28. My school mental health colleagues and I share similar values regarding working with students and families with mental health concerns.

D29. I value the perspectives of my school mental health colleagues.

D30. I feel my perspective is valued by my school mental health colleagues.

D31. Interprofessional collaboration provides me with valuable support from my school mental health colleagues.

D32. The best information about the student comes from the discussion at team meetings.

D33. Interprofessional collaboration brings me knowledge.

D34. Interprofessional collaboration helps me do my job better.

D35. Interprofessional collaboration enables us to offer more services to students and families.

D36. Interprofessional collaboration will lead to a variety of solutions for supporting students and families.

D37. Interprofessional collaboration allows each professional to utilize his or her strengths.

D38. Interprofessional collaboration provides multiple sources of information.

D39. It is unethical to make decisions regarding a student based on areas outside my particular expertise.

D40. Interprofessional collaboration allows everyone to share responsibility.

D41. Interprofessional collaboration makes everyone accountable to each other.

D42. The success of interprofessional collaboration is based on intentionally giving up the role of the expert.

In addition to the 42 items, six open-ended questions were included to compensate for conducting two focus groups with only three participants in each:

- 1) Please include any additional information you believe is missing from the following definition of interprofessional collaboration.

Interprofessional collaboration is an interactive process of (a) shared responsibilities, decision-making, philosophies, values, and date; (b) partnerships characterized by open and honest communication, mutual trust and respect, and an awareness of and value of the contributions of each professional; (c) interdependency due to a common goal of addressing a particular need that maximizes individual contributions; and (d) shared power among professionals that recognizes and is based on each professional's knowledge and expertise.

- 2) Please include additional information you believe is missing from the following definition of school mental health professionals/colleagues.

School mental health professionals/colleagues include any individual in the state of Colorado licensed by the Colorado Department of Education as a special service provider of school psychology, school social work, or school counseling.

- 3) What other interpersonal characteristics influence interprofessional collaboration?
- 4) What other school/district characteristics influence interprofessional collaboration?
- 5) What other experiences can graduate training programs provide to influence interprofessional collaboration?
- 6) What other positive outcomes do you think could come from interprofessional collaboration?

Cognitive interviews results. Five cognitive interviews were conducted with current school mental health professionals. The researcher offered to meet participants wherever they'd like; two interviews took place in a brewery; one in a coffee shop; and two in the participants' offices. At the start of each interview, the researcher explained the study topic, the purpose of the cognitive interview, and that she may ask questions during or after the participants completed the survey. See Table 4 for Phase Two participant demographics and Table 5 for five cognitive interviews' survey responses.

Table 4

<i>Phase Two: Participant Demographics</i>			
Characteristic	N (%)	Characteristic	N (%)
Sex		School Level	
Female	4 (80%)	Preschool	0 (0%)
Male	1 (20%)	Elementary	0 (0%)
		Middle	0 (0%)
		Secondary	5 (100%)
Job Title		Years in Practice	
School Psychologist	2 (40%)	0-3	2 (40%)
School Social Worker	1 (20%)	4-6	0 (0%)
School Counselor	2 (40%)	7-9	2 (40%)
		10-12	1 (20%)

Table 5

<i>Phase Two Cognitive Interviews' Results</i>					
Item	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
A1. The school mental health professionals in my school compete with one another for resources.	0%	20%	0%	60%	20%
A2. My school mental health colleagues and I are able to collaborate in a mature, professional manner.	40%	60%	0%	0%	0%
A3. One or more of my school mental health colleagues become defensive when discussing their treatment and intervention choices.	0%	40%	0%	0%	60%
A4. One or more school mental health professionals think they are superior to the others.	0%	20%	20%	40%	20%
A5. Personality clashes between my school mental health colleagues have a negative impact on the ability to	0%	0%	20%	80%	0%

collaborate.					
A6. Limited respect for the different competencies of different school mental health colleagues is a barrier to interprofessional collaboration.	0%	20%	0%	40%	40%
A7. My school mental health colleagues are generally easy to get along with.	40%	60%	0%	0%	0%
A8. A barrier to interprofessional collaboration is not being willing to share results.	0%	20%	0%	0%	80%
A9. School mental health professionals are more alike than they are different.	40%	40%	0%	20%	0%
A10. A barrier to interprofessional collaboration is not finding common ground.	0%	20%	0%	20%	60%
A11. My relationships with my school mental health colleagues influence my ability to access needed resources.	60%	40%	0%	0%	0%
A12. My school mental health colleagues and I work well together.	60%	40%	0%	0%	0%
B13. My school administration supports interprofessional collaboration.	80%	0%	20%	0%	0%
B14. Funding is a barrier to interprofessional collaboration.	0%	60%	0%	40%	0%
B15. I have received professional development through my district on interprofessional collaboration.	0%	60%	20%	20%	0%
B16. Administrations that believe all school mental health professionals do the same job	0%	20%	0%	20%	20%

are a barrier to interprofessional collaboration.					
B17. My school employs an appropriate number of school mental health staff.	20%	20%	0%	40%	20%
B18. My school employs all of the following: school psychologists, school social workers, and school counselors.	100%	0%	0%	0%	0%
B19. The structures in my school support collaborating with families.	40%	60%	0%	0%	0%
B20. Overlapping responsibilities is a barrier to interprofessional collaboration.	0%	60%	0%	20%	20%
B21. The climate in my school promotes respect among staff.	20%	60%	0%	20%	0%
B22. My school administration promotes positive staff relationships throughout our building.	20%	60%	0%	20%	0%
C23. My graduate training included collaborating with other school mental health professions such as school psychologists, school social workers, and school counselors.	40%	0%	0%	20%	40%
C24. I am satisfied with the exposure I had to other school mental health trainees throughout my graduate training.	0%	60%	0%	20%	20%
C25. I learned about other school mental health professionals' roles and functions during my	0%	40%	0%	60%	0%

graduate training.					
C26. I was able to observe interprofessional collaboration during my graduate training.	0%	80%	0%	20%	0%
C27. My graduate training needed more field work experience in interprofessional collaboration.	0%	20%	0%	80%	0%
D28. My school mental health colleagues and I share similar values regarding working with students and families with mental health concerns.	40%	60%	0%	0%	0%
D29. I value the perspectives of my school mental health colleagues.	80%	20%	0%	0%	0%
D30. I feel my perspective is valued by my school mental health colleagues.	60%	40%	0%	0%	0%
D31. Interprofessional collaboration provides me with valuable support from my school mental health colleagues.	60%	40%	0%	0%	0%
D32. The best information about the student comes from the discussion at team meetings.	40%	60%	0%	0%	0%
D33. Interprofessional collaboration brings me new knowledge.	60%	40%	0%	0%	0%
D34. Interprofessional collaboration helps me to do my job better.	60%	40%	0%	0%	0%
D35. Interprofessional collaboration enables us to offer more services to students and families.	60%	40%	0%	0%	0%
D36. Interprofessional collaboration will lead to a	60%	40%	0%	0%	0%

variety of solutions for supporting students and families.

D37. Interprofessional collaboration allows each professional to utilize his or her strengths.	80%	20%	0%	0%	0%
D38. Interprofessional collaboration provides multiple sources of information.	60%	40%	0%	0%	0%
D39. It is unethical to make decisions regarding a student based on areas outside my particular expertise.	60%	40%	0%	0%	0%
D40. Interprofessional collaboration allows everyone to share responsibility.	20%	80%	0%	0%	0%
D41. Interprofessional collaboration makes everyone accountable to each other.	40%	60%	0%	0%	0%
D42. The success of interprofessional collaboration is based on intentionally giving up the role of the expert.	20%	40%	40%	0%	0%

Item revision. Following the analysis of the cognitive interview results, item wording was modified, new items were added based on feedback from the cognitive interview participants, items were deleted, and the response format was changed. Participants suggested the wording of many of the questions was too easy to agree with and so items were revised so there were an equal number of positively and negatively worded items. Participants also shared that they preferred the response option “neutral” to

“unsure.” Three participants suggested the wording for items A6, A8, and A10 be changed to indicate personal experiences. One participant pointed out that some school social workers are not trained to be in schools, and so for question A6, are more likely to have different competencies. Two participants noted that in regards to item B15, professional development of SMH professionals in their shared district is not inclusive of all SMH professionals as it does not include school counselors. For item B17, one participant shared that while her school was understaffed in terms of school psychologists, school social workers, and school counselors, there were other mental health staff available to students. Overall, 17 items were revised, six items were deleted, and nine new items were added. Based on these results of Phase Three, the Phase Four version of the SMHIC included two open-ended questions and 46 items. See Table 6 for responses to the open-ended questions and Table 7 for the changes made to the SMHIC based on the results of the cognitive interviews. Table 8 includes the newly created items.

Table 6

<i>Phase Two: Open Ended Question Responses</i>	
Open Ended Question	Response
1. Please include any additional information you believe is missing from the following definition of interprofessional collaboration.	
<i>Interprofessional collaboration is an interactive process of (a) shared responsibilities, decision-making, philosophies, values, and date; (b) partnerships characterized by open and honest communication, mutual trust and respect, and an awareness of and value of the contributions of each professional; (c) interdependency due to a common</i>	No responses.

goal of addressing a particular need that maximizes individual contributions; and (d) shared power among professionals that recognizes and is based on each professional's knowledge and expertise.

2. Please include additional information you believe is missing from the following definition of school mental health professionals/colleagues.

School mental health professionals/colleagues include any individual in the state of Colorado licensed by the Colorado Department of Education as a special service provider of school psychology, school social work, or school counseling.

3. What other interpersonal characteristics influence interprofessional collaboration?

4. What other school/district characteristics influence interprofessional collaboration?

- Partnerships in schools also include [community health clinic] (drug/alcohol counselor and Health Relationships social worker; provides counseling around safe sex/birth control and relationships. Also [community] therapist and [human service agency] refugee support counselors/social workers.
- Also including [hospital employed] licensed professionals working within the building and serving DPS student populations.
- This may also include therapists from outside agencies working within the school and in collaboration.
- Respect
- Willingness/desire to work as team
- Good communication skills
- Being organized
- Different professional experiences and backgrounds
- Time and availability- I am able to have more collaboration because all of my school mental health staff if full; principals (fiscal power and time)
- District support or lack thereof (empathy from higher ups— understand jobs and role, provide real support)
- Contradictory directives are a barrier
- Having to prove yourself
- Training for education for/education of administrators

5. What other experiences can graduate training programs provide to influence interprofessional collaboration?	<p>around mental health professionals—their abilities, appropriate responsibilities/duties, and their limits</p> <ul style="list-style-type: none"> - Caseload size - Lack of academic school counselors - Collaboration with others training to be school mental health professionals. - Overlap (through shared courses and/or field placements) between programs, i.e. school counseling and school psychology - Better serving needs of all students in the school - Team approach—different students/families “connect” better with different MH professionals—so the load is more shared because you are not always taking the lead.
6. What other positive outcomes do you think could come from interprofessional collaboration?	

Table 7

Phase Two: Item Refinement

Item	Revision
A1. The school mental health professionals in my school compete with one another for resources.	No revision.
A2. My school mental health colleagues and I are able to collaborate in a mature, professional manner.	No revision.
A3. One or more of my school mental health colleagues become defensive when discussing their treatment and intervention choices.	No revision.

A4. One of more school mental health professionals think they are superior to the others.	No revision.
A5. Personality clashes between my school mental health colleagues have a negative impact on the ability to collaborate.	No revision.
A6. Limited respect for the different competencies of different school mental health colleagues is a barrier to interprofessional collaboration.	<i>In my current school, limited respect for the different competencies of different school mental health colleagues is a barrier to interprofessional collaboration.</i>
A7. My school mental health colleagues are generally easy to get along with.	No revision.
A8. A barrier to interprofessional collaboration is not being willing to share results.	<i>Collaboration at my current school with my school mental health colleagues is difficult because of an unwillingness to share results.</i>
A9. School mental health professionals are more alike than they are different.	No revision.
A10. A barrier to interprofessional collaboration is not finding common ground.	<i>In my current school, a barrier to interprofessional collaboration is not finding common ground.</i>
A11. My relationships with my school mental health colleagues influence my ability to access needed resources.	No revision.
A12. My school mental health colleagues and I work well together.	No revision.
B13. My school administration supports interprofessional collaboration.	<i>My school administration supports interprofessional collaboration between my school mental health colleagues and I.</i>
B14. Funding is a barrier to interprofessional collaboration.	<i>Funding is a barrier to interprofessional collaboration in my current school.</i>

- | | | |
|--|--|---------------|
| B15. I have received professional development through my district on interprofessional collaboration. | I have received professional development <i>on interprofessional collaboration through my current district.</i> | |
| B16. Administrations that believe all school mental health professionals do the same job are a barrier to interprofessional collaboration. | <i>In my current school, administrators believe all school mental health professionals do the same job.</i> | |
| B17. My school employs an appropriate number of school mental health staff. | <i>An appropriate number of school social workers, school counselors, and/or school psychologists work at my current school.</i> | |
| B18. My school employs all of the following: school psychologists, school social workers, and school counselors. | | Item deleted. |
| B19. The structures in my school support collaborating with families. | | Item deleted. |
| B20. Overlapping responsibilities is a barrier to interprofessional collaboration. | <i>In my current school, overlapping responsibilities is a barrier to interprofessional collaboration</i> | |
| B21. The climate in my school promotes respect among staff. | | Item deleted. |
| B22. My school administration promotes positive staff relationships throughout our building. | | No revision. |
| C23. My graduate training included collaborating with other school mental health professions such as school psychologists, school social workers, and school counselors. | | No revision. |
| C24. I am satisfied with the exposure I had to other school | | No revision. |

mental health trainees throughout my graduate training.	
C25. I learned about other school mental health professionals' roles and functions during my graduate training.	No revision.
C26. I was able to observe interprofessional collaboration during my graduate training.	No revision.
C27. My graduate training needed more field work experience in interprofessional collaboration.	My graduate training <i>provided enough</i> field work experience in interprofessional collaboration.
D28. My school mental health colleagues and I share similar values regarding working with students and families with mental health concerns.	My school mental health colleagues and I <i>have different</i> values regarding working with students and families with mental health concerns.
D29. I value the perspectives of my school mental health colleagues.	Item deleted.
D30. I feel my perspective is valued by my school mental health colleagues.	Item deleted.
D31. Interprofessional collaboration provides me with valuable support from my school mental health colleagues.	No revision.
D32. The best information about the student comes from the discussion at team meetings.	No revision.
D33. Interprofessional collaboration brings me new knowledge.	Interprofessional collaboration <i>does not</i> bring me new knowledge.
D34. Interprofessional collaboration helps me to do my job better.	Interprofessional collaboration <i>interferes with my ability to do my job.</i>

D35. Interprofessional collaboration enables us to offer more services to students and families.	Interprofessional collaboration <i>leads to conflicting services for</i> students and families.
D36. Interprofessional collaboration will lead to a variety of solutions for supporting students and families.	Interprofessional collaboration <i>contributes to</i> a variety of solutions for students and families.
D37. Interprofessional collaboration allows each professional to utilize his or her strengths.	Interprofessional collaboration <i>inhibits</i> each professional <i>from</i> utilizing his or her strengths.
D38. Interprofessional collaboration provides multiple sources of information.	No revision.
D39. It is unethical to make decisions regarding a student based on areas outside my particular expertise.	Item deleted.
D40. Interprofessional collaboration allows everyone to share responsibility.	No revision.
D41. Interprofessional collaboration makes everyone accountable to each other.	No revision.
D42. The success of interprofessional collaboration is based on intentionally giving up the role of the expert.	The success of interprofessional collaboration is based on <i>a willingness to admit you need the support of your school mental health colleagues.</i>

Table 8

Phase Two: New Items

Associated Theme	New Item
Interpersonal Characteristics	A43. It is easy to communicate with my school mental health colleagues.
Interpersonal Characteristics	A44. In my current school, my school mental health colleagues generally have strong organizational skills.
School Characteristics	B45. There is not enough time in my work day to collaborate with my school mental health colleagues.
School Characteristics	B46. The caseload size for the mental health staff in my current school makes it difficult to collaborate.
School Characteristics	B47. At my current school, school mental health staff get contradictory directives about their role from administration.
School Characteristics	B48. At my current school, school mental health professionals need to prove how they align with the school's educational mission.
Training	C49. During my graduate training, I took classes with other school mental health trainees.
Training	C50. My graduate training provided satisfactory supervision and feedback in interprofessional collaboration.
Advantages	D51. Interprofessional collaboration interferes with serving the needs of all students.
Advantages	D52. My school mental health colleagues do not value one another's perspectives.

Phase Three: Expert Evaluation

Following revision of items based on the results of the cognitive interviews, four expert judges anonymously evaluated 46 items with respect to content validity to ensure the items reflected the domains (i.e., themes) that influence effective interprofessional

collaboration. Similar to Phase Three, two open-ended questions were included in the expert evaluation to continue to refine the definitions of *interprofessional collaboration* and *school mental health professionals*. Due to the specific nature of the expert judge inclusion criteria, no demographic information was collected to ensure expert judges could not be identified.

Judges were asked to read each item and select the domain they believed it represented—interpersonal characteristics, school characteristics, training and experience in interprofessional collaboration, or overall beliefs of interprofessional collaboration. Judges had the option of writing feedback they may have had on the item in a text box. Based on the results of the expert evaluations, items were either revised, moved to a new domain, or deleted. Items with 100% agreement among judges on the correct domain were kept. Items with 75% agreement among judges on the correct domain were examined and all were kept. Items with 50% agreement among judges on the correct factor were examined for trends and were revised or deleted based on the results of the examination. Items with 25% agreement among judges (i.e., no agreement) were revised, moved to a different domain, or deemed better fitting with a newly created domain label. Domains were examined for evidence of trends based on levels of agreement and revised if a pattern was evident.

Expert evaluation results. Following the expert evaluation, the definition of interprofessional collaboration was updated to reflect a stronger relationship with education: interprofessional collaboration is an interactive process that promotes student resiliency and achievement through (a) shared responsibilities, decision-making,

philosophies, values, and data; (b) partnerships characterized by open and honest communication mutual trust and respect, and an awareness of and value of the contributions of each professional; (c) interdependency due to a common goal of addressing a particular need that maximizes individual contributions; and (d) shared power among professionals that recognizes and is based on each professional's knowledge and expertise (D'Amour et al., 2005). The definition of school mental health professionals was updated to include all mental health staff based in a school setting: school mental health professionals and colleagues include any school psychologist, school counselor, school social worker, or school family therapist licensed by a state department of education to provide mental health services in K-12 schools, in addition to the community mental health professionals working in the school building licensed to provide mental health services to students and families.

Analysis of the expert evaluation results revealed confusion among judges on the domain labeled 'advantages of interprofessional collaboration.' A pattern emerged that indicated judges believed this label covered most items. Items included in this domain led more to outcomes of interprofessional collaboration, and so the label was changed to 'outcomes of interprofessional collaboration.' As analysis of agreement on the items was conducted, four items were moved from other domains to this new domain and three items were moved from 'outcomes of interprofessional collaboration' to other domains. Additionally, the domain 'training and experiences' was revised to 'prior training and experiences' to more comprehensively reflect school mental health professionals' past exposure to interprofessional collaboration.

Of the 46 items evaluated for content validity, 19 items had 100% agreement among judges and so were not revised. Nine items had 75% agreement on the correct domain and so were not revised. Seven items had 50% agreement on the correct domain. Of these seven, the wording of two items was revised to be more clear; and two items were deleted. One item was revised and moved from ‘advantages of interprofessional collaboration’ to ‘interpersonal characteristics.’ Two items were kept as is as it was believed that the new domain made it clear which domain cluster these items belonged with. Ten items had only 25% agreement on the correct domain (i.e., only one judge chose the correct domain). Of these items, three were originally under the ‘advantages of interprofessional collaboration’ domain, and were believed to align more closely with ‘outcomes of interprofessional collaboration,’ and so were kept as is. One item was moved to the ‘prior training’ domain, while another was first revised and then moved to the ‘prior training’ domain. Three more items were moved from other domains to the ‘outcomes of interprofessional collaboration’ domain. The final two items were revised to better reflect their associated domain. Finally, two items had zero agreement on the correct domain. Both of these items were originally associated with the ‘advantages of interprofessional collaboration’ domain. One was moved to the new ‘outcomes of interprofessional collaboration’ domain cluster. As three of the four judges indicated the other item related more to the ‘interpersonal characteristics’ domain than ‘advantages of interprofessional collaboration,’ the item was revised and moved to the ‘interpersonal characteristics’ domain cluster. See Table 9 for the results of the expert evaluations, Table 10 for item revisions, and Table 11 for the updated domain clusters.

Table 9

Phase Three: Expert Evaluation Results

Item	Domain Indicated			
	Interpersonal Characteristics	School Characteristics	Prior Training	Advantages
A1. The school mental health professionals in my school compete with one another for resources.	25%*	25%		50%
A2. My school mental health colleagues and I are able to collaborate in a mature, professional manner.	50%*			50%
A3. One or more of my school mental health colleagues become defensive when discussing their treatment and intervention choices.	100%*			
A4. One or more of my school mental health colleagues think they are superior to the others.	100%*			
A5. Personality clashes between my school mental health colleagues have a negative impact on the ability to collaborate.	75%*			25%
A6. In my current school, limited respect for the different competencies is a barrier to interprofessional collaboration.	50%*	25%		25%
A7. My school mental health colleagues are generally easy to get along with.	100%*			
A8. Collaboration at my current school with my school mental health colleagues is difficult because of an unwillingness to share results.	25%*	50%		25%
A9. School mental health professionals are more alike than they are different.	25%*		25%	50%
A10. In my current school, a barrier to interprofessional collaboration is not finding common ground.	25%*	50%		25%

A11. My relationships with my school mental health colleagues influence my ability to access needed resources.	25%*	50%	25%
A12. My school mental health colleagues and I work well together.	75%*	25%	
B13. My school administration supports interprofessional collaboration between my school mental health colleagues and I.		100%*	
B14. Funding is a barrier to interprofessional collaboration in my current school.		100%*	
B15. I have received professional development on interprofessional collaboration through my current district.		25%*	75%
B16. In my current school, administrators believe all school mental health professionals do the same job.		75%*	25%
B17. An appropriate number of school social workers, school counselors, and/or school psychologists work at my current school.		50%*	50%
B20. In my current school, overlapping responsibilities is a barrier to interprofessional collaboration.		75%*	25%
B22. My current administration promotes positive staff relationships throughout our building.		100%*	
C23. My graduate training included collaborating with other school mental health professionals such as school psychologists, school social workers, and school counselors.			100%*
C24. I am satisfied with the exposure I had to other school mental health trainees throughout my graduate training.			100%*
C25. I learned about other school mental health professionals' roles and functions during my graduate training.			100%*
C26. I was able to observe interprofessional collaboration during my graduate training.			100%*
C27. My graduate training provided enough field			100%*

work experience in interprofessional collaboration.				
D28. My school mental health colleagues and I have different values regarding working with students and families with mental health concerns.	25%		50%	25%*
D31. Interprofessional collaboration provides me with valuable support from my school mental health colleagues.		50%		50%*
D32. The best information about the student comes from the discussion at team meetings.	50%	25%		25%*
D33. Interprofessional collaboration does not bring me new knowledge.				100%*
D34. Interprofessional collaboration interferes with my ability to do my job.	25%	25%	25%	25%*
D35. Interprofessional collaboration leads to conflicting services for students and families.		75%		25%*
D36. Interprofessional collaboration contributes to a variety of solutions for students and families.			25%	75%*
D37. Interprofessional collaboration inhibits each professional from utilizing his or her strengths.	25%			75%*
D38. Interprofessional collaboration provides multiple sources of information.		25%	25%	50%*
D40. Interprofessional collaboration allows everyone to share responsibility.		25%		75%*
D41. Interprofessional collaboration makes everyone accountable to each other.	25%	25%		50%*
D42. The success of interprofessional collaboration is based on a willingness to admit you need the support of your school mental health colleagues.	50%			50%*
A43. It is easy to communicate with my school mental health colleagues.	100%*			
A44. In my current school, my school mental	75%*		25%	

health colleagues generally have strong organizational skills.

B45. There is not enough time in my work day to collaborate with my school mental health colleagues.	100%*		
B46. The caseload size for the mental health staff in my current school makes it difficult to collaborate.	100%*		
B47. At my current school, school mental health staff get contradictory directives about their role from administration.	100%*		
B48. At my current school, school mental health professionals need to prove how they align with the school's educational mission.	100%*		
C49. During my graduate training, I took classes with other school mental health trainees.	100%*		
C50. My graduate training provided satisfactory supervision and feedback in interprofessional collaboration.	100%*		
D51. Interprofessional collaboration interferes with serving the needs of all students.	25%		75%*
D52. My school mental health colleagues do not value one another's perspectives.	75%	25%	*

Note. * indicates correct domain.

Table 10

Phase Three: Item Revisions

Item	Revision
A1. The school mental health professionals in my school compete with one another for resources.	A1. The school mental health staff in my current school compete with one another.
A6. In my current school, limited respect for the different competencies is a barrier to interprofessional collaboration.	Item deleted.
A8. Collaboration at my current school with my school mental health colleagues is difficult because of an unwillingness to share results.	A8. Collaboration at my current school is difficult because of my school mental health colleagues' unwillingness to share results.
A9. School mental health professionals are more alike than they are different.	A9. My school mental health colleagues are more alike than they are different.
A10. In my current school, a barrier to interprofessional collaboration is not finding common ground.	A10. Interprofessional collaboration is effective when school mental health colleagues find common ground. <i>Moved to 'outcomes of interprofessional collaboration' domain.</i>
A11. My relationships with my school mental health colleagues influence my ability to access needed resources.	A11. My relationships with my school mental health colleagues influence my access to their expertise.
B13. My school administration supports interprofessional collaboration between my school mental health colleagues and I.	B13. My school administrators support interprofessional collaboration between my school mental health colleagues and I.
B15. I have received professional development on interprofessional collaboration through my current district.	<i>Moved to 'prior training and experiences' domain.</i>
B17. An appropriate number of school social workers, school counselors, and/or school psychologists work at my current school.	B17. An appropriate number of school social workers, school counselors, school psychologists, school family therapists, and/or community mental health professionals work at my

- current school.
- B20. In my current school, overlapping responsibilities is a barrier to interprofessional collaboration.
- B20. In my current school, overlapping responsibilities are a barrier to interprofessional collaboration.
- B45. There is not enough time in my work day to collaborate with my school mental health colleagues.
- B45. There is enough time in my current work schedule to collaborate with my school mental health colleagues.
- D28. My school mental health colleagues and I have different values regarding working with students and families with mental health concerns.
- D28. The training my school mental health colleagues and I received resulted in similar values regarding working with students and families with mental health concerns.
- Moved to 'prior training and experiences' domain.*
- D31. Interprofessional collaboration provides me with valuable support from my school mental health colleagues.
- D31. My school mental health colleagues and I are supportive of one another.
- Moved to 'interpersonal characteristics' domain.*
- D32. The best information about the student comes from the discussion at team meetings.
- Moved to 'outcomes of interprofessional collaboration' domain.*
- D34. Interprofessional collaboration interferes with my ability to do my job.
- Moved to 'outcomes of interprofessional collaboration' domain.*
- D35. Interprofessional collaboration leads to conflicting services for students and families.
- Moved to 'outcomes of interprofessional collaboration' domain.*
- D38. Interprofessional collaboration provides multiple sources of information.
- Item deleted.
- D41. Interprofessional collaboration makes everyone accountable to each other.
- Moved to 'outcomes of interprofessional collaboration' domain.*
- D42. The success of interprofessional collaboration is based on a willingness to admit you need the support of your school mental health colleagues.
- D42. Interprofessional collaboration is successful when you admit you need the support of your school mental health colleagues.
- Moved to 'outcomes of interprofessional*

D52. My school mental health colleagues do not value one another's perspectives.	<i>collaboration' domain.</i>
D52. My school mental health colleagues do not respect one another's perspectives.	
	<i>Moved to 'interpersonal characteristics' domain.</i>

Table 11

Phase Three: Final Domain Clusters

Domain	Items
Interpersonal Characteristics	<p>A1. The school mental health professionals in my school compete with one another.</p> <p>A2. My school mental health colleagues and I are able to collaborate in a mature, professional manner.</p> <p>A3. One or more of my school mental health colleagues become defensive when discussing their treatment and intervention choices.</p> <p>A4. One or more of my school mental health colleagues think they are superior to the others.</p> <p>A5. Personality clashes between my school mental health colleagues have a negative impact on the ability to collaborate.</p> <p>A7. My school mental health colleagues are generally easy to get along with.</p> <p>A8. Collaboration at my current school is difficult because of my school mental health colleagues' unwillingness to share results.</p> <p>A9. My school mental health colleagues are more alike than they are different.</p> <p>A11. My relationships with my school</p>

School Characteristics

- mental health colleagues influence my access to their expertise.
- A12. My school mental health colleagues and I work well together.
- A43. It is easy to communicate with my school mental health colleagues.
- A44. In my current school, my school mental health colleagues generally have strong organizational skills.
- D31a. My school mental health colleagues and I are supportive of one another.
- D52a. My school mental health colleagues do not respect one another's perspectives.
- B13. My school administrators support interprofessional collaboration between my school mental health colleagues and I.
- B14. Funding is a barrier to interprofessional collaboration in my current school.
- B16. In my current school, administrators believe all school mental health professionals do the same job.
- B17. An appropriate number of school social workers, school counselors, school psychologists, school family therapists, and/or community mental health professionals work at my current school.
- B20. In my current school, overlapping responsibilities are a barrier to interprofessional collaboration.
- B22. My current administration promotes positive staff relationships throughout our building.
- B45. There is enough time in my current work schedule to collaborate with

my school mental health colleagues.

- B46. The caseload size for the mental health staff in my current school makes it difficult to collaborate.
- B47. At my current school, school mental health staff get contradictory directives about their role from administration.
- B48. At my current school, school mental health professionals need to prove how they align with the school's educational mission.
- C23. My graduate training included collaborating with other school mental health professionals such as school psychologists, school social workers, and school counselors.
- C24. I am satisfied with the exposure I had to other school mental health trainees throughout my graduate training.
- C25. I learned about other school mental health professionals' roles and functions during my graduate training.
- C26. I was able to observe interprofessional collaboration during my graduate training.
- C27. My graduate training provided enough field work experience in interprofessional collaboration.
- C49. During my graduate training, I took classes with other school mental health trainees.
- C50. My graduate training provided satisfactory supervision and feedback in interprofessional collaboration.
- B15c. I have received professional development on interprofessional

Prior Training and Experiences

Outcomes of Interprofessional
Collaboration

collaboration through my current district.

D28c. The training my school mental health colleagues and I received resulted in similar values regarding working with students and families with mental health concerns.

A10g. Interprofessional collaboration is effective when school mental health colleagues find common ground.

D32g. The best information about the student comes from the discussion at team meetings.

D33g. Interprofessional collaboration does not bring me new knowledge.

D34g. Interprofessional collaboration interferes with my ability to do my job.

D35g. Interprofessional collaboration leads to conflicting services for students and families.

D36g. Interprofessional collaboration contributes to a variety of solutions for students and families.

D37g. Interprofessional collaboration inhibits each professional from utilizing his or her strengths.

D40g. Interprofessional collaboration allows everyone to share responsibility.

D41g. Interprofessional collaboration makes everyone accountable to each other.

D42g. Interprofessional collaboration is successful when you admit you need the support of your school mental health colleagues.

Phase Four: Pilot Study

Following the analysis of the expert evaluations and item revision, a small pilot study was conducted in the State of Colorado. Participants were recruited through graduate programs' alumni listservs and snowball sampling. The reliability for the pilot version of the SMHIC was obtained. An item analysis was conducted to determine which items should be deleted and which items should be retained for the final phase of the study, the field study. Twenty-four items were retained for Phase Five.

Participant characteristics. Participants for the pilot study were recruited in the state of Colorado through school mental health graduate programs' alumni listservs and snowball sampling. Forty-nine school mental health professionals agreed to participate and completed the online Qualtrics survey of 45 items. Of the 49 participants, 31 were school psychologists, 10 were school social workers, five were school counselors, and three listed their job title as 'other.' These included school licensed professional counselor (LPC), school based therapist, and child family educator/family services caseworker. All participant demographics from Phase Four are presented in Table 12.

Table 12

Phase Four: Participant Demographics

Characteristic		N (%)	Characteristic		N (%)
Sex			Age		
	Female	42 (87.50%)	25 and under		1 (2.04%)
	Male	6 (12.5%)	26-35		35 (71.43%)
			36-45		9 (18.36%)
			46-55		3 (6.12%)
			56 and over		1 (2.04%)
Job Title			School Level(s)		
	School Psychologist	31 (63.27%)	Preschool		0 (0%)
	School Social Worker	10 (20.41%)	Elementary		32 (65.31%)
	School Counselor	5 (10.20%)	Middle		22 (44.90%)
	Other	3 (6.12%)	Secondary		19 (38.78%)

Pilot reliability. Prior to conducting an item analysis, 18 reverse-scored items were recoded. The initial Cronbach's alpha was determined to be .86 for the SMHIC scale with 45 items, indicating strong internal consistency. Item variance ranged from 1.57 to 4.39. Review of the corrected item-total correlations indicated some problematic items. Following revision of the SMHIC scale, Cronbach's alpha was .92.

Pilot instrument revision. Items with an item-total correlation below .3, indicating a low correlation between the item score and the overall scale score, were flagged for deletion. Seven of the nine items in the 'prior training and experiences' domain cluster had an item-total correlation below .3. Because of this, all nine training items were removed from the SMHIC scale. Twelve other items were removed from the scale, with 24 items remaining. Cronbach's alpha for the 24 remaining items was .92. At this point in the study, no items were revised or reworded. In total, 24 items, in addition

to nine demographic items, were administered in the field study. See Table 13 for deleted items and Table 14 for items retained for the field study.

Table 13

Phase Four: Items Deleted

Domain	Item
Interpersonal Characteristics	A11. My relationships with my school mental health colleagues influence my access to their expertise.
	A44. In my current school, my school mental health colleagues generally have strong organizational skills.
School Characteristics	B14. Funding is a barrier to interprofessional collaboration in my current school.
	B16. In my current school, administrators believe all school mental health professionals do the same job.
	B17. An appropriate number of school social workers, school counselors, school psychologists, school family therapists, and/or community mental health professionals work at my current school.
	B45. There is enough time in my current work schedule to collaborate with my school mental health colleagues.
	B46. The caseload size for the mental health staff in my current school makes it difficult to collaborate.
	B48. At my current school, school mental health professionals need to prove how they align with the school's educational mission.
Prior Training and Experiences	C23. My graduate training included collaborating with other school mental health professionals such as school psychologists, school social workers, and school counselors.
	C24. I am satisfied with the exposure I had to other school mental health trainees throughout my graduate training.
	C25. I learned about other school mental health professionals' roles and functions during my graduate training.
	C26. I was able to observe interprofessional collaboration during my graduate training.
	C27. My graduate training provided enough field work

experience in interprofessional collaboration.

C49. During my graduate training, I took classes with other school mental health trainees.

C50. My graduate training provided satisfactory supervision and feedback in interprofessional collaboration.

B15c. I have received professional development on interprofessional collaboration through my current district.

D28c. The training my school mental health colleagues and I received resulted in similar values regarding working with students and families with mental health concerns.

Outcomes of
Interprofessional
Collaboration

A10g. Interprofessional collaboration is effective when school mental health colleagues find common ground.

D32g. The best information about the student comes from the discussion at team meetings.

D42g. Interprofessional collaboration is successful when you admit you need the support of your school mental health colleagues.

Table 14

<i>Phase Four: Items Retained</i>		
Domain	Item	
Interpersonal Characteristics	A1. The school mental health professionals in my current school compete with one another.	
	A2. My school mental health colleagues and I are able to collaborate in a mature, professional manner.	
	A3. One or more of my school mental health colleagues become defensive when discussing their treatment and intervention choices.	
	A4. One or more of my school mental health colleagues think they are superior to the others.	
	A5. Personality clashes between my school mental health colleagues have a negative impact on the ability to collaborate.	
	A7. My school mental health colleagues are generally easy to get along with.	
	A8. Collaboration at my current school is difficult because of my school mental health colleagues' unwillingness to share results.	
	A9. My school mental health colleagues are more alike than they are different.	
	A12. My school mental health colleagues and I work well together.	
	D31a. My school mental health colleagues and I are supportive of one another.	
	A43. It is easy to communicate with my school mental health colleagues.	
	D52a. My school mental health colleagues do not respect one another's perspectives.	
	School Characteristics	B13. My school administrators support interprofessional collaboration between my school mental health colleagues and I.
		B20. In my current school, overlapping responsibilities are a barrier to interprofessional collaboration.
B22. My current administration promotes positive staff relationships throughout our building.		

	B47. At my current school, school mental health staff get contradictory directives about their role from administration.
Outcomes of Interprofessional Collaboration	D33g. Interprofessional collaboration does not bring me new knowledge.
	D34g. Interprofessional collaboration interferes with my ability to do my job.
	D35g. Interprofessional collaboration leads to conflicting services for students and families.
	D36g. Interprofessional collaboration contributes to a variety of solutions for students and families.
	D37g. Interprofessional collaboration inhibits each professional from utilizing his or her strengths.
	D40g. Interprofessional collaboration allows everyone to share responsibility.
	D41g. Interprofessional collaboration makes everyone accountable to each other.
	D51g. Interprofessional collaboration interferes with serving the needs of all students.

Phase Five: Field Administration

The final phase of the study was a nationwide field administration of the SMHIC scale. Participants were recruited in all 50 states through graduate program listservs, snowball sampling, and state associations of the three professional organizations (e.g., Colorado Society of School Psychologists, School Social Workers Association of Missouri, Wyoming School Counselor Association, etc.) (n = 456). Participants were encouraged to share the survey Qualtrics link with their school mental health colleagues, and could choose to provide an email address to enter a lottery to win one of three \$50 gift cards to Target. A factor analysis was conducted to analyze the factor structure of the SMHIC and a Rasch analysis was conducted to analyze participants' response processes.

Finally, an ANOVA was conducted to determine if there were differences among groups on the SMHIC. Based on the results of the Rasch analysis, items were deleted from the SMHIC; factor analysis and Rasch analysis were run a second time.

Participant characteristics. Participants of the field study included school psychologists, school social workers, school counselors, and other school-based mental health professionals. Individuals who identified as being in the group ‘other school-based mental health professionals’ listed job titles such as clinical mental health therapist, clinical psychologist in a school, social worker, licensed professional counselor, school-based family therapist, licensed mental health counselor, and licensed psychologist. Participants (n = 456) represented 22 of the 50 U.S. states. Females represented 91% of the sample. Ages ranged from under 30 to over 60, with 32% of the sample falling between 31 to 40 years old. Additionally, 91% of the sample identified as Caucasian, 4% as Hispanic/Latino, 2% as African American, 1% as Asian/Pacific Islander, 1% as ‘other race’, less than 1% as Native American/American Indian, and less than 1% chose not to identify his or her race. Participants identified a diverse group of student races with whom they worked, with 97% of participants working with Caucasian students, 86% with African American students, 82% with Hispanic/Latino students, 65% with Asian students, 34% with Native American/American Indian students, and 24% with Pacific Islander students. See Table 15 for a summary of Phase Five participant characteristics.

Table 15

Phase Five: Participant Demographics

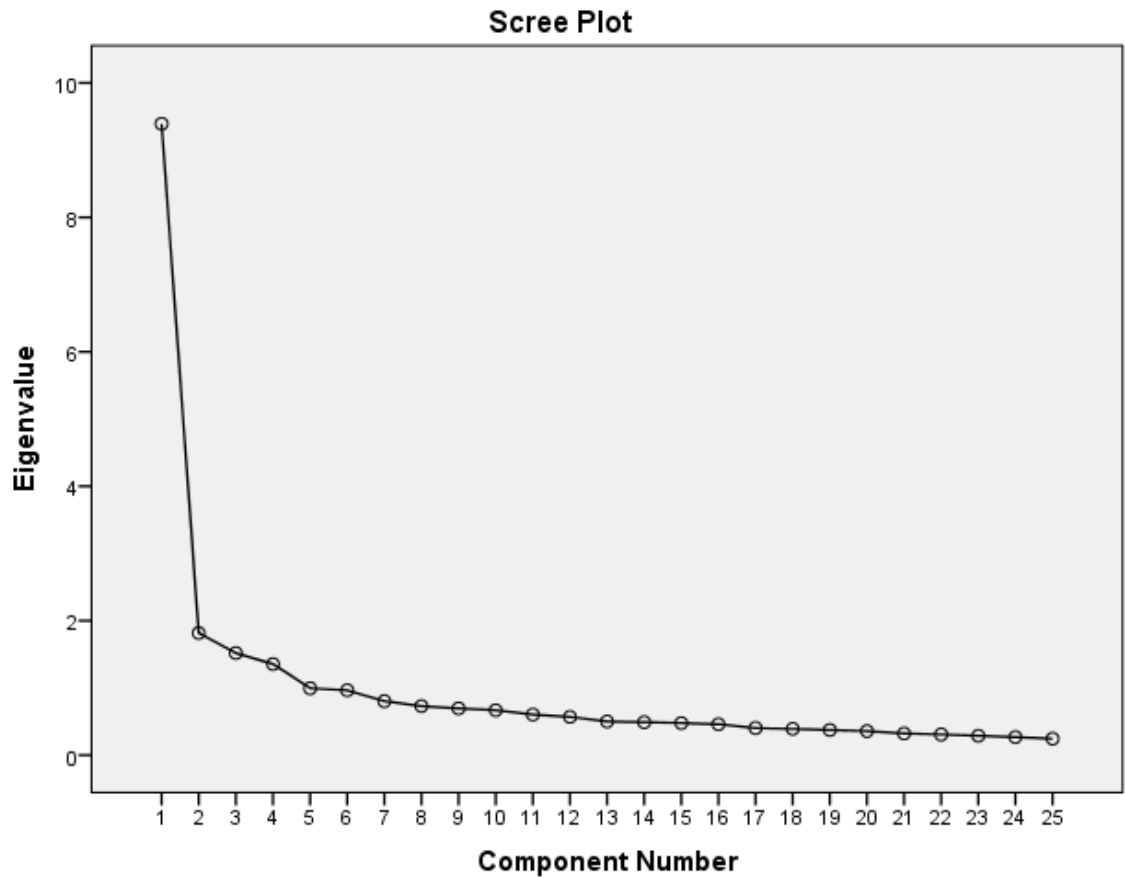
Personal Characteristics	N (%)	Practices Characteristic	N (%)
Sex		School Level	
Female	415 (91.1%)	Elementary	236 (51.8%)
Male	41 (8.9%)	Middle	190 (41.7%)
		Secondary	210 (46.1%)
Age		School Region	
30 or under	118 (26%)	Rural	197 (43.2%)
31-40	146 (32%)	Suburban	170 (37.3%)
41-50	92 (20%)	Urban	153 (33.6%)
51-60	67 (15%)		
60 or over	33 (7%)		
Title		Student Races Served	
School Psychologist	114 (25%)	Caucasian	441 (96.7%)
School Counselor	270 (59.2%)	African American	394 (86.4%)
School Social Worker	55 (12.1%)	Hispanic/Latino	373 (81.8%)
Other	17 (3.7%)	American Indian	155 (34%)
		Asian	296 (64.9%)
		Pacific Islander	109 (23.9%)
Own Race		Training on IC	
Caucasian	414 (90.8%)	None	65 (14.3%)
African American	11 (2.4%)	School Courses	351 (77%)
Hispanic/Latino	16 (3.5%)	Internship	214 (46.9%)
Asian/Pacific Islander	4 (.9%)	Prof. Development	249 (54.6%)
American Indian	2 (.4%)	Other	20 (4.4%)
Other	5 (1.1%)		
No response	3 (.7%)		

Note. IC stands for Interprofessional Collaboration.

Factor analysis. Cronbach's alpha was obtained on the 24 items of the SMHIC. Reliability was determined to be $\alpha = .92$. To determine if conducting a factor analysis on the SMHIC, the KMO measure and Bartlett's test of sphericity were used. The results of these tests indicated that the data from the field administration of the SMHIC was factorable (KMO = .94, Bartlett's significant $p < .001$). An exploratory factor analysis

was conducted on the Phase Five version of the SMHIC with 24 items to identify the latent factor structure of the scale. A PCA was conducted using IBM SPSS 22 software. The PCA identified four factors with eigenvalues greater than one. The first factor had an eigenvalue of 9.40 explaining 38% of the variance. The remaining three factors had eigenvalues of 1.82, 1.52, and 1.36, respectively. The scree plot in Figure 1 shows the significant drop in the contribution of the factors between the first and second factor, suggesting the SMHIC reflects a single construct of interprofessional collaboration among SMH professionals.

Figure 1



Analysis of the component matrix found that all 24 items had loadings over .32 on the first factor. No items loaded solely on the other three factors. Six items cross-loaded on factors one and two (D51g, D33g, D36g, D35g, D37g, and D34g), three items on factors one and three (D40g, D41g, and A2), two items on factors one and four (B47 and B20), and two items cross-loaded on factors one, three, and four (B22 and B13). The unrotated component matrix is included in Table 16.

Table 16

Phase Five: Component Matrix

Item	Component			
	1	2	3	4
A7	.702	-.251	-.011	-.279
D40g*	.399	.206	.510	-.254
D51g*	.331	.525	-.123	.088
A8	.663	-.104	-.204	.043
A9	.398	-.279	.108	-.238
B47*	.485	-.122	.120	.574
A5	.689	-.209	-.097	.177
A3	.653	-.174	-.220	.092
A12	.768	-.189	-.015	-.214
D33g*	.532	.459	-.102	-.155
D36g*	.414	.419	.240	-.178
B20*	.531	.091	-.176	.414
B22*	.387	-.128	.535	.503
D41g*	.387	.243	.609	-.139
A43	.770	-.241	.012	-.214
D52a	.775	-.101	-.118	-.051
D35g*	.676	.337	-.128	.100
D31a	.757	-.188	.032	-.220
A4	.702	-.189	-.203	.004
D37g*	.538	.543	-.168	.052
A1	.745	.016	-.179	.080
D34g*	.683	.345	-.122	.036
B13*	.562	-.118	.333	.352
A2*	.822	-.133	.420	.261

Note. * indicates items with cross loading.

Because the first factor had an eigenvalue of 9.40 explaining 38% of the variance, a PCA was run a second time with a forced extraction of one component. The results showed that no items had a loading of less than .32 on the first factor.

One purpose of the field administration was to establish evidence of validity as recommended by the *Standards for Educational and Psychological Testing* (Standards; AERA, APA, & NCME, 1999). The *Standards* outline five types of validity. These are test content, response processes, internal structure, associations with other variables, and consequences of use. Item response theory, specifically Rasch model analyses, were conducted in order to examine response processes. In the Rasch model, an individual's trait level and the difficulty of the item determine the individual's response (Furr & Bacharach, 2008). Three indices examined were dimensionality, item fit, and item invariance (Bond & Fox, 2001). In addition to these, response scale structure and separation and reliability were assessed in this study. Additionally, an item-map indicating the locations of the final group of items and distribution of participants' scores is included. The data from the Phase Five administration of the SMHIC was analyzed using Winsteps Version 3.92.0 (Linacre, 2016).

Dimensionality. One assumption of IRT is that the items assess a unidimensional construct. Dimensionality of the items on the SMHIC was assessed by using principal components analysis of residuals (PCAR). This indicated if multidimensionality was a concern or if the measure was reasonably unidimensional. For a measure to be unidimensional, Linacre (2016) recommends that the variance explained by the measure be greater than 40%, with the eigenvalue of the first contrast at least 2.0 or 3.0 and the

variance explained by the first contrast less than 5%. An initial analysis of the 24 items on the SMHIC found that the first dimension explained 42.6% of the variance. The largest secondary dimension explained 7.1% of the variance with an eigenvalue of 3.0, indicating there may be a second dimension. Further examination of the PCAR results indicates that the first contrast was comprised of seven items (items D33g, B20, D41g, D52a, A4, D37g, and A1) However, only one item (item A4) had a MNSQ value more than 1.0 (Outfit MNSQ = 1.04), indicating the other six items were overly predictable.

Item fit. Overall fit was assessed by examining the global fit of data to a unidimensional model. Global fit assesses the average fit of persons and items. Outfit location is an unweighted measure and infit is weighted by the distance between person location and item location. The expected values of the MNSQ to fit indexes are 1.0. For this sample, the average infit MNSQ was 1.11 and the average outfit MNSQ was 1.06. This suggests the data fit the model reasonably well.

Individual item fit was examined to determine if any items misfit the model. Mean square infit and outfit statistics are interpreted similarly to the global fit statistics described above. In addition, Linacre and Wright (1994) suggest that as a rule of thumb, item MNSQ fit values between .70 and 1.4 are acceptable. Based on this cut off score, nine items had fit values outside of both of these ranges of productive measurement. Two items underfit the model and seven items overfit the model. Generally, underfit is more problematic than overfit. See Table 17 for a summary of the fit statistics and Table 18 for misfitting items. Underfitting items were deleted from the scale.

Separation and reliability. Person and item separation and reliability of separation were then assessed to determine if the SMHIC spread across the trait continuum (Chiang et al., 2009). Separation is a measure of the spread of persons or items on the measured variable and is expressed in standard error units (Bond & Fox, 2001). Separation should be greater than 2.0 for a measure to be minimally useful, with higher values indicating greater spread of persons and items along a continuum and lower values indicating less variability of persons on the trait and redundancy in the items (Chiang et al., 2009). Person separation was determined to be 2.89, suggesting that the SMHIC is useful for measuring interprofessional collaboration among school mental health professionals in this sample. Reliability of person separation was .89, indicating strong internal consistency reliability with this sample. Person reliability is analogous to Cronbach’s alpha, which was estimated to be .92. Item separation was 8.35, indicating a spread of items along the continuum. Separation and reliability values are in Table 17.

Table 17

Phase Five: Summary Fit Statistics

	Raw Score	Measure	Infit MNSQ	Outfit MNSQ	Separation	Reliability
Person					2.89	.89
Mean	96.2	1.68	1.11	1.06		
S.D.	11.5	1.26	.79	.80		
Max.	119.0	6.03	6.13	6.59		
Min.	52.0	-1.28	.15	.13		
Items					8.35	.99
Mean	1830.1	.00	.99	1.06		
S.D.	142.1	.65	.32	.42		
Max.	2008.0	1.51	1.69	2.13		
Min.	1454.0	-1.00	.54	.47		

Person (N = 456); Items (N = 24)

Table 18

Phase Five: Infit and Outfit MNSQ Values for Misfitting Items

Item Number and Description	Infit MNSQ	Outfit MNSQ	Diagnosis
D51g. Interferes with serving the needs of students	1.69	2.13	Underfit
B22. Admin promote positive staff relationships	1.67	1.82	Underfit
D52a. Do not respect one another's perspective	.68	.71	Overfit
D35g. Leads to conflicting services	.69	.67	Overfit
D31a. Are supportive of one another	.66	.68	Overfit
A43. Easy to communicate	.62	.60	Overfit
D34g. Interferes with my ability to do my job	.59	.55	Overfit
A12. Work well together	.58	.58	Overfit
A2. SMH colleagues collaborate in a mature way	.54	-.47	Overfit

Response category fit. Rasch measurement diagnostics were examined to determine if there were problems with the response format of the SMHIC. To measure category functioning, category frequencies, average measures fit statistics, and threshold estimates were evaluated. The category frequencies, or the observed count, are included in Table 19. Category label 1, Strongly Disagree, was the lowest used response with an observed count of 136. The observed count for category label 2, Disagree, was 701, while the observed count for category label 3, unsure, was 1297. Fifty-one percent of the participants used category label 4, Agree, while 30% chose category label 5, Strongly Agree. Bond and Fox (2001) suggest that categories with outfit MNSQs greater than 2 “introduce[e] noise into the measurement process” (p. 164). The outfit MNSQ for category label 1 was 3.00, suggesting this response was poorly used. Finally, structure calibration, i.e. threshold estimates, was evaluated. Structure calibration estimates that are

disordered are considered problematic. Linacre (1999) suggests that estimates increase by 1.4 logits and no more than 5 logits to distinguish between categories. For the SMHIC data, structure calibration estimates indicated inversion with category label 2 and category label 3. Additionally, the distances between categories were problematic as it did not meet the distance recommendation. During a final scale revision, eight items were deleted and the inversion was resolved due to deleting items that had the problematic responses that brought about the inversion.

Table 19

Phase Five: Rating Scale Diagnostics

Category Label	Observed Count	Average Measure	Infit MNSQ	Outfit MNSQ	Threshold Calibration
1	136	.13	1.64	3.00	NONE
2	701	.03*	1.06	1.22	-1.96
3	1297	.54	.89	.92	-.32
4	5556	1.45	.89	.79	-.41
5	3254	2.97	.97	.83.94	2.69

* indicates inversion

Item difficulty. Figure 2 shows an item-person map that details the location of the 24 items and the distribution of participants' scores prior to any revisions of the SMHIC. This map indicates that the items on the SMHIC were relatively easy to endorse, as there was not a large spread of items. The items ranged from -.80 to +1.2 logits. Item B47 was the hardest item to agree with, while items A7 and D36g were easiest to agree with. Many of the items overlapped with one another, indicating redundancy. These items were: (a) items A5 and A3; (b) items B22, D41g, and A1; (c) items D35g and B13; (d) items A43, D52a, and A8; (e) items D40g, D37g, and D51g; and (f) items D33g, D31a, D34g, A2, and A12. This suggests that the number of items on the SMHIC can be

reduced from 24 or items may be rewritten to be harder to endorse, thus decreasing the gap in the measure. While over half of the sample ($n = 247$, 54%) was measured well by the items, a large portion of the sample fell above +1.5 on the scale. This indicates there is an absence of items assessing the measure trait, interprofessional collaboration among SMH professionals, in a large portion of the sample and the items are generally too easy for the sample to agree with.

Invariance. In Rasch modeling, items should demonstrate invariance across participant characteristics. Items that do not indicate invariance suggest item bias, or differential item functioning (DIF). DIF investigates items to determine if item functioning is interacting with participant characteristics. An invariant measure will not show substantial DIF. DIF is established with a DIF contrast, or the difference in item locations $\geq .50$ and significance at $p < .01$. In this study, participants were organized into groups by school mental health profession. Analyses indicated that items A9, A5, B20, D37g, A1, and B13 exhibited DIF. According to the item-person map (Figure 2), these items ranged from easiest to hardest to agree with.

Analysis of variance. A one-way ANOVA was calculated on the mean of participants' summary scores on the SMHIC based on the 24 item version. The analysis was significant, $F(3, 452) = 6.50, p \leq .001$, indicating there were differences among the SMH professional groups on the SMHIC. Table 20 is a summary table of the ANOVA results.

Table 20

Phase Five: ANOVA Summary Table

Source	Sum of Squares	df	Mean Square	F	p
SMH group	4.39	3	1.46	6.50	$\leq .001$
Error	101.68	452	.23		
Total	7402.06	456			

* $N = 456$

Post hoc comparisons using the Bonferroni correction for Type I error indicated that the mean score of the SMHIC for school psychologists was significantly different than the mean score of the SMHIC for school social workers ($M = .22, SD = .08$) and for

the group ‘other’ (M = .33, SD = .12). Post hoc comparisons also indicated that the mean score of the SMHIC for school counselors was significantly different than the mean score of the SMHIC for school social workers (M = .24, SD = .08) and for the group ‘other’ (M = .35, SD = .19). There was no significant difference between school psychologists and school counselors, or school social workers and the group ‘other.’ See Table 21 for a summary of the post hoc comparisons.

Table 21

Phase Five: ANOVA Post Hoc Test Results

Group	Group	Mean Difference	Std. Error	p
School Psychologists	School Counselors	-.019	.05	1.00
	School Social Workers	.224*	.08	.025
	Other	.334*	.12	.042
School Counselors	School Psychologists	.019	.05	1.00
	School Social Workers	.243*	.07	.004
	Other	.353*	.12	.018
School Social Workers	School Psychologists	-.224*	.08	.025
	School Counselors	-.243*	.07	.004
	Other	.110	.13	1.00
Other	School Psychologists	-.334*	.12	.042
	School Counselors	-.353*	.12	.018
	School Social Workers	-.110	.13	1.00

*N = 456, $p \leq .05$

Instrument revision. For the final instrument revision, results of the exploratory and Rasch model analyses were used to decrease scale length and increase measurement efficiency. Misfitting items, items that overlapped on the item-person map, and items that exhibited DIF were flagged for deletion. Rasch model analyses were rerun deleting item

by item until acceptable dimensionality was achieved. Items that were deleted at this point include Items D40g, D51g, A9, B22, A43, D37g, B13, and A2. Ten items continued to demonstrate misfit in the second round of Rasch analyses; three of these items had not demonstrated misfit in the original Rasch analyses. As a result of initial statistical analyses of the field version of the SMHIC, eight items were deleted due to demonstrating item misfit or DIF. A one-way ANOVA was conducted on the final 16 items. Table 21 presents the eight items that were deleted. Appendix includes a list of all items created throughout this study with their associated label. The final version of the SMHIC included 16 items and can be found in Appendix S.

Table 22

Phase Five: Summary of Item Deletion

Item Number and Description	Infit MNSQ	Outfit ZSTD	DIF ($\geq .5$)	Loading
D40g. Allows everyone to share responsibility		3.1		.39
D51g. Interferes with serving the needs of all	1.41	9.8		.33
A9. SMH colleagues are more alike than different	1.43	8.0	.79	.39
B22. Promotes positive relationships	1.41	7.2		.39
A43. Easy to communicate with SMH colleagues	.72	-4.8		
D37g. Inhibits each from utilizing strengths			1.09	
B13. Admins supports collaboration			1.07	
A2. Able to collaborate in a mature manner	.62	-6.6		

For person fit, separation decreased to 2.58 while reliability increased to .89. For item fit, separation increased to 8.07 while reliability stayed the same at .98. Item 7 was the only item that continued to exhibit DIF. See Table 23 for logit positions by group for this item. A second analysis of the final 16 items on the SMHIC found that the first

dimension explained 48.7% of the variance. The largest secondary dimension explained 7.4% of the variance with an eigenvalue of 2.4, indicating the SMHIC is reasonably unidimensional.

Table 23

Phase Five: Logit Position by Group for Items with DIF

Item	Group	DIF Contrast	t-statistic	p
Item				
A7	School Psychologists	.58	-1.41	> .01
	School Counselors	-.89	-2.82	> .01
	School Social Workers	.63	3.09	> .01
	Other SMH Professionals	.89	2.82	> .01

Reliability estimates for the final version of the SMHIC indicated strong reliability with a Cronbach's alpha of .90. Corrected item-total correlations ranged from .31 (Item D41g) to .72 (Item A43). Three items suggested a minimal increase in Cronbach's alpha if deleted. Rasch analyses demonstrated reasonable unidimensionality, good item invariance, strong reliability, and adequate fit. Table 24 includes summary statistics for the final version of the SMHIC. Table 25 includes the category frequencies, average measures fit statistics, and threshold estimates of the final version of the SMHIC.

Table 24

Phase Five: Summary Fit Statistics, Final Version of the SMHIC

	Raw Score	Measure	Infit MNSQ	Outfit MNSQ	Separation	Reliability
Person					2.96	.90
Mean	99.9	1.44	1.11	1.07		
S.D.	12.0	1.25	.78	.85		
Max.	124.0	5.94	6.16	8.52		
Min.	54.0	-1.47	.16	.15		
Items					6.19	.97
Mean	1824.0	.00	1.00	1.07		
S.D.	142.4	.48	.25	.39		
Max.	2008.0	1.19	1.43	2.17		
Min.	1454.0	-.70	.62	.54		

Table 25

Phase Five: Rating Scale Diagnostics for Final Version of the SMHIC

Category Label	Observed Count	Average Measure	Infit MNSQ	Outfit MNSQ	Threshold Calibration
1	72	-.51	1.38	2.06	NONE
2	435	-.15	1.08	1.22	-2.40
3	846	.48	.90	.91	-.50
4	3812	1.72	.91	.86	-.38
5	2131	3.64	1.01	.96	3.28

A PCA of the revised instrument with 16 items identified three factors with eigenvalues greater than one. The first factor had an eigenvalue of 6.88 explaining 43% of the variance. The remaining two factors had eigenvalues of 1.34 and 1.03, respectively. The unrotated components analysis showed that 11 of the items loaded on to the first factor, while one item loaded on to the second factor and four items cross loaded on the first and third factors. Similar to the initial PCA, a significant drop in the contribution of the factors between the first and second factor suggest that the SMHIC

reflects a single construct of interprofessional collaboration among SMH professionals. Based on these results, a forced extraction with one component was conducted. All items loaded above .32 on the factor.

Thus, the final version of the scale was redeveloped to have 16 items that all tapped one main dimension of interprofessional collaboration. A final total summary score was calculated across the SMH groups using this final scale version. Then a one-way ANOVA was calculated on the mean of participants' summary scores on the 16 item final revised version of the SMHIC scale. This analysis was significant, $F(3, 452) = 6.86$, $p \leq .001$, indicating there were overall differences among the SMH professional groups on the final version of the SMHIC scale. Post hoc pairwise comparisons using the Bonferroni correction for Type I error were then conducted and indicated the same results as the initial one-way ANOVA on the 24-item scale. The mean score of the 16-item final SMHIC scale for school psychologists ($M = 4.06$, $SD = .53$) was significantly higher than the mean score of the SMHIC for school social workers ($M = 3.80$, $SD = .59$) and for the group 'other' ($M = 3.68$, $SD = .47$) meaning that school psychologists had more positive perceptions of interprofessional collaboration than school social workers or school-based mental health therapists. The mean score of the SMHIC scale for school counselors ($M = 4.07$, $SD = .52$) was significantly higher than the mean score of the SMHIC for school social workers ($M = 3.80$, $SD = .59$) and for the group 'other' ($M = 3.68$, $SD = .47$) meaning that school counselors had more positive perceptions of interprofessional collaboration than school social workers or school-based mental health therapists. There was no

significant difference between school psychologists and school counselors, or school social workers and the group ‘other.’

Summary of Results that Led to the Final SMHIC Scale

The final SMHIC scale was developed over the course of five phases. In Phase One, two focus groups with a total of six participants were conducted. Participants responded to questions posed by the researcher on interprofessional collaboration when working with students and families with mental health concerns. From these responses, six themes of interprofessional collaboration among school mental health professionals were initially identified: interpersonal characteristics, school characteristics, training in interprofessional collaboration, advantages of interprofessional collaboration, barriers to interprofessional collaboration, and critical components of interprofessional collaboration.

Phase Two of the study consisted of item pool development and five cognitive interviews with current school mental health professionals. Forty-two items were initially developed, and six open-ended questions were included in the interviews to make up for having low participation on the focus groups. The researcher observed the cognitive interview participants take the survey and then discussed the process of completing the survey with the participants. Additionally, participants had the opportunity to make notes on the survey as they completed it. These discussions and feedback were then used to revise the items before beginning Phase Three. Items were revised, deleted, or new items were added.

Phase Three of the study consisted of four expert evaluations with judges who were determined to be experts in the field of school mental health. The expert judges anonymously evaluated 48 items on content validity to ensure the items reflected the domains that influence interprofessional collaboration. Two open-ended questions were included in the expert evaluation to continue to refine the definitions of *interprofessional collaboration* and *school mental health professionals*. Judges were asked to read each item and select the domain they believed it represented—interpersonal characteristics, school characteristics, training in interprofessional collaboration, or advantages of interprofessional collaboration. Judges had the option of writing in feedback they may have had on the item in a text box. Based on the results of the expert evaluations, two domains were updated: ‘training in interprofessional collaboration’ became ‘training and prior experience in interprofessional collaboration’ and ‘advantages of interprofessional collaboration’ became ‘outcomes of interprofessional collaboration.’ Prior to beginning Phase Four, item revision included rewording items, moving items to a different domain, or deleting items.

For Phase Four of the study, a pilot study on 45 items was conducted in the state of Colorado. Forty-nine participants were recruited through graduate program alumni listservs’ and snowball sampling. Reliability of the pilot version of the SMHIC was determined to be .92 and an item analysis was conducted. Based on the results of the item analysis, 21 items were deleted with 24 items remaining on the scale for the field study administration.

For the final phase of the study, Phase Five, a nationwide sample of school mental health professionals was recruited through state associations and graduate program alumni listservs (n = 456). A factor analysis was conducted to determine the factors in the SMHIC scale. This analysis revealed that the SMHIC reflects a single construct of interprofessional collaboration among SMH professionals. A Rasch analysis was conducted to further investigate the response process of participants. Based on these results, the SMHIC was revised with the final version including 16 items. Cronbach's alpha for the final version of the SMHIC scale was .90, indicating high reliability. An ANOVA was conducted that determined there was a significant difference among SMH professionals on interprofessional collaboration. Following analysis, the development of the SMHIC scale concluded with a total of 16 items representing SMH professionals' perceptions of current interprofessional collaboration among their SMH colleagues. See Table 26 for SMHIC item refinement. Refer to Appendix L for the items associated with their label. Each item in this list is the revised version from the phase it was deleted. For example, item A9 was initially created in Phase One, was revised in Phase Three, and was dropped for Phase Five. In Appendix L, item A9 is the Phase Three revision. For the conceptual changes of the items within the identified domains, see Table 27. This table clearly highlights that as items were dropped from the scale, the interpersonal characteristics domain continued to have the most included items. This suggests that respondents perceive interprofessional collaboration to be heavily impacted by relational conditions between them and their SMH colleagues.

Table 26

Summary of SMHIC Scale Development

Domain	Initial Item Pool (42 items)	Phase Two (46 items)	Phase Three (44 items)	Phase Four (24 items)	Phase Five: Final (16 items)
A: Interpersonal Characteristics	A1	A1	A1w	A1	A1
	A2	A2	A2	A2	-----
	A3	A3	A3	A3	A3
	A4	A4	A4	A4	A4
	A5	A5	A5	A5	A5
	A6	A6w	-----		
	A7	A7	A7	A7	A7
	A8	A8w	A8w	A8	A8
	A9	A9	A9w	A9	-----
	A10	A10w	M	-----	
	A11	A11	A11w	-----	
	B: School Characteristics	A12	A12	A12	A12
		A43	A43	A43	A43
		A44	A44	-----	
			D31	D31w	D31
			D52w	D52	D52
B13		B13w	B13	B13	-----
B14		B14w	B14	-----	
B15		B15w	M	-----	
B16		B16w	B16	-----	
B17		B17w	B17w	-----	
B18	-----				
B19	-----				
B20	B20w	B20	B20	B20	
B21	-----				
B22	B22	B22w	B22	-----	

		B45	B45w	-----
		B46	B46	-----
		B47	B47	B47 -----
		B48	B48	-----
C: Prior Training and Experiences	C23	C23	C23	-----
	C24	C24	C24	-----
	C25	C25	C25	-----
	C26	C26	C26	-----
	C27	C27w	C27	-----
		C49	C49	-----
		C50	C50	-----
		B15	-----	
		D28c	-----	
D: Advantages	D28	D28w	M	-----
	D29	-----		-----
	D30	-----		-----
	D31	D31	M	-----
	D32	D32	M	-----
	D33	D33w	M	-----
	D34	D34w	M	-----
	D35	D35w	M	-----
	D36	D36w	M	-----
	D37	D37w	M	-----
	D38	D38	-----	-----
	D39	-----		-----
	D40	D40	M	-----
	D41	D41	M	-----
	D42	D42w	M	-----
	D51	M	-----	
	D52	M	-----	
E: Barriers	Subsumed into other domains			

F: Critical Components	Subsumed into other domains		
G: Outcomes	A10w	-----	
	D32	-----	
	D33	D33	D33
	D34	D34	D34
	D35	D35	D35
	D36	D36	-----
	D37	D37	D37
	D40	D40	-----
	D41	D41	D41
	D42w	-----	
	D51	D51	-----

*Note: M = moved to different domain, ----- = item deleted; w = wording revised; c = content revised; refer to Appendix L for items

Table 27

Summary of Domain Conceptualization

Phase	Domain	Conceptualization
1 Focus groups (n = 6)	Individual Characteristics	Created domain
	School Characteristics	Created domain
	Training and Experiences	Created domain
	Advantages	Created domain
	Barriers	Created domain
	Critical Components	Created domain
2 Cognitive interviews (n = 5)	Individual Characteristics	<ul style="list-style-type: none"> - Changed to ‘Interpersonal Characteristics’ to reflect relationships between individuals - Initially consisted of 12 items - Wording revised on 3 items following cognitive interviews to capture the current personal experience of the respondent - Added 2 new skill-based items regarding communication and organization that impact the effectiveness of collaboration - Resulted in 14 items
	School Characteristics	<ul style="list-style-type: none"> - Initially consisted of 10 items - Wording revised on 6 items following cognitive interviews to capture the current personal experience of the respondent - 3 items deleted based on participant feedback - Added 4 items; 2 of which regarded logistics (schedule and caseload size) 1 of which highlighted the administrators’

		understanding of SMH roles, and 1 that highlighted the role of mental health professionals in the academic setting
		- Resulted in 11 items
	Training and Experiences	- Initially consisted of 5 items
		- 2 items added to more explicitly address exposure to other SMH disciplines during training and supervision on interprofessional collaboration
		- Resulted in 7 items
	Advantages	- Initially consisted of 15 items
		- Wording revised on 6 items so there were an equal number of negatively and positively worded items to decrease respondents' frequent selection of the 'Agree' response option
		- Wording revised on 1 item to reflect collaboration fulfilling one's professional need of support as opposed to requiring one to give up a professional role
		- 3 items deleted based on participant feedback
		- 2 items added; 1 to address the role of interprofessional collaboration at the universal tier and 1 that specifically addressed valuing one another
		- Resulted in 14 items
	Barriers	Subsumed into other domains
	Critical Components	Subsumed into other domains
3 Expert	Interpersonal Characteristics	- Initially consisted of 14 items
		- Wording of 1 item revised to indicate interprofessional collaboration as an outcome and then moved to a different

evaluations
(n = 4)

domain

- 1 item deleted as both content and wording were confusing
- Resulted in 14 items

School Characteristics

- Initially consisted of 11 items
- 1 item moved to a different domain as it more represented training as opposed to a characteristic
- Resulted in 10 items

Training and Experiences

- Initially consisted of 7 items
- Domain name revised to 'Prior Training and Experiences' to better indicate the past exposure respondents had to interprofessional collaboration
- 2 items added from other domains as they better represented being educated on interprofessional collaboration
- Resulted in 9 items

Advantages

- Initially consisted of 14 items
- Pattern of judges' evaluation indicated the majority of items fell within this domain; domain name changed to 'Outcomes' to be more specific
- 4 items remained the same under the new 'Outcomes' domain name as this domain better represented the items' content
- Wording of 1 item revised; item remained under the new 'Outcomes' domain name
- Content of 1 item changed to highlight the values that are instilled through training; item moved to a different domain
- 2 items moved to a different domain as the items' content were relationally-based as opposed to outcome-based
- 1 item deleted as it was determined to not add any useful

- information to the scale
- Resulted in 11 items
- 4 Interpersonal Characteristics
- Pilot study
(n = 49)
- Initially consisted of 14 items
 - 2 items deleted as an item analysis indicated they did not have a relationship with the total scale score
 - o 1 item reflected the usefulness of having relationships with SMH colleagues
 - o 1 item represented a skill as opposed to an interpersonal characteristic
 - Resulted in 12 items
- School Characteristics
- Initially consisted of 10 items
 - 6 items deleted as an item analysis indicated they did not have a relationship with the total scale score
 - o 4 items focused on logistics, such as funding and caseload size
 - o 1 item represented beliefs of administrators rather than respondents' perceptions of interprofessional collaboration
 - o 1 item focused on SMH professionals proving their value to the school community as opposed to their perceptions of interprofessional collaboration
 - Resulted in 4 items
- Prior Training and Experiences
- Initially consisted of 9 items
 - Item analysis indicated 7 items did not have a relationship with the total scale score
 - Domain deleted as it was determined to measure a separate, unidimensional construct

- | | | |
|-------------------------------|-------------------------------|--|
| | Outcomes | <ul style="list-style-type: none"> - Initially consisted of 11 items - 3 items deleted as an item analysis indicated they did not have a relationship with the total scale score <ul style="list-style-type: none"> o 2 items focused on the effectiveness of interprofessional collaboration as opposed to perceptions of outcomes o 1 item focused on information about students as opposed to perceptions of interprofessional collaboration - Resulted in 8 items |
| 5
Field study
(n = 456) | Interpersonal Characteristics | <ul style="list-style-type: none"> - Initially consisted of 12 items - 3 items deleted <ul style="list-style-type: none"> o 1 item exhibited DIF suggesting the item interacted with the respondents' characteristics o 1 item exhibited overlap and misfit, suggesting it did not add any information to the scale o 1 item exhibited overlap, misfit, and crossloaded on two factors, suggesting it did not add any information to the scale - Final SMHIC scale consisted of 10 interpersonal characteristic items |
| | School Characteristics | <ul style="list-style-type: none"> - Initially consisted of 4 items - 3 items deleted <ul style="list-style-type: none"> o 1 item crossloaded on two factors and indicated DIF and overlap, suggesting it interacted with participants' characteristics and did not add any information to the scale o 1 item crossloaded on two factors and indicated overlap and misfit, suggesting it did not add any information to |

- 1 item crossloaded on two factors
 - Initially consisted of 8 items
 - 3 items deleted
 - 1 item crossloaded on two factors
 - 1 item crossloaded on two factors and indicated both overlap and misfit, suggesting it did not add any information to the scale
 - 1 item crossloaded on two factors and indicated both DIF and overlap, suggesting it interacted with participants' characteristics and did not add any information to the scale
 - Final SMHIC scale consisted of 5 outcomes of interprofessional collaboration items
-

Chapter Five: Discussion

The purpose of this research was to further understand interprofessional collaboration among SMH professionals and to develop a survey that measures SMH professionals' perceptions of collaboration with one another in their current school setting. This survey is a first step in improving interprofessional collaboration among K-12 SMH professionals. This chapter begins with a discussion of the research questions presented in Chapter One. A summary of the conclusions interpreted from results of the analyses are discussed. This chapter then addresses the limitations of the study, implications for the SMH field, and future directions for the SMHIC scale.

Research Questions

This study addressed the following research questions:

1. What is the evidence for content validity of the School Mental Health Interprofessional Collaboration measure (SMHIC)?
2. What is the underlying factor structure of the SMHIC?
3. Does the SMHIC demonstrate adequate reliability?
4. Are the SMHIC items consistent with Rasch model assumption of unidimensionality?

5. Does the SMHIC differentiate among the SMH professionals (i.e., school psychologists, school social workers, school counselors, and other school-based mental health professionals)?

Content validity. A panel of four experts in the field of SMH services were recruited to evaluate the SMHIC items for the purpose of test content validation (AERA, APA, & NCME, 1999) of the SMHIC scale. Results of this phase of the study were that the judges all agreed on the relevancy, wording, and correct domain of 41% of the evaluated items. This indicates that these 19 SMHIC items reflect their associated domains that influence effective interprofessional collaboration.

Judges appeared to think that most items fit with the domain labeled ‘advantages of interprofessional collaboration.’ This could be due to this domain label being too broad and so ill defined. Further examination of the items included in this domain found that these items reflected outcomes of interprofessional collaboration as opposed to advantages, resulting in the domain label being changed to ‘outcomes of interprofessional collaboration.’ Additionally, the domain ‘prior training’ initially included items related solely to pre-service training for SMH trainees; however, judges identified items related to professional development through the school district as ‘prior training,’ and so this domain label was changed to ‘prior training and experiences’ to more comprehensively reflect SMH professionals’ entire previous exposure to any interprofessional collaboration training opportunities.

Items that had 75% agreement by expert judges on the correct domain were not revised, as these items were determined to have strong content validity at 75%

agreement. Seventeen items with 50% agreement or less did not exhibit content validity. Of these 17, only two were deleted. The other fifteen items were either moved to the domain with higher agreement by the judges, moved to the newly labeled 'outcomes of interprofessional collaboration' as the items better reflected what occurs as a result of interprofessional collaboration, or reworded to more accurately represent their associated domains. This revision of items was intended to improve the content validity of the SMHIC scale.

Factor structure. The factor structure of the SMHIC scale was assessed twice using PCA. Initial analyses indicated four factors were represented by the SMHIC; however, the first factor had an eigenvalue of 9.40 explaining 38% of the variance, while the remaining factors had eigenvalues of 1.82, 1.52, and 1.36, respectively. The significant drop in the contribution of the factors between the first and second factor suggest that the SMHIC scale reflects a single construct of interprofessional collaboration among SMH professionals. All 24 items loaded on to the first factor, with half of these cross-loading on one of the other factors. Cross-loading was determined by the researcher to not be an issue due to the significant drop in eigenvalues between the first and second factor. However, a forced extraction of one component was conducted to ensure that all items had sufficient loadings ($> .32$) on the first factor.

Following Rasch model analyses and item deletion, a PCA was run a second time to make a final determination of the factor structure of the SMHIC scale. This second analyses indicated three factors represented by the SMHIC as opposed to four; however, the first factor had an eigenvalue of 7.35 explaining 46% of the variance, while the

second and third had eigenvalues of 1.40 and 1.02, respectively. As suggested earlier, the significant drop in the contribution of the factors between the first and second factor indicates the SMHIC scale reflects a single construct of interprofessional collaboration among SMH professionals. This is predictable as the inherent nature of collaboration is interrelated—trust, communication, values, and power are reciprocal between those involved. Finding one factor of SMH professionals' current perceptions of interprofessional collaboration is important because it introduces a way to measure interprofessional collaboration as a single phenomenon, rather than breaking it down into disparate parts such as measuring communication or problem-solving processes.

Reliability. The internal structure (AERA, APA, & NCME, 1999) of the initial field version of the SMHIC with 24 items indicated strong reliability, with a Cronbach's alpha of .92. This was relatively consistent with the findings from the Rasch analysis. The person reliability for the initial field version of the SMHIC scale was .89. After scale revisions were made and the SMHIC scale reduced to 16 items, Cronbach's alpha was reduced to .91 with a person reliability of .89. Even though scale revisions resulted in a slightly lower Cronbach's alpha, these results indicate that the final version of the SMHIC scale with 16 items has high internal consistency.

Unidimensionality. The purpose of conducting a Rasch model analyses was to both examine the validity of the response processes (AERA, APA, & NCME, 1999) to the SMHIC and to ensure that the SMHIC scale was made up of items that would represent a unidimensional concept of current perceptions of interprofessional collaboration with and among one's SMH colleagues. Items should reflect different levels

of difficulty or amounts of the trait being investigated. This was examined using Rasch model analyses. Results from the initial analysis indicated 12 misfitting items, six of which demonstrated underfit. Three other problems with the 24 item version of the SMHIC scale were noted. Items 5, 7, 12, and 23 failed invariance (i.e., DIF). This result suggested that school psychologists, school counselors, and school social workers found it easier to endorse item 5 (My school mental health colleagues are more alike than they are different); all four groups found it easier to endorse item 7 (Personality clashes between my school mental health colleagues have a negative impact on the ability to collaborate); school psychologists and school counselors found it easier to endorse item 12 (In my current school, overlapping responsibilities are a barrier to interprofessional collaboration); and school psychologists, school counselors, and other school-based mental health professionals found it easier to endorse item 23 (My current school administrators support interprofessional collaboration between my school mental health colleagues and I). Additionally, poor scale use was indicated by the occurrence of inversion between category labels 3 (Unsure) and 4 (Agree), $-.32$ and $-.41$ respectively. This result suggested that it was harder to choose 'Agree' on the SMHIC, though the inversion was minor and within the standard error.

Finally, analysis of the person-item map indicated 18 redundant items and minimal spread of item difficulty. These results suggested that many of the 24 items on the SMHIC scale did not introduce new information as responses to one redundant item can be predicted from the responses of the other redundant items (Linacre, 2000). The results of the person-item map also suggest an absence of items assessing the measure

trait, interprofessional collaboration among SMH professionals, in a large portion of the sample and the items are generally too easy for the sample to choose the appropriate response to (i.e., items that should be agreed with are too easy to agree with, items that should be disagreed with are too easy to disagree with).

To address the misfitting items, items were deleted one by one until the remaining items exhibited reasonable fit to the model. In total, eight items were deleted. These were item 2 (Interprofessional collaboration allows everyone to share responsibility), item 3 (Interprofessional collaboration interferes with serving the needs of all students), item 5 (My school mental health colleagues are more alike than they are different), item 6 (At my current school, school mental health staff get contradictory directives about their role from administration), item 11 (Interprofessional collaboration contributes to a variety of solutions for students and families), item 13 (My current school administration promotes positive staff relationships throughout our building), item 23 (My current school administrators support interprofessional collaboration between my school mental health colleagues and I), and item 24 (My school mental health colleagues and I are able to collaborate in a mature, professional manner). This resulted in all items but one (item 7) related to school characteristics being deleted from the SMHIC scale (items 6, 13, and 23). There is no discernible pattern among the other five deleted items, making it difficult to speculate why these items misfit the model. These items came from both the interpersonal and outcomes domains. Of the 16 items remaining on the SMHIC scale, 10 fall under the interpersonal characteristics domain, five under the outcomes of interprofessional collaboration domain, and one under the school characteristics domain.

Two of the items that exhibited DIF (items 5 and 23) were deleted due to misfit. School psychologists, school counselors, and school social workers may have found it easier to endorse item 5 than other school-based mental health professionals because those are the three mental health professions traditionally found in schools and often associated with one another, whereas other school-based mental health professionals have very different training backgrounds and career experiences, thus making it more difficult for this group to endorse an item reflecting similarities between the groups. Items 7 and 12 remained in the final set of SMHIC items. As collaboration in general requires those involved to get along with one another, it is not surprising that all four groups found item 7 (Personality clashes between my school mental health colleagues have a negative impact on the ability to collaborate) easy to endorse. It is noteworthy that school psychologists and school counselors found it easier to endorse item 12 (In my current school, overlapping responsibilities are a barrier to interprofessional collaboration), but that school social workers and other school-based mental health professionals did not. This may indicate that these two groups either do not believe their responsibilities overlap with other SMH professionals, or that they do not find the overlap to be an obstacle to working with other professionals. Laundry et al. (2011) suggest that overlapping responsibilities can be considered a strength in support services, as it ensures that no aspect of care is overlooked. The final version of the SMHIC scale with 16 items found that the first dimension explained 48.7% of the variance. The largest secondary dimension explained 7.4% of the variance with an eigenvalue of 2.4, indicating the SMHIC scale is reasonably unidimensional.

Group differences. Significant differences in current perceptions of interprofessional collaboration among SMH colleagues were found. The mean score of the SMHIC for school psychologists was significantly higher than for school social workers and other school-based mental health professionals. Additionally, the mean score of the SMHIC for school counselors was significantly higher than for school social workers and other school-based mental health professionals. Interestingly, there was no significant difference between school psychologists and school counselors, and school social workers and other school-based community mental health professionals. These differences are maybe due to pre-service training experiences. School psychologists and school counselors take graduate level coursework specifically focused on K-12 education and support services, while school social workers and other school-based community mental health professionals take graduate level coursework that is more community-based and clinically focused. Additionally, in order to become licensed by a state department of education and certified by their respective national associations, school psychologists and school counselors must complete a year-long internship in a school setting. These two disciplines have already chosen at the start of their graduate level training to work in schools. In contrast, social workers and other community mental health professionals typically complete a clinical internship in a community setting before making the decision to pursue a career working in K-12 settings. Finally, due to the types of coursework and trainings these subsets of groups receive, each were exposed to different types of interprofessional collaboration within schools. School psychologists and school counselors experience interprofessional collaboration directly as school

employees from the start of their careers, while school social workers and other school-based community mental health professionals likely experienced interprofessional collaboration first as an ‘outsider’ in the school community. This could influence the lens through which each group views interprofessional collaboration as a general concept. Because of these differences in pre-service training, early career focus, and experiences with collaboration in schools, it is not surprising that there are significant differences in current perceptions of interprofessional collaboration among SMH colleagues between school psychologists and school counselors, and school social workers and other school-based community mental health professionals.

Conclusions. The results of this study found that the final 16-item version of the SMHIC scale has relatively strong psychometric properties and is an effective measure of current perceptions of interprofessional collaboration among SMH professionals. Of the final 16 SMHIC items, nine of them had 75% or higher agreement on the correct domain by expert judges. The remaining eight were either revised, moved to a new domain, or newly written. This indicates good content validity of the SMHIC scale. A PCA indicated the SMHIC scale represented one factor, perceptions of interprofessional collaboration, and Cronbach’s alpha was .90 indicating strong reliability of the measure. Items were found to be reasonably consistent with the Rasch model assumption of unidimensionality. Finally, the SMHIC scale was able to differentiate among SMH professionals, with significant differences between school psychologists and school social workers and other school-based community mental health professionals, and school counselors and school social workers and other school-based community mental health professionals.

Limitations of the Study

The results of this study must be taken in light of a few important limitations. One is the lack of larger focus groups in the initial phases of the study. Though Fowler (2009) recommends conducting at least two focus groups with six to eight people in each, in this dissertation two focus groups were conducted with only three participants in each. Another limitation was the uneven sample distribution in the field administration of the SMHIC. School counselors represented just over half of respondents. Other demographic limitations of the final field study were that the sample was overly represented by Caucasian females, with few male respondents and a lack of racial diversity among respondents. In terms of scale development, because the SMHIC scale is the first scale intended to measure current perceptions of interprofessional collaboration among SMH professionals, construct validity also could not be assessed using other scales measuring a similar concept. Additionally, based on results of the Rasch analysis, the SMHIC items appear to be at this time too easy for participants to respond to. A final limitation is that the term ‘interprofessional collaboration’ is relatively new and not clearly defined in the literature which means that interpretations by respondents may differ. Thus, even though a definition was provided to the participants, this definition which was the basis of this study may have been interpreted in different ways across the groups surveyed here.

Focus groups. As previously mentioned, it is recommended that when developing a survey, a minimum of two focus groups be conducted with six to eight participants in each (Fowler, 2009). A major limitation of this study was that while two focus groups were conducted, each focus group had only three participants. Focus group recruitment

proved to be difficult as it required a commitment of 60 to 90 minutes from participants, in addition to travel time. However, the themes that came out of the two focus groups are supported by the literature, as Mellin et al. (2014) found similar themes (e.g., interpersonal processes, school environment and practices, importance of administrative support) in focus groups on collaboration conducted with teachers, school psychologists, principals, and mental health professionals from a collaborating agency. To compensate for having few focus group participants, open-ended questions were included in the cognitive interviews to further refine the themes identified in the focus group transcriptions as those influencing perceptions of interprofessional collaboration.

Uneven sample distribution. The sample for the field administration of the SMHIC scale was overly represented by school counselors, females, and Caucasians. School counselors represented 59.2% of the sample population, while school psychologists represented 25%, school social workers 12.1%, and other school-based community mental health professionals represented 7% of the sample population. Of the 456 respondents, 91% were female and 91% were Caucasian. Hispanics/Latinos represented only 3.5% of the sample population, while African Americans represented 2.4%. While these demographic results are disappointing, they are not unexpected as the school mental health field in general lacks diversity among sex and race (Castillo, Curtis, & Gelley, 2013). As such, these results are a reasonable representation of the population as a whole.

Lack of construct validity. The current study was able to assess validity by examining test content (Phase Three), the internal structure of the test (Phase Four and

Five), and response processes (Phase Five). However, construct validity was not able to be determined as to date, there are no known reliable and valid measures on perceptions of current interprofessional collaboration among SMH colleagues. Construct validity is made up of two subtypes of validity, convergent and discriminant. Evaluating convergent validity would consist of determining if the SMHIC scale scores are correlated with the scores of a measure on a related construct, while discriminant validity would consist of determining if the SMHIC scale scores are uncorrelated with measures of unrelated constructs (Furr & Bacharach, 2008). In order to evaluate the convergent validity of the SMHIC, a similar measure on interprofessional collaboration would need to be administered to the same sample population as the SMHIC so that a pattern of correlations could be developed to assess similarities and differences in this construct across measures.

Item agreement. As evidenced by the lack of spread of items on the person-item map in Figure 2, the SMHIC items were fairly easy for respondents to respond to. Items that are intended to indicate positive perceptions of interprofessional collaboration among SMH professionals, such as “My school mental health colleagues are generally easy to get along with,” are too easy to select the response option ‘Agree’ on. Items that are intended to indicate negative perceptions of interprofessional collaboration among SMH professionals, such as “My school mental health colleagues do not respect one another’s perspectives,” are too easy to select the response option ‘Disagree’. The bulk of the items were not adjacent to the bulk of the persons, indicating that the SMHIC scale is not well targeted for this sample (Baghaei, 2008). However, there was good spread of persons on

the person-item map, which suggests a range of ability of respondents. Should the redundant items be rewritten to better represent a range of difficulty in endorsement, the items should then match with the ability of the persons. The SMHIC items would then be more appropriate for this sample.

Lack of clarity in terms. Throughout the literature, multiple terms are used when describing the process of a variety of disciplines working together for the benefit of a patient or student. The most common of these terms include multidisciplinary, interdisciplinary, and transdisciplinary. Interprofessional collaboration is a relatively new term, particularly in K-12 education, and comes from the healthcare field. Choi and Pak (2006) note that these terms are “ambiguously defined and interchangeably used” (p. 351). Because there is no clear definition for any of these terms that is consistently used in the literature, it is difficult to determine how the terms differ from one another and, when attempting to measure collaboration, which type of collaboration is being measured. While interprofessional collaboration can be tied to all of these terms, the current study used Choi and Pak’s (2006) definitions of multidisciplinary, interdisciplinary, and transdisciplinary and placed ‘interprofessional collaboration’ as falling between interdisciplinary and transdisciplinary collaboration. In interprofessional collaboration, professionals partner together through every step of the process, including when conducting assessments, and value the contributions of each specialist, exhibiting a shared power that recognizes and is based on each professional’s knowledge and expertise (D’Amour et al., 2005).

Implications for Interprofessional Collaboration in School Mental Health

When the adults in a child's life join forces to care for and support the holistic development of that child, she can succeed in anything she puts her mind to. Collaboration is essential to this process. Multiple disciplines (e.g., healthcare, education) are trying to determine how to best measure collaboration to be able to understand how it impacts patient and student outcomes. One recent trend related to collaboration is the practice of integrated services. The role of interprofessional collaboration within integrated services, particularly in the school setting, needs to be further explored. Finally, and perhaps most importantly, the impact of interprofessional collaboration in SMH on student outcomes starts with training SMH professionals on effective interprofessional collaborative practices. This begins in pre-service training with exposure to other mental health disciplines found in schools and to the interprofessional collaborative practices of supervisors at practicum and internship settings. Training on effective interprofessional collaboration continues with professional development through school and district training opportunities. The SMHIC scale is a first step in training on effective interprofessional collaboration, as graduate programs can use it with their interns to assess interprofessional collaboration as a pre-test and school districts can use it to assess current perceptions of interprofessional collaboration among SMH colleagues, thus determining if and where professional development is needed.

Assessing interprofessional collaboration for student outcome data. In the field of education, collaboration is often put forth as one method of improving student outcomes—yet to date, there has been little evidence supporting this claim (Mellin, 2009;

Mellin, Taylor, & Weist, 2014; Trach, 2012). A few studies have found a relationship between collaboration and outcomes, many of which come from the healthcare field (Lance, Rodney, & Hamilton-Pennell, 2000; Martin et al., 2010; Schmutz & Manser, 2013). One reason for the lack of supporting evidence may be that collaboration as an act is difficult to measure. Collaboration is not just individuals solving a problem together; it is how those individuals interact with one another and use one another's expertise to solve that problem that is at the heart of collaboration. In order to measure if and how collaboration has an impact on student outcomes, we must first have a way of clearly defining the type of collaboration being assessed. The SMHIC scale is intended to measure current perceptions of interprofessional collaboration among SMH professionals, and so should be used for that purpose with that specific population, as opposed to including other school professionals in a sample population, such as general and special education teachers and administrators. The SMHIC scale can be considered a moderator of student academic performance. It is a tool that can be used with SMH professionals that with the appropriate professional development interventions and trainings can strengthen the relationship between interprofessional collaboration and student academic performance.

Integrated services. At its heart, collaboration of any type or level is a systemic process. Improving system services requires effective collaboration, whether it be multi-, inter-, transdisciplinary, or interprofessional collaboration. Health service systems are increasingly recognizing the importance of collaboration and integrated services to improve individual outcomes. The WHO supports the systemic practice and defines

integrated service delivery as “the organization and management of health services so that people get the care they need, when they need it, in ways that are user-friendly, achieve the desired results and provide value for money” (2008, pg. 1, para. 2). The American Psychiatric Association (APA) recently was chosen as one organization to participate in a multi-million-dollar four-year federal grant, Transforming Clinical Practice Initiative (TCPI), from the Centers for Medicare and Medicaid Services (Moran, 2016). The APA will use these funds to train psychiatrists in the collaborative care model. The collaborative care model integrates physical and mental health care by linking primary care providers, case managers, and psychiatric consultants in caring for patients and monitoring their progress (Unützer, Harbin, Schoenbaum, & Druss, 2013). This grant is one major example of how the federal government is supporting integrated services and collaboration within health systems.

Globally, the mental health care field is also moving in the direction of integrated services (Bailey, 2013). Across the U.S., psychologists are working with pediatricians, obstetricians/gynecologists, and medical family practitioners to address the holistic needs of patients (APA, 2016b). Studies have found that when mental health and medical care are integrated, patients experience better health outcomes (Goodie, Isler, Hunter, & Peterson, 2009; Roy-Byrne et al., 2010). With a biopsychosocial orientation, medical family therapy is one example of such integrated care. In medical family therapy, family systems behavioral health professionals (i.e., family therapists, social workers, psychologists, and/or psychiatrists) work in primary care settings as members of an interdisciplinary team with primary care physicians (Gawinski & Rosenberg, 2011). Such

integration expands the capabilities of all professionals on the team, and leads to better health and wellness for all family members.

This trend in integrated services has been expanding into K-12 school systems over the past few decades. Collaboration is increasingly a focus in mental health promotion, risk prevention, assessment, early intervention, and intensive intervention efforts for students (Michael et al., 2014). Most of these activities are provided by school psychologists, school counselors, and school social workers, in addition to other school-based mental health professionals. The national associations for the three mental health professionals who most commonly provide mental health services in schools all highlight collaboration in their practice models (ASCA, 2012; Maras et al., 2014; NASP, 2010; NASW, 2012), while the Center for Mental Health in Schools also supports collaboration as a crucial practice for supporting the mental health needs of K-12 students (Adelman & Taylor, 2010). Such interprofessional collaboration relies on being able to access the expertise and skills of multiple disciplines and is a key component of emotional and behavioral intensive interventions such as the wraparound process. Wraparound originated out of the system of care movement and is used with the 1-2% of students with the highest emotional/behavioral support needs (Eber, Breen, Rose, Unizycki, & London, 2008). One principle critical to the wraparound process is involving multiple professionals from the different domains that are relevant to the student's needs (Eber et al., 2008).

Expanded school mental health (ESMH) programs also utilize collaboration as the primary way of meeting the mental health needs of youth (Cammack et al., 2014). In

ESMH, mental health programs are available to all students through a variety of mental health promotion and intervention services. In addition to the typical services offered by SMH professionals, additional assessment, therapy (individual, family, and group), staff consultation, and prevention activities are available in schools through partnerships between schools and community agencies, hospitals, and universities (Cammack et al., 2014). Professionals from different domains integrate their expertise and skills to deliver such services (Paternite, Weist, Axelrod, Anderson-Butcher, & Weston, 2006). The SMHIC scale can be used to help evaluate interprofessional collaboration among SMH professionals in ESMH programs. The resulting data can help administrators ensure that the ESMH programs offered in their school settings are effective and impactful.

MTSS is another prevention-based framework that incorporates interprofessional collaboration to improve learning outcomes for all students (CDE, 2013). In MTSS, leadership teams are established at the district and school level (Stoiber, 2014). Such teams agree on a common vision and language for implementing an MTSS framework throughout the different levels of the system (CDE, 2013). Teams also review and evaluate progress data in order to know how to best use funding and resources, including professional development activities. The SMHIC scale can be utilized by an MTSS leadership team to assess interprofessional collaboration among the SMH professionals who are key stakeholders in an MTSS framework.

As an integrated service, attempts have been made to measure collaboration. Bronstein (2002) developed the Index for Interdisciplinary Collaboration (IIC) to measure collaboration between social workers and other professionals. Mellin and

colleagues (2010) further refined the IIC to use in schools as the Index of Interprofessional Team Collaboration for Expanded School Mental Health (IITC-ESMH). Ødegård (2006) developed the Perception of Interprofessional Collaboration Model—Questionnaire (PINCOM-Q) to measure interprofessional collaboration in child mental health. While initially one of the intents of the current study was to identify factors that made up effective interprofessional collaboration, similar to these three scales the SMHIC measures perceptions of interprofessional collaboration. Like the IITC-ESMH, it is specific for use in schools. However, the target population differs from all three other scales as the the target population for the SMHIC are mental health professionals practicing within school systems, i.e. school psychologists, counselors, social workers, and other school-based mental health professionals. The SMHIC expands upon the personal characteristics factor that Bronstein found influenced interdisciplinary collaboration; however, the IIC also investigates other factors such as professional roles, structural characteristics, and history of interdisciplinary collaboration (Bronstein, 2002). Like the SMHIC scale, the PINCOM-Q is directly assessing perceptions of interprofessional collaboration and has its foundation in organizational psychology. The PINCOM-Q, though, investigates three constructs—individual, group, and organizational—while the SMHIC investigates mainly the interpersonal nature of collaboration. Finally, while the three comparative scales discussed have been around longer than the SMHIC, because both factor analysis and Rasch model analysis were used to analyze the SMHIC data and to refine the scale, the SMHIC is starting out as a more valid survey than the IIC, the IITC-ESMH, and the PINCOM-Q. As such,

administrative leadership teams can trust that the information provided by the SMHIC will be useful for determining if interprofessional collaboration is being effectively practiced and, if not, how professional development opportunities may improve such practices in order to promote a problem-solving culture (CDE, 2013).

Professional development for SMH professionals. The SMHIC scale provides an opportunity for administrators to identify gaps in the work environment for SMH professionals. As a first step in understanding if and how interprofessional collaboration among SMH professionals is impacting student academic, behavioral, and social-emotional outcomes, the SMHIC scale establishes a baseline of interprofessional collaboration that can then be monitored along with student outcomes. Should the scores on the SMHIC scale indicate poor interprofessional collaboration, administrators can plan professional development activities aimed at improving the interpersonal interactions featured within the SMHIC items, such as communication around role boundaries and attitudes of superiority.

Too often professional development in a specific area is offered as a one-time training, yet in order to embed new knowledge and skills into an individual's job performance, professional development should be ongoing with a consistent focus (Borko, 2004; Markle, Splett, Maras, & Weston, 2014). Markle et al. (2014) discuss three training areas for professional development that can improve team functioning. These include data-based decision-making, sharing practice, and evaluating team progress and effectiveness. While data-based decision-making is a current hot topic in education, not all SMH professionals receive pre-service training on the process of using data for needs

and goal identification, progress monitoring, and continual improvement (Markle et al., 2014; Pluymert, 2014; Ronka, Lachat, Slaughter, & Meltzer, 2008). Sharing practice means to be able to have critical discourse regarding the causes of students' struggling, as well as being willing to discuss the data one has acquired and one's practice with students (Markle et al., 2014; Musanti & Pence, 2010). To effectively share one's practice, professional development trainings can focus on productive communication and cross-disciplinary training on educational backgrounds, common language used by each profession, and professional goals (Markle et al., 2014; Musanti & Pence, 2010; Weist et al., 2012). Lastly, and most relevant to utilizing the SMHIC scale for professional development purposes, evaluating team progress and effectiveness is related to enhanced team outcomes (Powers, 2001). Bartel and Mortenson (2006) suggest using a checklist system and garnering ongoing feedback from team members on the teaming process. The SMHIC scale is ideally suited for such an activity, as it provides a way to track current perceptions of interprofessional collaboration practices at different times. By continuously monitoring such practices, SMH professionals are able to correct any errors made in collaborative efforts and implement processes for team improvement (Burns, Vanderwood, & Ruby, 2005). While professional development trainings on data-based decision-making, shared practice, and evaluating team progress and effectiveness through use of the SMHIC scale are ideal ways to improve perceptions of interprofessional collaboration among SMH professionals, Michael et al. (2014) liken such post-graduate training on interprofessional collaboration to "a ship that is being built after it has been

launched” (p. 32). Understanding effective interprofessional collaborative practices should begin with pre-service training for SMH professionals.

Training for pre-service SMH professionals. As the term ‘interprofessional collaboration’ is relatively new and in the process of being researched, much attention is being paid to interprofessional education, specifically in the healthcare field.

Interprofessional education involves two or more undergraduate or graduate students from different disciplines interacting to learn more about the collaborative process and to learn with, from, and about one another’s discipline (Williams et al., 2012; Zwarenstein, Reeves, & Perrier, 2005). The major outcome of such training is that SMH professionals begin their careers with multiple competencies in interprofessional collaboration (Michael, Renkert, Winek, & Massey, 2010). In fact, interprofessional collaboration is listed as one of the seven domain areas of competencies to support interprofessional practice in SMH (Ball, Anderson-Butcher, Mellin, & Green, 2010; Michael et al., 2014). The competencies that are included in the interprofessional collaboration domain are mainly interpersonal in nature (e.g., knowledge and skills related to effective communication, having the ability to collaborate with others individually and in teams, building relationships with others, understanding the roles of the other disciplines working in and with schools) (Michael et al., 2014). This supports the results of the current study that found the sample population of SMH professionals endorsed more items from the interpersonal characteristics domain than any of the others.

However, there are notable challenges to implementing such cross-disciplinary training in institutes of higher education. One major challenge is that each discipline is

required by its accreditation body to include curricula aimed at specific skill development unique to that discipline (Morris & Hanley, 2001; Splett, Coleman, Maras, Gibson, & Ball, 2011). As such, coursework plans are time-intensive and inflexible (Michael et al., 2014). Yet despite being unique disciplines, school psychology, school counseling, and school social work all have a common theme of collaboration within their practice models as discussed earlier. Such commonalities are a prime opportunity to incorporate cross-disciplinary training to develop interprofessional collaboration skills. The SMHIC scale can not only be used by school administrators to identify gaps in interprofessional collaboration among SMH professionals; the SMHIC scale can be used by pre-service training programs to identify if intern-level students are being exposed to interprofessional collaboration at their internship sites, and whether or not that exposure is an example of effective interprofessional collaboration.

Organization development and social capital theory. This study was initially informed by the concept of organization development and social capital theory. Both theories influenced item development; however, as the study progressed, it became evident that the items being endorsed by respondents represented social capital as opposed to organization development. However, organization development is still an important perspective for the SMHIC scale. It is the use of the SMHIC scale in school systems that is related to organization development as opposed to the creation of the SMHIC scale items. Understanding the system of interprofessional collaboration among SMH colleagues can guide school administrators in planning effective professional development trainings that will then modify the organization structures, systems, process,

and relationships that influence interprofessional collaboration. The SMHIC scale can be used to increase the effectiveness of a school's mental health support services (Cummings & Worley, 2009). Assessing organizational factors and beliefs related to interprofessional collaboration and understanding how a system works is the beginning of systems reform (Creasey et al., 2016). To increase a culture of interprofessional collaboration, systems reform may be called for if the school has a reputation for having a negative work environment. As such, organization development as a concept relates directly to how the final version of the SMHIC scale can be used to effect change in a system.

Social capital theory guided the creation of the SMHIC scale items. The 'bonding view' of social capital theory posits that social capital is the links, or relationships, between individuals that give the whole group (i.e., SMH professionals) cohesiveness and allows for the pursuit of collective goals (Adler & Kwon, 2002; Bourdieu, 1986). An important component in the definition of interprofessional collaboration is interdependency due to a common goal (D'Amour et al., 2005). This interdependency in the work setting could be considered 'goodwill' between colleagues that have mutual trust for one another, and so can be used to enable action in the form of collaborating with one another with the goal of improving student outcomes (Adler & Kwon, 2002). The SMHIC scale items represent the concept of social capital between SMH colleagues as they highlight the interpersonal features of interprofessional collaboration. The SMHIC scale measures social capital, and the data can then be used for modifying organizational structures, processes, and relationships. In understanding how SMH

professionals perceive interprofessional collaboration with their SMH colleagues, there is an opportunity to reinforce and strengthen the links between the individual employees, which in turn leads to all disciplines offering their unique expertise and skills to problem solve together and achieve a common goal.

Future Directions for the SMHIC Scale

Scale refinement is an ongoing process that requires further steps beyond what was conducted for the current study. The next step would be to re-write the redundant items as identified in the person-item map. Rephrasing these items so that they are harder to agree with will result in a larger spread of item difficulty, thus making the SMHIC scale a stronger measure of current perceptions of interprofessional collaboration with and among SMH professionals. Second, content validity should be reassessed with the final 16 items on the SMHIC, as some of these items were refined or added following the content validation phase of the study. Third, as interprofessional collaboration in SMH receives more attention in the literature and new scales are developed, the construct validity of the SMHIC scale should be determined. It is important for the validity of the SMHIC scale to be sure it correlates with scales on related constructs. Fourth, the SMHIC scale should be tested with a larger sample that more evenly represents the different SMH professional disciplines. The current study had an overrepresentation of school counselors, and a more equal distribution of SMH professionals would provide more reliable psychometrics.

The final recommendation for the future direction of the SMHIC scale is to recruit school districts to administer the scale in specific school sites. As the SMHIC scale is

intended to be used in a school setting to establish the school's currently employed SMH professionals' perceptions of interprofessional collaboration with one another, it is vital that the SMHIC scale be tested in this way. Such an administration of the scale would provide evidence its usefulness for determining where there are gaps in interprofessional collaboration and if professional development trainings are warranted. As a first step in having a deeper understanding of interprofessional collaboration among SMH professionals, the SMHIC scale can be used in conjunction with tracking students' academic, social-emotional, and behavioral outcomes to have a stronger understanding of the impact collaboration has on those outcomes.

Conclusion

In conclusion, the development of a scale on SMH professionals' current perceptions of interprofessional collaboration is a necessary step in providing evidence-based data on the impact collaboration among SMH professionals has on student outcomes. Both the SMH and education fields claim that collaboration has a positive impact on student outcomes, and while it is highly unlikely this is a false claim, few studies have been conducted that prove this to be true. Research has been done in the healthcare field on the impact of interprofessional collaboration on patient outcomes, and while much of this can be transferred to the education field, it is crucial for the SMH field to have hard evidence of the value of interprofessional collaboration among SMH professionals. This is particularly true as many schools in the U.S. struggle with funding for additional mental health promotion resources and staff. As a reliable and valid scale, the SMHIC scale is one way to begin to collect such evidence.

Additionally, the SMHIC scale can be used for both pre-service and post-service training opportunities. Institutes of higher education with SMH programs can use the SMHIC scale to determine if practicum and intern students are being exposed to effective interprofessional collaboration. School leadership teams can use the SMHIC scale to investigate perceptions of interprofessional collaboration among a school or district's SMH professionals, and to then plan professional development opportunities geared towards improving the interpersonal interactions between SMH professionals that make up interprofessional collaboration. Interprofessional collaboration is a fundamental element when working with students and families with mental health concerns. The *School Mental Health Interprofessional Collaboration* scale is a reliable and valid measure that was developed as a first step in understanding how this integral SMH standard of practice impacts students' academic achievement and mental health.

References

- Adelman, H.S., & Taylor, L. (2003). Toward a comprehensive policy vision for mental health in schools. In M. Weist, S. Evans, & N. Lever (Eds.), *Handbook of school mental health programs: Advancing practice and research* (pp. 23-43). Norwell, MA: Kluwer Academic Publishers.
- Adelman, H.S., & Taylor, L. (2010). *Mental health in schools: Engaging learners, preventing problems, and improving schools*. Thousand Oaks, CA: Corwin.
- Adelman, H.S, & Taylor, L. (2012). Mental health in schools: Moving in new directions. *Contemporary School Psychology, 16*, 9-18.
- Adler, P.S., & Kwon, SW. (2002). Social capital: Prospects for a new concept. *Academy of Management Review, 27*(1), 17-40.
- Agresta, J. (2004). Professional role perceptions of school social workers, school psychologists, and school counselors. *Children & Schools, 26*(3), 151-163.
- Altshuler, S.J., & Webb, J.R. (2009). School social work: Increasing the legitimacy of the profession. *Children & Schools, 31*(4), 207-218.
- American Counseling Association, American School Counselor Association, and National Education Association. (2016, September 15). *Who are school counselors?* Retrieved from <https://www.schoolcounselor.org/asca/media/asca/home/WhoAreSchoolCounselors.pdf>

- American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (1999). *Standards for educational and Psychological testing*. Washington, D.C.: American Educational Research Association.
- American Psychological Association. (2015). *School psychology*. Retrieved from <http://www.apa.org/ed/graduate/specialize/school.aspx>
- American Psychological Association. (2016a). *Industrial and organizational psychology*. Retrieved from <http://www.apa.org/ed/graduate/specialize/industrial.aspx>
- American Psychological Association. (2016b). *Integrated health care*. Retrieved from <http://www.apa.org/health/integrated-health-care.aspx>
- American School Counselor Association. (2012). *ASCA school counselor competencies*. Retrieved from <https://www.schoolcounselor.org/asca/media/asca/home/SCCompetencies.pdf>
- Anderson-Butcher, D., Stetler, E.G., & Middle, T. (2006). A case for expanded school-community partnerships in support of positive youth development. *Children & Schools*, 28, 155-163.
- Anglin, T.M. (2003). Mental health in school: Program of the federal government. In M. Weist, S. Evans, & N. Lever (Eds.), *Handbook of school mental health programs: Advancing practice and research* (pp. 89-106). Norwell, MA: Kluwer Academic Publishers.

- Athanasidou, S.M., & Riley, K. (2008). Best practices in personnel preparation for early childhood service. In A. Thomas & J. Grimes (Eds.), *Best Practices in School Psychology V*, (pp. 2041-2052). Bethesda, MD: NASP.
- Austin, J. (2011). From organization to organization: On creating value. *Journal of Business Ethics*, *94*, 13-15. doi:10.1007/s10551-011-0787-z
- Baghaei, P. (2008). The Rasch model as a construct validation tool. *Rasch Measurement Transactions*, *22*(1), 1145-1146.
- Bailey, D. (2013). Mental health. In B. Littlechild & R. Smith (Eds.), *A handbook for Interprofessional practice in the human services: Learning to work together* (pp. 91-102). Harlow, England: Pearson.
- Ball, A., Anderson-Butcher, D., Mellin, E.A., & Green, J.H. (2010). A cross-walk of professional competencies involved in expanded school mental health: An exploratory study. *School Mental Health*, *2*, 114-124.
- Bartel, S.M., & Mortenson, B.P. (2006). Enhancing adherence to a problem-solving model for middle-school pre-referral teams. *Journal of Applied School Psychology*, *22*, 109-123.
- Benson, J., & Clark, F. (1982). A guide for instrument development and validation. *The American Journal of Occupational Therapy*, *36*(12), 789-800.
- Bond, T.G., & Fox, C.M. (2001). *Applying the Rasch model: Fundamental measurement in the human sciences*. Mahwah, NJ: Lawrence Erlbaum.

- Bourdieu, P. (1986). The forms of capital. In J.E. Richardson (Ed.), *Handbook of theory of research for the sociology of education*, (pp. 241-258). New York, NY: Greenwood.
- Borko, H. (2004). Professional development and teacher learning: Mapping the terrain. *Educational Researcher*, 33(8), 3-15. doi:10.3102/0013189X033008003
- Bronstein, L.R. (2002). Index of interdisciplinary collaboration. *Social Work Research*, 26(2), 113-126. doi:10.1093/swr/26.2.113
- Bronstein, L.R. (2003). A model for interdisciplinary collaboration. *Social Work*, 48(3), 297-306.
- Burns, M.K., Vanderwood, M.L., & Ruby, S. (2005). Evaluating the readiness of pre-referral intervention teams for use in a problem solving model. *School Psychology Quarterly*, 20, 89-105. doi:10.1521/scpq.20.1.89.64192
- Cammack, N.L, Brandt, N.E., Slade, E., Lever, N.A., & Stephan, S. (2014). Funding expanded school mental health programs. In M.D. Weist, N.A. Lever, C.P. Bradshaw, & J.S. Owens (Eds.), *Handbook of School Mental Health: Research, Training, Practice, and Policy* (2nd ed.), (pp. 17-30). New York, NY: Springer.
- Canadian Institutes of Health Research. (2005). *Training program grant guide: Strategic training initiative in health research*. Ottawa, Canada: Author.
- Castillo, J.M., Curtis, M.J., & Gelley, C.D. (2013). Gender and race in school psychology. *School Psychology Review*, 42(3), 262-279.

Center for Health and Health Care in Schools. (2003). *Caring for kids is giving children the help they need at school: This is how it works*. Washington, DC: George Washington University.

Chiang, K.S., Green, K.E., & Cox, E.O. (2009). Rasch analysis of the Geriatric Depression Scale-Short Form. *The Gerontologist*, 1-14.

doi:10.1093/geront/gnp018

Choi, B.C.K., & Pak, A.W.P. (2006). Multidisciplinarity, interdisciplinarity, and transdisciplinarity in health research, services, education and policy: 1. Definitions, objectives, and evidence of effectiveness. *Clinical and Investigative Medicine*, 29(6), 351-364.

Christenson, S.L., Whitehouse, E.M., & VanGetson, G.R. (2008). Partnering with families to enhance students' mental health. In B. Doll & J.A. Cummings (Eds.), *Transforming school mental health services: Population-based approaches to promoting the competency and wellness of children* (pp.69-101). Thousand Oaks, CA: Corwin Press.

Collaborative for Academic, Social, and Emotional Learning. (2015). *Social and emotional learning core competencies*. Retrieved from

<http://www.casel.org/social-and-emotional-learning/core-competencies/>

Colorado Department of Education. (2013). *What is MTSS?* Retrieved from

<http://www.cde.state.co.us/mtss/whatismtss>

- Cooper, M., Evans, Y., & Pybis, J. (2016). Interagency collaboration in children and young people's mental health: A systematic review of outcomes, facilitating factors and inhibiting factors. *Child: Care, Health, and Development*, 42(3), 325-342. doi:10.1111/cch.12322
- Creasey, T., Jamieson, D.W., Rothwell, W.J., & Severini, G. (2016). Exploring the relationship between organization development and change management. In W.J. Rothwell, J.M. Stavros, & R.L. Sullivan (Eds.), *Practicing organization development: Leading transformation and change* (4th ed., pp. 330-337). Hoboken, NJ: John Wiley & Sons.
- Cummings, T.G., & Worley, C.G. (2009). *Organization development and change* (9th ed.). Mason, OH: South-Western.
- D'Amour, D., Ferrada-Videla, M., San Martin Rodriguez, L., & Beaulieu, M.D. (2005). The conceptual basis for interprofessional collaboration: Core concepts and theoretical frameworks. *Journal of Interprofessional Care*, 1, 116-131. doi:10.1080/13561820500082529
- D'Amour, D., Goulet, L., Labadie, J.F., Martín-Rodriguez, L.S., & Pineault, R. (2008). A model and typology of collaboration between professionals in healthcare organizations. *BMC Health Services Research*, 8(188), 1-14. doi:10.1186/1472-6963-8-188
- DeKruyf, L., Auger, R.W., & Trice-Black, S. (2013). The role of school counselors in meeting students' mental health needs: Examining issues of professional identity. *Professional School Counseling*, 16(5), 271-282.

- DeVellis, R.F. (2012). *Scale development* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Diaz, M. (2013). Tales and trails from consultation: Improving interdisciplinary teams and collaborative practices for school social workers and teachers. *Reflections: Narratives of Professional Helping*, 19(4), 41-50.
- Doll, B., & Cummings, J.A. (2008). Why population-based services are essential for school mental health, and how to make them happen in your school. In B. Doll & J.A. Cummings (Eds.), *Transforming school mental health services: Population-based approaches to promoting the competency and wellness of children* (pp.1-19). Thousand Oaks, CA: Corwin Press.
- Durlak, J.A., Weissberg, R.P., Dymnicki, A.B., Taylor, R.D., & Schellinger, K.B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. 82(1), 405-432.
doi:10.1111/j.1467-8624.2010.01564.x
- Eber, L., Breen, K., Rose, J., Unizycki, R.M., & London, T.H. (2008). Wraparound as a tertiary level intervention for students with emotional/behavioral needs. *Teaching Exceptional Children*, 40(6), 16-22.
- Epstein, J.L., & Van Voorhis, F.L. (2010). School counselors' roles in developing partnerships with families and communities for student success. *Professional School Counseling*, 14(1), 1-14.
- Field, A. (2013). *Discovering statistics using IBM SPSS Statistics* (4th ed.). New Delhi, India: Sage Publications.

- Flaherty, L.T., Weist, M.D., & Warner, B.S. (1996). School-based mental health services in the United States: History, current models and needs. *Community Mental Health Journal, 32*(4), 341-352.
- Florida's Positive Behavior Support Project. (2011). *Implementing a multi-tiered system of support for behavior: Recommended practices for school and district leaders*. Tampa, FL: University of South Florida.
- Forman, S.G., Olin, S., Hoagwood, K., Crowe, M., & Saka, N. (2009). Evidence-based intervention in schools: Developers' views of implementation barriers and facilitators. *School Mental Health, 1*, 26-36.
- Fowler, F. J. (2009). *Survey research methods*. Los Angeles, CA: Sage.
- Furlong, M., Paige, L.Z., Osher, D. (2003). The Safe Schools/Health Students (SS/HS) Initiative: Lessons learned from implementing comprehensive youth development programs. *Psychology in the Schools, 40*(5), 447-456. doi:10.1002/pits.10102
- Furr, R.M., & Bacharach, V.R. (2008). *Psychometrics: An introduction*. Thousand Oaks, CA: Sage Publications.
- Gable, R.A., Mostert, M.P., & Tonelson, S.W. (2004). Assessing professional collaboration in schools: Knowing what works. *Preventing School Failure, 48*(3), 4-8.
- Gallagher, P.A., Malone, D.M., & Ladner, J.R. (2009). Social-psychological support personnel: Attitudes and perceptions of teamwork supporting children with disabilities. *Journal of Social Work in Disability & Rehabilitation, 8*, 1-20. doi:10.1080/15367100802665540

- Gawinski, B., & Rosenberg, T. (2011). Becoming a medical family therapist: Tips for getting started. *Family Therapy Magazine, 10*(4), 18-27.
- Goddard, Y. L., Goddard, R. D., & Tschannen-Moran, M. (2007). A theoretical and empirical investigation of teacher collaboration. *Teacher College Record, 109*(4), 877-896.
- Goodie, J.L., Isler, W.C., Hunter, C., & Peterson, A.L. (2009). Using behavioral health consultants to treat insomnia in primary care: A clinical case series. *Journal of Clinical Psychology, 65*(3), 294-304.
- Granovetter, M.S. (1973). The strength of weak ties. *American Journal of Sociology, 78*(6), 1360-1380.
- Gupta, K. (1999). *A practical guide to needs assessment*. San Francisco, CA: Jossey-Bass/Pfeiffer.
- Hess, R.S., Short, R.J., & Hazel, C.E. (2012). *Comprehensive children's mental health services in schools and communities*. New York, NY: Routledge.
- Hollenberg, D., & Bourgeault, I.L. (2011). Linking integrative medicine with interprofessional education and care initiatives: Challenges and opportunities for interprofessional collaboration. *Journal of Interprofessional Care, 25*, 182-188. doi: 10.3109/13561820.2011.552133
- Horwath, J., & Morrison, T. (2007). Collaboration, integration and change in children's services: Critical issues and key ingredients. *Child Abuse & Neglect, 31*(1), 55-69. doi:10.1016/j.chiabu.2006.01.007

- Hunter, L. (2001, Spring). The value of school-based mental health programs. *Report on Emotional and Behavioral Disorders in Youth, 1*, 27-28, 46.
- Jain, A., Luo, E., Yang, J., Purkiss, J., & White, C. (2012). Implementing a nurse-shadowing program for first-year medical students to improve interprofessional collaboration on Health care teams. *Academy of Medicine, 87*(9), 1292-1295.
doi:10.1097/ACM.0b013e31826216d0
- Jex, S.M., & Britt, T.W. (2014). *Organizational psychology: A scientist-practitioner approach* (3rd ed.). Hoboken, NJ: Wiley.
- Katz, D., & Kahn, R.L. (1978). *The social psychology of organizations* (2nd ed.). New York, NY: Wiley.
- Kessler, D. (1999). Transdisciplinary approach to pediatric undernutrition. *Developmental Behavioral News, 8*.
- Knoke, D. (1999). Organizational networks and corporate social capital. In R. Th. A. J. Leenders & S. M. Gabbay (Eds.), *Corporate social capital and liability* (17-42). Boston, MA: Kluwer.
- Knowlton, S., Fogleman, J., Reichsman, F., & de Oliveira, G. (2015). Higher education faculty collaboration with K-12 teachers as a professional development experience for faculty. *Journal of College Science Teaching, 44*(4), 46-53.
- Krueger, R.A., & Casey, M.A. (2000). *Focus groups: A practical guide for applied research* (3rd ed.). London, UK: Sage Publications.

- Kvarnström, S. (2008). Difficulties in collaboration: A critical incident study of interprofessional healthcare teamwork. *Journal of Interprofessional Care*, 22(2), 191-203.
- Lance, K.C., Rodney, M.J., & Hamilton-Pennell, C. (2000). *How school librarians help kids achieve standards: The second Colorado study* [Brochure]. Retrieved from <https://www.lrs.org/documents/lmcstudies/CO/execsumm.pdf>
- Laundy, K.C., Nelson, W., & Abucewicz, D. (2011). Building collaborative mental health teams in schools through mft school certification: Initial findings. *Contemporary Family Therapy*, 33, 384-399. doi:10.1007/s10591-011-9158-2
- Lee, M. Y., Teater, B., Hsu, K. S., Greene, G. J., Fraser, J. S., Solovey, A. D., & Grove, D. (2013). Systems collaboration with schools and treatment of severely emotionally disturbed children or adolescents. *Children & Schools*, 35(3), 155-168. doi:10.1093/cs/ccltO13
- Linacre, J.M. (1999). Investigating rating scale category utility. *Journal of Outcome Measurement*, 3(2), 103-122.
- Linacre, J.M. (2000). Redundant items, overfit and measure bias. *Rasch Measurement Transactions*, 14(3), p. 755.
- Linacre, J.M. (2002). What do infit and outfit, mean square, and standardized mean? *Rasch Measurement transactions*, 16(2), p. 878.
- Linacre, J.M. (2016). *A user's guide to Winsteps Ministep Rasch-model computer program* [PDF file]. Retrieved from <http://www.winsteps.com/manuals.htm>

- Linacre, J.M., & Wright, B.D. (1994). Reasonable mean-square fit values. *Rasch Measurement Transactions*, 8(3), 370.
- Lister, L. (1980). Role expectations of social workers and other health professionals. *Health & Social Work*, 5(2), 41-49.
- Lutfiyya, M.N., Brandt, B., Delaney, C., Pechacek, J., & Cerra, F. (2015). Setting a research agenda for interprofessional education and collaborative practice in the context of United States health system reform. *Journal of Interprofessional Care*, 1-8. doi:10.3109/13561820.2015.1040875
- Maras, M.A., Thompson, A.M., Lewis, C., Thornburg, K., & Hawks, J. (2014). Developing a tiered response model for social-emotional learning through interdisciplinary collaboration. *Journal of Educational and Psychological Consultation*, 25(2-3), 198-223. doi:10.1080/10474412.2014.929954
- Markle, R.S., Splett, J.W., Maras, M.A., & Weston, K.J. (2014). Effective school teams: Benefits, barriers, and best practices. In M.D. Weist, N.A. Lever, C.P. Bradshaw, & J.S. Owens (Eds.), *Handbook of School Mental Health: Research, Training, Practice, and Policy* (2nd ed.), (pp. 59-73). New York, NY: Springer.
- Martin, J.S., Ummenhofer, W., Manser, T., & Spirig, R. (2010). Interprofessional collaboration among nurses and physicians: Making a difference in patient outcome. *Swiss Medical Weekly*, 140, 1-7. doi:10.4414/smw.2010.13062
- Mellin, L. (2009). Unpacking interdisciplinary collaboration in expanded school mental health: A conceptual model for developing the evidence base. *Advances in School Mental Health Promotion*, 2(3), 4-14.

- Mellin, E.A., Bronstein, L., Anderson-Butcher, D., Amorose, A.J., Ball, A., & Green, J. (2010). Measuring interprofessional collaboration in expanded school mental health: Model refinement and scale development. *Journal of Interprofessional Care*, 24(5), 514-523. doi:10.3109/13561821003624622
- Mellin, E.A., Taylor, L., & Weist, M.D. (2014). The Expanded School Mental Health Collaboration Instrument [School Version]: Development and initial psychometrics. *School Mental Health*, 6, 151. doi:10.1007/s12310-013-9112-6
- Merikangas, K.R., He, J., Burstein, M., Swanson, S.A., Avenevoli, S., Cui, L.,...Swendsen, J. (2010). Lifetime prevalence of mental disorders in U.S. adolescents: Results from the National Comorbidity Survey Replication—Adolescent Supplement (NCS-A). *Journal of the American Academy of Child & Adolescent Psychiatry*, 49(10), 980-989.
- Michael, K.D., Bernstein, S., Owens, J.S., Albright, A., & Anderson-Butcher, D. (2014). Preparing school mental health professionals: Competencies in interdisciplinary and cross-system collaboration. In M.D. Weist, N.A. Lever, C.P Bradshaw, & J.S. Owens (Eds.), *Handbook of School Mental Health: Research, Training, Practice, and Policy* (2nd ed., pp. 31-43). New York, NY: Springer.
- Michael, K.D., Renkert, L., Winek, J., & Massey, C. (2010). So you don't just take babies? Debunking discipline-specific stereotypes and other lessons about true interdisciplinary collaboration. *The Community Psychologist*, 43, 18-20.

- Moran, M. (2016). APA to launch training under federal integrated care grant. *Psychiatric News*. Retrieved from <http://psychnews.psychiatryonline.org/doi/full/10.1176/appi.pn.2016.2a2?trendmd-shared=0&>
- Morris, J.A., & Hanley, J.H. (2001). Human resource development: A critical gap in child mental health reform. *Administration and Policy in Mental Health and Mental Health Services Research*, 28, 219-227.
- Musanti, S.I., & Pence, L. (2010). Collaboration and teacher development: Unpacking resistance, constructing knowledge, and navigating identities. *Teacher Education Quarterly*, 37(1), 73-89.
- National Association of School Psychologists. (n.d.). *An overview of school-based mental health services*. Retrieved from http://www.nasponline.org/advocacy/overview_sbmh.pdf
- National Association of School Psychologists. (2010). *Standards for graduate preparation of school psychologists*. Retrieved from http://www.nasponline.org/standards/2010standards/1_graduate_preparation.pdf
- National Association of School Psychologists. (2014). *Who are school psychologists?* Retrieved from http://www.nasponline.org/about_sp/who-are-school-psychologists.aspx
- National Association of Social Workers. (2012). *NASW standards for school social work services*. Washington, D.C: Author.

- National Commission on Excellence in Education. (1983). A nation at risk: The imperative for educational reform. *The Elementary School Journal*, 82(2), 113-130.
- Natural Sciences and Engineering Research Council of Canada. (2012). *Guidelines for the preparation and review of applications in interdisciplinary research*. Retrieved from http://www.nserc-crsng.gc.ca/NSERC-CRSNG/Policies-Politiques/prepInterdiscip-prepInterdiscip_eng.asp
- Ødegård, A. (2005). Perceptions of interprofessional collaboration in relation to children with mental health problems: A pilot study. *Journal of Interprofessional Care*, 19(4), 347-357. doi:10.1080/13561820500148437
- Ødegård, A. (2006). Exploring perceptions of interprofessional collaboration in child mental health care. *International Journal of Integrated Care*, 6, 1-13.
- Ødegård, A., & Strype, J. (2009). Perceptions of interprofessional collaboration within child mental health care in Norway. *Journal of Interprofessional Care*, 23(3), 286-296. doi:10.1080/13561820902739981
- Paternite, C.E., Weist, M.D., Axelrod, J., Anderson-Butcher, D., & Weston, K. (2006). *School-based behavioral health workforce development*. Washington, DC: The Annapolis Coalition on the Behavioral Health Workforce.
- Phillippo, K.L., & Bloser, A. (2013). Specialty practice or interstitial practice? A Reconsideration of school social work's past and present. *Children & Schools*, 35(1), 19-31. doi:10.1093/cs/cds039

- Pluymert, K. (2014). Problem-solving foundations for school psychological services. In P.L. Harrison & A. Thomas (Eds.), *Best practices in school psychology* (pp. 25-39). Bethesda, MD: National Association of School Psychologists.
- Porras, J.I., & Robertson, P.J. (1992). Organizational development: Theory, practice, and research. In M.D. Dunnette & L.M. Hough (Eds.), *The handbook of industrial and organizational psychology* (Vol. 3, pp. 719-822). Palo Alto, CA: Consulting Psychologists Press.
- Powers, K. M. (2001). Problem solving student support teams. *The California School Psychologist, 6*, 19-30.
- President's New Freedom Commission on Mental Health. (2003). *Final report to the president*. Washington, DC: Author. Available at http://www2.nami.org/template.cfm?section=new_freedom_commission
- President's New Freedom Initiative. (2007). *The 2007 progress report*. Retrieved from <http://georgewbush-whitehouse.archives.gov/infocus/newfreedom/newfreedom-report-2007.html>
- Rappaport, N., Osher, D., Greenberg Garrison, E., Anderson-Ketchmark, C., & Dwyer, K. (2003). Enhancing collaboration within and across disciplines to advance mental health programs in schools. In M.D. Weist, S.W. Evans, & N.A. Lever (Eds.), *Handbook of School Mental Health: Advancing Practice and Research* (pp. 107-118). New York, NY: Kluwer Academic/Plenum Publishers.
- Redmond, R., & Curtis, E. (2009). Focus groups: Principles and process. *Nurse Researcher, 16*(3), 57-69.

- Reese, D.J., & Sontag, M.A. (2001). Successful interprofessional collaboration on the hospice team. *Health and Social Work, 26*(3), 167-175.
- Rones, M., & Hoagwood, K. (2000). School mental health services: A research review. *Clinical Child and Family Psychology Review, 3*, 223-241.
- Ronka, D., Lachat, M.A., Slaughter, R., & Meltzer, J. (2008). Answering the questions that count: Examining student data through the lens of pressing questions can mobilize staff, promote data literacy, and help raise student achievement. *Educational Leadership, 66*(4), 18-24.
- Rose, J. (2011). Dilemmas of inter-professional collaboration: Can they be resolved? *Children & Society, 25*, 151-163. doi:10.1111/j.1099-0860.2—9.00268.x
- Rousseau, C., Laurin-Lamothe, A., Nadeau, L., & Deshaies, S. M., Measham, T. (2012). Measuring the quality of interprofessional collaboration in child mental health collaborative care. *International Journal of Integrated Care, 12*, 1-8.
- Roy-Byrne, P., Stein, M.B., Russo, J., Craske, M., Katon, W., Sullivan, G., & Sherbourne, C. (2005). Medical illness and response to treatment in primary care panic disorder. *General Hospital Psychiatry, 27*(4), 237-243.
- Rummel, R.J. (1970). *Applied factor analysis*. Evanston, IL: Northwestern University Press.
- Schmutz, J., & Manser, T. (2013). Do team processes really have an effect on clinical performance? A systematic literature review. *British Journal of Anaesthesia, 110*(4), 531-544. doi:10.1093/bja/aes513

School Social Work Association of America. (2012). *School social work services*.

Retrieved from <http://c.ymcdn.com/sites/www.sswaa.org/resource/resmgr/SSW/>

School_Social_Work_Services_.pdf

Soskolne, C. (2000). Transdisciplinary approaches for public health. *Epidemiology*, 11(4), S122.

Sosa, L.V., & McGrath, B. (2013). Collaboration from the ground up: Creating effective teams. *School Social Work*, 38(1), 34-48.

Splett, J.W., Coleman, S.L., Maras, M.A., Gibson, J.E., & Ball, A. (2011). Learning by teaching: Reflections on developing a curriculum for school mental health collaboration. *Advances in School Mental Health Promotion*, 4, 27-38.

Stephan, S.H., Weist, M., Kataoka, S., Adelsheim, S., & Mills, C. (2007). Transformation of children's mental health services: The role of school mental health. *Psychiatric Services*, 58(10), 1330-1338.

Stewart, D.W., Shamdasani, P.N., & Rook, D.W. (2007). *Focus groups: Theory and practice* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Stoiber, K.C. (2014). A comprehensive framework for multitiered systems of support in school psychology. In P.L. Harrison & A. Thomas (Eds.), *Best practices in school psychology* (pp. 41-70). Bethesda, MD: National Association of School Psychologists.

Streeter, C., & Franklin, C. (2002). Standards for school social work in the 21st century. In A.R. Roberts & G.J. Greene (Eds.), *Social workers' desk reference* (pp. 612-618). New York: Oxford University Press.

- Tabachnick, B.G., & Fidell, L.S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Allyn & Bacon.
- The National Education Goals Panel. (2002). *NEGP: Complete information for all goals*. Retrieved August 19, 2015, from <http://govinfo.library.unt.edu/negp/page3-1.htm>
- Trach, J.S. (2012). Degree of collaboration for successful transition outcomes. *The Journal of Rehabilitation*, 78(2), 39-48.
- Tourangeau, R. (1984). Cognitive sciences and survey methods. In T. Jabine, M. Straf, J. Tanur, & R. Tourangeau (Eds.), *Cognitive aspects of survey methodology: Building a Bridge Between Disciplines*, pp. 73-100. Washington, DC: National Academy Press.
- Unützer, J., Harbin, H., Schoenbaum, M., & Druss, B. (2013). *The Collaborative Care Model: An approach for integrating physical and mental health care in Medicaid health homes*. Retrieved from http://www.chcs.org/media/HH_IRC_Collaborative_Care_Model__052113_2.pdf
- U.S. Department of Health and Human Services. (1991). *Healthy people 2000: National health promotion and disease prevention objectives* (DHHD Publication No. PHS 91-50212). Washington, DC: U.S. Government Printing Office.
- U.S. Department of Health and Human Services. (1999). *Mental health: A report of the Surgeon General*. Rockville, MD: Author.

- Vaillancourt, K., Cowan, K.C., & Skalski, A.K. (2013). *Providing mental health services within a multi-tiered system of supports*. Retrieved from http://www.nasponline.org/resources/handouts/depression/handout_MTSS_key_points.pdf
- Vanderbleek, L.M. (2004). Engaging families in school mental health treatment. *Journal of Mental Health Counseling, 26*(3), 211-224.
- van Garderen, D., Stormont, M., & Goel, N. (2012). Collaboration between general and special educators and student outcomes: A need for more research. *Psychology in the Schools, 49*(5), 483-497. doi:10.1002/pits.21610
- Vidair, H.B., Sauro, D., Blocher, J.B., Scudellari, L.A., & Hoagwood, K.E. (2014). Empirically supported school-based mental health programs targeting academic and mental health functioning. In H.M. Walker & F.M. Gresham (Eds.), *Handbook of evidence-based practices for emotional and behavioral disorders: Applications in schools* (pp. 15-53). New York, NY: The Guilford Press.
- Walrath, C. M., Bruns, E. J., Anderson, K. L., Glass-Siegel, M., & Weist, M. D. (2004). Understanding expanded school mental health services in Baltimore City. *Behavior Modification, 28*(4), 472-490. doi:10.1177/0145445503259501
- Weist, M.D., Ambrose, M.G., & Lewis, C.P. (2006). Expanded school mental health: A collaborative community-school example. *Children & Schools, 28*(1), 45-50.
- Weist, M.D., & Evans, S.W. (2005). Expanded school mental health: Challenges and opportunities in an emerging field. *Journal of Youth and Adolescence, 34*(1), 3-6.

- Weist, M.D., Evans, S.W., & Lever, N.A. (2003). Introduction: Advancing mental health practice and research in schools. In M.D. Weist, S.W. Evans, & N.A. Lever (Eds.), *Handbook of School Mental Health: Advancing Practice and Research* (pp. 1-7). New York, NY: Kluwer Academic/Plenum Publishers.
- Weist, M.D., Mellin, E.A., Chambers, K.L., Lever, N.A., Haber, D., & Blaber, C. (2012). Challenges to collaboration in school mental health and strategies for overcoming them. *Journal of School Health*, 82(2), 97-105.
- Weist, M.D., Myers, C.P., Hastings, E., Ghuman, H., & Han, Y.L. (1999). Psychosocial functioning of youth receiving mental health services in the schools versus community mental health centers. *Community Mental Health Journal*, 35, 69-81.
- Weist, M.D., Sander, M.A., Axelrod Lowrie, J., & Christodulu, K.V. (2002). The expanded school mental health framework. *Childhood Education*, 78(5), 269-273.
- Weist, M. D., Sander, M. A., Walrath, C., Link, B., Nabors, L., Adelsheim, S., . . . Carrillo, K. (2005). Developing principles for best practice in expanded school mental health. *Journal of Youth and Adolescence*, 34(1), 7-13.
doi:10.1007/s10964-005-1331-1
- Whitbread, K.M., Bruder, M.B., Fleming, G., Park, H.J. (2007) Collaboration in special education: Parent-professional training. *Teaching Exceptional Children*, 39(4), 6-14.
- Wike, T.L., & Fraser, M.W. (2009). School shootings: Making sense of the senseless. *Aggression and Violent Behavior*, 14, 162-169. doi:10.1016/j.avb.2009.01.005

- Williams, B., Brown, R., & Boyle, M. (2012). Construct validation of the readiness for interprofessional learning scale: A Rasch and factor analysis. *Journal of Interprofessional Care*, 2, 326-332. doi:10.3109/13561820.2012.671384
- Willis, G.B. (1999). Cognitive interviewing: A “How To” guide. Research Triangle Institute. 1999 Meeting of the American Statistical Association. Research Triangle Park, NC: Research Triangle Institute.
- World Health Organization. (2008). *Integrated health services – what and why?* (Technical Brief No. 1). Retrieved from http://www.who.int/healthsystems/technical_brief_final.pdf
- World Health Organization. (2015, April 19). *Mental health: A state of well-being*. Retrieved from http://www.who.int/features/factfiles/mental_health/en/
- Yell, M.L. (2012). *The law and special education*. Boston, MA: Pearson.
- Yong, A.G., & Pearce, S. (2013). A beginner’s guide to factor analysis: Focusing on exploratory factor analysis. *Tutorials in Quantitative Methods for Psychology*, 9(2), 79-94.
- Zeng, G., Boe, E.E., Bulotsky-Shearer, R.J., Garrett, S.D., Slaughter-Defoe, D., Brown, E.D., & Lopez, B. (2013). Integrating U.S. federal efforts to address the multifaceted problems of children: A historical perspective on national education and child mental health policies. *School Mental Health*, 5, 119-131. doi:10.1007/s12310-012-9096-7

Zwarenstein, M., Goldman, J., & Reeves, S. (2009). Interprofessional collaboration: Effects of practice-based interventions on professional practice and healthcare outcomes. *Cochrane Database of Systematic Reviews*, 3. doi:10.1002/14651858.CD000072.pub2.

Zwarenstein, M., Reeves, S., & Perrier, L. (2005). Effectiveness of pre-licensure interprofessional education and post-licensure collaborative interventions. *Journal of Interprofessional Care*, 148-165.

Appendices

Appendix A – IRB Exemption Letter
Appendix B – Focus Group Recruitment Email
Appendix C – Focus Group Information Sheet
Appendix D – Focus Group Opening Statement
Appendix E – Focus Group Questions and Probes
Appendix F – Cognitive Interviews Recruitment Email
Appendix G – Cognitive Interviews Information Sheet
Appendix H – Cognitive Interviews Survey Form
Appendix I – Expert Evaluation Recruitment Email
Appendix J – Expert Evaluation Information Sheet
Appendix K – Expert Evaluation Survey Form
Appendix L – Complete List of SMHIC Items
Appendix M – Pilot Study Recruitment Email
Appendix N – Pilot Study Information Sheet
Appendix O – SMHIC Pilot Study Instrument
Appendix P – Field Study Recruitment Email
Appendix Q – Field Study Information Sheet
Appendix R – SMHIC Field Study Instrument
Appendix S – SMHIC: Final Version

Appendix A

IRB Exemption Letter

DATE: November 17, 2015

TO: Jessica Colebrook

FROM: University of Denver (DU) IRB

PROJECT TITLE: [811010-1] Interprofessional Collaboration in School Mental Health: Development of a Measure to Expand Services to Children and Families

SUBMISSION TYPE: EXEMPT FROM IRB REVIEW

ACTION: EXEMPTION GRANTED

DECISION DATE: November 17, 2015

EXEMPTION VALID

THROUGH: November 16, 2020

RISK LEVEL: Minimal Risk

REVIEW CATEGORY: Exemption category # 2

Exemption Category 2: Educational Tests, Surveys, Interviews, or Observations - *Research involving the use of educational test (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observations of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.*

Thank you for your submission of Exemption Request materials for this project. The University of Denver IRB has determined this project is **EXEMPT FROM IRB REVIEW** according to federal regulations. This exemption was granted for Phase 1 of the project based on appropriate criteria for granting an exemption and a study design wherein the risks have been minimized.

Exempt status means that the study does not vary significantly from the description that has been provided and further review in the form of filing an annual Continuing Review/Progress Report is not required. The IRB approved version of the Exempt Information Sheet must be used when obtaining consent from participants. Forms used beyond the valid through date are not valid.

Please note that maintaining exempt status requires that (a) risks of the study remain minimal; (b) that anonymity or confidentiality of participants, or protection of participants against any increased risk due to the internal knowledge or disclosure of identity by the researcher, is maintained as described in the application; (c) that no deception is introduced, such as reducing the accuracy or specificity of information about the research protocol that is given to prospective participants; (d) the research purpose, sponsor, and recruited study population remain as described; and (e) the principal investigator (PI) continues and is not replaced.

If changes occur in any of the features of the study as described, this may affect one or more of the conditions of exemption and may warrant a reclassification of the research protocol from exempt and require additional IRB review.

The University of Denver IRB will retain a copy of this correspondence within our records. This exemption has been granted for a five-year time period. For the duration of your research study, any changes in the proposed study must be reviewed and approved by the University of Denver IRB before implementation of those changes. As the study design and procedures for Phases 2 through 5 are finalized, amendments should be submitted for review prior to proceeding to those Phases as some changes may impact the prior determination.

The University of Denver will administratively close this project at the end of the five-year period unless otherwise instructed via correspondence with the Principal Investigator. Please contact the Office of Research Compliance if the study is completed before the five-year time period or if you are no longer affiliated with the University of Denver.

If you have any questions, please contact the DU Office of Research Compliance through irbadmin@du.edu. Please include your project title and reference number in all correspondence with this committee.

Appendix B

Focus Group Recruitment Email

Hello,

My name is Jessica Colebrook and I am a Ph.D. candidate from the Child, Family, and School Psychology program at the University of Denver. I am writing to invite you to participate in my focus group about interprofessional collaboration when working with students and families with mental health concerns. You're eligible to be in this study because you have been licensed by the Colorado Department of Education as a Special Service Provider, live in Colorado, and have been in practice for one year or more.

If you decide to participate in this study, you and two to three others in your specific field (school psychologists, school counselors, or school social workers) will answer questions and have a discussion about interprofessional collaboration when working with students and families with mental health concerns. A \$10 Starbucks gift card will be offered at the end of the focus group. I would like to audio record the focus group and the information will be used to develop questions for a survey on interprofessional collaboration when working with students and families with mental health concerns. The audio recording will be transcribed and deleted upon transcription. Your responses will be kept anonymous and no identifying information will be included in the study.

The focus group will occur in Katherine Ruffato Hall at the University of Denver. Refreshments and snacks will be provided. The focus group will be 60 to 90 minutes long and will be scheduled on either a weeknight or a weekend, depending on the preferences of participants.

Remember, this is completely voluntary. You can choose to be in the focus group or not. If you'd like to participate or have any questions about the study, please contact me at Jessica.Colebrook@du.edu or 303-871-2292. You may also contact my faculty sponsor, Dr. Gloria Miller, at Gloria.Miller@du.edu or 303-8713340.

Thank you very much.

Sincerely,
Jessica Colebrook

Appendix C

Focus Group Information Sheet

University of Denver Information Sheet for Exempt Research

TITLE: Interprofessional Collaboration in School Mental Health: Development of a Measure to Expand Services to Children and Families

Principal Investigator: Jessica Colebrook

Protocol #: 811010-1

DU IRB Exemption Granted: 11/17/15

You are being asked to be in a research study. This form provides you with information about the study. Please read the information below and ask questions about anything you don't understand before deciding whether or not to take part.

You are invited to participate in a research study about understanding interprofessional collaboration when working with students and families with mental health concerns. If you agree to be part of the research study, you will be asked to participate in a focus group with two to three other school psychologists/school counselors/school social workers. You will be asked questions regarding interprofessional collaboration when working with students and families with mental health concerns. Please be honest with your responses even if you disagree with the rest of the group. The focus group will be audio recorded. The audio recordings will be deleted upon transcription. The transcripts of the focus group will be stored on a USB drive and locked in a drawer when not in use. By doing this research we hope to learn about how school mental health professionals use interprofessional collaboration practices when working with students and families with mental health concerns. The information obtained during the focus group will be used to expand school mental health services.

The only potential risk associated with participation is that due to the nature of focus groups, confidentiality cannot be guaranteed even when all subjects are asked not to repeat what is said in the focus group.

Participating in this study is completely voluntary. Even if you decide to participate now, you may change your mind and stop at any time. You may choose not to continue with the discussion for any reason.

You will receive a \$10 Starbucks gift card at the end of the focus group.

If you have questions about this research study, you may contact Jessica Colebrook at Jessica.Colebrook@du.edu or 303-871-2292 or the faculty sponsor, Gloria Miller, at

Gloria.Miller@du.edu 303-871-3340. If you do not understand any part of the above statement, please ask the researcher any questions you have.

If you have any concerns or want to talk to someone other than the researcher, you may contact the DU Office of Research Compliance by emailing IRBAdmin@du.edu or calling 303-871-2121.

The University of Denver Institutional Review Board has determined that this study qualifies as exempt from full IRB oversight.

By continuing with this research, you are consenting to participate in this study.

Appendix D

Focus Group Opening Statement

Good evening, and welcome. I've asked you here today because each of you understands and provides school-based mental health services. We know that these services are important to all students' academic, emotional, and behavioral well-being, especially at the targeted and intensive level of need. We also know that families and family well-being are critical to the academic success and well-being of our students, and in order to fully support our students, we must engage with families through comprehensive services. One way to provide comprehensive school-based mental health services is through interprofessional collaboration. You are here to help me gain a deeper understanding of how interprofessional collaboration is practiced when working with students and families with mental health concerns.

Appendix E

Focus Group Questions and Probes

1. What comes to mind when you think about interprofessional collaboration when working with families with mental health needs?
2. Who do you collaborate with most often when working with families with mental health needs?
 - a. *Probe:* Why would you collaborate with these professionals?
 - b. *Probe:* Anyone else in the school setting? The community setting?
3. What are the advantages of interprofessional collaboration when working with students and families with mental health needs?
4. What are the barriers of interprofessional collaboration when working with students and families with mental health needs?
5. What do you think is necessary for interprofessional collaboration to be most effective when working with students and families with mental health needs?
 - a. *Probe:* How might shared power relate to interprofessional collaboration?
 - b. *Probe:* How might colleagues share power with one another?
6. Is there anything else you would like to say about interprofessional collaboration?

Appendix F

Cognitive Interviews Recruitment Email

Dear School Psychologists/School Counselors/School Social Workers,

My name is Jessica Colebrook and I am a Ph.D. candidate from the Child, Family, and School Psychology program at the University of Denver. I am writing to invite you to participate in a cognitive interview on survey questions relating to interprofessional collaboration when working with students and families with mental health concerns. The purpose of the cognitive interview is to determine if the survey questions are easy to understand and respond to. Interprofessional collaboration is an important component of comprehensive school mental health services and this survey will help us understand how to encourage effective interprofessional collaboration in schools.

If you decide to participate in this study, you will be asked to sit with me and complete a survey of 48 questions, six (6) of which are open-ended. I will observe you as you take the survey and may ask you follow-up questions. I will record your responses in a notebook which will be destroyed upon completion of my research. The cognitive interview will take 30 minutes and will occur in Katherine Ruffato Hall at the University of Denver. The interview may be scheduled after work or on a weekend, depending on your scheduling preference. At the end of the interview, you will be offered a \$10 Starbucks gift card.

Remember, this is completely voluntary. You can choose to participate in the cognitive interview or not. If you'd like to participate or have any questions about the study, please contact me at Jessica.Colebrook@du.edu or 303-871-2292. You may also contact my faculty sponsor, Dr. Gloria Miller, at Gloria.Miller@du.edu or 303-8713340.

Thank you very much.

Sincerely,
Jessica Colebrook

Appendix G

Cognitive Interviews Information Sheet

University of Denver Information Sheet for Exempt Research

TITLE: Interprofessional Collaboration in School Mental Health: Development of a Measure to Expand Services to Children and Families

Principal Investigator: Jessica Colebrook

Protocol #: 811010-1

DU IRB Exemption Granted:

You are being asked to be in a research study. This form provides you with information about the study. Please read the information below and ask questions about anything you don't understand before deciding whether or not to take part.

You are invited to participate in a research study about interprofessional collaboration when working with students and families with mental health concerns. If you agree to be part of the research study, you will be asked to sit with the Principal Investigator (PI) while taking a survey. While you take the survey, the PI will observe you and may ask you questions regarding specific survey questions. Your responses will be recorded in a notebook which will be destroyed upon completion of the research. When you have completed the survey, the PI will review the questions with you. By doing this research we hope to determine that the survey questions are easy to read and understand.

There are no potential risks or discomforts associated with participation.

Participating in this study is completely voluntary. Even if you decide to participate now, you may change your mind and stop at any time. You may choose not to continue with the interview for any reason.

If you choose to participate, you will receive a \$10 Starbucks gift card at the end of the interview.

If you have questions about this research study, you may contact Jessica Colebrook at Jessica.Colebrook@du.edu or 303-871-2292 or the faculty sponsor, Gloria Miller, at Gloria.Miller@du.edu 303-871-3340.

If you have any concerns or complaints about how you were treated during research participation, you may contact the Chair of the Institutional Review Board for the

Protection of Human Subjects, at 303-871-4015 or by emailing IRBChair@du.edu, or you may contact the Office for Research Compliance by emailing IRBAdmin@du.edu, calling 303-871-4050 or write to the University of Denver, Office of Research and Sponsored Programs, 2199 S. University Blvd., Denver, CO 80208-2121. The University of Denver Institutional Review Board has determined that this study qualifies as exempt from full IRB oversight.

You may request a copy of this form for your records. If you do not understand any part of the above statement, please ask the researcher any questions you have.

By continuing with this research, you are consenting to participate in this study.

Appendix H

Cognitive Interview Survey Form

Please include additional information you believe is missing from the following definition of interprofessional.

Interprofessional collaboration is an interactive process of (a) shared responsibilities, decision-making, philosophies, values, and data; (b) partnerships characterized by open and honest communication, mutual trust and respect, and an awareness of and value of the contributions of each professional; (c) interdependency due to a common goal of addressing a particular need that maximizes individual contributions; and (d) shared power among professionals that recognizes and is based on each professional's knowledge and expertise.

Please include additional information you believe is missing from the following definition of school mental health professionals/colleagues.

School mental health professionals/colleagues include any individual in the state of Colorado licensed by the Colorado Department of Education as a special service provider of school psychology, school social work, or school counseling

Interpersonal Characteristics

These items relate to relational factors, individual characteristics, and personal histories that inhibit or promote interprofessional collaboration.

	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
1. The school mental health professionals in my school compete with one another for resources.					
2. My school mental health colleagues and I are able to collaborate in a mature, professional manner.					
3. One or more of my school mental health colleagues become defensive when discussing their treatment and intervention choices.					
4. One or more school mental health professionals think they are superior to the others.					
5. Personality clashes between my school mental health colleagues have a negative impact on the ability to collaborate.					
6. Limited respect for the different competencies of different school mental health colleagues is a barrier to interprofessional collaboration.					
7. My school mental health colleagues are generally easy to get along with.					
8. A barrier to interprofessional collaboration is not being willing to share results.					
9. School mental health professionals are more alike than they are different.					
10. A barrier to interprofessional collaboration is not finding common ground.					
11. My relationships with my school mental health colleagues					

influence my ability to access needed resources.					
12. My school mental health colleagues and I work well together.					

What other interpersonal characteristics influence interprofessional collaboration?

School/District Characteristics

These items relate to the structure, climate, and organizational practices that promote or inhibit interprofessional collaboration.

	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
13. My school administration supports interprofessional collaboration.					
14. Funding is a barrier to interprofessional collaboration in my school.					
15. I have received professional development through my district on inter-professional collaboration.					
16. Administrations that believe all school mental health professionals do the same job are a barrier to interprofessional collaboration.					
17. My school employs an appropriate number of school mental health staff.					
18. My school employs all of the following: school psychologists, school social workers, and school counselors.					
19. The structures in my school support collaborating with families.					
20. Overlapping responsibilities is a barrier to interprofessional collaboration.					
21. The climate in my school promotes respect among staff.					
22. My school administration promotes positive staff relationships throughout our building.					

What other school/district characteristics influence interprofessional collaboration?

Training/Experience

These items relate to individual's previous trainings and experiences that contribute to an understanding of interprofessional collaboration and current interprofessional collaboration practices.

203

	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
23. My graduate training included collaborating with other school mental health professions such as school psychologists, school social workers, and school counselors.					
24. I am satisfied with the exposure I had to other school mental health trainees throughout my graduate training.					
25. I learned about other school mental health professionals' roles and functions during my graduate training.					
26. I was able to observe interprofessional collaboration during my graduate training.					
27. My graduate training needed more field work experience in interprofessional collaboration.					

What other experiences can graduate training programs provide to influence interprofessional collaboration?

Advantages

These items relate to perceptions of the positive outcomes of interprofessional collaboration.

	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
28. My school mental health colleagues and I have the same values regarding working with students and families with mental health concerns.					
29. I value the perspectives of my school mental health colleagues.					
30. I feel my perspective is valued by my school mental health colleagues.					
31. Interprofessional collaboration provides me with valuable support from my school mental health colleagues.					
32. The best information about the student comes from the discussion at team meetings.					
33. Interprofessional collaboration brings me new knowledge.					
34. Interprofessional collaboration helps me to do my job better.					
35. Interprofessional collaboration enables us to offer many services to students and families.					
36. Interprofessional collaboration will lead to a variety of solutions for supporting students and families.					
37. Interprofessional collaboration allows each professional to use his or her strengths.					
38. Interprofessional collaboration provides multiple sources of information.					
39. It is inappropriate to make decisions regarding a student					

based on areas outside my particular expertise.					
40. Interprofessional collaboration allows everyone to share responsibility.					
41. Interprofessional collaboration makes everyone accountable to each other.					
42. The success of interprofessional collaboration is based on intentionally giving up the role of the expert.					

What other positive outcomes do you think could come from interprofessional collaboration?

Appendix I

Expert Evaluation Recruitment Email

Dear _____,

My name is Jessica Colebrook and I am a Ph.D. candidate from the Child, Family, and School Psychology program at the University of Denver. I am developing a survey to better understand interprofessional collaboration among school mental health professionals when working with students and families with mental health concerns. My survey will investigate the factors that are necessary for effective interprofessional collaboration among school mental health professionals. These factors are (1) interpersonal characteristics, (2) school characteristics, (3) prior training, and (4) overall beliefs regarding collaboration.

I am contacting you because I consider you an expert in the field of school mental health services. I would like to recruit you to participate in my study as an expert judge to evaluate a pool of 48 items relating to interprofessional collaboration among school mental health professionals when working with students and families with mental health concerns. This evaluation should take around 30-45 minutes for you to complete. Should you agree to participate, you will have two weeks from the date of receiving the instructions and survey items to complete your evaluation. Your responses will be kept confidential.

Your participation will be an invaluable part of the survey development process and will help my research lead to a deeper understanding of interprofessional collaboration in the school mental health field. As a sign of my appreciation, I would like to give you a \$10 Starbucks gift card. After completing the evaluation, you will be asked to provide a mailing address where the gift card may be sent. You can also provide your email address instead to receive an electronic gift card.

Remember, this is completely voluntary. You can choose to evaluate the items or not. If you'd like to participate or have any questions about the study, please contact me at Jessica.Colebrook@du.edu or 303-871-2292. You may also contact my faculty sponsor, Dr. Gloria Miller, at Gloria.Miller@du.edu or 303-8713340. Should you choose to participate, I will then send you the Item Evaluation Form and instructions for completing the form.

Thank you very much for your time and consideration.

Sincerely,
Jessica Colebrook

Appendix J

Expert Evaluation Information Sheet

University of Denver Information Sheet for Exempt Research

TITLE: Interprofessional Collaboration in School Mental Health: Development of a Measure to Expand Services to Children and Families

Principal Investigator: Jessica Colebrook

Protocol #: 811010-3

DU IRB Exemption Granted: 2/24/16

You are being asked to be in a research study. This form provides you with information about the study. Please read the information below and ask questions about anything you don't understand before deciding whether or not to take part.

You are invited to participate in a research study about interprofessional collaboration when working with students and families with mental health concerns.

If you agree to be part of the research study, you will be asked to evaluate 48 survey items on interprofessional collaboration in school mental health. Each item should relate to one of the four factors related to interprofessional collaboration: interpersonal characteristics, school characteristics, training, and beliefs regarding overall advantages of collaboration. You will be asked to include any comments or thoughts you have on each item, if any. You will be provided with a link to the online Qualtrics evaluation form.

There are no potential risks or discomforts associated with participation.

By doing this research we hope to determine that the items we developed based on focus groups represent the different factors influencing effective interprofessional collaboration and will lead to a valid survey on interprofessional collaboration when working with students and families with mental health concerns.

A \$10 Starbucks gift card will be offered following the completion of the evaluation.

If you have questions about this research study, you may contact Jessica Colebrook at jessica.colebrook@du.edu or 303-871-2292 or the faculty sponsor, Gloria Miller, at Gloria.Miller@du.edu 303-871-3340.

If you have any concerns or complaints about how you were treated during research participation, you may contact the Office for Research Compliance by emailing IRBAdmin@du.edu or calling 303-871-4050.

The University of Denver Institutional Review Board has determined that this study qualifies as exempt from full IRB oversight.

By continuing with this research, you are consenting to participate in this study.

Appendix K

Expert Evaluation Survey Form

Please include additional information you believe is missing from the following definition of interprofessional collaboration.

Interprofessional collaboration is an interactive process of (a) shared responsibilities, decision-making, philosophies, values, and data; (b) partnerships characterized by open and honest communication, mutual trust and respect, and an awareness of and value of the contributions of each professional; (c) interdependency due to a common goal of addressing a particular need that maximizes individual contributions; and (d) shared power among professionals that recognizes and is based on each professional's knowledge and expertise.

Please include additional information you believe is missing from the following definition of mental health professionals and colleagues providing services within the school to students and families.

*School mental health professionals and colleagues include any school psychologist, school counselor, or school social worker licensed by a state department of education to provide mental health services in K-12 schools **or** any individuals working in the school building licensed to provide mental health services to students and families.*

Item	Interpersonal Characteristics <i>These items will relate to relational factors, individual characteristics, and personal histories that inhibit or promote interprofessional collaboration.</i>	School Characteristics <i>These items will relate to the climate and organizational practices that promote or inhibit interprofessional collaboration.</i>	Training <i>These items will relate to individuals' previous trainings that contribute to an understanding of inter-professional collaboration and current inter-professional collaborative practices.</i>	Overall Advantages <i>These items relate to perceptions of the outcomes of inter-professional collaboration.</i>	Comments
1. The school mental health professionals in my school compete with one another for resources.					
2. My school mental health colleagues and I are able to collaborate in a mature, professional manner.					
3. One or more of my school mental health colleagues become defensive when discussing their treatment and intervention choices.					
4. One or more school mental health professionals think					

they are superior to the others.					
5. Personality clashes between my school mental health colleagues have a negative impact on the ability to collaborate.					
6. In my current school, limited respect for the different competencies of different school mental health colleagues is a barrier to inter-professional collaboration.					
7. My school mental health colleagues are generally easy to get along with.					
8. Collaboration at my current school with my school mental health colleagues is difficult because of an unwillingness to share results.					
9. School mental health					

professionals are more alike than they are different.					
10. In my current school, a barrier to inter-professional collaboration is not finding common ground.					
11. My relationships with my school mental health colleagues influence my ability to access needed resources.					
12. My school mental health colleagues and I work well together.					
13. It is easy to communicate with my school mental health colleagues.					
14. In my current school, my school mental health colleagues generally have strong organizational skills.					
15. My school administration					

supports inter-professional collaboration between my school mental health colleagues and I.					
16. Funding is a barrier to inter-professional collaboration in my current school.					
17. I have received professional development on inter-professional collaboration through my current district.					
18. In my current school, administrators believe all school mental health professionals do the same job.					
19. An appropriate number of school social workers, school counselors, and/or school psychologists work at my current school.					
20. In my current					

school, overlapping responsibilities is a barrier to inter-professional collaboration.					
21. The climate in my current school promotes respect among staff.					
22. My current school administration promotes positive staff relationships throughout our building.					
23. There is not enough time in my work day to collaborate with my school mental health colleagues.					
24. The caseload size for the mental health staff in my current school makes it difficult to collaborate.					
25. At my current school, school mental health staff get contradictory directives about their role from					

administration.					
26. At my current school, school mental health professionals need to prove how they align with the school's educational mission.					
27. My graduate training included collaborating with other school mental health professions such as school psychologists, school social workers, and school counselors.					
28. I am satisfied with the exposure I had to other school mental health trainees throughout my graduate training.					
29. I learned about other school mental health professionals' roles and functions during my graduate					

training.					
30. I was able to observe inter-professional collaboration during my graduate training.					
31. My graduate training provided enough field work experience in inter-professional collaboration.					
32. During my graduate training, I took classes with other school mental health trainees.					
33. My graduate training provided satisfactory supervision and feedback in inter-professional collaboration.					
34. My school mental health colleagues do not value one another's perspectives.					
35. Inter-professional collaboration leads to school mental					

health professionals making judgments outside their areas of expertise.					
36. My school mental health colleagues and I have different values regarding working with students and families with mental health concerns.					
37. Inter-professional collaboration provides me with valuable support from my school mental health colleagues.					
38. The best information about the student comes from the discussion at team meetings.					
39. Inter-professional collaboration does not bring me new knowledge.					
40. Inter-professional collaboration interferes with my ability to do my					

job.					
41. Inter-professional collaboration leads to conflicting services for students and families.					
42. Inter-professional collaboration contributes to a variety of solutions for students and families.					
43. Inter-professional collaboration inhibits each professional from utilizing his or her strengths.					
44. Inter-professional collaboration provides multiple sources of information.					
45. Inter-professional collaboration allows everyone to share responsibility.					
46. Inter-professional collaboration makes everyone accountable to each other.					

47. Inter-professional collaboration interferes with serving the needs of all students.					
48. The success of inter-professional collaboration is based on a willingness to admit you need the support of your school mental health colleagues.					

Appendix L

Complete List of SMHIC Items (*Final SMHIC items in italics*)

- A1. *The school mental health professionals in my current school compete with one another.*
- A2. My school mental health colleagues and I are able to collaborate in a mature, professional manner.
- A3. *One or more of my school mental health colleagues become defensive when discussing their treatment and intervention choices.*
- A4. *One or more school mental health professionals think they are superior to the others.*
- A5. *Personality clashes between my school mental health colleagues have a negative impact on the ability to collaborate.*
- A6. In my current school, limited respect for the different competencies of different school mental health colleagues is a barrier to interprofessional collaboration.
- A7. *My school mental health colleagues are generally easy to get along with.*
- A8. *Collaboration at my current school is difficult because of my school mental health colleagues' unwillingness to share results.*
- A9. My school mental health colleagues are more alike than they are different.
- A10. Interprofessional collaboration is effective when school mental health colleagues find common ground.
- A11. My relationships with my school mental health colleagues influence my access to their expertise.
- A12. *My school mental health colleagues and I work well together.*
- B13. My school administrators support interprofessional collaboration between my school mental health colleagues and I.
- B14. Funding is a barrier to interprofessional collaboration in my current school.

- B15. I have received professional development on interprofessional collaboration through my current district.
- B16. In my current school, administrators believe all school mental health professionals do the same job.
- B17. An appropriate number of school social workers, school counselors, school psychologists, and/or community mental health professionals work at my current school.
- B18. My school employs all of the following: school psychologists, school social workers, and school counselors.
- B19. The structures in my school support collaborating with families.
- B20. In my current school, overlapping responsibilities are a barrier to interprofessional collaboration.*
- B21. The climate in my school promotes respect among staff.
- B22. My current administration promotes positive staff relationships throughout our building.
- C23. My graduate training included collaborating with other school mental health professions such as school psychologists, school social workers, and school counselors.
- C24. I am satisfied with the exposure I had to other school mental health trainees throughout my graduate training.
- C25. I learned about other school mental health professionals' roles and functions during my graduate training.
- C26. I was able to observe interprofessional collaboration during my graduate training.
- C27. My graduate training provided enough field work experience in interprofessional collaboration.
- D28. The training my school mental health colleagues and I received resulted in similar values regarding working with students and families with mental health concerns.
- D29. I value the perspectives of my school mental health colleagues.

- D30. I feel my perspective is valued by my school mental health colleagues.
- D31. My school mental health colleagues and I are supportive of one another.*
- D32. The best information about the student comes from the discussion at team meetings.
- D33. Interprofessional collaboration does not bring me knowledge.*
- D34. Interprofessional collaboration interferes with my ability to do my job.*
- D35. Interprofessional collaboration leads to conflicting services for students and families.*
- D36. Interprofessional collaboration contributes to a variety of solutions for students and families.
- D37. Interprofessional collaboration inhibits each professional from utilizing his or her strengths.*
- D38. Interprofessional collaboration provides multiple sources of information.
- D39. It is unethical to make decisions regarding a student based on areas outside my particular expertise.
- D40. Interprofessional collaboration allows everyone to share responsibility.
- D41. Interprofessional collaboration makes everyone accountable to each other.*
- D42. Interprofessional collaboration is successful when you admit you need the support of your mental health colleagues.
- A43. It is easy to communicate with my school mental health colleagues.*
- A44. In my current school, my school mental health colleagues generally have strong organizational skills.
- B45. There is enough time in my current work schedule to collaborate with my school mental health colleagues.
- B46. The caseload size for the mental health staff in my current school makes it difficult to collaborate.
- B47. At my current school, school mental health staff get contradictory directives about

their role from administration.

B48. At my current school, school mental health professionals need to prove how they align with the school's educational mission.

C49. During my graduate training, I took classes with other school mental health trainees.

C50. My graduate training provided satisfactory supervision and feedback in interprofessional collaboration.

D51. Interprofessional collaboration interferes with serving the needs of all students.

D52. My school mental health colleagues do not respect one another's perspectives.

Appendix M

Pilot Study Recruitment Email

Dear _____,

My name is Jessica Colebrook and I am a Ph.D. candidate in the Child, Family, and School Psychology program at the University of Denver. I am seeking Colorado-licensed school psychologists, school counselors, school social workers, and other school-based mental health providers who have been practicing for a minimum of six months and who would be willing to complete a ten minute pilot survey on interprofessional collaboration when working with students and families with mental health concerns. Participants will be entered in a drawing for one \$50 Target giftcard.

If you are interested in completing the survey, please follow this link: _____. Interprofessional collaboration is critical to providing the best support services to students and families with mental health concerns, and I greatly appreciate your support as I seek to better understand this important topic.

If you have any questions regarding this study, please contact me at Jessica.Colebrook@du.edu or 303-871-2292. You may also contact my faculty sponsor, Dr. Gloria Miller, at Gloria.Miller@du.edu or 303-871-3340.

Thank you for your help and support.

Sincerely,
Jessica Colebrook

Appendix N

Pilot Study Information Sheet

University of Denver Information Sheet for Exempt Research

TITLE: Interprofessional Collaboration in School Mental Health: Development of a Measure to Expand Services to Children and Families

Principal Investigator: Jessica Colebrook

Protocol #: 811010-4

DU IRB Exemption Granted: 5/2/2016

You are being asked to be in a research study. This form provides you with information about the study. Please read the information below and ask questions about anything you don't understand before deciding whether or not to take part.

You are invited to participate in a research study about interprofessional collaboration when working with students and families with mental health concerns.

If you agree to be part of the research study, you will be asked to complete a survey of 45 questions on interprofessional collaboration among you and your school mental health colleagues. It will take approximately 10 minutes of your time.

There are no potential risks or discomforts associated with participation.

By doing this research we hope to further understand current interprofessional collaborative practices and attitudes toward interprofessional collaboration.

A \$50 Target gift card will be offered following the completion of the survey.

If you have questions about this research study, you may contact Jessica Colebrook at Jessica.Colebrook@du.edu or 303-871-2292 or the faculty sponsor, Gloria Miller, at Gloria.Miller@du.edu 303-871-3340.

If you have any concerns or complaints about how you were treated during research participation, you may contact the Office for Research Compliance by emailing IRBAdmin@du.edu or calling 303-871-4050.

The University of Denver Institutional Review Board has determined that this study qualifies as exempt from full IRB oversight.

By continuing with this research, you are consenting to participate in this study.

Appendix O

SMHIC Pilot Study Instrument

Demographic Questions

Sex: Female
 Male

Age: 25 or under
 26 to 30
 31-35
 36-40
 41-45
 46-50
 51-55
 56-60
 60 or over

School Mental Health Role:
 School Psychologist
 School Counselor
 School Social Worker
 School Family Therapist
 Other (please specify): _____

U.S. State where employed: _____

Race/ethnicity of student population served (*check all that apply*):
 Caucasian
 Hispanic/Latino
 African American
 American Indian
 Pacific Islander
 Asian
 Other: _____

Age of students served (*check all that apply*):
 Elementary Age (grades Pre-K-5)
 Middle School Age (grades 6-8)
 Secondary Age (grades 9-12)

Type of community served (*check all that apply*):

Suburban

Urban

Rural

Please indicate, out of 100%, where you have received your training on interprofessional collaboration:

	0	10	20	30	40	50	60	70	80	90	100
No training											
Graduate School Courses											
Internship											
School/District Professional Development											
Other (<i>please specify</i>):											

***In Qualtrics, this is a table with sliding bars**

School Mental Health Interprofessional Collaboration Scale: Directions

Please respond to the survey questions according to the following:

Interprofessional collaboration is defined as an interactive process that promotes student resiliency and achievement through (a) shared responsibilities, decision-making, philosophies, values, and data; (b) partnerships characterized by open and honest communication, mutual trust and respect, and an awareness of and value of the contributions of each professional; (c) interdependency due to a common goal of addressing a particular need that maximizes individual contributions; and (d) shared power among professionals that recognizes and is based on each professional's knowledge and expertise.

School mental health colleagues are defined as any school psychologist, school counselor, school social worker, or school family therapist licensed by a state department of education to provide mental health services in K-12 schools, in addition to the community mental health professionals working in the school building licensed by the state to provide mental health services to students and families.

The survey response options are as follows:

Strongly Disagree Disagree Neutral Agree Strongly Agree

Please choose the response that most aligns with your experience of interprofessional collaboration **in your current school**. If you are placed at more than one school site, please respond based on **the average** of your combined sites.

Click 'Next' to continue with the School Mental Health Interprofessional Collaboration (SMHIC) scale.

Response options:

Strongly disagree Disagree Neutral/Agree Strongly agree

1. My school mental health colleagues are generally easy to get along with.
2. One or more of my school mental health colleagues become defensive when discussing their treatment and intervention choices.
3. It is easy to communicate with my school mental health colleagues.
4. One or more of my school mental health colleagues think they are superior to the others.
5. Personality clashes between my school mental health colleagues have a negative impact on our ability to collaborate.
6. In my current school, my school mental health colleagues generally have strong organizational skills.
7. My school mental health colleagues and I work well together.
8. My school mental health colleagues and I are able to collaborate in a mature, professional manner.
9. My school mental health colleagues and I are supportive of one another.
10. The school mental health professionals in my school compete with one another.
11. Collaboration at my current school is difficult because of my school mental health colleagues' unwillingness to share results.
12. My relationships with my school mental health colleagues influence my access to their expertise.
13. My school mental health colleagues are more alike than they are different.
14. My school mental health colleagues do not respect one another's perspectives.
15. My current school administration supports interprofessional collaboration between my school mental health colleagues and myself.
16. My current school administration promotes positive staff relationships throughout our building.

17. Funding is a barrier to interprofessional collaboration in my current school.
18. At my current school, school mental health staff get contradictory directives about their role from administration.
19. The caseload size for the mental health staff in my current school makes it difficult to collaborate.
20. At my current school, school mental health professionals need to prove how they align with the school's educational mission.
21. There is not enough time in my current work day schedule to collaborate with my school mental health colleagues.
22. In my current school, overlapping responsibilities are a barrier to interprofessional collaboration.
23. In my current school, administrators believe all school mental health professionals do the same job.
24. An appropriate number of school social workers, school counselors, school psychologists, and/or community mental health professionals work at my current school.
25. I learned about other school mental health professionals' roles and functions in previous training.
26. I am satisfied with the exposure I had to other school mental health trainees throughout my previous training.
27. My previous training provided satisfactory supervision and feedback in interprofessional collaboration.
28. My previous training included collaborating with other school mental health professionals such as school psychologists, school social workers, school counselors, school family therapists, and other community mental health trainees.
29. I was able to observe interprofessional collaboration during my previous training.
30. During my graduate training, I took classes with other school mental health trainees.

31. My previous training provided enough field work experience in interprofessional collaboration.
32. I have received professional development on interprofessional collaboration through my current district.
33. The training my school mental health colleagues and I received resulted in different values regarding working with students and families with mental health concerns.
34. Interprofessional collaboration does not bring me new knowledge.
35. Interprofessional collaboration allows everyone to share responsibility.
36. Interprofessional collaboration inhibits each professional from utilizing his or her strengths.
37. Interprofessional collaboration interferes with serving the needs of all students.
38. Interprofessional collaboration contributes to a variety of solutions for students and families.
39. Interprofessional collaboration is successful when you admit you need the support of your school mental health colleagues.
40. Interprofessional collaboration makes everyone accountable to each other.
41. Interprofessional collaboration is effective when school mental health colleagues find common ground.
42. Interprofessional collaboration interferes with my ability to do my job.
43. Interprofessional collaboration leads to conflicting services for students and families.
44. The best information about the student comes from an interprofessional discussion at team meetings.
45. Interprofessional collaboration leads to school mental health professionals making judgments outside of their areas of expertise.

Appendix P

Field Study Recruitment Email

Dear _____,

My name is Jessica Colebrook and I am a Ph.D. candidate in the Child, Family, and School Psychology program at the University of Denver. I am seeking licensed school psychologists, school counselors, school social workers, and other school-based mental health providers who would be willing to complete a five-minute pilot survey on interprofessional collaboration when working with students and families with mental health concerns. Participants are able to enter a lottery to win one of three \$50 Target giftcards.

If you are interested in completing the survey, please follow this link: _____ . Interprofessional collaboration is critical to providing the best support services to students and families with mental health concerns, and I greatly appreciate your support as I seek to better understand this important topic.

If you have any questions regarding this study, please contact me at Jessica.Colebrook@du.edu or 303-871-2292. You may also contact my faculty sponsor, Dr. Gloria Miller, at Gloria.Miller@du.edu or 303-871-3340.

Thank you for your help and support.

Sincerely,
Jessica Colebrook

Appendix Q

Field Study Information Sheet

University of Denver Information Sheet for Exempt Research

TITLE: Interprofessional Collaboration in School Mental Health: Development of a Measure to Expand Services to Children and Families

Principal Investigator: Jessica Colebrook

Protocol #: 811010-5

DU IRB Exemption Granted:

You are being asked to be in a research study. This form provides you with information about the study. Please read the information below and ask questions about anything you don't understand before deciding whether or not to take part.

You are invited to participate in a research study about interprofessional collaboration when working with students and families with mental health concerns.

If you agree to be part of the research study, you will be asked to complete a survey of 32 questions on interprofessional collaboration among you and your school mental health colleagues. It will take approximately 5 minutes of your time.

There are no potential risks or discomforts associated with participation.

By doing this research we hope to further understand current interprofessional collaborative practices and attitudes toward interprofessional collaboration.

You may choose to enter a lottery to win one of three \$50 Target gift cards following the completion of the survey.

If you have questions about this research study, you may contact Jessica Colebrook at Jessica.Colebrook@du.edu or 303-871-2292 or the faculty sponsor, Gloria Miller, at Gloria.Miller@du.edu 303-871-3340.

If you have any concerns or complaints about how you were treated during research participation, you may contact the DU Human Research Protections Program by emailing IRBAdmin@du.edu or calling 303-871-212 to speak with someone other than the researchers.

The University of Denver Institutional Review Board has determined that this study qualifies as exempt from full IRB oversight.

By continuing with this research, you are consenting to participate in this study.

Appendix R

SMHIC Field Study Instrument

Demographic Questions

Sex: Female
 Male

Age: 25 or under
 26 to 30
 31-35
 36-40
 41-45
 46-50
 51-55
 56-60
 60 or over

Race/ethnicity:
 Caucasian
 Hispanic/Latino
 African American
 Native American/American Indian
 Asian/Pacific Islander
 Other: _____
 No response

School Mental Health Role:
 School Psychologist
 School Counselor
 School Social Worker
 School Family Therapist
 Other (please specify): _____

U.S. State where employed: _____

Race/ethnicity of student population served (*check all that apply*):
 Caucasian
 Hispanic/Latino
 African American
 Native American/American Indian
 Asian/Pacific Islander

Other: _____

Age of students served (*check all that apply*):

- Elementary Age (grades Pre-K-5)
- Middle School Age (grades 6-8)
- Secondary Age (grades 9-12)

Type of community served (*check all that apply*):

- Suburban
- Urban
- Rural

Please select where you have received your training on interprofessional collaboration
(check all that apply):

- No specific training
- Graduate school courses
- Internship
- School/District Professional Development
- Other (*please specify*): _____

Questions on Training Experiences

Please select 'yes' or 'no' for the following 6 questions regarding your training experiences on interprofessional collaboration.

Response options: Yes or No

1. My previous training provided enough field work experience in interprofessional collaboration.
2. My previous training included collaborating with other school mental health trainees such as school psychologists, school social workers, and school counselors.
3. My previous training provided satisfactory supervision and feedback on interprofessional collaboration.
4. I learned about other school mental health professionals' roles and functions in my previous training.
5. I was able to observe interprofessional collaboration during my previous training.
6. I am satisfied with the exposure I had to other school mental health trainees throughout my previous training.

School Mental Health Interprofessional Collaboration Scale: Directions

Please respond to the following 25 survey questions according to the following:

Interprofessional collaboration is defined as an interactive process that promotes student resiliency and achievement through (a) shared responsibilities, decision-making, philosophies, values, and data; (b) partnerships characterized by open and honest communication, mutual trust and respect, and an awareness of and value of the contributions of each professional; (c) interdependency due to a common goal of addressing a particular need that maximizes individual contributions; and (d) shared power among professionals that recognizes and is based on each professional's knowledge and expertise.

School mental health colleagues are defined as any school psychologist, school counselor, school social worker, or school family therapist licensed by a state department of education to provide mental health services in K-12 schools, in addition to the community mental health professionals working in the school building licensed by the state to provide mental health services to students and families.

The survey response options are as follows:

Strongly Disagree Disagree Neutral Agree Strongly Agree

Please choose the response that most aligns with your experience of interprofessional collaboration **in your current school**. If you are placed at more than one school site, please respond based on **the average** of your combined sites.

Click 'Next' to continue with the School Mental Health Interprofessional Collaboration (SMHIC) scale.

Response options:

Strongly disagree Disagree Neutral/Agree Strongly agree

1. My school mental health colleagues are generally easy to get along with.
2. One or more of my school mental health colleagues become defensive when discussing their treatment and intervention choices.
3. It is easy to communicate with my school mental health colleagues.
4. One or more of my school mental health colleagues think they are superior to the others.
5. Personality clashes between my school mental health colleagues have a negative impact on our ability to collaborate.
6. My school mental health colleagues and I work well together.
7. My school mental health colleagues and I are able to collaborate in a mature, professional manner.
8. My school mental health colleagues and I are supportive of one another.
9. The school mental health professionals in my school compete with one another.
10. Collaboration at my current school is difficult because of my school mental health colleagues' unwillingness to share results.
11. My school mental health colleagues are more alike than they are different.
12. My school mental health colleagues do not respect one another's perspectives.
13. My current school administration supports interprofessional collaboration between my school mental health colleagues and myself.
14. My current school administration promotes positive staff relationships throughout our building.
15. At my current school, school mental health staff get contradictory directives about their role from administration.
16. In my current school, overlapping responsibilities are a barrier to interprofessional collaboration.

17. Interprofessional collaboration does not bring me new knowledge.
18. Interprofessional collaboration allows everyone to share responsibility.
19. Interprofessional collaboration inhibits each professional from utilizing his or her strengths.
20. Interprofessional collaboration interferes with serving the needs of all students.
21. Interprofessional collaboration contributes to a variety of solutions for students and families.
22. Interprofessional collaboration makes everyone accountable to each other.
23. Interprofessional collaboration interferes with my ability to do my job.
24. Interprofessional collaboration leads to conflicting services for students and families.

Appendix S

SMHIC: Final Version

1. My school mental health colleagues are generally easy to get along with.
2. Collaboration at my current school is difficult because of my school mental health colleagues unwillingness to share results.
3. Personality clashes between my school mental health colleagues have a negative impact on the ability to collaborate.
4. One or more of my school mental health colleagues become defensive when discussing their treatment and intervention choices.
5. My school mental health colleagues and I work well together.
6. Interprofessional collaboration does not bring me new knowledge.
7. In my current school, overlapping responsibilities are a barrier to interprofessional collaboration.
8. Interprofessional collaboration makes everyone accountable to each other.
9. It is easy to communicate with my school mental health colleagues.
10. My school mental health colleagues do not respect one another's perspectives.
11. Interprofessional collaboration leads to conflicting services for students and families.
12. My school mental health colleagues and I are supportive of one another.
13. One or more of my school mental health colleagues think they are superior to the others.
14. Interprofessional collaboration inhibits each professional from utilizing his or her strengths.
15. The school mental health staff in my current school compete with one another.
16. Interprofessional collaboration interferes with my ability to do my job.