

A CRITICAL ANALYSIS OF THE ENTREPRENEURIAL ORIENTATION, TRAIT  
EMOTIONAL INTELLIGENCE, AND ENTREPRENEURIAL SERVICES OFFERED BY  
PHARMACISTS IN THE UPPER MIDWEST

A Dissertation  
Submitted to the Graduate Faculty  
of the  
North Dakota State University  
of Agriculture and Applied Science

By

Jeanne Elizabeth Frenzel

In Partial Fulfillment of the Requirements  
for the Degree of  
DOCTOR OF PHILOSOPHY

Major Department:  
Education  
Option: Occupational and Adult Education

March 2018

Fargo, North Dakota

North Dakota State University  
Graduate School

---

**Title**

A Critical Analysis of the Entrepreneurial Orientation, Trait Emotional Intelligence, and Entrepreneurial Services Offered by Pharmacists in the Upper Midwest

---

**By**

Jeanne Elizabeth Frenzel

---

The Supervisory Committee certifies that this *disquisition* complies with North Dakota State University's regulations and meets the accepted standards for the degree of

**DOCTOR OF PHILOSOPHY**

SUPERVISORY COMMITTEE:

Myron Eighmy, EdD

---

Chair

Daniel Friesner, PhD

---

Chris Ray, PhD

---

David Scott, MPH, PhD, RPh

---

Approved:

April 11, 2018

---

Date

Chris Ray, PhD

---

Department Chair

## ABSTRACT

The purpose of this study was to critically analyze the entrepreneurial orientation (EO) and trait emotional intelligence (EI) of pharmacists to develop an understanding of how these traits are exhibited in different practicing settings and practice roles. In addition, the relationship between trait EI and EO was explored to determine if trait EI is positively associated with EO in pharmacists. Finally, entrepreneurial services offered by pharmacists were evaluated for type and frequency. Critically analyzing the EO of pharmacists in different settings and in different roles and evaluating the entrepreneurial services they offer will produce a better understanding of the need for entrepreneurship training for students in colleges and schools of pharmacy.

Participants were practicing pharmacists in Upper Midwest states. Data was collected using an online survey. Item analysis, descriptive statistics, one-way ANOVA, Tukey's test, Pearson correlation coefficients, and an independent-samples *t*-test were used to analyze the data. Pharmacists practicing in different settings exhibited no differences in EO; however, significant differences were found when evaluating the EO of pharmacists by practice role. This study found that North Dakota pharmacists had overall higher mean scores for the EO construct of autonomy and are more likely to provide discharge consultation and med to bed services than pharmacists in other Upper Midwest states. Pharmacists who owned a pharmacy had higher mean EO for the constructs risk-taking, innovativeness, proactiveness, and autonomy.

No significant differences were found between pharmacists in Upper Midwest states for global trait EI or its constructs. A positive correlation was found between global trait EI and all constructs of EO suggesting that global trait EI could be used to predict EO in individuals.

These findings suggest that educators consider evaluating the global trait EI of students to predict their EO. As it has been shown that students with a high EO are more likely to own their own pharmacy, additional entrepreneurship training may be of value to these students.

## **ACKNOWLEDGEMENTS**

Thank you to my advisor, Dr. Myron Eighmy, and to the members of my supervisory committee, Dr. Daniel Friesner, Dr. Chris Ray, and Dr. David Scott for their guidance and support. A special thank you to Dr. Dan Cernusca for his technical support.

## **DEDICATION**

To Oliver, Piper, and Ephrem.

## TABLE OF CONTENTS

ABSTRACT .....	iii
ACKNOWLEDGEMENTS .....	v
DEDICATION .....	vi
LIST OF TABLES .....	viii
CHAPTER 1. INTRODUCTION .....	1
CHAPTER 2. LITERATURE REVIEW .....	11
CHAPTER 3. METHODOLOGY .....	49
CHAPTER 4. ANALYSIS OF DATA .....	62
CHAPTER 5. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS .....	92
REFERENCES .....	111
APPENDIX A. INSTRUMENT .....	131
APPENDIX B. NORTH DAKOTA STATE UNIVERSITY INSTITUTIONAL REVIEW BOARD APPROVAL .....	136
APPENDIX C. INFORMED CONSENT .....	137
APPENDIX D. PILOT PRE-NOTIFICATION LETTER .....	139
APPENDIX E. PILOT SURVEY EMAIL .....	140
APPENDIX F. PRE-NOTIFICATION LETTER .....	141
APPENDIX G. SURVEY EMAIL .....	142
APPENDIX H. SURVEY POSTCARD .....	143

## LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Licensed Pharmacists Eligible for Inclusion in the Study by State .....	51
2. Item Total Statistics for Entrepreneurial Orientation Scale Pilot Study.....	56
3. Item Total Statistics for Trait Emotional Intelligence Scale Pilot Study.....	57
4. Item Total Statistics for Revised Entrepreneurial Orientation Scale Full Study .....	65
5. Item Total Statistics for Trait Emotional Intelligence Scale Full Study.....	66
6. Levene's Test of Homogeneity of Variances for Entrepreneurial Orientation Subscales Between States .....	67
7. Levene's Test of Homogeneity of Variances for Trait Emotional Intelligence Subscales Between States .....	67
8. Kruskal-Wallis Test for Entrepreneurial Orientation Subscales Between States .....	68
9. Kruskal-Wallis Test for Global Trait Emotional Intelligence and Subscales Between States.....	68
10. Crosstab and Chi-Square Comparison of Mode of Distribution by Position .....	69
11. Crosstab and Chi-Square Comparison of Mode of Distribution by Gender .....	69
12. Frequencies and Percentages of Gender, Ethnicity, and Age of Pharmacists in Upper Midwest States .....	70
13. Frequencies and Percentages of Level of Education of Pharmacists in Upper Midwest States.....	71
14. Frequencies and Percentages of Year Licensed to Practice Pharmacy and State of Practice of Pharmacists in Upper Midwest States .....	72
15. Frequencies and Percentages of Practice Role of Pharmacists in Upper Midwest States ..	72
16. Means and Standard Deviations of Entrepreneurial Orientation Constructs Reported by Pharmacists by State .....	73
17. One-Way ANOVA Between Group Comparison of Entrepreneurial Orientation Constructs Reported by Pharmacists Between States.....	73



18. Frequencies, Percentages, Means, and Standard Deviations of the Level of Entrepreneurial Orientation of Pharmacists by Employment Status .....	74
19. Means and Standard Deviations of Entrepreneurial Orientation Constructs by Practice Setting .....	75
20. One-Way ANOVA Between Group Comparison of Entrepreneurial Orientation Constructs by Practice Setting .....	75
21. Crosstab Comparison of Pharmacist Practice Role by State .....	76
22. Means and Standard Deviations of Entrepreneurial Orientation Constructs by Practice Role of the Pharmacist .....	76
23. One-Way ANOVA Between Group Comparison of Entrepreneurial Orientation Constructs by Practice Role of Pharmacist .....	77
24. Tukey Post-Hoc Comparison of Entrepreneurial Orientation Constructs by Practice Role of the Pharmacist .....	78
25. Means and Standard Deviations of Entrepreneurial Orientation Constructs Reported by Pharmacists by State .....	79
26. One-Way ANOVA Comparison of Trait Emotional Intelligence Constructs Reported by Pharmacists Between States .....	79
27. Frequencies, Percentages, Means, and Standard Deviations of the Level of Trait Emotional Intelligence by Employment Status .....	80
28. Means and Standard Deviations of Trait Emotional Intelligence Constructs of Pharmacists by Practice Setting .....	81
29. One-Way ANOVA Between Group Comparison of Trait Emotional Intelligence Constructs by Practice Setting .....	81
30. Means and Standard Deviations of Trait Emotional Intelligence of Pharmacists by Practice Role of the Pharmacist .....	82
31. One-Way ANOVA Between Group Comparison of Trait Emotional Intelligence Constructs of Pharmacists by Practice Role of the Pharmacist .....	82
32. Correlation Between Global Trait Emotional Intelligence and Entrepreneurial Orientation Constructs .....	83
33. Correlation Between Global Trait Emotional Intelligence and Mean Level of Overall Entrepreneurial Orientation .....	83

34. Pharmacy Services Provided by North Dakota Pharmacists .....	84
35. Pharmacy Services Provided by Iowa Pharmacists .....	85
36. Pharmacy Services Provided by Minnesota Pharmacists .....	86
37. Pharmacy Services Provided by Nebraska Pharmacists .....	87
38. Pharmacy Services Provided by South Dakota Pharmacists .....	88
39. Independent Samples <i>t</i> -test Comparing Pharmacy Services Provided by North Dakota Pharmacists to Services Provided by Pharmacists in Other Upper Midwest States .....	89

## CHAPTER 1. INTRODUCTION

As the American health care system evolves, the role of the pharmacist changes, shifting from a dispensing focus to a service oriented, patient focused approach (Perepelkin & Findlay, 2009; Rubach, Bradley, & McGee, 2001). This shift requires pharmacists to develop new skills and provide new services. Hepler and Strand (1990) refer to this patient centered philosophy as pharmaceutical care. Regardless of the health care setting, pharmaceutical care is the responsible provision of medication therapy leading to positive outcomes and the improvement of a patient's quality of life. These outcomes may include cure of a disease, reduction or elimination of symptoms, slowing disease progression, or preventing a disease or symptom (Hepler & Strand, 1990).

Pharmaceutical care is the result of three types of cognitive services; dispensing services, dispensing related services, and non-dispensing value-added services (Christensen, Fassett, & Andrews, 1993). Dispensing services are the result of filling a prescription and counseling a patient on its use. Dispensing related services include monitoring medication use and communication with other health care providers (Rubach et al., 2001). Examples of non-dispensing value-added services include distribution to long term care facilities, the sale of home health care equipment and home infusion supplies, immunizations, health screenings, medication management, chronic disease management, and patient education ("Developing Trends in Delivery and Reimbursement of Pharmacist Services," 2015; Perepelkin & Findlay, 2009; Rubach et al., 2001). These non-dispensing value-added services have been used by pharmacists as a differentiation strategy to gain a competitive advantage within a community and to improve a pharmacy's performance (Rubach et al., 2001).

Demands for direct patient services provided by pharmacists continues to increase in both community and institutional pharmacy settings. Continued advancement in health care technology and health reform is promoting the role of the pharmacist as a member of a team of providers caring for patients in medical homes, accountable care organizations, and other innovative health care delivery models. Pharmacists must capitalize on these opportunities. Seeking ways to incentivize these new services and roles is important to delivering high quality and cost effective care leading to improved patient outcomes (“Developing Trends,” 2015). To thrive in this type of practice environment, pharmacists need a strong didactic and experiential foundation in entrepreneurship to prepare them to succeed independently as entrepreneurs or as intrapreneurs within larger organizations (Hohmeier & Gatwood, 2016).

Compared to other health care professionals, pharmacists are the most likely to be involved in entrepreneurship (Perepelkin & Findlay, 2009; Young & Pritchard, 1985). Entrepreneurial pharmacists seek to push the boundaries of their business and profession by offering new areas of service (Iyer & Doucette, 2003; Perepelkin & Findlay, 2009). This process of entering new or established markets with novel or existing goods or services is considered entrepreneurship (Lumpkin & Dess, 1996).

Entrepreneurial orientation (EO) describes how entering a market with goods or services is accomplished through process, practice, and decision making activities (Iyer & Doucette, 2003). Five dimensions are used to characterize EO including autonomy, innovativeness, risk-taking, proactiveness, and competitive aggressiveness. Lumpkin and Dess (1996) suggest that these dimensions vary independently. Autonomy describes the independent action of an individual to be able and willing to be self-directed in producing an idea and seeing it through to completion. Innovativeness describes the tendency to engage in and support novel ideas,

experimentation, and creative processes that may lead to new products or services and moves beyond current practices. Risk-taking describes a type of behavior for example, accumulating heavy debt in exchange for high return or to capture opportunities in the marketplace.

Proactiveness describes a forward-looking perspective linked to innovative activity. Competitive aggressiveness describes the propensity to directly challenge competitors to achieve entry and outperform competitors (Lumpkin & Dess, 1996).

EO can be used at the firm level or the individual level (Bolton & Lane, 2012). Some entrepreneurs in pharmacy will emerge on their own, while others must be given support, motivation, and encouragement to pursue entrepreneurial opportunities (Tice, 2005). To be successful in new models of health care delivery, schools and colleges of pharmacy must prepare pharmacists to succeed as entrepreneurs on their own and in larger organizations as intrapreneurs (Bzowycykj, Urick, & Fannin, 2014; CAPE Advisory Panel on Educational Outcomes, 1998; Brazeau et al., 2009; Hohmeier & Gatwood, 2016). Intrapreneurs use entrepreneurial behaviors within an existing organization to turn ideas into profitable reality (Hohmeier & Gatwood, 2016; Pinchot, 1985). Graduates should be able to engage in innovative activities and use their entrepreneurial and intrapreneurial skills to advance the profession and accomplish their professional goals (CAPE, 1998). Changing the focus of pharmacy education programs will ensure graduates are competent and enables them to pursue limitless professional practice roles (Brazeau et al., 2009).

At the firm level, research has shown that pharmacies offering services are considered entrepreneurial and innovative (Doucette et al., 2006). In 1963, North Dakota legislators placed into effect the Pharmacy Ownership Law specifying that only a licensed pharmacist or group of licensed pharmacists may own and operate a pharmacy within North Dakota. North Dakota is

the only state in the nation with such a law. The law ensures that pharmacies are owned and operated by people who are committed to providing quality health care to their communities. Pharmacies operating outside of North Dakota are often owned by corporations focused solely on generating revenue and not on providing patient centered care. As a result of this innovative law, North Dakota residents receive a higher level of care from pharmacists practicing in independent pharmacies within the state when compared to corporate owned pharmacies located outside of the state. This is evidenced by more one-on-one interactions between pharmacists and patients, individualized care, and the provision of more direct patient care services such as patient consultation and health screenings (LaVecchia & Mitchell, 2014).

In a study of the EO of community pharmacies, a high EO was linked to successful pharmacy performance. A pharmacy with high EO is intentional about strategizing and using its resources to develop new pharmacy services (Jambulingam & Doucette, 1999). EO has been studied at the firm level and at the individual level and is thought to be transferrable between the two (Bolton & Lane, 2012). To date, a small number of studies have been conducted evaluating the EO of a pharmacy; however, there is no research evaluating the EO of practicing pharmacists (Iyer & Doucette, 2003; Jambulingam & Doucette, 1999; Jambulingam, Kathuria, & Doucette, 2005). Understanding EO at an individual level could be valuable to pharmacists that are interested in owning their own pharmacy or in providing new services to their patients.

Trait emotional intelligence (EI) is a personality trait that has been shown to predict entrepreneurial outcomes (Zampetakis, Beldekos, & Moustakis, 2009). Trait EI is self-reported and is a measure of self-perception and emotion-related dispositions. Personality facets related to trait EI include adaptability, assertiveness, emotion perception, emotion expression, emotion management, emotion regulation, impulsiveness, relationships, self-esteem, self-motivation,

social awareness, stress management, trait empathy, trait happiness, and trait optimism. Trait EI is a distinct compound trait found at the lower levels of personality hierarchies (Petrides, Pita, & Kokkinaki, 2007).

It has been suggested that individuals with a high trait EI are able to interact effectively with other people, are more tolerant to stress, and typically have higher affectivity linked to creativity and proactivity, all of which are associated with entrepreneurial behavior (Ahmetoglu, Leutner, & Chamorro-Premuzic, 2011; Chell & Baines, 2000, Zampetakis, Beldekos, et al., 2009). Individuals who can regulate and use their emotions effectively are more likely to believe they can be entrepreneurial and thus, are more effective and find more opportunities to develop a new service or business (Mortan, Ripoll, Carvalho, & Bernal, 2014). Training those with entrepreneurial potential to understand, manage, and successfully use their emotions in challenging situations may provide a competitive advantage leading to greater entrepreneurial success (Mortan et al., 2014). A study of entrepreneurial personality traits and entrepreneurial intentions in students concluded that it is necessary to understand personality traits for future entrepreneurship training as individuals who are aware of their entrepreneurial potential will likely achieve greater entrepreneurial success (Luca, Cazan, & Tomulescu, 2013). Trait EI is a measure that can be used to assist educators in developing entrepreneurial motivation in students. It can also be used by employers to select for individuals with high trait EI who are likely to create novel products and innovative services (Ahmetoglu, Leutner, & Chamorro-Premuzic, 2011).

### **Statement of the Problem**

As health care evolves, the job requirements of a pharmacist also change. Graduates must have a solid foundation in entrepreneurship. The Center for the Advancement of Pharmacy

Education (CAPE) 2013 outcomes mandate that colleges and schools of pharmacy prepare pharmacy graduates to be innovative and entrepreneurial. A review of the literature revealed that research focused on entrepreneurship education is extensive and primarily studies business major students. There is little research on entrepreneurship education in non-business majors, including pharmacy students. Teaching entrepreneurship and assessing student entrepreneurship is now the focus of many colleges and schools of pharmacy. As colleges and schools of pharmacy each have unique curricula, understanding how entrepreneurship is taught in colleges and schools of pharmacy is challenging. Critically analyzing the EO of pharmacists in different settings and in different practice roles and evaluating the entrepreneurial services they offer will produce a better understanding of the need for entrepreneurship training for students in colleges and schools of pharmacy. In addition, despite increased interest in the relationship between trait EI and entrepreneurship, research is limited. Understanding this relationship can help educators develop and promote entrepreneurial intention in students with the proclivity to provide new services or own a pharmacy.

### **Statement of Purpose**

The purpose of this study was to critically analyze EO and trait EI in pharmacists to develop an understanding of how these traits are exhibited in different practicing settings and practice roles. In addition, the relationship between trait EI and EO was explored to determine if trait EI is positively associated with EO in pharmacists. Finally, entrepreneurial services offered by pharmacists were evaluated for type and frequency. Pharmacists practicing in District 5 as established by National Association of Boards of Pharmacy (NABP) and AACP were included in the study.



### **Research Questions**

1. Does the level of entrepreneurial orientation of North Dakota pharmacists differ from pharmacists in other Upper Midwest states?
2. Does the level of entrepreneurial orientation of pharmacists differ with employment status, practice setting, or practice role?
3. Does the level of trait emotional intelligence of North Dakota pharmacists differ from pharmacists in other Upper Midwest states?
4. Does the level of trait emotional intelligence of pharmacists differ with employment status, practice setting, or practice role?
5. Is there a relationship between trait emotional intelligence and entrepreneurial orientation?
6. How do entrepreneurial services provided by North Dakota pharmacists differ from services provided by pharmacists in other Upper Midwest states?

### **Significance of the Study**

Findings from this study will contribute to the limited research on the EO and trait EI of pharmacists. In addition, services offered by pharmacists will be characterized to provide insight as to how pharmacists practice entrepreneurially in the Upper Midwest. The findings will help educators better understand the need for entrepreneurship education and how to develop and promote entrepreneurial intention in students.

### **Definitions of Terms**

The following definitions are provided to ensure understanding of significant terminology used throughout the study.

*Autonomy:* Autonomy has been defined as the ability to make decisions without the permission of others. Autonomy motivates people and improves performance, satisfaction, and absenteeism (Hackman & Oldham, 1976; Brock, 2003). It can describe the independent actions of individuals or a team. It is an important dimension of EO as it gives entrepreneurs the freedom and flexibility to create and deploy ideas (Lumpkin & Dess, 1996; Lumpkin, Cogliser, & Schneider, 2009).

*Competitive aggressiveness:* Competitive aggressiveness is the challenge of a firm to excel beyond industry rivals in the marketplace. Those with competitive aggressiveness rely on unconventional methods of competition and use aggressive responses to competitive threats (Lumpkin & Dess, 1996; (Rauch, Wiklund, Lumpkin, & Frese, 2009). As new ventures are more susceptible to failure, an aggressive stance and strong competition are imperative to the persistence and success of a new business (Lee & Peterson, 2001).

*Entrepreneurship:* Entrepreneurship is defined as finding opportunities to introduce new goods and services that previously did not exist (Shane & Venkataraman, 2000; Venkataraman, 1997). It is also the process of improving quality of life, goods and services, and institutions through innovation, thereby changing the way we live and work (Kauffman Foundation, 2007).

*Entrepreneurial orientation:* The processes and decision-making activities that create new entry. The five dimensions of EO are risk-taking, innovativeness, proactiveness, competitive aggressiveness, and autonomy (Lumpkin & Dess, 1996).

*Innovativeness:* Schumpeter (1934, 1942) was one of the first to correlate innovation with entrepreneurship and economic growth. Innovativeness is necessary for a firm to develop new ideas and creative processes that may lead to new products, services, or technologies (Aloulou & Fayolle, 2005; Lumpkin & Dess, 1996; Rauch et al., 2009). Innovativeness results in

improved performance of a firm (Hult, Hurley, & Knight, 2004). Innovativeness also describes a person's inclination and interest in looking for unique ways of completing a task. Innovativeness of an entrepreneur is moderately and directly related to business creation and success (Baum, Frese, & Baron, 2007).

*Proactiveness:* Proactiveness implies a forward-looking view which is linked to innovative activity (Lumpkin & Dess, 1996). A proactive firm leads rather than follows by being the first to introduce new products and services (Rauch et al., 2009). A proactive firm exhibits aggressive competitive behavior toward rival firms and a methodical pursuit for promising business opportunities (Aloulou & Fayolle, 2005; Lumpkin & Dess, 1997).

*Risk-taking:* Risk-taking is the result of venturing into the unknown and borrowing and committing large quantities of assets to be put toward uncertain ventures (Lumpkin & Dess, 1996; Rauch et al., 2009). Firms with an EO of risk-taking typically have large debt and resource commitments and seek high return through high risk opportunities (Aloulou & Fayolle, 2005; Miller, 1983). Researchers have concluded that the effect of risk-taking propensity on entrepreneurship and business success is significant and positive, but small (Baum et al., 2007). Risk-taking propensity is also smaller when compared to other personality characteristics (Baum et al., 2007; Rauch & Frese, 2007).

*Trait emotional intelligence:* Trait EI is comprised of behavioral dispositions and self-perceived abilities. Trait EI can be used to predict what a person will do and how a person will do it. Measuring trait EI allows researchers to capture how individuals normally think and behave (Pérez, Petrides, & Furnham, 2005). Trait EI is self-reported and is a measure of self-perception and emotion-related dispositions. Personality facets related to trait EI include adaptability, assertiveness, emotion perception, emotion expression, emotion management,

emotion regulation, impulsiveness, relationships, self-esteem, self-motivation, social awareness, stress management, trait empathy, trait happiness, and trait optimism (Petrides et al., 2007).

### **Delimitations of the Study**

The results of this study are specific to pharmacists. Due to practical implications, the study was limited to the Upper Midwest. As such, results may not be generalizable to a broader population of pharmacists from other regions.

### **Organization of the Study**

Chapter 1 provided an introduction to the changing health care landscape, the problem of the lack of entrepreneurship education for pharmacy graduates, and the call for pharmacy students to be innovative and entrepreneurial upon graduation. The chapter outlined the statement of the problem, purpose of the study, research questions, and definition of terms used to guide the study. Chapter 2 provides a review of literature and research focused on entrepreneurship, intrapreneurship, and trait EI as related to pharmacy education and the practice of pharmacy. Specifically, pharmacy education standards, entrepreneurship, entrepreneurship and education, intrapreneurship, EO, EO and pharmacy, and trait EI. Chapter 3 details the methodology used to gather data for the study by describing the population and sample, instrumentation, and data collection and analysis. Chapter 4 provides a description of the participants and outlines the findings of the data analyses. Chapter 5 contains a summary of the study, conclusions, discussion, and recommendations for further research.

## **CHAPTER 2. LITERATURE REVIEW**

In keeping up with changes to practice and to allow pharmacy graduates to practice at the top of their license, graduates must be taught and encouraged to experientially apply fundamentals of entrepreneurship. To foster the development of entrepreneurial skills in pharmacy students, colleges and schools of pharmacy must include entrepreneurship education in their curricula and may consider using trait EI to predict EO. A thorough review of the literature found that, to date, no research has focused on evaluating the EO and trait EI of practicing pharmacists. The study of EO and trait EI as related to pharmacists may be of value to pharmacy programs and pharmacy educators.

The literature review focused on entrepreneurship, EO, and trait EI as related to the education and practice experience of pharmacy graduates. The chapter is divided into sections that include (a) the history of pharmacy educational outcomes and standards, (b) entrepreneurship, (c) entrepreneurship and education, (d) the need for entrepreneurship in pharmacy practice, (e) entrepreneurship education in pharmacy, (f) intrapreneurship, (g) EO, (h) EO in pharmacy, and (i) trait EI.

### **History of Pharmacy Education Educational Outcomes**

AACP created CAPE to guide colleges and schools of pharmacy in developing curricula to educate future pharmacists. CAPE Educational Outcomes are developed by an advisory panel of nominated educators and health care providers from practitioner organizations (“AACP - CAPE Educational Outcomes,” n.d.). Organizations represented include the Accreditation Council for Pharmacy Education, the American College of Clinical Pharmacy, the American Pharmacists Association, the Academy of Managed Care Pharmacy, the American Society of Health-System Pharmacists, the National Alliance of State Pharmacy Associations, the National

Community Pharmacists Association, and the NABP (Medina et al., 2013a). In 1994, an advisory panel of academics and practitioners published the first version of the CAPE Educational Outcomes (Piascik, 2013). During the development of this document, the panel sought guidance from papers of the AACP Commission to Implement Change in Pharmaceutical Education, AACP Focus Group on the Liberalization of the Professional Curriculum, the AACP supported Scope of Practice Project survey, the American Pharmacists Association, the American Society of Health-System Pharmacists, and the NABP. The guidelines proposed a set of ability-based statements highlighting five professional outcomes and seven general abilities. The professional outcomes focused on the provision of pharmaceutical care, management of practice, management of medication use systems, public health, and provision of drug information and education. The general abilities focused on thinking, communication, ethical decision making, social and contextual awareness, social responsibility, social interaction, and self-learning abilities (CAPE, 1998). As the practice of pharmacy evolved, the guidelines were revised and re-published in 1998. The panel considered new sources of input including a letter from ASHP calling for the inclusion of outcomes specific to providing end of life care, the Chair Report of the 1997-1998 AACP Academic Affairs Committee calling for the inclusion of outcomes specific to complementary or alternative therapies, the 1997 Accreditation Standards and Guidelines for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree, the AACP Commission to Implement Change in Pharmaceutical Education Maintaining Our Commitment to Change Report, an ACCP position statement on Collaborative Drug Therapy Management by Pharmacists, and the Pharmacy Practice Activity Classification document from APhA. The 1998 CAPE Educational Outcomes maintained the 12 outcomes from the 1994 documents with little revision. In 2004, a third version of the guidelines was

published (Piascik, 2013). This document differed greatly from past versions in that it included language common to the guiding documents of other health professions including the Institute of Medicine, the Accreditation Council for Graduate Medical Education, and the Association of American Medical Colleges (AAMC). The document was simplified and focused on three professional outcomes including pharmaceutical care, systems management, and public health (CAPE, 2004; Committee on Quality, 2001; Piascik, 2013).

The CAPE Educational Outcomes continue to guide pharmacy education and in 2013, the fourth version of the guidelines were published. Revisions were made by a panel of academics and practitioners. Academicians were selected from the AACP membership to represent academic pharmacy. Representatives were selected based on type of institution, discipline, role, practice type, and geographic distribution to ensure a demonstrative group. In addition, each organization within the Joint Commission of Pharmacy Practitioners including the Academy of Managed Care, American College of Apothecaries, American College of Clinical Pharmacy, American Pharmacists Association, American Society of Consultant Pharmacists, American Society of Health-System Pharmacists, Accreditation Council for Pharmacy Education, the National Alliance of State Pharmacy Associations, and the NABP was represented by an appointee to the CAPE panel. Input from the Association of American Medical Colleges, American Association of Colleges of Osteopathic Medicine, American Association of Colleges of Nursing, the American Dental Education Association, patient care advocates, and AACP facilitated focus groups was used to revise the CAPE Educational Outcomes. The CAPE panel developed four areas of guidance for revision: include an affective domain focused on personal and professional skills, attitudes, and attributes needed for patient care delivery, develop outcomes that are aspirational, achievable, and measurable, reiterate the importance of science of

the profession, align outcomes with other health professions in content and language (Medina et al., 2013b).

The inclusion of an affective domain was one of the most significant changes to the guidelines. The affective domain focuses on the ability of students to develop personally and professionally. The domain is termed Personal and Professional Development. Within the domain are four subdomains with an accompanying one-word descriptor: Self-Awareness (Self-Aware), Leadership (Leader), Innovation and Entrepreneurship (Innovator), and Professionalism (Professional). By the completion of the Doctor of Pharmacy program students should have gained a foundation in scientific knowledge as well as the personal and professional skills needed to deliver patient centered care. The document also called for a reappraisal of the admissions processes of pharmacy schools and integrated assessment throughout the pharmacy program to ensure students are applying and retaining knowledge, skills, and attitudes (Medina et al., 2013a; Medina et al., 2013b; Vandel, 1985).

Each 2013 CAPE Educational Outcome domain is further expanded upon through six example objectives. This research will focus on only one domain, Innovation and Entrepreneurship (Innovator). The learning objectives for this domain are:

1. Demonstrate initiative when confronted with challenges.
2. Develop new ideas and approaches to improve quality or overcome barriers to advance the profession.
3. Demonstrate creative decision making when confronted with novel problems or challenges.
4. Assess personal strengths and weaknesses in entrepreneurial skills
5. Apply entrepreneurial skills within a simulated entrepreneurial activity.



6. Conduct a risk-benefit analysis for implementation of an innovative idea or simulated entrepreneurial activity (Medina et al., 2013a).

It is generally recognized that personal and professional development topics such as innovation and entrepreneurship are an important addition to pharmacy curricula as entrepreneurial opportunities are abundant for pharmacists (Eddy & Stellefson, 2009). The role of the pharmacist in the management of chronic disease expands health promotion and disease prevention and is linked to entrepreneurship (Eddy, Donahue, & Chaney, 2001; Eddy, 2006; Eddy & Stellefson, 2009). However, pharmacy educators have voiced concern over how to teach and assess entrepreneurial skills (Fjortoft, 2016; Fuentes, Caudill, Henriksen, & Smith, 2014). It is likely, that programs are already teaching these skills and as a result of the revision must simply reevaluate their approaches to assessing the achievement of the 2013 CAPE Educational Outcomes (Fuentes et al., 2014).

### **Entrepreneurship**

Entrepreneurship is often defined as finding opportunities to introduce new goods and services that previously did not exist ((Aldrich & Wiedenmayer, 1993; Shane & Venkataraman, 2000; Venkataraman, 1997). Entrepreneurship is needed for international social and economic welfare. Entrepreneurship leads to job creation, market innovation, and economic growth (Aldrich & Wiedenmayer, 1993). It is also needed to improve quality of life, goods and services, and institutions (Baum, Frese, & Baron, 2007; Kauffman Foundation, 2007). Entrepreneurship creates sustainable enterprise through innovation and as a result changes in the way we live and work (Kauffman Foundation, 2007).

## **Entrepreneurship and Education**

Entrepreneurial skills help people problem solve, adapt to change, and function independently. Entrepreneurs must be equipped with technical skills including written and oral communication as well as management and organization skills. They must have business, marketing, and accounting skills. Entrepreneurs must also have personal skills exhibiting inner control, innovativeness, and a propensity for risk-taking (Henry, Collette, Hill, & Leitch, 2005).

There are many reasons for the success of a new venture. These reasons are typically personal, organizational, or external (Baum, Locke, & Smith, 2001; Baum, Frese, & Baron, 2014). Successful ventures are created through human vision, intention, and work to conceive and create successful products and services. An entrepreneur uses human and financial resources to ensure products and services are of value to customers and workers (Baum et al., 2007).

There is much debate in the literature as to whether this entrepreneurial skill set can be taught. Some believe that the field of entrepreneurship is without a cumulative theory; thus, it is a disservice to students to attempt to teach answers to questions that have not been founded by such theory (Busenitz et al., 2003; Fiet, 2001a, 2001b). However, most believe that it can be taught (Drucker, 2006; Fayolle & Klandt, 2006; Kent, Sexton, & Vesper, 1982; Kuratko, 2005; Oosterbeek, Van Praag, & Ijsselstein, 2010). Entrepreneurship education can help students to recognize and create opportunities. It can help students turn great ideas into realizations and learn how to reduce the risk for failure (Baum et al., 2007).

There are three objectives for entrepreneurship education; to learn about entrepreneurship; to become skilled in entrepreneurship, and to be able to start a business (as cited in Chauhan, Prakash, & Jain, 2014). Entrepreneurship courses are often focused on the business plan, the business life cycle, or business function (Hills, 1988). However, a

contemporary approach to entrepreneurship education suggests that, more importantly, the learning environment, not the learned content, is what contributes to entrepreneurial success. The environment should be experiential and focus on group projects which require problem solving and creativity (Solomon, Duffy, & Tarabishy, 2002). Through entrepreneurship education, students learn not only how to create a business, but the ability to recognize and pursue opportunities. They also learn how to think creatively and critically (Solomon, 2007; Raposo & Do Paço, 2011).

Entrepreneurship coursework has historically been taught to only business students. However, it is now being recognized as a missing curricular piece for many disciplines and is expanding to include non-business students (Baum et al., 2007; Solomon, 2007). Determining which entrepreneurship skills are important to non-business students and how to teach those skills has yet to be fully understood. It has been found that business and management skills are needed by engineering, medicine, and law students to be successful in their careers (Baum et al., 2007). Non-business students may also benefit from learning how to conduct feasibility studies, develop pitch presentations, and create business plans (Solomon, 2007).

When evaluating an entrepreneurship education program identifying a framework to measure effectiveness is important to the success of the program. The theory of planned behavior can be used as a tool to model the development of entrepreneurial intention through teaching and learning (Fayolle, Gailly, & Lassas-Clerc, 2006). A small-scale pilot study evaluated the impact of an entrepreneurship education program using the theory of planned behavior. The theory of planned behavior assumes that human social behavior is planned and takes into account considered behavior (Ajzen, 1991). Twenty students attending a one day entrepreneurship education program were surveyed prior to and nine hours following the

program. The survey was validated using past research (Kolvereid, 1996). The entrepreneurship education program focused on topics such as corporate venture and acquiring and starting businesses. Survey items were evaluated using a seven-point Likert scale (1 = *would prefer to be employed by someone* to 7 = *would prefer to be self-employed*) and results were reported as an average score. The survey captured student attitudes, behavioral control, intention, and acquired skills. Demographic and background information was collected based on Johannisson's five content levels, the know-why (attitudes, values, motivations), the know-how (abilities), the know-who (short and long-term social skills), the know-when (intuition), and the know-what (knowledge) for the development of entrepreneurial knowledge (Johannisson, 1991). Analysis of the data indicated that the data was consistent and reliable with Cronbach's alphas of .55 to .83. To determine the impact of the program, differences between the measure of perceived behavioral control and entrepreneurial intentions were calculated pre-post. The program had a strong, significant impact on the entrepreneurial intention of the students. When applying the theory of planned behavior to the field of entrepreneurship, intention is identified as to the degree a person has a positive or negative view of a behavior, perceived social pressure to perform the behavior, and perceived ease of performing the behavior. These factors as antecedents of intention impact future behavior. The study found a positive, but not significant, impact on their perceived behavioral control. This model for evaluation can be used to test how specific characteristics of an entrepreneurship program influence program impact on students (Fayolle et al., 2006).

A qualitative research study using an undisclosed number of pharmacy employers and pharmacy academics was conducted to better understand entrepreneurship skills and pharmacy students (Refai & Thompson, 2011). Pharmacy employers were interviewed to determine if

entrepreneurship skills are needed and who is responsible for their development. Pharmacy academics were interviewed to determine the current state of entrepreneurship education in pharmacy, entrepreneurship skills taught in pharmacy, and more specifically how problem based learning can be used to teach entrepreneurship skills. Pharmacy employers felt entrepreneurship skills were valuable in all pharmacy practice settings including community, institutional, and industry. Employers believe entrepreneurship skills could be learned through higher education, but also must be developed further in the workplace. Employers felt that new graduates did not have the skills needed to be entrepreneurial. Pharmacy academics were not familiar with the concept of entrepreneurship education and felt that curricula focused on graduating pharmacists who have sound clinical knowledge, not business expertise. They agreed with pharmacy employers that students are not prepared to be entrepreneurial and learning entrepreneurship must be jointly taught by higher education and real-world experiences. Suggestions by employers for improvement included focusing on students' research and communication skills and giving students opportunities for experiential practice. Academics agreed that entrepreneurship should be introduced in pharmacy curricula; however, they contended that the goal of the pharmacy curricula is to develop a general entry level pharmacist and pharmacists may need career experience to become truly entrepreneurial (Refai & Thompson, 2011).

Dual degree programs are now being offered at colleges of pharmacy within the United States. The programs combine a doctorate of pharmacy and a master of business administration (PharmD/MBA). These programs prepare students for pharmacy management and leadership positions (Chumney, Ragucci, & Jones, 2008). Chumney and Ragucci (2006) evaluated the academic experience and satisfaction of students enrolled in a dual degree program using an anonymous survey using both directed and open-ended questions. Items were measured using a

five-point Likert scale (1 = *strongly agree* to 5 = *strongly disagree*). Thirty-two students were asked about their satisfaction with the program, coursework, degree of difficulty, and faculty advising. Students were also asked to share their most rewarding and frustrating experiences with the program and to provide constructive feedback for program improvement. Eighteen (56%) students completed the survey. Students appreciated learning about business as related to pharmacy, increased practice with problem solving, leadership, communication, and writing skills. It was found that students enrolled in the dual degree program achieved higher grades than those not enrolled in the program as determined by cumulative grade point averages (GPAs). The average cumulative GPA of the dual degree program students was significantly higher (mean GPA 3.37) compared to non-dual degree students (mean GPA 3.08,  $p = 0.01$ ). Limitations to the study included the number of participants and results specific only to the Citadel School of Business Administration and South Carolina College of Pharmacy (Chumney & Ragucci, 2006). In a follow-up study, it was found that students in the same dual degree program had increased career opportunities and earned significantly more in their first year of employment. Seventy-six pharmacy graduates were recruited to complete a 12-item survey. The survey collected information about job interviews and offers, job placement, and starting salaries and bonuses. Of the 76 graduates, 17 (22.4%) students were dual degree graduates. These graduates were asked to complete additional questions regarding difficulty of the program, value of the program, and job placement. Seventy-five (99%) of the graduates completed the survey. Students enrolled in the dual degree program achieved higher grades as compared to pharmacy or business graduates (mean GPA 3.82 vs. 3.69,  $p = 0.018$ ), reported increased career opportunities, and felt the MBA degree set them apart from competing job applicants.

Significantly more dual degree students also indicated they planned to manage or own their own pharmacy (47% vs. 20%,  $p = 0.03$ ) (Chumney et al., 2008).

### **Need for Entrepreneurship in Pharmacy**

In 2004, the Joint Commission of Pharmacy Practitioners issued a Vision for Pharmacy Practice 2015. The document redefined the role of the pharmacist. It called for pharmacists to become health care professionals who manage medication therapy and work collaboratively with patients, care givers, and other disciplines (Joint Commission of Pharmacy Practitioners, 2004). The transition from pharmacists dispensing medications to managing medication therapy has been demanded by the profession and accelerated by the diminishing profitability of dispensing medications (Doucette et al., 2012; Hepler & Strand, 1990; Knapp, 2002; Schumock et al., 2003). Pharmacists graduate with an armamentarium of clinical skills; however, they do not have the entrepreneurial skills needed to create innovative practice models (Alston & Waitzman, 2013; Brazeau, 2013; Gubbins et al., 2014).

An online survey was distributed to 813 student pharmacists and 1,051 pharmacists in the state of Ohio. Participants were given one month to anonymously complete the survey. The survey was used to obtain demographic information, personality traits using the Pharmacy Student Entrepreneurial Orientation Scale (PSEO), and information regarding interest in and perception of owning a pharmacy. Items were measured using a six-point Likert scale (1 = *strongly disagree* to 6 = *strongly agree*). Two hundred (56.3%) student pharmacists and 155 (43.7%) pharmacists completed the survey for a response rate of 19%. Descriptive statistics were used to describe each survey item. Means, standard deviations, and medians were used to report continuous responses. Frequencies and percentages were used to report categorical responses. Contingency tables and Chi-squared tests were used to evaluate categorical variables

and *t*-tests were used to evaluate the relationship between categorical and continuous variable. The majority of respondents, 76.9% of student pharmacists and 62.5% of pharmacists, reported interest in pharmacy ownership. Respondents agreed that advantages to pharmacy ownership included autonomy, ability to develop innovative services, and more time to devote to patient care activities. Financial risk, work-life balance, and managerial responsibilities were selected as disadvantages. Scores from the PSEO were averaged. Respondents who reported interest in pharmacy ownership had significantly higher scores than those not interested in ownership (5.01 and 4.86, respectively,  $p = 0.016$ ). The study found that although respondents had been exposed to pharmacy ownership through courses, student organizations, or experiential experiences, most respondents felt they were not trained to be successful in pharmacy ownership (Sweaney, Casper, Hoyt, & Wehr, 2014). Required and elective entrepreneurship courses, experiential experiences, and continuing education can help prepare pharmacy students and pharmacists for pharmacy ownership (Tice, 2005; Sweaney, et al., 2014). Faculty can also help to develop entrepreneurship in students by promoting activities that improve communication skills, financial and human resource management, and strategic planning (Tindall, 1985).

In 2000, researchers began surveying pharmacists in the United States using the National Pharmacy Workforce survey to capture the demographic, work characteristics, work contribution, work environment, and quality of work-life of pharmacists. The National Pharmacy Workforce Survey is deployed every 4 to 5 years. The 2004 National Pharmacy Workforce Survey was the first of these surveys from which data was used to describe common pharmacy services. Two surveys, a core survey and a workplace survey, were mailed to 1,847 pharmacists. The core survey captured data regarding practice setting workload and staffing. The workplace survey captured data about services offered, innovativeness, and resources



needed to provide services. Survey questions were taken or adapted from prior workforce surveys. The amount of change occurring in pharmacy over the past two years was evaluated using 12 items. Items highlighted areas of pharmacy in which new pharmacy services were expected to change. Participants were asked to rate how much each item had changed using a three-point Likert scale (*none, a little, or a lot*). An aggregate practice change index was calculated for each item. Three items were used to measure levels of proactiveness, risk-taking, autonomy, and work ethic. Six items were used to measure perceived adequacy of resources. All items were measured using a five-point Likert scale (1 = *poor* to 5 = *excellent*). Scores for variables and adequacy of resources were calculated through summation of the items for each measure. Reliability coefficients were calculated for the multi-item measures. Only data from respondents in community pharmacies were analyzed. Descriptive statistics were used to describe each survey item. Multiple regression was performed between the dependent and independent variables. Six hundred eleven responses were collected for a response rate of 33.1%. Two hundred ninety responses were received from community pharmacists for inclusion in the study. Common pharmacy services associated with products were reported as simple compounding (87.9%) and complex compounding (14%). The most common service associated with pharmacist care was immunizations (15.1%). A majority of pharmacies (66.2%) offered drug information services and a small number of pharmacies offered disease management services: diabetes (12.5%), hypertension (76.7%), and asthma/chronic obstructive pulmonary disease (5.1%). A regression model displayed a positive association between the number of pharmacy services offered, having at least three pharmacists on duty, innovativeness of the pharmacy, and both independent and supermarket pharmacy settings. The regression model was significant ( $p < 0.001$ ) with an  $R^2$  of .162 (Doucette et al., 2006).

The National Pharmacy Workforce Survey was repeated in 2009. A cross-sectional, descriptive survey design was used for collecting and analyzing data. Data was analyzed from a random sample of 3,000 pharmacists identified from a list of 249,381 licensed pharmacists in the United States. A mailed questionnaire with a four-contact approach was used. Of 2,667 surveys, 1,395 were returned for a response rate of 52%. Survey questions were taken from previous workforce surveys. The 2009 study was updated with new definitions for work activities. As such, findings from the survey could not be compared with other years' findings. Overall, the study found that full time pharmacists spent 55% of their time dispensing medication, 16% providing patient care services, 14% managing, 5% educating, 4% researching, and 5% engaging in other activities. It was also noted that for every practice setting, pharmacists would prefer to spend less time dispensing medication and managing and more time providing patient care services, education, or participating in research activities (Midwest Pharmacy, 2010).

In 2014, the National Pharmacy Workforce Survey was again repeated. Data was analyzed from two random samples. One sample consisted of 6,000 pharmacists and another of 1,000 pharmacists licensed between 2001 and 2013. The final sample was composed of up to 10% of graduates from recent years. For the two samples, 5,200 pharmacists were chosen to receive the survey. A mailed questionnaire with a four-contact approach was used. Of 5,073 surveys, 2,446 were returned for a response rate of 48.2%. Survey questions were taken from previous workforce surveys to allow for comparison. In this iteration of the survey, full time pharmacists spent 49% of their time providing patient care services associated with medication dispensing and 21% of their time providing patient care services not associated with medication dispensing. Thirteen percent of their time was devoted to management, 7% to education, 4% to research, and 6% to other activities. Compared to 2009, an average of 35.5% of pharmacists in a

community setting responded that the amount of time spent during the previous year providing patient care services not associated with medication dispensing had increased. The most common services reported by pharmacists were medication therapy management (60%), immunizations (53%), and adjusting medication therapy (52%).

Results from the 2014 survey found that 13% of pharmacies reported their pharmacist offered medication therapy management and 15% offered immunizations. In addition, 48% of pharmacists in chain pharmacies and 57% in supermarket pharmacies offered health screenings. As compared to 7% and 27%, respectively in 2004. In 2014, pharmacists indicated that overall their practices had “good to very good” resources to assist with marketing, the provision of services, and means to obtain payment for services. However, staffing resources remained unchanged. Greater than one-third of pharmacist reported that non-medication dispensing services, documentation of services, and access to electronic patient data had changed “a lot”, but 70% of pharmacist felt that financial incentives for pharmacists had “not changed at all” over the past two years (Midwest Pharmacy, 2015).

Pharmacies offering services are considered entrepreneurial. However, many pharmacies struggle with how to implement such services due to staffing or pharmacy setting (Doucette et al., 2006). Data from the National Pharmacy Workforce surveys suggest that pharmacists are interested in expanding their roles. The data also provides additional evidence that pharmacy graduates must be trained in entrepreneurship in order to push the boundaries of pharmacy practice.

It is the nature of pharmacists to typically focus on acquiring knowledge versus taking action. They assume changes in their roles will be awarded over time as their worth is proven. New graduates must be willing to take risks to create new markets for innovative clinical

services (Alston & Waitzman, 2013; Brazeau, 2013; Gubbins et al., 2014; Vandel, 1985). Research has shown that pharmacists as health care providers improve clinical outcomes (Armero, Hernandez, Perez-Vicente, & Martinez-Martinez, 2015; Cordina & McElnay, 2001; Cranor & Christensen, 2003; Elliott et al., 2002; Hepler & Strand, 1990; Simpson, Johnson, & Tsuyuki, 2001; Tice & Phillips, 2002; Tinelli et al., 2007; Tsuyuki et al., 1999). In health care, entrepreneurial people take innovative action, challenge the norm, and act as agents of change (Boore & Porter, 2011; Chiquette, Amato, & Bussey, 2000; Eddy & Stellefson, 2009). A literature search on entrepreneurship in pharmacy identified a set of eight competencies for entrepreneurship in healthcare: decision making, strategic planning, risk-taking, confidence building, communicating ideas, motivating team members, tolerance of ambiguity, and internal locus of control (Rubino & Freshman, 2005). This entrepreneurial mindset must be introduced to students during their education (Daimi, 2012; Gubbins et al., 2014; Mason et al., 2011; Rubino & Freshman, 2005).

### **Entrepreneurship Education in Pharmacy**

In 2014, members of the American Pharmacists Association (APhA) House of Delegates published a document that called for schools and colleges of pharmacy to include entrepreneurship, business development, and practice management training in their curricula. Membership in the House of Delegates includes participants from state pharmacy associations, membership academies, recognized pharmacy organizations, and ex-officio groups. The House of Delegates meets during the APhA Annual Meeting to discuss and adopt policy proposals developed throughout the year. The House of Delegates cited the importance of future pharmacists to be given the tools necessary to operate and manage fiscally sound pharmacist led clinics (Bzowyckyj et al., 2014). The demand for entrepreneurship training for non-business

majors is great (Desai, Ding, & Fedder, 2010). While it has been established that entrepreneurship can be taught, how it is taught to non-business majors is under question (Drucker, 2006; Kent et al., 1982; Kuratko, 2005; Oosterbeek et al., 2010). Entrepreneurship education differs from business education in that students learn the skills needed to start a new business and to realize and gain from business opportunities (Matlay, 2008; Samah & Omar, 2011). Education should be developed based on the needs of the discipline (Johnson, Justin, & Hildebrand, 2006; Samah & Omar, 2011).

Pharmacy students come to be members of a professional group. Professional groups are typically characterized by a long period of formal education, followed by experiential learning in the workplace, and a defined skill area in which to practice. Professional curricula is often discipline-focused leaving little time for electives beyond the academic discipline (Johnson, et al., 2006). Research by Johnson, Justin, and Hildebrand (2006) suggested that an entrepreneurship curriculum for a discipline-focused group should result in minimal impact on the curriculum. It should meet the curricular needs of the discipline, use overlapping requirements between disciplines to eliminate the need to create new courses, and should highlight the importance of communication skills. They proposed a series of five courses to be included in the curricular framework: Entrepreneurial Marketing and Sales, Entrepreneurial Financial Resource Management, Entrepreneurial Management, Feasibility Analysis and Intellectual Property Projection, and Strategy and Opportunity Recognition. These courses teach students about product and service development, financing and accounting, human resources and management, feasibility and design, and how to develop a business plan (Johnson et al., 2006). This discipline-focused curricular framework could be used to promote entrepreneurship in pharmacy students (Johnson et al., 2006; Tice, 2005; Vandel, 1985).

Non-business major students, such as pharmacy students, do not have the basic knowledge needed for business management. In addition, this type of information must be learned in a short period of time. As such, consideration must be given to the amount of time allowed for students to apply this new knowledge (Desai et al., 2010). A two semester, six credit, entrepreneurship module was created for doctor of pharmacy students. The objective of the module was to develop a business or project plan. During the first semester, students were taught about marketing, finance, operations, and organizational behavior. This information was provided to the students over 12 hours, in contrast to a typical business school major who would spend up to four years learning these topics. Instructors were not pharmacists, but had experience in health care. During the semester, students were able to test ideas about the feasibility of a health care service, new service development, and implementation of a business plan. Feedback was important to student success. They received feedback from instructors after each topic and provided feedback to instructor's midway and at the end of the semester. The second semester focused on hands-on experience for the students. Students developed a business plan using data and evidence to support their plans. A dialectic approach (Mason, 1969) was used to evaluate the business plans. This approach required students to consider different points of view as they developed their business plans. This led to the continual revision of the business plans throughout the semester. The final product was a business plan that was realistic and practical. These business plans were funded at a rate of up to 40% from the years 1995 to 2003 (Desai et al., 2010).

In addition to didactic learning, pharmacy students must learn entrepreneurship through experiential instruction and experiences. One school of pharmacy created a medication therapy management (MTM) project for students registering for community or independent pharmacy

ownership advanced pharmacy experiences. The project was used to evaluate the impact of student pharmacists delivering MTM. In preparation, students were trained in MTM throughout the didactic curriculum. Students conducted face-to-face interviews with patients and performed MTM to address medication appropriateness, safety, cost, and compliance. Students documented all drug-related problems and provided patients with a written report and personal medication record. These were reviewed by the student preceptor and also shared with the patient's primary care provider. Students followed up with the patient approximately two weeks after the initial interview. Students documented if the patient took their recommendations, if the primary care provider approved of recommendations, and if the patient felt the service improved their medication experience. All patients who could be reached for follow-up were included in the study. In addition, students were surveyed to determine how prepared they were for performing MTM, if they felt the MTM project was worthwhile and if they planned to offer MTM services in their own practices. Twenty-one students participated in 2009 and 19 students participated in 2010. Data was collected and analyzed using SPSS. Students performed MTM for an average of 10 patients. A total of 509 patients participated in the project. From the project, 704 drug-related problems were identified. Of the 509 patients, 406 (80%) accepted the student pharmacist's advice and 272 (53%) communicated the student's recommendations to their primary care provider. Most patients (88%) felt their experience with medications improved after receiving MTM services. In the 2009 cohort, all (100%) student pharmacists felt the MTM services they provided were valuable, 79% felt their curriculum had prepared them to deliver MTM, and 96% anticipated they would provide MTM services in their own practices. In the 2010 cohort, 79% student pharmacists felt the MTM services they provided were valuable, 79% felt their curriculum had prepared them to deliver MTM, and 63% anticipated they would

provide MTM services in their own practices. The MTM project delivered via advanced pharmacy practice experiences allowed students to gain real-life experience in practicing MTM. This experience prepared students to deliver similar and even more entrepreneurial services in their own practices (Hata et al., 2012).

Selecting for students with a high EO and teaching them how to be entrepreneurial is needed for continued growth of the pharmacy profession. Training programs for students and even practicing pharmacists will accelerate this desired change (Fjortoft, 2016; Holiday-Goodman, 2012). Providing more autonomy to practicing pharmacists, increasing available resources in their practice settings, and encouraging entrepreneurship will further transform the profession (Holiday-Goodman, 2012).

### **Intrapreneurship**

In addition to educating students in entrepreneurship, educators have also called for new education initiatives used to help students succeed as intrapreneurs (Hohmeier & Gatwood, 2016). While entrepreneurs innovate for themselves, intrapreneurs innovate for an organization (Carrier, 1996). Intrapreneurs, also referred to as corporate entrepreneurs regardless of firm size, facilitate entrepreneurship in an organization by evolving new ideas into profitable business practices (Carrier, 1996; Hisrich, 1990; Pinchot, 1985). Intrapreneurship may refer to new business ventures, product or service development, new technologies or administrative strategies (Antoncic & Hisrich, 2003). Researchers believe that Miller's (1983) dimensions of innovation, proactiveness, and risk-taking, can be applied to intrapreneurship as well as entrepreneurship at both a firm and individual level (De Jong, Parker, Wennekers, & Wu, 2011; Marvel, Griffin, Hebda, & Vojak, 2007; Monsen, Patzelt, & Saxton, 2010; Rauch et al., 2009). Compared to entrepreneurs, intrapreneurs have more obstacles to success. Intrapreneurs have less control over



their environments and must seek support from and report to superiors. Yet, both entrepreneurs and intrapreneurs stimulate increased productivity and processes that add value using innovative methods. Ideally, a firm would be managed by intrapreneurs who practice principles of entrepreneurship (Luchsinger & Bagby, 1987).

Innovativeness is a key element to the success of an intrapreneur (Pinchot, 1985). At the firm level, innovation is the development and application of an original idea (De Jong et al., 2011; Kanter, 2000). At an individual level, an innovative individual typically exhibits behaviors such as problem recognition, idea generation and promotion, and prototype development. These behaviors are important to economic progress (De Jong et al., 2011; Kanter, 2000). Proactiveness is an opportunity-seeking perspective which analyzes external trends to initiate the pursuit of new opportunities and positions a firm to be a leader in their area (Covin & Slevin, 1989; Lumpkin & Dess, 1996; Rauch et al., 2009). These characteristics are also typical of intrapreneurial individuals and in addition may include taking charge, suggesting change, and strategic scanning for organizational opportunities leading to new business development (Antoncic & Hisrich, 2003; De Jong et al., 2011; Pinchot, 1985). Risk-taking is the result of venturing into the unknown. It results in borrowing and committing large quantities of assets to be put toward uncertain ventures (Lumpkin & Dess, 1996; Rauch et al., 2009) As individual intrapreneurs pursues opportunity, risk-taking occurs by default (De Jong et al., 2011).

De Jong and colleagues (2011) focused on corporate entrepreneurship at the individual level and proposed that intrapreneurial behavior is linked to an individuals' innovative, proactive, and risk-taking behaviors. They developed a reliable and valid nine-item instrument to measure intrapreneurial behavior. Multiple items were used to measure each construct and existing measures were translated from English to Dutch and back translated to ensure accuracy.

In addition to the nine-item instrument, the researchers evaluated how the measure correlated with additional job-related variables.

The researchers surveyed 271 employees of a Dutch company focused on policy research and consultancy. The company was composed of nine business units, managed by one of several managers. Teams of employees worked together and collaboration was encouraged across business units. One source of data was a paper survey which asked participants to identify three colleagues who had been collaborators within the past three years. The survey also collected information regarding proactive personality, job autonomy, and job variety. All employees received the survey. Three email reminders were sent to non-respondents over a period of 6 weeks. Of the 271 employees, 189 participated for a response rate of 70%. The paper survey provided data on latent constructs to be investigated as potential antecedents. Researchers used a seven-point Likert scale (1 = *strongly agree* to 7 = *strongly disagree*). Four items were used to evaluate proactive personality. The Cronbach's alpha for the measures was .80. Three items were used to evaluate job autonomy ( $\alpha = .89$ ) and three items were used to measure job variety ( $\alpha = .89$ ). Average scores were used to indicate which employee possessed each construct.

A second survey was sent to 216 employees identified as a collaborator. Nine items were used to measure innovativeness, proactiveness, and risk-taking. Each employee who had mentioned a collaborator name, was asked to provide a list of intrapreneurial behaviors, job performance, and feedback seeking behavior the employee exhibited. Supervisor ratings were not used as researchers felt peer ratings would be more accurate. An average number of 2.6 collaborators were rated. Three email reminders were sent to participants over the course of eight weeks resulting in a 67% response rate. Items were measured using a five-point Likert scale (1 = *not at all* to 5 = *very often*). To verify that peer ratings were homogenous, the

researchers computed intra-class correlation coefficients using a two-way random model with consistency agreement. Values ranged from .20 to .50 ( $p < .001$ ) indicating appropriate aggregation. Responses from multiple peers were used to compute a mean score. Cronbach's alpha for the overall measure was .91 and for each dimension exceeded .80 indicating good internal consistency. Three items were used to measure job performance and feedback seeking using a response scale of 1 (10%, *indicating that an individual was considered to perform better than only 10% of colleagues*) to 9 (90%, *indicating that the employee was performing better than 90% of colleagues*). Data were also aggregated using intra-class correlation coefficients and coefficients ranged from .27 to .35 ( $p < .001$ ) indicating high consistency. The Cronbach's alpha for the measures was .93. Feedback seeking was evaluated using 3 items. Intra-class correlation coefficients were significant ( $p < 0.5$ ) and ranged from .10 to .18, indicating that peers were less consistent in evaluating colleagues' feedback seeing behavior. The Cronbach's alpha for the measures was .88.

Researchers also requested administrative data from the organization including age, tenure, educational attainment, gender, job types, and employment status. Researchers found intrapreneurial behavior linked to a proactive personality, advanced educational degree, job autonomy, and job types with managers and sales people more likely to be intrapreneurs.

The instrument exhibited good internal consistency, strong intercorrelations between constructs using confirmatory factor analysis, and high and significant factor loadings in a higher-order factor model. Results mirrored those of firm level entrepreneurship studies that typically find innovativeness, proactiveness, and risk-taking as heavily correlated. Researchers found that intrapreneurial behaviors were positively associated with proactive personality and job autonomy.

Rigtering (2013) outlined how to stimulate intrapreneurship within employees. Researchers surveyed employees at six different Dutch organizations. Three of the organizations were for-profit while the remaining organizations were non-profit. Four of the organizations were categorized as small or medium, employing ten or more employees, but less than 250 employees. Two organizations were categorized as large, as they employed more than 250 employees. Employees and managers were included in the sample. The survey was administered online. Email reminders were used to increase participation. The response rate for the study ranged from 30% to 66.7% depending on the organization. The survey was developed from existing measures and translated from English to Dutch. Back translation was used to ensure item accuracy. All items were measured using a seven-point Likert scale (1 = *completely disagree* to 7 = *completely agree*). For purposes of the study, intrapreneurship was considered active involvement and leading the development of a corporate project. To identify participants, respondents were asked if they had participated in a corporate project within the past two years. If so, they were asked to evaluate their role as associated with the project. Respondents identified as intrapreneurs were asked to assess the strategic and financial importance of the project using a five-point Likert scale (1 = *very small* to 5 = *very important*). Additionally, existing measurement scales were used to collect information about intrapreneurial behavior, organizational structure, resources available, and trust in managers. Control variables were also collected including gender, age, and education. Confirmatory factor analysis was used to assess the convergent and discriminatory validity of the independent variables. After revision, a second confirmatory factor analysis found that all items loaded significantly ( $p = 0.001$ ) on the hypothesized latent constructs indicating convergent validity. The Cronbach' alpha was slightly below .70, but researchers felt it was acceptable for the exploratory nature of the study.

Researchers found that intrapreneurship within an organization is not directly affected by work context, but rather indirectly affected through innovative workplace behaviors and personal initiative by employees. They also found that number of resources affect the level of innovative behaviors and personal initiative within an organization, but not risk-taking. In addition, trust in management was important to the stimulation of innovative behaviors and personal initiative and risk-taking behavior by employees was not related to the involvement in an intrapreneurial project (Rigtering & Weitzel, 2013).

To date, most research on intrapreneurship has focused on large firms. However, understanding intrapreneurship is also important to small businesses which are required to innovate and evolve when faced with competition (Carrier, 1996). Carrier (1999) examined entrepreneurship in small businesses located in Canada. To recruit participants, the researcher placed advertisements in two major daily newspapers in the Quebec City area outlining study details, contacted 50 small business owner-managers via telephone, and attended three entrepreneurs' association meetings to discuss research study. The researcher sought small or medium sized firms with less than 200 employees in which an innovation had been implemented by an employee(s). Ten interviews were conducted, five with owner-managers and five with intrapreneurs. Two or three individual meetings lasting up to three hours were held with the 10 participants. Participants were asked to describe their form of intrapreneurial cooperation, factors leading to inception of the intrapreneurial project, personal motivation for project involvement, and positive and negative consequence of the experience. Interviews were recorded, then transcribed for content analysis. The researcher found that the type of growth sought by the owner-manager, the businesses' strategic objectives, and the types of salary and

reward for intrapreneurial actions were all factors affecting the development of intrapreneurship in small businesses (Carrier, 1996).

Similarly, pharmacists practicing in health-systems and chain pharmacies should know how to overcome internal barriers to success within their organization. These barriers may include internal politics or multiple levels of management (Hohmeier & Gatwood, 2016).

### **Entrepreneurial Orientation**

Entrepreneurship is a creative process in which an organization or an individual recognizes opportunity and builds an enterprise (Chauhan, Prakash, & Jain, 2014).

Entrepreneurship stimulates a country's economy through the creation of new jobs. These new jobs are the results of innovation, research, and development (Chauhan et al., 2014). Important to the success of an organization or individual is their EO.

EO specific to firms was developed by Miller (1983), who purported that an organization's EO can be determined by their display of risk-taking, innovativeness, and proactiveness. These three dimensions are often combined to become a higher-order indicator of entrepreneurship at the firm level and are the most commonly studied in EO research (Bolton & Lane, 2012; Covin & Wales, 2012; Rauch et al., 2009). The dimensions autonomy and competitive aggressiveness are now also used to characterize EO and were added by Lumpkin and Dess (Lumpkin & Dess, 1996). Research has also found that the five dimensions can be studied independent of one another (Lumpkin & Dess, 1996, 2001; Wang, 2008) with innovativeness, risk-taking, and proactiveness being studied most often (Lyon, Lumpkin, & Dess, 2000; Rauch, Wiklund, Lumpkin, & Frese, 2009). EO has been predominantly researched at the organization level (Miller, 1983; Covin & Slevin, 1989; Lumpkin & Dess, 1996). A higher EO score results in enhanced performance of the organization (Bolton & Lane, 2012). It

is thought that EO exists in practice as a set of independent behavioral scores across the dimensions of innovation, proactiveness, and risk-taking, competitive aggressiveness, and autonomy or as a collective profile formed by these same dimensions (Covin & Lumpkin, 2011).

Although typically studied in association with organization performance, EO can also be measured for individuals. Three factors must be considered when evaluating the EO of an individual, environment, personality traits, and attitudes (Bolton & Lane, 2012; Levenburg & Schwarz, 2008). Environment includes economic opportunities, tax advantages, or funding for starting a business. Personality traits and attitudes are specific to the individual and lead to a person's propensity to be in a business (Bolton & Lane, 2012; Domke-Damonte, Faulstich, & Woodson, 2008; Harris & Gibson, 2008; Solomon, Raposo, do Paço, & Ferreira, 2008).

Research focused on personality traits has produced mixed results. A defined set of personality traits has yet to be established for a successful entrepreneur (Zhao, Seibert, & Lumpkin, 2010).

Personality traits are thought to change little over time. As such, research has changed to focus on EO and attitudes. Attitudes are positive or negative and are malleable by outside effects (Bolton & Lane, 2012; Robinson, Stimpson, Huefner, & Hunt, 1991). Research on entrepreneurial attitude has found that personal control, innovation, self-esteem, and achievement are all correlated with intent to become an entrepreneur (Harris & Gibson, 2008). Two hundred sixteen students enrolled in Small Business Institute<sup>®</sup> (SBI) coursework at universities in the Northeast, Southeast, Southwest, and Midwest areas of the United States participated in the study. The majority of participants were male (51%) and Caucasian (80%) ranging from 19 to 48 years old. Faculty were asked to invite their students to complete an anonymous online voluntary survey at the start of the semester. Entrepreneurial attitude was measured using the Entrepreneurial Attitudes Orientation (EAO) scale (Robinson et al., 1991).

The EAO scale was developed to assess the attitudes of entrepreneurs and subsequently adapted for use with student populations. The scale measured attitude based on four constructs including achievement in business, innovation in business, perceived personal control of business outcomes, and perceived self-esteem in business. A ten-point Likert scale (1 = *strongly disagree* to 10 = *strongly agree*) was used to evaluate student responses. The students were also asked to provide demographic information regarding academic discipline, gender, and ethnicity. To measure entrepreneurial initiatives, the following questions were asked: have you ever worked for a small business, has your family ever owned a small business, and have you ever owned your own small business. One hundred eighty (84%) students were thought to have an achievement attitude, 173 (81%) were thought to have a control attitude, and 182 (85%) were thought to have an innovation attitude that was entrepreneurial. In contrast, 24 (16%) students had a self-esteem attitude that was entrepreneurial. Overall, male students produced higher scores in personal control and innovation and students with family business involvement had more established entrepreneurial attitudes (Harris & Gibson, 2008).

Personality traits and attitudes are often examined to study the EO of an individual and to determine what traits increase a person's interest in and success with entrepreneurial activities (Bolton & Lane, 2012; Koh, 1996; Mueller & Thomas, 2001; Rauch & Frese, 2007; Zhao, Seibert, & Lumpkin, 2010). Researchers have developed a model describing how individual differences affect business success. The model suggests that broad personality traits may affect goal setting and strategy development which relate to business creation and success. These broad traits are influenced by more specific traits such as the need for achievement, risk-taking, and innovativeness. These specific traits relate to goals and action strategies and, thus, business success (Rauch & Frese, 2000).



The relationships between personality traits, business creation, and business success have been studied with varied results. Small to moderate relationships have been found between these variables. It has been noted that business owners compared to non-business owners are high in need for achievement, risk propensity, and innovativeness (Baum et al., 2007; Collins, Hanges, & Locke, 2004; Rauch & Frese, 2007; Stewart & Roth, 2004). These personality traits are also linked to business success (Baum et al., 2007). Measurement of student's perceptions of their propensity to take risk, innovativeness, autonomy, and proactiveness may predict entrepreneurial success (Bolton & Lane, 2012). To learn more about a student's individual EO researchers developed an Individual Entrepreneurial Orientation (IEO) scale. EO variables as defined by Lumpkin and Dess (1996) were modified and used to develop the IEO scale. Measures were reworded to an individual rather than an organization. Items were measured using a five-point Likert scale (1=*strongly disagree* to 5=*strongly agree*). The instrument was piloted with a group of 60 individuals. Q-methodology was used to modify, delete, and add items to develop a final instrument that exhibited convergent and discriminant validity. The final instrument was emailed to students attending a Midsouth university. Students were asked to complete the IEO scale, questions related to their individual propensity for entrepreneurship, and demographic questions. A total of 1,102 surveys were used for data analysis. Risk-taking, innovativeness, and proactiveness demonstrated reliability and validity and statistically correlated with measures of entrepreneurial intention. Measures of autonomy had weak factor loadings and competitive aggressiveness had little empirical validation. The researchers suggested that these two variables may be learned behaviors. The researchers believed the tool could be used to develop entrepreneurship education programs and could influence decisions such as career choice or business ventures (Bolton & Lane, 2012). The IEO scale was further validated through a study

of 340 entrepreneurs from the Midsouth. The items on the IEO scale measuring risk-taking, innovativeness, and proactiveness loaded as separate factors as originally reported and innovativeness loaded on two factors. Cronbach's alphas for the three factors were all greater than .77 verifying the internal consistency of the scale. External validity was verified with correlations and I-tests. It was reported that the IEO scale was reliable and valid measure of EO at the individual level (Bolton, 2012).

### **Entrepreneurial Orientation in Pharmacy**

To evaluate the EO of pharmacies, researchers surveyed 630 community pharmacies in 9 states. Of the 615 surveys that were deliverable, 234 (38%) were used for data analysis. The survey used 24 items to assess EO. The items included a global EO measure, four items measuring environmental munificence, and four items measuring competitive intensity all evaluated with a seven-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). Additionally, five items were used to measure environmental dynamism using a five-point Likert scale (1 = *very low* to 5 = *very high*) and five items were used to measure the perceived adequacy of resources using a six-point Likert scale (1 = *very poor* to 6 = *excellent*). Respondents were responsible for classifying their pharmacy as independent, small pharmacy chain, large pharmacy chain, food-drug combination chain, mass merchandise chain, or other. Six items measured approaches to management using a seven-point semantic differential scale without descriptors and the final item asked the respondent to describe their position within the pharmacy. Respondents were also asked to note if they provided seven pharmacy services including asthma care management, specialized compounding, patient compliance program, pharmacy provided immunizations, formal evaluations of patients' health risks, diabetes care management, and follow-up phone calls to monitor drug therapies. The list of services was

developed by two community pharmacy managers and an ambulatory care pharmacist and the services included were considered by the group to be innovative. Assessment methodologies included a second order confirmatory factor analysis and evaluation of the reliability and validity of the subscales and overall EO measure. An overall EO score was calculated for each pharmacy (PHARMEO). Researchers found that pharmacies with a high EO provided more innovative pharmacy services than those with a low EO. The measure of EO was determined to be reliable and valid. Researchers determined that EO can be used to predict whether a pharmacy will develop new services (Jambulingam & Doucette, 1999).

Hermansen-Kobulnicky and Moss (2004) studied the EO of pharmacy students as related to their interest in owning a small business using an instrument they developed called the Pharmacy Student Entrepreneurial Orientation (PSEO). Their work was based off of the PHARMEO scale used to measure the EO of community pharmacies (Thani Jambulingam & Doucette, 1999). Dimensions studied included risk-taking, innovativeness, proactiveness, autonomy, competitiveness, and work ethic. Items were adapted from the PHARMEO to focus on pharmacy students rather than pharmacists. Twenty-nine items were modified or newly developed for inclusion in the survey. Additional dimensions focused on the psychological typologies of entrepreneurs were also included. A seven-point Likert scale (1 = *strongly disagree* and 7 = *strongly agree*) was used for all 34 items. Of the 34 items, 1 item was omitted due to a typographical error, 10 items were omitted due to poor correlations, and 6 items were omitted as they impeded scale reliability. The remaining 23 items were representative, achieved a Cronbach's alpha of .94 and an approximately normal distribution. A convenience sample of all pharmacy students attending a single public university were eligible for participation in the study (N=182). From this sample 141 (77.5%) surveys were used for analysis. Students

planning to own their own pharmacy or who had led efforts to create change had higher mean PSEO scores. The results of this study are not generalizable due participants being from a single university; however, use of the instrument could help faculty and advisors guide students in their elective choices and future career plans (Hermansen-Kobulnicky & Moss, 2004). Understanding students' EO may be valuable to business owners and investors who evaluate business proposals (Bolton & Lane, 2012).

### **Trait Emotional Intelligence**

The idea of EI was founded in in 1964 by Beldoch (Davitz et al., 1964; Salovey & Mayer, 1990). In 1995, the idea of EI was popularized through the work of Goleman and from his work many models of EI emerged (Goleman, 1995). Trait EI and ability EI are two constructs that have been developed through this research (Petrides & Furnham, 2001; Salovey, 1997; Salovey & Mayer, 1990).

Trait EI and ability EI are thought to be complementary (Zampetakis, 2009). Trait EI regularly correlates with typical performance, predicts what a person will do, and can be measured using self-report questionnaires. Measuring trait EI allows researchers to capture how individuals normally think and behave. Ability EI more accurately correlates with maximum performance, predicts what people can do, and can be measured using maximal performance tests (Pérez et al., 2005). When predicting everyday behavior, such as individual entrepreneurial behavior, trait EI measures offer an advantage over ability EI measures (Zampetakis, 2009). Trait EI has been shown to predict work performance, job involvement, and propensity for entrepreneurship (Ahmetoglu et al., 2011; Carmeli, 2003; Mayer et al., 2008).

Zampetakis (2009) distributed 224 questionnaires to public and quasi-public organization service employees in Greece (Zampetakis, Beldekos, et al., 2009). The questionnaires were

distributed among four organizations through random selection. The response rate from all organizations was 39%. The questionnaire was composed of 30 items evaluated on a five-point Likert scale (1 = *strongly disagree* and 5 = *strongly agree*). The Wong Law Emotional Intelligence Scale (WLEIS) was used to measure typical behavior (Wong & Law, 2002). Its four subscales were consistent with the definition of EI established by Mayer and Salovey (1997) (Salovey, 1997; Zampetakis et al., 2009). The WLEIS was used to measure perception of one's own (4 items;  $\alpha = .72$ ) and other's emotions (4 items;  $\alpha = .70$ ), regulation of emotions (4 items;  $\alpha = .80$ ), and utilization of emotions (4 items;  $\alpha = .71$ ). The Cronbach's alpha for all 16 items was acceptable at .90. The instrument also assessed Perceived Organization Support (POS) using an eight-item scale. The Cronbach's alpha was .80 and acceptable (Zampetakis et al., 2009). POS was also measured using eight items developed and tested by Eisenberger (Eisenberger, Armeli, Rexwinkel, Lynch, & Rhoades, 2001; Eisenberger, Huntington, Hutchison, & Sowa, 1986). The Cronbach's alpha for the scale was .80 and acceptable. Entrepreneurial behavior was measured using 6 items from an instrument developed by Pearce (Pearce, Kramer, & Robbins, 1997). The Cronbach's alpha for the six items was .71 and acceptable. Structural equation modeling was used to test the influence of personal traits and contextual factors on entrepreneurial behavior. It was determined that both personal and contextual variables correlated with individual entrepreneurial behavior. Specifically, it was established that employee trait EI was significantly related to entrepreneurial behavior. This suggests that individuals with high trait EI are more aware of the factors contributing to their experience of positive and negative emotions. Thus, entrepreneurial actions may be filtered through employee perceptions of their emotional abilities (Zampetakis et al., 2009).

Trait EI affects entrepreneurial behavior through two established processes. One process is the self-evaluation of emotional efficacy. The second process through which trait EI affects entrepreneurial behavior is at a cognitive level. Individuals with high self-perceived EI have been associated with a higher affectivity which leads to proactive and creative dispositions. These behaviors facilitate entrepreneurial performance. Two hundred eighty undergraduate students from three public universities in Greece were surveyed. Students were randomly selected outside of class and asked to voluntarily participate in the study. The study sought to determine what factors influence entrepreneurship as a career choice. The sample population was made up of 139 (49.6%) male students and the mean age was 22.7 years. A total of 36% of the participants had a parent who owned a full-time business. The survey was comprised of 52 items. Trait EI was measured using the Trait Emotional Intelligence Questionnaire – Short Form (TEIQue-SF). The TEIQue-SF is a 30-item instrument measuring global trait EI. Items were measured on a seven-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). Fifteen of the items were negatively worded. The TEIQue-SF has been used to produce a highly reliable global trait EI score correlating with a wide range of criteria such as coping styles, life satisfaction, personality disorders, perceived job control, and job satisfaction (Petrides & Furnham, 2001; Petrides & Furnham, 2006; Petrides, Pérez-González, & Furnham, 2007; Zampetakis et al., 2009b). Petrides and Furnham (2004) reported a Cronbach's alpha of between .70 and .80 (Claes, Beheydt, & Lemmens, 2005). For this study Cronbach's alpha was .83. To assess proactivity a six-item version of Batemans and Crant's (1993) scale was used. Responses were made on a seven-point Likert scale (1 = *strongly agree* to 7 = *strongly disagree*). The alpha for the scale was found to be adequate in past studies and in the present study the Cronbach's alpha was .71 (Claes et al., 2005; Zampetakis, Kafetsios, et al., 2009). Creativity was measured

with 12 items from Zhou and George's (2001) measure of creativity (Zhou & George, 2001). Items were measured on a seven-point Likert scale (1 = *strongly agree* to 7 = *strongly disagree*). Six items were negatively worded. For this study Cronbach's alpha was .89. Attitudes towards entrepreneurship were assessed by two items created by the researchers and measured on a seven-point Likert scale (1 = *strongly agree* to 7 = *strongly disagree*). For this study Cronbach's alpha was .88. Lastly, entrepreneurial intention was measured by two items adapted from Krueger and measured on a seven-point Likert scale (1 = *strongly agree* to 7 = *strongly disagree*) (Krueger, Reilly, & Carsrud, 2000). For this study Cronbach's alpha was .88.

Results of the study indicated that trait EI had significant direct effects on proactivity (0.55,  $p = 0.002$ , two-tailed) and creativity (0.34,  $p = 0.004$ , two-tailed). Proactivity had statically significant direct effect (0.31,  $p = 0.002$ , two-tailed) on entrepreneurial attitudes. Creativity had a statistically significant direct effect on entrepreneurial attitudes (0.16,  $p = 0.03$ , one-tailed). The direct effects of proactivity and creativity on entrepreneurial intent were not statistically significant [(0.1,  $p = 0.29$ ) and (-0.01,  $p = 0.863$ ) respectively]. The researchers suggested that attitudes towards entrepreneurship full mediate the effects of creativity and proactivity on entrepreneurial intent. The direct effect of proactivity on creativity was significant (0.33,  $p = 0.002$ , two-tailed) and attitudes toward entrepreneurship had a significant effect on entrepreneurial intent (0.98,  $p = 0.002$ , two-tailed). The standardized indirect effect of proactivity on entrepreneurial intent was 0.32 (95% CI: 0.18-0.48,  $p = 0.002$ , two-tailed). The standardized indirect effect of creativity on entrepreneurial intent was 0.15 (95% CI: 0.18-0.48,  $p = 0.002$ , one-tailed). Overall, the proportion of variance in creativity, proactivity, entrepreneurial attitudes and intentions that is explained by the collective set of predictors is 31% (95% CI: 0.16-0.46), 35% (95% CI: 0.23-0.49), 17% (95% CI: 0.8-0.3) and 92% (95% CI: 0.84-0.98)

respectively (Zampetakis et al., 2009b). This study provides evidence that students with high trait EI are more likely to formulate the intention of starting their own business. In addition, data reported may be useful for entrepreneurship educators attempting to develop entrepreneurial motivation among students (Zampetakis et al., 2009b).

Emerging evidence suggests trait EI is a highly useful concept in career success and as a predictor of career related performance outcomes (Ahmetoglu et al., 2011). A study conducted in the United Kingdom of 528 (288 males) participants was used to determine if trait EI predicts entrepreneurship and if the effects of trait EI on entrepreneurship are independent of the Core Self-Evaluations (CSE) personality trait, demographic variables, and differences in entrepreneurial personality. Participants ranged in age from 16-84 years. Of these participants, 4.4% were unemployed, 47.7% were students, 33% employed, and 25.9% self-employed. The TEIQue-SF was used to measure global trait EI. The Core Self-Evaluation scale (CSES) is a 12-item instrument used to measure core self-evaluation. Items are evaluated on five-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). Individual differences in entrepreneurial success were evaluated by past and current entrepreneurial achievements and activities. The authors created items based on themes in the literature. Eighteen items were developed and responses were rated using multiple choice and more than one option could be chosen. The Measure of Entrepreneurial Tendencies and Abilities (META) is a self-report scale consisting of 61 items. This instrument measures four facets of entrepreneurial personality including entrepreneurial awareness, entrepreneurial creativity, opportunism, and vision. It also can be used to compute an overall total entrepreneurial potential score by summing all of the facets. Items were measured using a five-point Likert scale (1 = *completely disagree* to 5 = *completely agree*). Participants were surveyed online via a website promoted through social media and



email. Upon completion of the survey, participants were provided with feedback on their personality profiles. All personality scales had good internal consistency. Trait EI correlated with all entrepreneurial outcomes and with Core Self-Evaluations. Significant correlations between trait EI and the dimensions of META were also found. Moderate correlations were found between META facets and between most of the outcome measures. The authors found that individuals that have a high trait EI are more likely to engage in innovative entrepreneurial activities. As a significant predictor of entrepreneurial activity, firms can select for trait EI. Firms that employ an entrepreneurial individual often gain and retain a competitive advantage in their market (Ahmetoglu et al., 2011; Lumpkin, 2007).

### **Summary**

The review of the literature found that pharmacy curricula and pharmacy graduates would benefit from the addition of entrepreneurship education. As the role of the pharmacist expands entrepreneurship and intrapreneurship will be important to the success of a pharmacy graduate. However, it has been noted that educators may not be equipped to teach or assess entrepreneurial skills.

Entrepreneurship is defined as finding opportunities to introduce new goods and services that previously did not exist (Shane & Venkataraman, 2000; Venkataraman, 1997). It is important for entrepreneurs to have a strong technical skill set in communication, management, and organization. Through entrepreneurship education, students can learn these skills, in addition to how to create a business and how to recognize opportunity. Typically taught to business students, the value of expanding entrepreneurship education to other non-business disciplines is evident as encouraging entrepreneurship in pharmacy graduates can lead to new services and practice role expansion.

Although, usually associated with organization performance, EO can also be measured for an individual. A high EO suggests that a person may have a higher interest or success with entrepreneurial activities. Early determination of a student's desire to pursue pharmacy ownership or if a student has a high inclination to be innovative may help educators to foster the development of entrepreneurship skills. In addition, measuring trait EI can predict such propensity for entrepreneurship.

## **CHAPTER 3. METHODOLOGY**

The purpose of this study was to critically analyze EO and trait EI in pharmacists to develop an understanding of how these traits are exhibited in different practicing settings and practice roles. In addition, the relationship between trait EI and EO was explored to determine if trait EI is positively associated with EO in pharmacists. Finally, entrepreneurial services offered by pharmacists were evaluated to determine differences in type and frequency of services delivered by pharmacists in Upper Midwest states.

This chapter presents the methodology and procedures used to answer the following research questions:

### **Research Questions**

1. Does the level of entrepreneurial orientation of North Dakota pharmacists differ from pharmacists in other Upper Midwest states?
2. Does the level of entrepreneurial orientation of pharmacists differ with employment status, practice setting, or practice role?
3. Does the level of trait emotional intelligence of North Dakota pharmacists differ from pharmacists in other Upper Midwest states?
4. Does the level of trait emotional intelligence of pharmacists differ with employment status, practice setting, or practice role?
5. Is there a relationship between trait emotional intelligence and entrepreneurial orientation?
6. How do entrepreneurial services provided by North Dakota pharmacists differ from services provided by pharmacists in other Upper Midwest states?

This chapter chronologically outlines the research effort and is divided into sections that include (a) population and sample, (b) instrumentation, (c) data collection, and (d) data analysis.

### **Population and Sample**

The NABP and AACP have established eight districts within North America and Canada, and including Hawaii, Puerto Rico, Guam, Virgin Islands, and New Zealand. These districts hold annual meetings to discuss practice and education at both regional and national levels. North Dakota is located in District 5 with Iowa, Minnesota, Nebraska, South Dakota, and two Canadian provinces, Manitoba and Saskatchewan. For the purpose of this study, District 5 members located in Canada were excluded, as the study questions were specific to North American pharmacy program accreditation standards.

District 5 Boards of Pharmacy were contacted to solicit email and postal addresses of practicing pharmacists within each study state. The North Dakota, Minnesota, and Nebraska Boards of Pharmacy provided email lists of pharmacists licensed to practice within each state. The South Dakota and Iowa Boards of Pharmacy provided postal lists of pharmacists licensed to practice within each state. All email and postal address lists were cross-referenced to identify duplicate entries. This ensured that pharmacists licensed in more than one state were only included in the population once and their responses were representative of their primary state of practice. When evaluating email and postal addresses appearing on more than one Board of Pharmacy list, postal addresses were used to confirm a pharmacist's primary state of practice. As detailed in Table 1, cross-referencing email and postal addresses resulted in the elimination of 3,624 pharmacists from the population. The final list of potential participants included 16,157 pharmacists. A simple random sample of 2,000 participants was generated from this list using Microsoft Excel 2013 (Dillman, Smyth, & Christian, 2009; Dillman et al., 2009; Fowler Jr,

2013). Using this method, all pharmacists practicing within Upper Midwest states had an equal chance of being selected for inclusion in the study.

Table 1

*Licensed Pharmacists Eligible for Inclusion in the Study by State*

	North Dakota	Iowa	Minnesota	Nebraska	South Dakota
Licensed pharmacists	1154	3595	8265	4994	1773
Primary address out of state	257	0	0	2419	632
Invalid email address	5	0	299	12	0
Total pharmacists eligible	892	3595	7966	2563	1141

### **Instrumentation**

The Entrepreneurial Orientation-Trait Emotional Intelligence instrument (EO-tEI) was a 45-item scale that was used to measure the EO and trait EI of practicing pharmacists. The EO-tEI was adapted from the Entrepreneurial Orientation Instrument created by Hughes and Morgan (2007) and the Trait Emotional Intelligence Questionnaire – Short Form (TEIQue-SF) (Ahmetoglu et al., 2011; Cooper & Petrides, 2010; Zampetakis, Kafetsios, et al., 2009).

Originally developed for use with firms, Hughes and Morgan EO scale items were reworded to account for the targeted respondents being pharmacists. Both the Entrepreneurial Orientation Instrument and TEIQue-SF use a seven-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). For this study, the Likert scales were modified from seven-point Likert scales (1 = *strongly disagree* to 7 = *strongly agree*) to six-point Likert scales (1 = *strongly disagree* to 6 = *strongly agree*) with the neutral response option removed.

The survey was pre-tested and validated with advanced pharmacy practice experience students enrolled in the professional pharmacy program at North Dakota State University. The Entrepreneurial Orientation-trait Emotional Intelligence (EO-tEI) survey instrument is presented in Appendix A.

## Entrepreneurial Orientation Instrument

Hughes and Morgan (2007) used the work of Lumpkin and Dess to guide the development of an EO tool for use with a firm (Hughes & Morgan, 2007; Lumpkin & Dess, 1996). The tool uses five separate first-order reflective scales to evaluate the five dimensions of EO: risk-taking, innovativeness, proactiveness, competitive aggressiveness, and autonomy. Using this model, the strength of the relationship between construct and antecedents and consequences can be distinctively identified (Covin & Wales, 2012).

Hughes and Morgan developed instrument items from previous studies focused on EO (Barringer & Bluedorn, 1999; Bateman & Crant, 1993; Calantone, Cavusgil, & Zhao, 2002; Engel, 1970; Hornsby, Kuratko, & Zahra, 2002; Hult & Ketchen, 2001; Morgan & Strong, 2003; Spreitzer, 1995). All items were measured using a seven-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). Researchers pre-tested the tool with academicians, managers, and field experts to ensure face and content validity. Modifications were made to the items based on the results of the pre-test. All scales had Cronbach's alpha coefficients of .70 or greater (Hughes & Morgan, 2007). Validity of each scale was evaluated by item-total correlation analysis. All item-total correlation coefficients were acceptably high, in the anticipated direction, and statistically significant ( $p < 0.001$ ). The instrument was used to gauge the EO of young high-technology firms. A mail survey was sent to the managing director of each firm. Principles of the Tailored Design Method were used to administer the survey including pre-notification correspondence and follow-up reminders (Dillman, 2000; Hughes & Morgan, 2007). From a random sample of 1000 firms, 211 responses were received for a response rate of 21%. Non-response bias was not found within the data. Researchers found that proactiveness and innovativeness had positive influence on business performance and risk-taking had a negative

relationship. In addition, competitive aggressiveness and autonomy did not add value to business performance in early stages of firm growth (Hughes & Morgan, 2007).

### **Trait Emotional Intelligence Questionnaire**

The TEIQue-SF consists of 30 items measuring global trait EI. Two studies evaluated the psychometric properties of the TEIQue-SF using item response theory (IRT). IRT was used to evaluate measurement precision across the range of latent traits at both the item and test level compared to producing only a single reliability estimate for all participants. This helped the researchers to identify items that did not contribute to measurement precision. The first study included 1,119 participants from a university campus and its surrounding community. Participants were recruited through word of mouth, advertising through social media, course credit, and course data collection. Questionnaires were completed independently or during a supervised class session. Exploratory Factor Analysis confirmed that there was dominant trait EI factor and validated the use of unidimensional IRT model. IRT found that most items had good discrimination and threshold parameters and high item information values. Globally, the instrument exhibited very good precision across most of the latent trait range. A second study involving 866 participants used a similar IRT technique and replicated results from the first study with the instrument showing good psychometric properties at the item and global levels. Researchers concluded that the TEIQue-SF is appropriate for the assessment of trait EI (Cooper & Petrides, 2010).

### **Instrument Reliability**

All EO-tEI survey items were pre-tested with advanced pharmacy practice experience students enrolled in the professional pharmacy program at North Dakota State University to determine if the survey was adequate for a larger study. The pilot survey was created in and

deployed using Qualtrics (*Qualtrics*, 2005). Study details were approved by the North Dakota State University Institutional Review Board (APPENDIX B).

Data was gathered via online survey using Dillman's Tailored Design Method (Dillman et al., 2009). The Tailored Design Method uses multiple motivational features to elicit high quantity and quality of responses to a survey. It is a scientific approach to survey design which reduces survey error, encourages participants to respond, focuses on communication with respondents, and highlights the importance of survey sponsorship, survey population, and survey content (Dillman et al., 2009). Eighty-seven students were invited via email to participate in the pilot study. Students received a pre-notification email on June 20, 2017 indicating that they would be receiving a second email containing a link to the EO-tEI survey instrument on June 22, 2017 (APPENDIX C). Students were reminded to complete the survey on June 29, 2017 and July 6, 2017 (APPENDIX D). Of the 87 students, 22 students submitted complete surveys for analysis resulting in a 25.3% response rate. Based on the results of the pre-test, items were modified to improve readability and clarity of concepts.

SPSS (IBM Corp. Released 2014. IBM SPSS Statistics for Windows, Version 24.0) was used to analyze data. Items hypothesized to measure EO were analyzed for reliability and internal consistency using Cronbach's alpha as shown in Table 2. The overall Cronbach's alpha for the instrument was .89. The instrument was used to measure constructs of risk-taking (3 items;  $\alpha = .82$ ), innovativeness (3 items;  $\alpha = .30$ ), proactiveness (3 items;  $\alpha = .75$ ), competitive aggressiveness (3 items;  $\alpha = .44$ ), and autonomy (3 items;  $\alpha = .04$ ). Three of the subscales, innovativeness, competitive aggressiveness, and autonomy, did not successfully satisfy Nunnally's threshold level of reliability with alpha coefficients of less than .70 (Nunnally, 1978).



Based on these results, four instrument items were revised. One item measuring innovativeness was edited from “I actively introduce improvements and innovations in my pharmacy” to “I actively introduce improvements in my pharmacy.” One item measuring proactiveness was revised from “I initiate actions to which other pharmacists or pharmacies respond” to “I initiate actions to which other pharmacies respond.” One item measuring competitive aggressiveness was revised from “In general, I take a bold or aggressive approach when competing” to “In general, I take a bold approach when competing.” A second item measuring competitive aggressiveness was revised from “I try to undo and out-manuever the pharmacists or pharmacies as best I can” to “I respond to actions which competing pharmacies initiate.” All revisions were intended to improve clarity and comprehension for the reader.

All items measuring autonomy scored low. However, the items were not revised as this was likely due to the participants being student pharmacists and not licensed pharmacists. These students worked under the observation of a licensed pharmacist preceptor and were not allowed to act autonomously as they were still in the training phases of the pharmacy program.

Table 2

*Item Total Statistics for Entrepreneurial Orientation Scale Pilot Study*

Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item – total correlation	Cronbach's alpha if item deleted
Risk-Taking 1	8.14	2.89	.67	.79
Risk-Taking 2	7.05	3.95	.67	.78
Risk-Taking 3	7.00	3.52	.73	.71
Innovativeness 1	8.09	1.80	.06	.44
Innovativeness 2	7.91	1.80	.27	.07
Innovativeness 3	7.73	1.26	.21	.12
Proactiveness 1	8.27	1.64	.65	.58
Proactiveness 2	8.05	1.67	.76	.46
Proactiveness 3	8.32	2.32	.37	.88
Competitive Aggressiveness 1	6.45	4.17	.20	.47
Competitive Aggressiveness 2	6.73	2.49	.65	-.54
Competitive Aggressiveness 3	7.73	5.16	.06	.66
Autonomy 1	8.14	1.56	-.27	.79
Autonomy 2	8.00	0.95	.14	-.32
Autonomy 3	7.86	0.79	.37	-.96

Items hypothesized to measure trait EI were analyzed for reliability and internal consistency using Cronbach's alpha as shown in Table 3. The overall Cronbach's alpha for the instrument was .64. The instrument was used to measure well-being (6 items;  $\alpha = .89$ ), self-control (6 items;  $\alpha = .68$ ), emotionality (8 items;  $\alpha = .75$ ), and sociability (6 items;  $\alpha = .83$ ). Items 3, 14, 18, and 29 contributed only to the global trait EI score and did not belong to a specific subscale; therefore, the items were not included in the analysis. The self-control subscale did not successfully satisfy Nunnally's threshold level of reliability with an alpha coefficient of less than .70 (Nunnally 1978). Although adequate reliability was initially demonstrated by researchers for the self-control subscale, subsequent research has found the Cronbach's alpha for the subscale to range from .60 to .69 which is consistent with the results of this study (Abe et al., 2013; Jacobs, Sim, & Zimmermann, 2015; Petrides, 2009; Siegling, Vesely, Petrides, & Saklofske, 2015; Stamatopoulou, Galanis, & Prezerakos, 2016).

Table 3

*Item Total Statistics for Trait Emotional Intelligence Scale Pilot Study*

Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item – total correlation	Cronbach's alpha if item deleted
Well-Being 1	25.32	12.04	.85	.85
Well-Being 2	25.64	16.05	.69	.88
Well-Being 3	25.45	13.12	.68	.88
Well-Being 4	25.18	15.30	.82	.86
Well-Being 5	25.82	15.97	.55	.89
Well-Being 6	25.55	15.02	.81	.86
Self-Control 1	21.86	9.27	.62	.55
Self-Control 2	22.27	13.35	.06	.73
Self-Control 3	21.27	10.87	.59	.59
Self-Control 4	21.45	10.55	.34	.57
Self-Control 5	22.00	11.52	.32	.66
Self-Control 6	22.27	9.07	.38	.67
Emotionality 1	31.14	29.55	.36	.74
Emotionality 2	30.91	24.66	.79	.66
Emotionality 3	30.64	26.72	.57	.70
Emotionality 4	30.09	30.47	.31	.75
Emotionality 5	31.14	24.89	.45	.73
Emotionality 6	31.14	28.79	.48	.72
Emotionality 7	31.67	33.94	-.00	.80
Emotionality 8	30.50	24.74	.75	.67
Sociability 1	20.05	15.67	.63	.79
Sociability 2	20.32	15.18	.61	.79
Sociability 3	20.73	17.16	.48	.82
Sociability 4	20.32	15.75	.64	.79
Sociability 5	21.23	13.42	.71	.77
Sociability 6	20.77	17.14	.51	.81

Demographic information was collected to characterize the study population.

Participants were asked to comment on their general employment status and work environment including employment status, place of employment, zip code of place of employment, years of employment, and practice role. Participants were also asked to describe the services provided by pharmacists at their practice site. Information regarding age, year of initial licensure, educational

experiences, gender, ethnicity, and state of pharmacy licensure was also requested from participants.

### **Data Collection**

Data was gathered via online survey using Dillman's Tailored Design Method (Dillman et al., 2009). All participants were invited to participate in the study via email or by mailed postcard. The survey was created in and deployed using Qualtrics (*Qualtrics*, 2005). Study details were approved by the North Dakota State University Institutional Review Board (APPENDIX B).

Participants were practicing pharmacists in Upper Midwest states. Cochran's sample size formula for continuous data was used to calculate a required sample size. It was determined that 385 respondents would be needed from a population of 16,157 pharmacists using an alpha level of .05 and 5% margin of error (Barlett, Kotrlik, & Higgins, 2001; Cochran, 1977).

Oversampling was employed to account for non-participation and a random sample of 1000 study participants was chosen using Microsoft Excel 2013 (Barlett et al., 2001; Salkind & Rainwater, 2003). Within the random sample, 45 pharmacists were included from North Dakota, 243 from Iowa, 484 from Minnesota, 158 from Nebraska, and 70 from South Dakota.

Pharmacists practicing in North Dakota, Minnesota, and Nebraska (N = 687) were sent a pre-notification email on July 21, 2017 (APPENDIX E). On July 24, 2017, July 31, 2017, and August 7, 2017 participants received an email containing a link to the informed consent and the EO-tEI survey instrument (APPENDIX F). Pharmacists practicing in Iowa and South Dakota (N = 313) were sent postcards on July 27, 2017 and July 28, 2017 respectively with a printed link and QR code that could be used to access the informed consent and EO-tEI survey instrument (APPENDIX G). Reminder postcards were sent August 2, 2017 and August 9, 2017.

To potentially increase the number of respondents, a second random sample of 1000 participants was chosen using Microsoft Excel 2013 (15.0.4981.1000). Within the random sample, 52 pharmacists were included from North Dakota, 221 from Iowa, 484 from Minnesota, 158 from Nebraska, and 85 from South Dakota. Pharmacists practicing in North Dakota, Minnesota, and Nebraska (N = 694) were sent a pre-notification email on August 10, 2017 (APPENDIX E). On August 14, 2017, August 21, 2017, and August 28, 2017 participants received an email containing a link to the informed consent and EO-tEI survey instrument (APPENDIX F). Pharmacists practicing in Iowa and South Dakota (N = 306) were sent postcards presenting a link and QR code used to access the informed consent and the EO-tEI survey instrument on August 11, 2017 (APPENDIX G). Reminder postcards were sent August 18, 2017 and August 25, 2017.

Of the 2,000 email and postal addresses, 22 emails and 3 postcards were undeliverable. A total of 201 surveys were started by participants. Of those, 160 partially complete surveys were submitted by participants. Five participants completed the EO-tEI survey questions, but not the demographic questions and their survey responses were eliminated from the analysis. Six participants practiced pharmacy in states other than North Dakota, Iowa, Minnesota, Nebraska, or South Dakota and their survey responses were also eliminated. These participants were eliminated from the study sample. This resulted in 149 completed surveys eligible for analysis. The response rate for the study was 7.5%.

### **Data Analysis**

SPSS (IBM Corp. Released 2014. IBM SPSS Statistics for Windows, Version 24.0) was used to analyze data. Cronbach's alpha was used to test the reliability and internal consistency of the study instrument. Alpha is expressed as a number between 0 and 1. Acceptable alpha

values range from .70 to .95. Alpha is directly linked to scores from specific respondents. Therefore, alpha should be measured each time a survey is administered (Nunnally, 1978; Tavakol & Dennick, 2011).

Descriptive statistics, including frequency and percent, were used to examine demographic factors of practicing pharmacists in Upper Midwest states. To determine the level of EO of practicing pharmacists, descriptive statistics including frequency, percent, means, and standard deviations were generated for each EO survey item. In comparing the level of EO of North Dakota pharmacists to pharmacists in other states, one-way ANOVA and the Tukey's test were used to determine if there were significant differences. The means and standard deviations were used to define the EO of pharmacists by state. To further investigate EO in pharmacists a one-way ANOVA and the Tukey's test were used to determine if there were significant differences between in the level of EO of practicing pharmacists by type of pharmacy practice site and by practice role of the pharmacist. Means and standard deviations were used to further define pharmacists' EO by practice setting and crosstab comparison was used to evaluate pharmacist practice role by state.

Descriptive statistics including frequency, percent, means, and standard deviations were used to determine the level of trait EI of practicing pharmacists in study population. Means and standard deviations were used to further define pharmacists' trait EI by their practice role. To determine if there were significant differences in the level of trait EI between North Dakota pharmacists and pharmacists in other states, one-way ANOVA and the Tukey's test were used to comparatively analyze participants by state. The means and standard deviations were used to define the trait EI of pharmacists by state.

Pearson correlation coefficients were used to determine if there was a relationship between trait EI and the constructs of and overall level of EO.

Descriptive statistics, including number and percent, were used to examine services offered by practicing pharmacists in Upper Midwest states. Pharmacists were asked to report which of 13 entrepreneurial services they offered at their practice site. The number and percentage of pharmacy services offered by pharmacists in each state were used to these rank services. An independent sample *t*-test was used to determine if there were differences in services provided by pharmacists practicing in different states.

### **Summary**

To address the research questions, a purposeful sampling of pharmacists from Upper Midwest states were solicited to participate in a survey. The survey was pre-tested with advanced pharmacy practice experience students. Based on the results of the pre-test, items were modified to increase readability and comprehension. The survey was delivered via email and postcard. Survey data provided information regarding the EO and trait EI of practicing pharmacists in Upper Midwest states. In addition, a list of services offered by pharmacists in these states was generated to allow for comparison of services considered entrepreneurial.

## CHAPTER 4. ANALYSIS OF DATA

The purpose of this study was to critically analyze EO and trait EI in pharmacists to develop an understanding of how these traits are exhibited in different practicing settings and practice roles. In addition, the relationship between trait EI and EO was explored to determine if trait EI is positively associated with EO in pharmacists. Finally, entrepreneurial services offered by pharmacists were evaluated to determine differences in type and frequency of services delivered by pharmacists in Upper Midwest states.

This chapter presents results of the study as they relate to the following research questions:

1. Does the level of entrepreneurial orientation of North Dakota pharmacists differ from pharmacists in other Upper Midwest states?
2. Does the level of entrepreneurial orientation of pharmacists differ with employment status, practice setting, or practice role?
3. Does the level of trait emotional intelligence of North Dakota pharmacists differ from pharmacists in other Upper Midwest states?
4. Does the level of trait emotional intelligence of pharmacists differ with employment status, practice setting, or practice role?
5. Is there a relationship between trait emotional intelligence and entrepreneurial orientation?
6. How do entrepreneurial services provided by North Dakota pharmacists differ from services provided by pharmacists in other Upper Midwest states?

Chapter 4 presents the results of the data analysis and findings of the study. Item analyses were conducted to ensure reliability of the research instrument. Levene's Test of



Homogeneity of Variances and the Kruskal-Wallis Test were used to evaluate differences between test groups. Crosstab analysis and a chi-square test of independence were performed to examine the relation between survey recruitment method and practice role and survey recruitment and gender. This was to determine if the survey response rate was impacted by the survey recruitment method. Descriptive statistics, including frequency and percent, were used to examine demographic factors of pharmacists in Upper Midwest states. Means, standard deviations, and a one-way ANOVA were used to analyze the constructs of EO of practicing pharmacists by state of practice. Frequency, percentages, means, and standard deviations were used to evaluate the overall EO of pharmacists by employment status. Means, standard deviations, and a one-way ANOVA were used to determine if there were differences in the constructs of EO of practicing pharmacists by type of pharmacy practice setting. A crosstab comparison was used to evaluate pharmacist practice role by state. Means, standard deviations, one-way ANOVA, and Tukey's test were used to determine if there were differences in the constructs of EO by practice role of the pharmacist.

Means, standard deviations, one-way ANOVA and Tukey's test were used to determine if there were differences in the level of trait EI between North Dakota pharmacists and pharmacists in Upper Midwest states. Frequency, percentage, means, and standard deviations were reported for the overall level of trait EI as related to the employment status of a pharmacist. Means, standard deviations, and one-way ANOVA were used to determine if there were differences in the level of trait EI between pharmacists in different practice settings. Means, standard deviations, one-way ANOVA and Tukey's test were used to determine if there were differences in the constructs of trait EI by practice role of the pharmacist.

Pearson correlation coefficients were used to determine if there was a relationship between trait EI and the constructs of and overall level of EO. Descriptive statistics, including number and percent, were used to examine services offered by practicing pharmacists in Upper Midwest states.

### **Findings**

SPSS (IBM Corp. Released 2014. IBM SPSS Statistics for Windows, Version 24.0) was used to analyze data. Items hypothesized to measure EO were analyzed for reliability and internal consistency using Cronbach's alpha as shown in Table 4. The overall Cronbach's alpha for the instrument was .90. The instrument was used to measure the constructs of risk-taking (3 items;  $\alpha = .92$ ), innovativeness (3 items;  $\alpha = .80$ ), proactiveness (3 items;  $\alpha = .73$ ), competitive aggressiveness (3 items;  $\alpha = .81$ ), and autonomy (3 items;  $\alpha = .89$ ). All subscales successfully satisfy Nunnally's threshold level of reliability with alpha coefficients of greater than .70 (Nunnally 1978).

Table 4

*Item Total Statistics for Revised Entrepreneurial Orientation Scale Full Study*

Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item – total correlation	Cronbach's alpha if item deleted
Risk-Taking 1	57.88	116.17	.48	.90
Risk-Taking 2	57.34	113.01	.70	.89
Risk-Taking 3	57.12	114.36	.71	.89
Innovativeness 1	56.62	117.17	.57	.90
Innovativeness 2	56.78	117.21	.63	.89
Innovativeness 3	56.57	118.44	.59	.90
Proactiveness 1	56.86	120.18	.48	.90
Proactiveness 2	56.83	117.75	.56	.90
Proactiveness 3	57.49	115.21	.57	.90
Competitive aggressiveness 1	57.36	113.76	.48	.90
Competitive aggressiveness 2	57.52	111.85	.64	.89
Competitive aggressiveness 3	57.43	115.19	.58	.90
Autonomy 1	57.25	112.51	.64	.89
Autonomy 2	56.93	114.39	.63	.89
Autonomy 3	57.03	113.76	.61	.89

Items hypothesized to measure trait EI were analyzed for reliability and internal consistency using Cronbach's alpha as shown in Table 5. The overall Cronbach's alpha for the instrument was .89. The instrument was used to measure the constructs of well-being (6 items;  $\alpha = .85$ ), self-control (6 items;  $\alpha = .80$ ), emotionality (8 items;  $\alpha = .64$ ), and sociability (6 items;  $\alpha = .74$ ). Items 3, 14, 18, and 29 contributed only to the global trait EI score and do not belong to a specific subscale; therefore, the items were not included in the analysis. The subscale emotionality did not successfully satisfy Nunnally's threshold level of reliability with an alpha coefficient of less than .70 (Nunnally 1978).

Table 5

*Item Total Statistics for Trait Emotional Intelligence Scale Full Study*

Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item – total correlation	Cronbach's alpha if item deleted
Well-Being 1	25.63	8.95	.67	.82
Well-Being 2	25.60	10.89	.58	.84
Well-Being 3	25.68	8.85	.68	.82
Well-Being 4	25.69	8.95	.75	.80
Well-Being 5	25.91	10.45	.49	.85
Well-Being 6	25.82	9.50	.65	.82
Self-Control 1	25.63	8.95	.67	.82
Self-Control 2	22.60	9.65	.68	.67
Self-Control 3	22.93	11.37	.44	.74
Self-Control 4	22.44	11.18	.50	.72
Self-Control 5	22.42	11.27	.53	.72
Self-Control 6	23.26	11.14	.42	.75
Emotionality 1	32.75	15.93	.27	.63
Emotionality 2	32.40	16.49	.34	.60
Emotionality 3	32.26	16.29	.30	.61
Emotionality 4	31.65	17.65	.32	.61
Emotionality 5	32.43	14.81	.47	.56
Emotionality 6	32.58	15.76	.42	.58
Emotionality 7	33.42	16.71	.20	.65
Emotionality 8	32.26	15.76	.41	.60
Sociability 1	20.84	12.70	.41	.71
Sociability 2	21.47	9.95	.54	.67
Sociability 3	21.75	11.46	.52	.68
Sociability 4	21.62	10.57	.53	.67
Sociability 5	21.79	10.37	.48	.69
Sociability 6	21.69	12.20	.35	.72

Levene's Test of Homogeneity of Variances was not found to be violated for each EO subscale when comparing between states, risk-taking,  $F(5,149) = .54, p = 0.747$ , innovativeness,  $F(5,149) = 1.7, p = 0.144$ , proactiveness,  $F(5,149) = 1.3, p = 0.56$ , competitive aggressiveness,  $F(5,149) = 1.3, p = 0.213$ , autonomy,  $F(5,149) = 1.5, p = 0.196$  as reported in Table 6.

Table 6

*Levene's Test of Homogeneity of Variances for Entrepreneurial Orientation Subscales Between States*

Construct	Levene Statistic	df	Sig
Risk-Taking	0.54	5	.747
Innovativeness	1.7	5	.144
Proactiveness	1.3	5	.256
Competitive aggressiveness	1.4	5	.213
Autonomy	1.5	5	.196

Levene's Test of Homogeneity of Variances was not found to be violated when comparing global trait EI,  $F(5,149) = .26, p = 0.901$  and each trait EI subscale between states, well-being,  $F(5,149) = .43, p = 0.786$ , self-control,  $F(5,149) = 1.88, p = 0.118$ , emotionality,  $F(5,149) = .33, p = 0.857$ , and sociability,  $F(5,149) = .10, p = 0.981$  as reported in Table 7.

Table 7

*Levene's Test of Homogeneity of Variances for Trait Emotional Intelligence Subscales Between States*

Construct	Levene Statistic	df	Sig
Well-Being	0.43	5	.786
Self-Control	1.88	5	.118
Emotionality	0.33	5	.857
Sociability	0.10	5	.981
Global trait emotional intelligence	0.26	5	.901

As shown in Table 8, a Kruskal-Wallis test showed there were not statistically significant differences between states for each EO subscale, risk-taking,  $\chi^2(2) = 6.88, p = 0.143$ , innovativeness,  $\chi^2(2) = 3.18, p = 0.528$ , proactiveness,  $\chi^2(2) = 4.28, p = 0.370$ , competitive aggressiveness,  $\chi^2(2) = 2.68, p = 0.613$ , and autonomy  $\chi^2(2) = 4.44, p = 0.350$ .

Table 8

*Kruskal-Wallis Test for Entrepreneurial Orientation Subscales Between States*

Construct	Kruskal-Wallis	df	Sig
Risk-Taking	6.88	4	.143
Innovativeness	3.18	4	.528
Proactiveness	4.28	4	.370
Competitive aggressiveness	2.68	4	.613
Autonomy	4.44	4	.350

As shown in Table 9, a Kruskal-Wallis test showed there were not statistically significant differences between states for overall all trait EI,  $\chi^2(2) = 8.93, p = 0.063$  and for the trait EI subscales, well-being,  $\chi^2(2) = 5.77, p = 0.217$ , and sociability,  $\chi^2(2) = 3.85, p = 0.427$ . Statistically significant differences were seen between states for the trait EI subscales self-control,  $\chi^2(2) = 10.94, p = 0.027$ , and emotionality,  $\chi^2(2) = 10.57, p = 0.032$ , suggesting caution be used when interpreting results of further data analyses.

Table 9

*Kruskal-Wallis Test for Global Trait Emotional Intelligence and Subscales Between States*

Construct	Kruskal-Wallis	df	Sig
Global trait emotional intelligence	8.93	4	.063
Well-Being	5.77	4	.217
Self-Control	10.94	4	.027
Emotionality	10.57	4	.032
Sociability	3.85	4	.427

As shown in Table 10, crosstab analysis and a chi-square test of independence were performed to examine the relation between survey recruitment method and practice role. The relation between these variables was not significant,  $\chi^2(2) = 4.93, p = 0.177$ .

Table 10

*Crosstab and Chi-Square Comparison of Mode of Distribution by Position (N = 149)*

	Email	Postcard	$\chi^2$
Owner	6	7	.177
Management	28	12	
Staff	64	28	
Other	4	0	

As shown in Table 11, crosstab analysis and a chi-square test of independence were performed to examine the relation between survey recruitment method and gender. The relation between these variables was not significant,  $\chi^2 (2) = .27, p = 0.606$ .

Table 11

*Crosstab and Chi-Square Comparison of Mode of Distribution by Gender (N = 149)*

	Email	Postcard	$\chi^2$
Female	61	26	.606
Male	41	21	

### Participants

The sample consisted of 149 participants, approximately half of them were women ( $n = 87$ ), while the rest were men ( $n = 62$ ). Table 12 shows the frequencies and percentages for gender, ethnicity, age, and state of residence of pharmacists. The majority of participants were Caucasian (95.3%) and the remaining participants were distributed across African American (2.7%), Asian (0.7%), Latino/Latina (0.7%), and others (0.7%). Participants were aged 31-41 (32.2%), 21-30 (21.5%), 41-50 (17.4%), 61-70 (9.4%), and 71-80 (2.7%).

Table 12

*Frequencies and Percentages of Gender, Ethnicity, and Age of Pharmacists in Upper Midwest States (N=149)*

Gender	Frequency	Percent (%)
Male	62	41.6
Female	87	58.4
Ethnicity	Frequency	Percent (%)
Asian	1	0.7
Black/African American	4	2.7
Latino/Latina	1	0.7
White/Caucasian	142	95.3
Other	1	0.7
Age	Frequency	Percent (%)
21-30	32	21.5
31-40	48	32.2
41-50	26	17.4
51-60	25	16.8
61-70	14	9.4
71-80	4	2.7

As seen in Table 13, all participants had been awarded a Bachelor's Degree. Most participants had also been awarded an advanced degree or had completed additional training. Of the 149 participants, 106 (71.1%) held Doctor of Pharmacy degrees, 24 (16.1%) completed post graduate residency training, and 23 (15.4%) had earned additional certificates. A small subset of participants had advanced further in their education through receipt of a Masters of Science (2.7%), Masters in Business Administration (2%), or a Doctor of Philosophy (1.3%). Three participants reported having completed a fellowship (0.7%), Masters of Art (0.7%), or Masters of Public Health (0.7%).



Table 13

*Frequencies and Percentages of Level of Education of Pharmacists in Upper Midwest States (N=149)*

Level of Education	Frequency	Percent (%)
Bachelor's degree	149	100
Doctor of Pharmacy degree	106	71.1
Pharmacy residency	24	16.1
Certifications	23	15.4
Fellowship	1	0.7
Masters of Science	4	2.7
Masters of Art	1	0.7
Masters of Public Health	1	0.7
Masters in Business Administration	3	2.0
Doctor of Philosophy	2	1.3

Table 14 shows the frequencies and percentages for year licensed to practice pharmacy and state of practice for each pharmacist. The majority of participants (29.5%) were first licensed to practice pharmacy between the years of 2011 and 2017. The remaining participants first received their license to practice over relatively distributed ten-year segments 2001-2010 (26.2%), 1991-2000 (15.4%), 1981-1990 (14.5%), 1971-1980 (12.1%), and 1961-1970 (2%). Fifty-eight (38.9%) of respondents were residents of Minnesota, 39 (26.2%) were residents of Iowa, 23 (15.4%) were residents of Nebraska, 18 (12.1%) were residents of North Dakota, and 11 (7.4%) were residents of South Dakota.

Table 14

*Frequencies and Percentages of Year Licensed to Practice Pharmacy and State of Practice of Pharmacists in Upper Midwest States (N=149)*

Year licensed to practice pharmacy	Frequency	Percent (%)
1961-1970	3	2.0
1971-1980	18	12.1
1981-1990	22	14.8
1991-2000	23	15.4
2001-2010	39	26.2
2011-present	44	29.5
State	Frequency	Percent (%)
Iowa	39	26.2
North Dakota	18	12.1
Nebraska	23	15.4
Minnesota	58	38.9
South Dakota	11	7.4

As reported in Table 15, the majority of participants were employed as staff pharmacists (61.7%). Forty (2.8%) participants held management positions. Thirteen participants owned their own pharmacy (8.7%). Four (2.7%) participants reported a practice role other than owner, management, or staff.

Table 15

*Frequencies and Percentages of Practice Role of Pharmacists in Upper Midwest States (N=149)*

Pharmacist practice role	Frequency	Percent (%)
Owner	13	8.7
Management	40	26.8
Staff	92	61.7
Other	4	2.7

Participants were asked to answer a set of questions hypothesized to measure EO. The questions evaluated constructs of risk-taking, innovativeness, proactiveness, competitive aggressiveness, and autonomy were each measured with three questions for a total of 15 questions.

Means and standard deviations of the constructs of EO as reported by pharmacists in

Upper Midwest states are described in Table 16.

Table 16

*Means and Standard Deviations of Entrepreneurial Orientation Constructs Reported by Pharmacists by State (N=149)*

Construct	North Dakota N=18 <i>M (SD)</i>	Iowa N=39 <i>M (SD)</i>	Nebraska N=23 <i>M (SD)</i>	Minnesota N=58 <i>M (SD)</i>	South Dakota N=11 <i>M (SD)</i>
Risk-Taking	4.09 (0.86)	3.66 (1.10)	3.83 (1.08)	3.61 (0.99)	4.30 (0.78)
Innovativeness	4.72 (0.79)	4.50 (0.94)	4.68 (0.55)	4.43 (0.93)	4.88 (0.60)
Proactiveness	4.24 (1.07)	4.10 (0.87)	4.10 (0.73)	4.10 (0.87)	4.70 (0.84)
Competitive aggressiveness	3.91 (0.94)	3.73 (1.31)	3.72 (1.38)	3.71 (1.02)	4.21 (1.21)
Autonomy	4.81 (0.83)	4.20 (1.32)	4.10 (1.35)	4.11 (0.93)	3.73 (1.02)

*M* = mean, *SD* = standard deviation

*Note.* Mean reported scores on a six-point scale (1 = *strongly disagree*, 6 = *strongly agree*)

Results of a one-way ANOVA found there were not significant differences between the constructs of EO reported by North Dakota pharmacists versus pharmacists in other Upper Midwest states as shown in Table 17. The results for each construct were risk-taking [(F(4,149) = 1.72,  $p = 0.150$ )], innovativeness [(F(4,149) = 1.03,  $p = 0.395$ )], proactiveness [(F(4,149) = 1.25,  $p = 0.293$ )], competitive aggressiveness [(F(4,149) = 0.52,  $p = 0.725$ )], autonomy [(F(4,149) = 0.86,  $p = 0.493$ )].

Table 17

*One-Way ANOVA Between Group Comparison of Entrepreneurial Orientation Constructs Reported by Pharmacists Between States*

Construct	df	F	Sig
Risk-Taking	4	1.72	.150
Innovativeness	4	1.03	.395
Proactiveness	4	1.25	.293
Competitive aggressiveness	4	0.52	.725
Autonomy	4	0.86	.493

Table 18 shows the overall level of EO of pharmacists in Upper Midwest states by employment status. Full time practicing pharmacists had an overall mean EO of 60.52 ( $SD = 11.53$ ). Participants who had retired, but continued to work part time had an overall mean EO of 73.83 ( $SD = 7.14$ ). Participants who were employed, but not as a pharmacist had an overall mean of 67.50 ( $SD = 4.38$ ). Participants that were retired had an overall mean EO of 56.67 ( $SD = 10.97$ ) and those that were unemployed had a mean EO of 50.00 ( $SD = 5.66$ ).

Table 18

*Frequencies, Percentages, Means, and Standard Deviations of the Level of Entrepreneurial Orientation of Pharmacists by Employment Status (N=149)*

Employment	Frequency	Percent (%)	Overall Entrepreneurial Orientation <i>M (SD)</i>
Practicing pharmacists	130	87.2	60.52 (11.53)
Employed, not as a pharmacist	8	5.4	67.50 (4.38)
Retired, still working	6	4.0	73.83 (7.14)
Retired	3	2.0	56.67 (10.97)
Unemployed	2	1.3	50.00 (5.66)

*M* = mean, *SD* = standard deviation

*Note.* Mean reported scores on a six-point scale (1 = *strongly disagree*, 6 = *strongly agree*). Overall entrepreneurial orientation calculated out of a possible 90 points. Fifteen items measured on a six-point scale.

Means and standard deviations of the constructs of EO as reported by pharmacists by practice setting are described in Table 19. Practice settings were categorized as independent community pharmacies, chain pharmacies (small and large chain community pharmacies, mass merchandiser pharmacies, and supermarket pharmacies), clinic (pharmacies located near or in a medical clinic), health-system (government or non-government hospital pharmacies), or other (home health/infusion, long term care/nursing home, specialty pharmacy, pharmacy benefit administration, academic institution, mail service, or other).

Table 19

*Means and Standard Deviations of Entrepreneurial Orientation Constructs by Practice Setting (N=145)*

Construct	Independent N=19 <i>M (SD)</i>	Chain N=42 <i>M (SD)</i>	Clinic N=14 <i>M (SD)</i>	Health- System N=40 <i>M (SD)</i>	Other N=30 <i>M (SD)</i>
Risk-Taking	3.89 (1.09)	3.84 (0.96)	4.14 (1.56)	3.46 (1.10)	3.82 (0.88)
Innovativeness	4.70 (0.86)	4.46 (0.93)	4.69 (1.00)	4.53 (0.77)	4.52 (0.79)
Proactiveness	4.28 (0.85)	4.10 (0.91)	4.45 (1.16)	4.10 (0.81)	4.10 (0.80)
Competitive aggressiveness	3.98 (1.23)	3.67 (0.98)	4.45 (1.11)	3.69 (1.27)	3.59 (1.16)
Autonomy	4.10 (1.12)	4.10 (1.05)	4.55 (1.39)	3.98 (1.28)	4.24 (0.81)

*M* = mean, *SD* = standard deviation

*Note.* Mean reported scores on a six-point scale (1 = *strongly disagree*, 6 = *strongly agree*)

Results of a one-way ANOVA found there were not significant differences between the constructs of EO reported by pharmacists by practice setting as shown in Table 20. The results for each construct were risk-taking [(F(4,140) = 1.56,  $p = 0.188$ )], innovativeness [(F(4,140) = 0.37,  $p = 0.831$ )], proactiveness [(F(4,140) = 0.63,  $p = 0.645$ )], competitive aggressiveness [(F(4,140) = 1.70,  $p = 0.154$ )], autonomy [(F(4,140) = 0.75,  $p = 0.563$ )].

Table 20

*One-Way ANOVA Between Group Comparison of Entrepreneurial Orientation Constructs by Practice Setting*

Construct	df	F	Sig
Risk-Taking	4	1.56	.188
Innovativeness	4	0.37	.831
Proactiveness	4	0.63	.645
Competitive aggressiveness	4	1.70	.154
Autonomy	4	0.75	.563

Crosstab comparison was used to determine pharmacist practice role by state as reported in Table 21. This information was used to evaluate the constructs of EO of practicing pharmacists by practice role. Participants who had reported a practice role of other were eliminated from the analyses.

Table 21

*Crosstab Comparison of Pharmacist Practice Role by State (N = 149)*

	Owner	Management	Staff	Other	Total
North Dakota	4	5	11	1	39
Iowa	5	12	22	0	18
Nebraska	2	7	13	1	23
Minnesota	1	17	38	2	58
South Dakota	1	2	85	0	11
Total	13	40	92	4	149

Means and standard deviations of the constructs of EO for pharmacists that own, manage, or staff a pharmacy are reported in Table 22. Participants who had reported a role of other were eliminated from analyses.

Table 22

*Means and Standard Deviations of Entrepreneurial Orientation Constructs by Practice Role of Pharmacist (N=145)*

Construct	Owner N=13 <i>M (SD)</i>	Management N=40 <i>M (SD)</i>	Staff N=92 <i>M (SD)</i>
Risk-Taking	4.87 (0.66)	3.95 (1.05)	3.54 (0.95)
Innovativeness	5.05 (0.64)	4.78 (0.84)	4.41 (0.84)
Proactiveness	4.72 (0.64)	4.28 (0.88)	4.04 (0.88)
Competitive aggressiveness	4.21 (1.30)	3.90 (1.07)	3.67 (1.19)
Autonomy	5.10 (0.80)	4.43 (1.14)	3.92 (1.05)

M = mean, SD = standard deviation

Note. Mean reported scores on a six-point scale (1 = *strongly disagree*, 6 = *strongly agree*)

Results of a one-way ANOVA found there were significant ( $p < 0.05$ ) differences between 4 out of 5 of the constructs of EO by practice role of the pharmacist as shown in Table 23. The results for each construct were risk-taking [(F(2,142) = 12.01,  $p = 0.000$ )], innovativeness [(F(2,142) = 5.30,  $p = 0.006$ )], proactiveness [(F(2,142) = 3.96,  $p = 0.021$ )], competitive aggressiveness [(F(2,142) = 1.45,  $p = 0.234$ )], autonomy [(F(2,142) = 8.90,  $p = 0.000$ )].

Table 23

*One-Way ANOVA Between Group Comparison of Entrepreneurial Orientation Constructs by Practice Role of Pharmacist*

Construct	df	F	Sig
Risk-Taking	2	12.01	.000
Innovativeness	2	5.30	.006
Proactiveness	2	3.96	.021
Competitive aggressiveness	2	1.45	.237
Autonomy	2	8.90	.000

Table 24 reports the results of post-hoc analysis. Tukey's HSD indicated that risk-taking was significantly different between pharmacists in the roles of owner and management ( $p = 0.008$ ) and owner and staff ( $p = 0.000$ ). Innovativeness was significantly different between pharmacists in the roles of owner and staff ( $p = 0.026$ ) and management and staff ( $p = 0.047$ ). Proactiveness was significantly different between pharmacists in the roles of owner and staff ( $p = 0.025$ ). Autonomy was significantly different between pharmacists in the roles of owner and staff ( $p = 0.001$ ) and management and staff ( $p = 0.030$ ).

Table 24

*Tukey Post-Hoc Comparison of Entrepreneurial Orientation Constructs by Practice Role of the Pharmacist*

Construct	Role	Sig.
Risk-Taking	Owner	
	Management	.008
	Staff	.000
Management	Staff	.064
Innovativeness	Owner	
	Management	.567
	Staff	.026
Management	Staff	.047
Proactiveness	Owner	
	Management	.259
	Staff	.025
Management	Staff	.309
Competitive aggressiveness	Owner	
	Management	.692
	Staff	.277
Management	Staff	.563
Autonomy	Owner	
	Management	.121
	Staff	.001
Management	Staff	.030

Participants were asked to answer a set of questions hypothesized to measure trait EI. The questions evaluated four constructs of trait EI and global trait EI. The constructs of well-being, self-control, emotionality, sociability, and global trait EI were measured using a set of 30 questions.



Means and standard deviations for each construct of trait EI as reported by pharmacists in Upper Midwest states are reported in Table 25.

Table 25

*Means and Standard Deviations of Trait Emotional Intelligence Constructs Reported by Pharmacists by State (N=149)*

Construct	North Dakota N=18 <i>M (SD)</i>	Iowa N=39 <i>M (SD)</i>	Nebraska N=23 <i>M (SD)</i>	Minnesota N=58 <i>M (SD)</i>	South Dakota N=11 <i>M (SD)</i>
Well-Being	5.06 (0.68)	5.10 (0.54)	5.04 (0.71)	5.22 (0.60)	5.39 (0.54)
Self-Control	4.45 (0.60)	4.38 (0.65)	4.46 (0.55)	4.74 (0.61)	4.50 (0.89)
Emotionality	4.51 (0.57)	4.57 (0.55)	4.46 (0.58)	4.74 (0.54)	4.94 (0.50)
Sociability	4.08 (0.66)	4.30 (0.63)	4.37 (0.68)	4.39 (0.63)	4.11 (0.77)
Global trait emotional intelligence	4.59 (0.46)	4.60 (0.47)	4.60 (0.46)	4.81 (0.50)	4.78 (0.56)

*M* = mean, *SD* = standard deviation

*Note.* Mean reported scores on a six-point scale (1 = *strongly disagree*, 6 = *strongly agree*)

Results of a one-way ANOVA found there were not significant differences in global trait EI and trait EI constructs reported by North Dakota pharmacists versus pharmacists in other Upper Midwest states as shown in Table 26. The results for each construct were well-being [(F(4,144) = 1.17, *p* = 0.325)], self-control [(F(4,144) = 2.30, *p* = 0.061)], emotionality [(F(4,144) = 2.40, *p* = 0.053)], sociability [(F(4,144) = 1.10, *p* = 0.366)], global trait EI [(F(4,144) = 1.70, *p* = 0.153)].

Table 26

*One-Way ANOVA Comparison of Trait Emotional Intelligence Constructs Reported by Pharmacists Between States*

Construct	df	F	Sig
Well-Being	4	1.17	.325
Self-Control	4	2.30	.061
Emotionality	4	2.40	.053
Sociability	4	1.10	.366
Global trait emotional intelligence	4	1.70	.153

Table 27 shows the global level of trait EI of pharmacists by employment status in Upper Midwest states. Practicing pharmacists had an overall mean trait EI of 4.70 ( $SD = 0.49$ ). Participants who had retired, but continued to work part time had an overall mean trait EI of 4.40 ( $SD = 0.32$ ). Participants who were employed, but not as a pharmacist had an overall mean trait EI of 5.00 ( $SD = 0.28$ ). Participants that were retired had an overall mean trait EI of 4.39 ( $SD = 0.14$ ) and those that were unemployed had a mean trait EI of 4.68 ( $SD = 1.15$ ).

Table 27

*Frequencies, Percentages, Means and Standard Deviations of the Level of Trait Emotional Intelligence by Employment Status (N=149)*

	Frequency	Percent (%)	Global trait Emotional Intelligence <i>M (SD)</i>
Practicing pharmacists	130	87.2	4.70 (0.49)
Employed but not as a pharmacist	8	5.4	4.40 (0.32)
Retired and still working	6	4.0	5.00 (0.28)
Retired	3	2.0	4.39 (0.14)
Unemployed	2	1.3	4.68 (1.15)

*M* = mean, *SD* = standard deviation

*Note.* Mean reported scores on a six-point scale (1 = *strongly disagree*, 6 = *strongly agree*)

Means and standard deviations of the constructs of trait EI as reported by pharmacists by practice setting are described in Table 28. Practice settings were categorized as independent community pharmacies, chain pharmacies (small and large chain community pharmacies, mass merchandiser pharmacies, and supermarket pharmacies), clinic (pharmacies located near or in a medical clinic), health-system (government or non-government hospital pharmacies), or other (home health/infusion, long term care/nursing home, specialty pharmacy, pharmacy benefit administration, academic institution, mail service, or other).

Table 28

*Means and Standard Deviations of Trait Emotional Intelligence Constructs by Practice Setting (N=145)*

Construct	Independent N=19 <i>M (SD)</i>	Chain N=42 <i>M (SD)</i>	Clinic N=14 <i>M (SD)</i>	Health- System N=40 <i>M (SD)</i>	Other N=30 <i>M (SD)</i>
Well-being	5.26 (0.65)	5.08 (0.65)	5.49 (0.45)	5.06 (0.63)	5.18 (0.50)
Self-control	4.75 (0.60)	4.46 (0.67)	4.95 (0.68)	4.48 (0.68)	4.43 (0.58)
Emotionality	4.74 (0.47)	4.62 (0.58)	4.65 (0.67)	4.57 (0.59)	4.76 (0.59)
Sociability	4.28 (0.70)	4.23 (0.66)	4.75 (0.51)	4.29 (0.58)	4.28 (0.68)
Global trait emotional intelligence	4.82 (0.46)	4.62 (0.54)	4.98 (0.42)	4.63 (0.50)	4.69 (0.42)

M = mean, SD = standard deviation

Note. Mean reported scores on a 6-point scale (1 = *strongly disagree*, 6 = *strongly agree*)

Results of a one-way ANOVA found there were not significant differences between the global trait EI and constructs of trait EI reported by pharmacists by practice setting as shown in Table 29. The results for each construct were well-being [(F(4,140) = 1.69,  $p = 0.157$ )], self-control [(F(4,140) = 2.34,  $p = 0.058$ )], emotionality [(F(4,140) = 0.65,  $p = 0.628$ )], sociability [(F(4,140) = 1.86,  $p = 0.121$ )], and global trait EI [(F(4,140) = 1.92,  $p = 0.111$ )].

Table 29

*One-Way ANOVA Between Group Comparison of Trait Emotional Intelligence Constructs by Practice Setting*

Construct	df	F	Sig
Well-being	4	1.69	.157
Self-control	4	2.34	.058
Emotionality	4	0.65	.628
Sociability	4	1.86	.121
Global trait emotional intelligence	4	1.92	.111

Means and standard deviations of the constructs of trait EI for pharmacists that own, manage, or staff a pharmacy are reported in Table 30. Participants who had reported a role of other were eliminated from analyses.

Table 30

*Means and Standard Deviations of Trait Emotional Intelligence of Pharmacists by Practice Role of Pharmacist (N=145)*

	Owner N=13 <i>M (SD)</i>	Management N=40 <i>M (SD)</i>	Staff N=92 <i>M (SD)</i>
Well-Being	5.08 (0.72)	5.16 (0.56)	5.16 (0.62)
Self-Control	4.54 (0.66)	4.55 (0.61)	4.55 (0.67)
Emotionality	4.42 (0.77)	4.60 (0.57)	4.72 (0.51)
Sociability	4.56 (0.58)	4.46 (0.54)	4.22 (0.68)
Global trait emotional intelligence	4.65 (0.60)	4.71 (0.46)	4.71 (0.49)

*M* = mean, *SD* = standard deviation

*Note.* Mean reported scores on a six-point scale (1 = *strongly disagree*, 6 = *strongly agree*)

Results of a one-way ANOVA found there were not significant differences in global trait EI and trait EI constructs reported by pharmacists in different practice roles as shown in Table 31. The results for each construct were well-being [(F(2,142) = .11,  $p = 0.897$ )], self-control [(F(2,142) = .00,  $p = 0.997$ )], emotionality[(F(2,142) = 2.12,  $p = 0.124$ )], sociability [(F(2,142) = 2.99,  $p = 0.054$ )], and global trait emotional intelligence [(F(2,142) = .08,  $p = 0.921$ )].

Table 31

*One-Way ANOVA Between Group Comparison of Trait Emotional Intelligence Constructs of Pharmacists by Practice Role of Pharmacist*

Construct	df	F	Sig
Well-Being	2	.11	.897
Self-Control	2	.00	.997
Emotionality	2	2.12	.124
Sociability	2	2.99	.054
Global trait emotional intelligence	2	.08	.921

Pearson correlation coefficients were computed between global trait EI and constructs of EO. A  $p$  value of less than 0.05 was required for significance. The results of the correlational analyses presented in Table 32 showed there was a positive correlation between global trait EI and all constructs of EO. Positive correlations were statistically significant at the level of 0.05

between trait EI and risk-taking,  $r = .181$ ,  $n = 149$ ,  $p = 0.028$ , innovativeness,  $r = .332$ ,  $n = 149$ ,  $p = 0.000$ , trait EI and proactiveness,  $r = .367$ ,  $n = 149$ ,  $p = 0.000$ , trait EI and competitive aggressiveness,  $r = .214$ ,  $n = 149$ ,  $p = 0.009$ , and trait EI and autonomy,  $r = .267$ ,  $n = 149$ ,  $p = 0.001$ .

Table 32

*Correlation Between Global Trait Emotional Intelligence and Entrepreneurial Orientation Constructs*

		Risk-Taking	Innovativeness	Proactiveness	Competitive aggressiveness	Autonomy
Global trait emotional intelligence	Pearson correlation	.181*	.332**	.367**	.214**	.267**
	Sig. (2-tailed)	.028	.000	.000	.009	.001
	N	149	149	149	149	149

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

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

Pearson correlation coefficients were computed between global trait EI and mean level of EO. A  $p$  value of less than 0.05 was required for significance. The results of the correlational analysis presented in Table 33 showed there was a positive correlation between global trait EI and mean level of EO,  $r = .348$ ,  $n = 149$ ,  $p = 0.000$ .

Table 33

*Correlation Between Global Trait Emotional Intelligence and Mean Level of Overall Entrepreneurial Orientation*

		Overall entrepreneurial orientation
Global trait emotional intelligence	Pearson correlation	.348**
	Sig. (2-tailed)	.000
	N	149

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

Pharmacists were asked to report which of 13 services they offered at their practice site.

Table 34 shows the number and percentage of pharmacy services offered by North Dakota

pharmacists. Greater than or equal to 50% of pharmacists offered discharge counseling on medications (55.6%), medication reconciliation (55.6%), medication therapy management (55.6%), adjusted medication therapy (55.6%), or offered disease state management (50%). Other services offered by pharmacists included ordering lab tests (38.9%), immunization administration (33.3%), med to bed services (33.3%) complex nonsterile compounding (27.8%), complex sterile compounding (27.8%), health screening or coaching (22.2%), collaborative practice agreements (22.2%), and point of care testing (5.6%).

Table 34

*Pharmacy Services Provided by North Dakota Pharmacists*

Pharmacy Service	North Dakota N=18 N (%)
Discharge counseling	10 (55.6)
Medication reconciliation	10 (55.6)
Medication therapy management services	10 (55.6)
Adjusting medication therapy	10 (55.6)
Disease state management	9 (50.0)
Ordering lab tests	7 (38.9)
Immunization	6 (33.3)
Med to bed	6 (33.3)
Complex non-sterile compounding	5 (27.8)
Complex sterile compounding	5 (27.8)
Health screening or coaching	4 (22.2)
Collaborative practice agreements	4 (22.2)
Point of care testing	1 (5.6)

Table 35 shows the number and percentage of pharmacy services offered by Iowa pharmacists. Greater than 50% of pharmacists offered medication therapy management services to patients (64.1%). Other services offered included adjusting medication therapy (48.7%), immunization administration (48.7%), collaborative practice agreements (35.9%), medication reconciliation (33.3%), disease state management (30.8%), ordering lab tests (25.6%), discharge counseling (23.1%), complex nonsterile compounding (17.9%), complex sterile compounding

(17.9%), health screenings or coaching (17.9%), and point of care testing (12.8%). No pharmacists offered med to bed services.

Table 35

*Pharmacy Services Provided by Iowa Pharmacists*

Pharmacy Service	Iowa N=39 N (%)
Medication therapy management services	25 (64.1)
Adjusting medication therapy	19 (48.7)
Immunization	19 (48.7)
Collaborative practice agreements	14 (35.9)
Medication reconciliation	13 (33.3)
Disease state management	12 (30.8)
Ordering lab tests	10 (25.6)
Discharge counseling	9 (23.1)
Complex non-sterile compounding	7 (17.9)
Complex sterile compounding	7 (17.9)
Health screening or coaching	7 (17.9)
Point of care testing	5 (12.8)
Med to bed	0 (0.0)

Table 36 shows the number and percentage of pharmacy services offered by Minnesota pharmacists. Greater than 50% of pharmacists offered medication therapy management services (58.6%) or immunization administration (51.7%). Other services offered included medication reconciliation (41.4%), disease state management (37.9%), adjusting medication therapy (37.9%), collaborative practice agreements (25.9%), complex nonsterile compounding (20.7%), ordering lab tests (20.7%), complex sterile compounding (17.2%), health screening or coaching (17.2%), discharge counseling (15.5), point of care testing (13.8%), and med to bed (1.7%).

Table 36

*Pharmacy Services Provided by Minnesota Pharmacists*

Pharmacy Service	Minnesota N=58 N (%)
Medication therapy management services	34 (58.6)
Immunization	30 (51.7)
Medication reconciliation	24 (41.4)
Disease state management	22 (37.9)
Adjusting medication therapy	22 (37.9)
Collaborative practice agreements	15 (25.9)
Complex non-sterile compounding	12 (20.7)
Ordering lab tests	12 (20.7)
Complex sterile compounding	10 (17.2)
Health screening or coaching	10 (17.2)
Discharge counseling	9 (15.5)
Point of care testing	8 (13.8)
Med to bed	1 (1.7)

Table 37 shows the number and percentage of pharmacy services offered by Nebraska pharmacists. Most pharmacists (83.3%) offered medication reconciliation services to patients. Greater than or equal to 50% of pharmacists offered medication therapy management services (55.6%), disease state management (50%), discharge counseling (50%), complex sterile compounding (50%), immunization administration (50%), order lab tests (50%), or have collaborative practice agreements (50%). Other services offered included adjusting medication therapy (44.4%), complex nonsterile compounding (38.9%), health screening or coaching (22.2%), med to bed (11.1%), and point of care testing (5.6%).



Table 37

*Pharmacy Services Provided by Nebraska Pharmacists*

Pharmacy Service	Nebraska N=18 N (%)
Medication reconciliation	15 (83.3)
Medication therapy management services	10 (55.6)
Disease state management	9 (50.0)
Discharge counseling	9 (50.0)
Complex sterile compounding	9 (50.0)
Immunization	9 (50.0)
Ordering lab tests	9 (50.0)
Collaborative practice agreements	9 (50.0)
Adjusting medication therapy	8 (44.4)
Complex non-sterile compounding	7 (38.9)
Health screening or coaching	4 (22.2)
Med to bed	2 (11.1)
Point of care testing	1 (5.6)

Table 38 shows the number and percentage of pharmacy services offered by South Dakota pharmacists. Greater than half of the participating pharmacists offered medication therapy reconciliation (54.5%). Other services offered included discharge counseling (45.5%), adjusting medication therapy (45.5%), immunization (45.5%), ordering lab tests (45.5%), collaborative practice agreements (45.5%), medication therapy management services (36.4%), disease state management (27.3%), complex sterile compounding (27.3%), point of care testing (18.2%), med to bed (18.2%), complex non-sterile compounding (9.1%), and health screening or coaching (9.1%).

Table 38

*Pharmacy Services Provided by South Dakota Pharmacists*

Pharmacy Service	South Dakota N=11 N (%)
Medication reconciliation	6 (54.5)
Discharge counseling	5 (45.5)
Adjusting medication therapy	5 (45.5)
Immunization	5 (45.5)
Ordering lab tests	5 (45.5)
Collaborative practice agreements	5 (45.5)
Medication therapy management services	4 (36.4)
Disease state management	3 (27.3)
Complex sterile compounding	3 (27.3)
Point of care testing	2 (18.2)
Med to bed	2 (18.2)
Complex non-sterile compounding	1 (9.1)
Health screening or coaching	1 (9.1)

Using an alpha level of 0.05, an independent-samples *t*-test was conducted to evaluate if there was a difference in services provided by pharmacists practicing in different states. As shown in Table 39, no significant differences in services provided by pharmacists practicing in different states were found with the exception of discharge consultation  $t(147) = 2.47, p = 0.023$  and med to bed services  $t(147) = 4.80, p = 0.000$ . An examination of the group means indicated that pharmacists practicing in North Dakota were more likely to provide discharge counseling ( $M = 1.56, SD = 0.51$ ) versus pharmacists in other Upper Midwest states ( $M = 1.24, SD = 0.43$ ). Pharmacists practicing in North Dakota were also more likely to provide med to bed services ( $M = 1.33, SD = 0.49$ ) to their patients than pharmacists practicing in other Upper Midwest states ( $M = 1.04, SD = 0.19$ ).

Table 39

*Independent Samples t-test Comparing Pharmacy Services Provided by North Dakota Pharmacists to Services Provided by Pharmacists in Other Upper Midwest States*

	North Dakota N=18 <i>M (SD)</i>	Upper Midwest States N=131 <i>M (SD)</i>	t	df	Sig (2-tailed)
Pharmacy service					
Medication reconciliation	1.56 (0.51)	1.44 (0.50)	.90	147	.371
Discharge counseling	1.56 (0.51)	1.24 (0.43)	2.47	20.46	.023
Adjusting medication therapy	1.56 (0.51)	1.41 (0.50)	1.15	147	.252
Immunization	1.33 (0.49)	1.48 (0.50)	-1.21	22.30	.241
Ordering lab tests	1.39 (0.50)	1.27 (0.45)	.10	147	.320
Collaborative practice agreements	1.22 (0.43)	1.33 (0.47)	-.90	147	.367
Medication therapy management	1.56 (0.51)	1.56 (0.50)	-.01	147	.990
Disease state management	1.50 (0.51)	1.35 (0.48)	1.23	147	.223
Nonsterile compounding	1.33 (0.49)	1.21 (0.41)	1.22	147	.226
Complex sterile compounding	1.28 (0.46)	1.22 (0.42)	.53	147	.596
Point of care testing	1.06 (0.24)	1.12 (0.33)	-.83	147	.408
Health screenings	1.22 (0.43)	1.17 (0.38)	.57	147	.572
Med to bed	1.33 (0.49)	1.04 (0.19)	4.80	147	.000

### Summary

This chapter presented the results of the study. The research questions in this study were explored using survey data from pharmacists practicing in Upper Midwest states. The survey tool used in this study had good internal consistency with an overall Cronbach's alpha of .90 for the EO scale and .89 for the trait EI scale. Use of Leven's Test of Homogeneity of Variances

found no differences between the variances in the population for both the EO and trait EI subscales between states. A Kruskal-Wallis test found no evidence of difference between states for the EO and trait EI subscales except for self-control ( $p = 0.027$ ) and emotionality ( $p = 0.032$ ) suggesting caution be used when interpreting results of further data analyses. Crosstab analysis and a chi-square test of independence were performed to examine the relation between survey recruitment method and practice role and survey recruitment method and gender. The relation between these variables was not significant. Results of the crosstab analyses and chi-square tests indicate that survey recruitment method did affect response rate.

The study sample consisted of 149 participants. Most participants were employed as staff pharmacists (61.7%). Forty (2.8%) participants held management positions and 13 participants owned their own pharmacy (8.7%). Practicing pharmacist had an overall mean EO of 60.52 ( $SD = 11.53$ ). Results of a one-way ANOVA found there were no significant differences between constructs of EO reported by North Dakota pharmacist versus pharmacist in other Upper Midwest states. Results of a one-way ANOVA found no significant differences between constructs of EO by practice setting and found significant ( $p < 0.05$ ) differences between 4 out of 5 constructs of EO by role of the pharmacists including risk-taking, innovativeness, proactiveness, and autonomy. Results of post-hoc analysis using Tukey's HSD indicated that risk-taking was significantly different between pharmacists in the roles of owner and manager ( $p = 0.008$ ) and owner and staff ( $p = 0.000$ ). Innovativeness was significantly different between pharmacists in the roles of owner and staff ( $p = 0.026$ ). Proactiveness was significantly different between pharmacists in the roles of owner and staff ( $p = 0.025$ ). Autonomy was significantly different between pharmacists in the roles of owner and staff ( $p = 0.001$ ) and manager and staff ( $p = 0.030$ ).

Practicing pharmacists had an overall mean trait EI of 4.70 ( $SD = 0.49$ ). Results of a one-way ANOVA found there were not significant differences in the global trait EI construct or trait EI constructs reported by North Dakota pharmacists versus pharmacist in other Upper Midwest states.

Pearson correlation coefficients were computed between global trait EI and constructs of EO. A positive correlation was found between trait EI and four constructs of EO. Positive correlations were statistically significant at the level of 0.05 between trait EI and all constructs of EO. Pearson correlation coefficients were computed between global trait EI and mean level of EO. A positive correlation was found between trait EI and mean level of EO.

Pharmacists were asked to report which of 13 entrepreneurial services they offered at their practice site. Greater than or equal to 50% of pharmacists offered discharge counseling on medications (55.6%), medication reconciliation (55.6%), medication therapy management (55.6%), adjusted medication therapy (55.6%), or offered disease state management (50%). Other services offered by pharmacists included ordering lab tests (38.9%), immunization administration (33.3%), med to bed services (33.3%) complex nonsterile compounding (27.8%), complex sterile compounding (27.8%), health screening or coaching (22.2%), collaborative practice agreements (22.2%), and point of care testing (5.6%).

An independent sample *t*-test found no significant differences in services provided by pharmacists practicing in different states except for discharge consultation and med to bed services. Pharmacists practicing in North Dakota were more likely to provide discharge counseling and med to be services to their patients than pharmacists practicing in other Upper Midwest states.

## **CHAPTER 5. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS**

This chapter provides a summary of the purpose, design, and methodology of the study. Results will be discussed in relation to the research questions as well as limitations of the study and recommendations for future research and practice.

### **Restatement of the Problem**

The job requirements of a pharmacist are changing, requiring graduates to develop a solid foundation in entrepreneurship. The 2013 CAPE Educational Outcomes recommend that colleges and schools of pharmacy prepare pharmacy graduates to be innovative and entrepreneurial (Medina et al, 2013a). Critically analyzing the EO of pharmacists in different settings and in different practice roles and evaluating the entrepreneurial services they offer will produce a better understanding of the need for entrepreneurship training for students in colleges and schools of pharmacy. In addition, despite increased interest in the relationship between trait EI and EO, research is limited. Understanding this relationship can help educators develop and promote entrepreneurial intention in students with the proclivity to provide new pharmacy-based services or to own a pharmacy.

### **Restatement of Purpose**

The purpose of this study was to critically analyze EO and trait EI in pharmacists to develop an understanding of how these traits are exhibited in different practicing settings and practice roles. In addition, the relationship between trait EI and EO was explored to determine if trait EI is positively associated with EO in pharmacists. Finally, entrepreneurial services offered by pharmacists were evaluated for type and frequency. Pharmacists practicing in District 5 as established by the NABP and AACP were included in the study.

## **Research Questions**

1. Does the level of entrepreneurial orientation of North Dakota pharmacists differ from pharmacists in other Upper Midwest states?
2. Does the level of entrepreneurial orientation of pharmacists differ with employment status, practice setting, or practice role?
3. Does the level of trait emotional intelligence of North Dakota pharmacists differ from pharmacists in other Upper Midwest states?
4. Does the level of trait emotional intelligence of pharmacists differ with employment status, practice setting, or practice role?
5. Is there a relationship between trait emotional intelligence and entrepreneurial orientation?
6. How do entrepreneurial services provided by North Dakota pharmacists differ from services provided by pharmacists in other Upper Midwest states?

## **Literature Review**

In 2004, the Joint Commission of Pharmacy Practitioners issued a Vision for Pharmacy Practice 2015. The document redefined the role of the pharmacist. It called for pharmacists to become health care professionals who manage medication therapy and work collaboratively with patients, care givers, and other disciplines (Joint Commission of Pharmacy Practitioners, 2004).

In 2013, the CAPE Educational Outcomes, which guide pharmacy education, mandated that by the completion of the Doctor of Pharmacy program students should have gained a foundation in scientific knowledge as well as the personal and professional skills needed to deliver patient centered care including skills in entrepreneurship (Medina et al., 2013a). In 2014, members of the APhA House of Delegates published a document that called for schools and

colleges of pharmacy to include entrepreneurship, business development, and practice management training in their curricula. In addition to educating students in entrepreneurship, educators have also called for new education initiatives used to help students succeed as intrapreneurs (Hohmeier & Gatwood, 2016). While entrepreneurs innovate for themselves, intrapreneurs innovate for an organization (Carrier, 1996). It is likely, that pharmacy program curricular are already teaching these skills and as a result of the revision must simply reevaluate their approaches to assessing achievement of the 2013 CAPE Educational Outcomes (Fuentes et al., 2014).

Entrepreneurship is defined as finding opportunities to introduce new goods and services that previously did not exist (Shane & Venkataraman, 2000; Venkataraman, 1997). It is important for entrepreneurs to have a strong technical skill set in communication, management, and organization. Through entrepreneurship education, students can learn these skills, in addition to how to create a business and how to recognize opportunity. Important to the success of an organization or individual is their EO. A higher EO score results in enhanced performance of the organization (Bolton & Lane, 2012). Although typically studied in association with organization performance, EO can also be measured for individuals. Learning about an individual's EO, for example a student's EO, can be helpful to the development of teaching methods or course design (Bolton & Lane, 2012). Early determination of a desire to pursue pharmacy ownership or a high inclination to be innovative may help educators to foster the development of entrepreneurship skills in students. In addition, measuring trait EI can predict a propensity for entrepreneurship. Personality traits are thought to change little over time. As such, research has changed to focus on the relationship between EO and attitudes (Bolton & Lane, 2012; Robinson, Stimpson, Huefner, & Hunt, 1991). Measuring trait EI allows researchers



to capture how individuals normally think and behave (Pérez et al., 2005). Emerging evidence suggests that trait EI may even predict career related success.

### **Research Methodology**

To address the research questions, an online survey was used to collect information about practicing pharmacists including their EO, trait EI, and demographic information. In addition, information was collected about entrepreneurial services offered in pharmacies by pharmacists. A simple random sample of 2,000 participants was generated from a list of pharmacists practicing in the Upper Midwest using Microsoft Excel 2013 (Dillman et al., 2009, 2009; Fowler Jr, 2013).

The Entrepreneurial Orientation-Trait Emotional Intelligence instrument (EO-tEI) was a 45-item scale used to measure the EO and trait EI of practicing pharmacists. All survey items were pre-tested with advanced pharmacy practice experience students enrolled in the professional pharmacy program at North Dakota State University to determine if the survey was adequate for a larger study. The pilot survey was created in and deployed using Qualtrics (*Qualtrics*, 2005). Study details were approved by the North Dakota State University Institutional Review Board.

Eighty-seven students were invited via email to participate in the pilot study. Of the 87 students, 22 students submitted complete surveys for analysis resulting in a 25.3% response rate. Based on the results of the pre-test, items were modified to improve readability and clarity of concepts.

For the full study, all participants were invited to participate in the study via email or by mailed postcard. The survey was created in and deployed using Qualtrics (*Qualtrics*, 2005). Participants were practicing pharmacists in Upper Midwest states. Within the random sample,

45 pharmacists were included from North Dakota, 243 from Iowa, 484 from Minnesota, 158 from Nebraska, and 70 from South Dakota. To potentially increase the number of respondents, a second random sample of 1000 participants was chosen using Microsoft Excel 2013 (15.0.4981.1000). Within the second random sample, 52 pharmacists were included from North Dakota, 221 from Iowa, 484 from Minnesota, 158 from Nebraska, and 85 from South Dakota. Complete data sets were obtained from 149 participants and were used for this study. SPSS (IBM Corp. Released 2014. IBM SPSS Statistics for Windows, Version 24.0) was used to analyze data. Items hypothesized to measure EO and trait EI were analyzed for internal consistency using Cronbach's alpha. Levene's Test of Homogeneity of Variances and the Kruskal-Wallis Test were used to evaluate differences between test groups. Crosstab analysis and a chi-square test of independence were performed to examine the relationship between survey recruitment method and practice role and survey recruitment method and gender. The relation between these variables was not significant.

Descriptive statistics were used to examine demographic factors of practicing pharmacists in Upper Midwest states. To determine the level of EO of practicing pharmacists, descriptive statistics were generated for each EO survey item. Means and standard deviations were used to evaluate the EO of pharmacists by state. In comparing the level of EO of North Dakota pharmacists to pharmacists in other Upper Midwest states, one-way ANOVA and the Tukey's test were used to determine if there were significant differences. To further investigate EO in pharmacists a one-way ANOVA and the Tukey's test were used to determine if there were significant differences in the level of EO of practicing pharmacists by type of pharmacy practice site and by practice role of the pharmacist. Means and standard deviations were used to further

evaluate pharmacists' EO by practice setting and crosstab comparison was used to evaluate pharmacist practice role by state.

Descriptive statistics were used to determine the level of trait EI of practicing pharmacists in Upper Midwest states. Means and standard deviations were used to evaluate pharmacists' trait EI by their practice role. To determine if there were significant differences in the level of trait EI between North Dakota pharmacists and pharmacists in other Upper Midwest states, one-way ANOVA and the Tukey's test were used to comparatively analyze participants by state. Means and standard deviations were used to define the trait EI of pharmacists by state. Pearson correlation coefficients were used to determine if there was a relationship between trait EI and the constructs of and overall level of EO.

Descriptive statistics were used to examine entrepreneurial services offered by pharmacists in Upper Midwest states. Pharmacists were asked to report which of 13 entrepreneurial services they offered at their practice site. The number and percentage of pharmacy services offered by pharmacists in each state were used to these rank services. An independent sample *t*-test was used to determine if there were differences in services provided by pharmacists practicing in different states.

### **Conclusions**

Major conclusions are summarized in relation to the research questions. Conclusions for all research questions were drawn from data collected online using the EO-tEI survey instrument. The sample consisted of 149 participants, approximately half of them were women while the rest were men. The majority of participants were Caucasian aged 31-40 and first licensed to practice pharmacy between the years 2011 and 2017. All participants had been awarded a Bachelor's Degree. Most participants had also been awarded an advanced degree or had completed

additional training. Fifty-eight of the respondents were residents of Minnesota, 39 were residents of Iowa, 23 were residents of Nebraska, 18 were residents of North Dakota, and 11 were residents of South Dakota.

### **Research Question 1**

*Does the level of entrepreneurial orientation of North Dakota pharmacists differ from pharmacists in other Upper Midwest states?*

The role of the pharmacist in the management of chronic disease expands health promotion and disease prevention and is linked to entrepreneurship (Eddy, Donahue, & Chaney, 2001; Eddy, 2006; Eddy & Stellefson, 2009). Entrepreneurship is a creative process in which an organization or an individual recognizes opportunity and builds an enterprise (Chauhan et al., 2014). Important to the success of an organization or individual is their EO. Learning about a student's EO can be valuable to educators as they develop future entrepreneurs (Bolton & Lane, 2012). As colleges and schools of pharmacy each have unique curricula, understanding how entrepreneurship is taught in colleges and schools of pharmacy is challenging. Critically analyzing the EO of pharmacists in different settings and in different practice roles and evaluating the pharmacy services they offer will produce a better understanding of the need for entrepreneurship training for students in colleges and schools of pharmacy.

Participants were asked to answer a set of questions hypothesized to measure EO. The questions evaluated five constructs of EO. The constructs of risk-taking, innovativeness, proactiveness, competitive aggressiveness, and autonomy were each measured with three questions for a total of 15 questions. When evaluating the EO of pharmacists, no significant differences were found between pharmacists in Upper Midwest states for the constructs of risk-taking, innovativeness, proactiveness, competitive aggressiveness, and autonomy. This indicates

that pharmacists practicing in Upper Midwest states have comparable EOs. Of note, North Dakota pharmacists had overall higher means scores for autonomy when compared to pharmacists in Upper Midwest states. This aligns with the practice of pharmacy in North Dakota, as North Dakota is the only state in the nation that requires a pharmacy to be owned by a pharmacist. This law naturally gives North Dakota pharmacists much more autonomy in their practices than pharmacists in other Upper Midwest states.

### **Research Question 2**

*Does the level of entrepreneurial orientation of pharmacists differ with employment status, practice setting, or practice role?*

Analyses were performed to determine if there were differences in overall EO between pharmacists in Upper Midwest states based on their employment status, practice setting, or practice role. Interestingly, when comparing the overall mean EO for pharmacists by employment status, participants who were retired, but continued to work part time had a higher overall mean EO than pharmacists working full time. The practice of pharmacy can be fast-paced. This may indicate that pharmacists who work full time are unable to find additional time within their work week to focus on entrepreneurial initiatives or the development of new services.

When evaluating the EO of pharmacists practicing in different settings, no significant differences were found between pharmacists in Upper Midwest states for the constructs of risk-taking, innovativeness, proactiveness, competitive aggressiveness, and autonomy. Practice settings were categorized as independent community pharmacies, chain pharmacies (small and large chain community pharmacies, mass merchandiser pharmacies, and supermarket pharmacies), clinic (pharmacies located near or in a medical clinic), health-system (government

or non-government hospital pharmacies), or other (home health/infusion, long term care/nursing home, specialty pharmacy, pharmacy benefit administration, academic institution, mail service, or other). This indicates that pharmacists have comparable levels of EO independent of their practice setting.

When evaluating the EO of pharmacists by role, owner, management, or staff, significant ( $p < 0.05$ ) differences were found between pharmacists in Upper Midwest states for the constructs of risk-taking, innovativeness, proactiveness, and autonomy. No difference was found for the construct competitive aggressiveness. Further analysis indicated that risk-taking was significantly different between pharmacists in the roles of owner and manager ( $p = 0.008$ ) and owner and staff ( $p = 0.000$ ). Innovativeness was significantly different between pharmacists in the roles of owner and staff ( $p = 0.26$ ) and management and staff ( $p = 0.047$ ). Proactiveness was significantly different between pharmacists in the roles of owner and staff ( $p = 0.025$ ). Autonomy was significantly different between pharmacists in the roles of owner and staff ( $p = 0.001$ ) and management and staff ( $p = 0.030$ ). Pharmacists in roles of owner were more likely to score higher in risk-taking, innovativeness, proactiveness, and autonomy. This is congruent with the current literature as these constructs of EO have been associated with businesses owners (Ibrahim & Goodwin, 1986; Stewart Jr, Watson, Carland, & Carland, 1999).

### **Research Question 3**

*Does the level of trait emotional intelligence of North Dakota pharmacists differ from pharmacists in other Upper Midwest states?*

Participants were asked to answer a set of questions hypothesized to measure trait EI. The questions evaluated four constructs of trait EI and a global trait EI. The constructs of well-being, self-control, emotionality, sociability, and global trait EI were measured using a set of 30

questions. When evaluating the trait EI of pharmacists, no significant differences were found between pharmacists in Upper Midwest states for global trait EI and the constructs of trait EI.

Measuring trait EI allows researchers to capture how individuals normally think and behave. Trait EI has been shown to predict work performance, job involvement, and propensity for entrepreneurship (Ahmetoglu et al., 2011; Carmeli, 2003; Mayer et al., 2008). Emerging evidence suggests trait EI is a highly useful concept in career success and as a predictor of career related performance outcomes (Ahmetoglu et al., 2011). Individuals that have a high EI are more likely to engage in innovative entrepreneurial activities. As a significant predictor of entrepreneurial activity, firms can select for trait EI. Firms that employ an entrepreneurial individual often gain and retain a competitive advantage in their market (Ahmetoglu et al., 2011; Lumpkin, 2007).

#### **Research Question 4**

*Does the level of trait emotional intelligence of pharmacists differ with employment status, practice setting, or practice role?*

Analyses were performed to determine if there were differences in overall mean trait EI between pharmacists in Upper Midwest states based on their employment status, practice setting, or role. Participants who were employed, but no longer as a pharmacist, had the highest mean trait EI and participants which the lowest overall mean trait EI were in retirement.

When evaluating the trait EI of pharmacists practicing in different settings, no significant differences were found between pharmacists in Upper Midwest states for global trait EI or the constructs of well-being, self-control, emotionality, or sociability. Practice settings were categorized as independent community pharmacies, chain pharmacies (small and large chain community pharmacies, mass merchandiser pharmacies, and supermarket pharmacies), clinic

(pharmacies located near or in a medical clinic), health-system (government or non-government hospital pharmacies), or other (home health/infusion, long term care/nursing home, specialty pharmacy, pharmacy benefit administration, academic institution, mail service, or other). This indicates that pharmacists have comparable levels of trait EI independent of their practice setting.

When evaluating the trait EI of pharmacists by practice role, owner, management, or staff, no significant differences were found between pharmacists in Upper Midwest states for global trait EI and the constructs of trait EI.

### **Research Question 5**

*Is there a relationship between trait emotional intelligence and entrepreneurial orientation?*

A positive correlation was found between global trait EI and all constructs of EO. Positive correlations were statistically significant ( $p < 0.05$ ) between global trait EI and risk-taking, global trait EI and innovativeness, global trait EI and proactiveness, global trait EI and competitive aggressiveness, and global trait EI and autonomy. Pearson correlation coefficients were computed between global trait EI and mean level of EO. A statistically significant ( $p < 0.05$ ) positive correlation was also found between global trait EI and mean level of EO.

Trait EI has been shown to predict work performance, job involvement, and propensity for entrepreneurship (Ahmetoglu et al., 2011; Carmeli, 2003; Mayer et al., 2008). Trait EI affects entrepreneurial behavior through two established processes. One process is the self-evaluation of emotional efficacy. It has been established that individuals with high self-perceived EI are more likely to demonstrate a high tolerance to stress and environmental stressors at work (Zampetakis, et al., 2009). These individuals will persevere when problems arise and seek out challenges on the job (Zampetakis et al., 2009b). They also exhibit a higher



degree of personal initiative and information seeking behaviors (Zampetakis et al., 2009b).

Understanding this relationship between trait EI and entrepreneurship can help educators develop and promote entrepreneurial intention in students with the proclivity to provide new services or to own a pharmacy.

### **Research Question 6**

*How do entrepreneurial services provided by North Dakota pharmacists differ from services provided by pharmacists in other Upper Midwest states?*

Analyses were performed to determine if there were differences in entrepreneurial services offered by North Dakota pharmacists as compared to pharmacists in other Upper Midwest states. No significant differences were found except for discharge consultation ( $p < 0.05$ ) and med to bed services ( $p < 0.05$ ). An examination of the group means indicated that pharmacists practicing in North Dakota were more likely to provide discharge counseling and med to bed services to their patients versus pharmacists in Minnesota, Nebraska, Iowa, or South Dakota.

In 2014, the National Pharmacy Workforce Survey found full time pharmacists spent 49% of their time providing patient care services associated with medication dispensing and 21% of their time providing patient care services not associated with medication dispensing. The most common services reported by pharmacists were medication therapy management (60%), immunizations (53%), and adjusting medication therapy (52%). In addition, 48% of pharmacists in chain pharmacies and 57% in supermarket pharmacies offered health screenings. Overall, the report found that more pharmacies are providing patient care services and the number of opportunities for pharmacist in new roles will likely increase as the general population ages (Midwest Pharmacy, 2015). Pharmacies offering services are considered entrepreneurial.

However, many pharmacies struggle with how to implement such services due to staffing or pharmacy setting (Doucette et al., 2006). Data from the National Pharmacy Workforce surveys suggest that pharmacists are interested in expanding their roles. The data also provides additional evidence that pharmacy graduates must be trained in entrepreneurship in order to push the boundaries of pharmacy practice.

### **Limitations**

This study has limitations. First, the response rate was relatively low. This may have led to nonresponse bias. It is unknown if non-respondents were different than the respondents. One factor contributing to the low response rate was mode of recruitment. Pharmacists practicing in Iowa and South Dakota were sent a postcard with a printed link to the online survey. Access to the online survey was less convenient for this subset of participants as the link was not electronic and not immediately available as compared to pharmacists who received an email inviting them to participate in the survey. In addition, the costs associated with printing postcards was prohibitive, so additional rounds of participant recruitment were not pursued. Second, respondents were not equally distributed across states which may have led to selection bias. It is undeterminable whether the sample used in this study was representative of the target population. Therefore, caution should be used in generalizing these results to all pharmacists and pharmacies. Stratified sampling could have been used to ensure that an equal number of pharmacists from each Upper Midwest state were represented in the sample (Blaikie, 2003). Finally, response or survey bias may have occurred as participants were asked to self-report their responses and may have not answered truthfully.

### **Recommendations for Further Study**

This study builds on the limited research of EO in individuals. The Hughes and Morgan EO scale was chosen for this study as it is founded on the work of Lumpkin and Dess and can separately assess each construct of EO (Hughes & Morgan, 2007). This EO scale was originally developed for use with firms. In this study, the EO scale was used with both a student pharmacist and pharmacist population. In the student pharmacist pilot study, three of the subscales, innovativeness, competitive aggressiveness, and autonomy, were found to have low reliability with alpha coefficients of less than .70. The instrument was revised and then deployed to pharmacists in Upper Midwest states. When used with this population the overall Cronbach's alpha for the instrument was .90 and all subscales had a calculated alpha coefficient of greater than .70. Future research should focus on further validation of the instrument as a measure of individual EO in both pharmacist and non-pharmacist populations.

When evaluating the EO of pharmacists by practice role, owner, management, or staff, significant differences were found between pharmacists in Upper Midwest states for the constructs of risk-taking, innovativeness, proactiveness, and autonomy. Risk-taking was significantly different between pharmacists in the roles of owner and manager ( $p = 0.008$ ). Innovativeness ( $p = 0.026$ ), proactiveness ( $p = 0.025$ ), autonomy ( $p = 0.001$ ), and risk-taking ( $p = 0.000$ ) were significantly different between pharmacists in the roles of owner and staff. Innovativeness ( $p = 0.047$ ) and autonomy ( $p = 0.030$ ) were significantly different between pharmacists in the roles of management and staff. No difference was found for the construct competitive aggressiveness. Future research should exam the EO of owners and staff considering gender, age, year licensed to practice pharmacy, completion of a residency, and prior business education. An additional question to consider would be are pharmacists in the role of

staff less likely to have a high EO because of limitations or barriers to their work? Likewise, are owners likely to have a high EO secondary to a high degree of autonomy? Do these pharmacists take advantage of such autonomy to be innovative and create new services or models of practice?

As the role of a pharmacist expands through the pursuit of provider status, will the EO of a pharmacist change? In 2015, North Dakota's Governor signed into law four bills that expand the role of a pharmacist and recognize pharmacists as health care providers. These bills allowed pharmacists to enter into collaborative practice agreements with physicians, allowed for prescriptive authority to distribute naloxone kits, created a medication therapy management program for Medicaid-eligible patients with reimbursement for pharmacist services, and included pharmacists as health care providers for work related injuries (Ross, 2016). Conversely, will the EO of pharmacists be negatively impacted by role expansion due to increases in workload, administrative and billing tasks as well as job-related stress and longer work hours (Cooksey, Knapp, Walton, & Cultice, 2002).

Although the study of trait EI is well established in the literature, analysis of trait EI in a pharmacist population has not been researched. This study looked at the trait EI of pharmacists in Upper Midwest states. Although the TEIQue-SF instrument had been tested and validated with a variety of study populations, the same results were not reproducible with this study (Cooper & Petrides, 2010; Freudenthaler, Neubauer, Gabler, Scherl, & Rindermann, 2008; K. V. Petrides, 2009; Stamatopoulou et al., 2016). This may be due to the pilot study population being students or the study population being pharmacists. Future research should focus on improving the tool for use in these populations.

When evaluating the trait EI of pharmacists, significant ( $p \leq 0.05$ ) differences were found between pharmacists in Upper Midwest states for the construct emotionality. However, post-hoc

analysis found no significant differences when evaluating constructs of trait EI of pharmacists in Upper Midwest states. Further research should focus on further exploring the emotionality construct in a pharmacist population. Are pharmacists with high emotionality more like to connect with patients? Would this increase connectively lead to improved health outcomes?

### **Recommendations for Practice**

As the profession of pharmacy changes, new opportunities become available to pharmacists to deliver services that improve overall patient health. These services enhance medication use, engage patients, and result in more efficient patient care. Evidence of a pharmacists' impact on clinical and economic outcomes is increasing and consistently demonstrates that pharmacists improve therapeutic outcomes and reduce costs for patients ("Exploring Pharmacists' Role in a Changing Healthcare Environment," 2014).

A pharmacist's role has, and some would argue, continues to be focused on dispensing services. Although pharmacy students receive training in preventive care, health and wellness, and patient education, as pharmacists they typically do not practice these skills ("Exploring Pharmacists' Role in a Changing Healthcare Environment," 2014). Expansion of the role of the pharmacist has been necessitated by diminishing revenues from dispensing activities. As such, pharmacists must change their practices to provide these increasingly essential activities (Houle, Grindrod, Chatterley, & Tsuyuki, 2014).

The 2013 CAPE Educational Outcomes mandate that colleges and schools of pharmacy prepare pharmacy graduates to be innovative and entrepreneurial. Graduates should be able to engage in innovative activities and use their entrepreneurial and intrapreneurial skills to advance the profession and accomplish their professional goals (Medina et al, 2013a). Changing the focus of pharmacy education programs will ensure graduates are competent and enables them to

pursue limitless professional practice roles (Brazeau et al., 2009). At the same time, members of the APhA House of Delegates published a document that called for schools and colleges of pharmacy to include entrepreneurship, business development, and practice management training in their curricula. The House of Delegates cited the importance of future pharmacists to be given the tools necessary to operate and manage fiscally sound pharmacist led clinics (Bzowyckj et al., 2014). Teaching entrepreneurship and assessing student entrepreneurship is now the focus of many colleges and schools of pharmacy. As colleges and schools of pharmacy each have unique curricula, understanding how entrepreneurship is taught in colleges and schools of pharmacy is challenging. Critically analyzing the EO of pharmacists in different settings and in different roles and evaluating the entrepreneurial services they offer has produced a better understanding of the need for entrepreneurship training for students in colleges and schools of pharmacy.

Despite increased interest in the relationship between trait EI and EO, research is limited. Understanding this relationship can help educators develop and promote entrepreneurial intention in students with the proclivity to provide new services or own a pharmacy. Selecting for students with an EO and teaching them how to be entrepreneurial is needed for continued growth of the pharmacy profession. Training programs for students and even practicing pharmacists will accelerate this desired change (Fjortoft, 2016; Holiday-Goodman, 2012). Providing more autonomy to practicing pharmacists, increasing available resources in their practice settings, and encouraging entrepreneurship will further transform the profession (Holiday-Goodman, 2012).

This study found that North Dakota pharmacists had overall higher mean scores for autonomy and were more likely to provide discharge consultation and med to bed services than pharmacists in other Upper Midwest states. Pharmacists practicing in different settings exhibited

no differences in EO; however, significant differences were found when evaluating the EO of pharmacists by practice role. Pharmacists who owned a pharmacy had higher mean EO for the constructs risk-taking, innovativeness, proactiveness, and autonomy. No significant differences were found between pharmacists in Upper Midwest states for global trait EI or its constructs. A positive correlation was found between global trait EI and all constructs of EO suggesting that global trait EI could be used to predict EO in individuals.

### **Conclusion**

The findings of this study support to existing theories related to EO. Through this research it was identified that EO can be measured at the individual level. A high EO suggests that a person may have a higher interest or success with entrepreneurial activities. High levels of EO were found in pharmacists practicing in the roles of owner or manager as compared to pharmacists in the role of staff. A positive correlation was found between global trait EI and all constructs of EO. This also supports the theory that there is a relationship between trait EI and entrepreneurship.

The findings of this study suggest that educators consider evaluating the global trait EI of students to predict their EO. A high EO has been linked to a proclivity for owning one's own business; therefore, additional entrepreneurship training may be of value to these students. Required or elective entrepreneurship courses may include Marketing and Sales, Financial Resource Management, Feasibility Analysis and Intellectual Property Projection, and Strategy and Opportunity Recognition. Pharmacy students would benefit the most for courses taught experientially to help them learn how to create a business, recognize opportunity, and think creatively and critically. As per the 2013 CAPE Educational Outcomes, this training should help

students demonstrate initiative and creative decision making to advance the profession of pharmacy.



## REFERENCES

- AACP - CAPE Educational Outcomes. (n.d.). Retrieved from <https://www.aacp.org/resource/cape-educational-outcomes>
- Abe, K., Evans, P., Austin, E. J., Suzuki, Y., Fujisaki, K., Niwa, M., & Aomatsu, M. (2013). Expressing one's feelings and listening to others increases emotional intelligence: A pilot study of Asian medical students. *BMC Medical Education, 13*(1), 82.
- Abraham, C. (2003). The relationship between emotional intelligence and work attitudes, behavior and outcomes: An examination among senior managers. *Journal of Managerial Psychology, 18*(8), 788–813.
- Ahmetoglu, G., Leutner, F., & Chamorro-Premuzic, T. (2011). EQ-nomics: Understanding the relationship between individual differences in Trait Emotional Intelligence and entrepreneurship. *Personality and Individual Differences, 51*(8), 1028–1033.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211.
- Aldrich, H. E., & Wiedenmayer, G. (1993). From traits to rates: An ecological perspective on organizational foundings. *Advances in Entrepreneurship, Firm Emergence, and Growth, 1*(3), 145–196.
- Aloulou, W., & Fayolle, A. (2005). A conceptual approach of entrepreneurial orientation within small business context. *Journal of Enterprising Culture, 13*(01), 21–45.
- Alston, G.L., & Waitzman, J.A. (2013). The I-Tribe Community Pharmacy Practice Model: Professional pharmacy unshackled. *Journal of the American Pharmacists Association, 53*(2), 163–171.

- Antonicic, B., & Hisrich, R.D. (2003). Clarifying the intrapreneurship concept. *Journal of Small Business and Enterprise Development*, 10(1), 7–24.
- Armero, A. M., Hernandez, M.A.C., Perez-Vicente, S., & Martinez-Martinez, F. (2015). Pharmaceutical care in smoking cessation. *Patient Preference and Adherence*, 9, 209.
- Barlett, J.E., Kotrlik, J.W., & Higgins, C.C. (2001). Organizational research: Determining appropriate sample size in survey research. *Information Technology, Learning, and Performance Journal*, 19(1), 43.
- Barringer, B.R., & Bluedorn, A.C. (1999). The relationship between corporate entrepreneurship and strategic management. *Strategic Management Journal*, 20(5), 421–444.
- Bateman, T.S., & Crant, J.M. (1993). The proactive component of organizational behavior: A measure and correlates. *Journal of Organizational Behavior*, 14(2), 103–118.
- Baum, J.R., Frese, M., & Baron, R.A. (Eds.). (2007). *The psychology of entrepreneurship*. Psychology Press. New York, NY: Psychology Press.
- Blaikie, N. (2003). *Analyzing quantitative data: From description to explanation*. Sage.
- Bolton, D.L. (2012). Individual entrepreneurial orientation: Further investigation of a measurement instrument. *Academy of Entrepreneurship Journal*, 18(1), 91.
- Bolton, D., & Lane, M.D. (2012). Individual entrepreneurial orientation: Development of a measurement instrument. *Education+ Training*, 54(2/3), 219–233.
- Boore, J., & Porter, S. (2011). Education for entrepreneurship in nursing. *Nurse Education Today*, 31(2), 184–191.
- Brazeau, G. (2013). Entrepreneurial Spirit in Pharmacy. *American Journal of Pharmaceutical Education*, 77(5).

- Brock, D.M. (2003). Autonomy of individuals and organizations: Towards a strategy research agenda. *International Journal of Business and Economics*, 2(1), 57–73.
- Bzowycykj, A., Urick, B., & Fannin, J.T. (2014). American Pharmacist Association House of Delegates: Ensuring the power and promise of pharmacy. *Journal of the American Pharmacists Association*, 54(4), 330–335.
- Calantone, R.J., Cavusgil, S.T., & Zhao, Y. (2002). Learning orientation, firm innovation capability, and firm performance. *Industrial Marketing Management*, 31(6), 515–524.
- CAPE Advisory Panel on Educational Outcomes. (1998). *Center for the Advancement of Pharmaceutical Education Educational Outcomes 1998*. Retrieved from <https://www.aacp.org/resource/cape-educational-outcomes>
- CAPE Advisory Panel on Educational Outcomes. (2004). *Center for the Advancement of Pharmaceutical Education Educational Outcomes 2004*. Retrieved from <https://www.aacp.org/sites/default/files/2017-11/Combined-CAPE-2004-Supplemental-Educational-Outcomes.pdf>
- Carrier, C. (1996). Intrapreneurship in Small Businesses: An Exploratory Study. *Entrepreneurship: Theory & Practice*, 21(1), 5–20.
- Chauhan, K., Prakash, D., & Jain, S. (2014). Entrepreneurial education in universities and support for economic development: An analysis of existing literature. *International Journal of Research in Management, Economics & Commerce*, 4(10).
- Christensen, D.B., Fassett, W.E., & Andrews, G.A. (1993). A practical billing and payment plan for cognitive services. *American Pharmacy*, (3), 34–40.

- Chumney, E.C., & Ragucci, K.R. (2006). Student satisfaction and academic performance in a dual PharmD/MBA degree program. *American Journal of Pharmaceutical Education*, 70(2).
- Chumney, E.C., Ragucci, K.R., & Jones, K.J. (2008). Impact of a dual PharmD/MBA degree on graduates' academic performance, career opportunities, and earning potential. *American Journal of Pharmaceutical Education*, 72(2).
- Claes, R., Beheydt, C., & Lemmens, B. (2005). Unidimensionality of abbreviated proactive personality scales across cultures. *Applied Psychology*, 54(4), 476–489.
- Cochran, W.G. (1977). *Sampling techniques-3*. New York, NY: John Wiley & Sons.
- Collins, C.J., Hanges, P.J., & Locke, E.A. (2004). The relationship of achievement motivation to entrepreneurial behavior: A meta-analysis. *Human Performance*, 17(1), 95–117.
- Cooksey, J.A., Knapp, K.K., Walton, S.M., & Cultice, J.M. (2002). Challenges to the pharmacist profession from escalating pharmaceutical demand. *Health Affairs*, 21(5), 182–188.
- Cooper, A., & Petrides, K.V. (2010). A psychometric analysis of the Trait Emotional Intelligence Questionnaire–Short Form (TEIQue–SF) using item response theory. *Journal of Personality Assessment*, 92(5), 449–457.
- Cordina, M., & McElnay, J.C. (2001). Assessment of a community pharmacy-based program for patients with asthma. *Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy*, 21(10), 1196–1203.
- Corrigan, J., Donaldson, M., Molla, S., Kohn, L.T., Maguire, S.K., Pike, K.C. (2001). *Crossing the quality chasm: A new health system for the 21st century*. Washington, DC. National Academy Press.

- Covin, J. G., & Lumpkin, G. T. (2011). Entrepreneurial orientation theory and research: Reflections on a needed construct. *Entrepreneurship Theory and Practice*, 35(5), 855–872.
- Covin, J.G., & Slevin, D.P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic Management Journal*, 10(1), 75–87.
- Covin, J.G., & Wales, W.J. (2012). The Measurement of Entrepreneurial Orientation. *Entrepreneurship Theory and Practice*, 36(4), 677–702.
- Cranor, C.W., & Christensen, D.B. (2003). The Asheville Project: Short-term outcomes of a community pharmacy diabetes care program. *Journal of the American Pharmacists Association*, 43(2), 149–159.
- Daimi, K. (2012). Strengthening elements of teamwork, innovation, and creativity in a software engineering program. *The Journal of Engineering Entrepreneurship*, 3(1), 35–50.
- Davitz, J.R., Beldoch, M., Blau, S., Dimitrovsky, L., Levitt, E., & Kempner Levy, P. (1964). Personality, perceptual, and cognitive correlates of emotional sensitivity. *The Communication of Emotional Meaning*, 57–68.
- Johnson, D., Justin, C., & Hildebrand, R. (2006). Entrepreneurship education: Towards a discipline-based framework. *Journal of Management Development*, 25(1), 40–54.
- De Jong, J. P. J., Parker, S. K., Wennekers, S., & Wu, C. (2011). Corporate entrepreneurship at the individual level: measurement and determinants. *EIM Research Reports. Zoetermeer: EIM*, 11, 13.
- Desai, H., Ding, H.B., & Fedder, D. (2010). Teaching Scientists Entrepreneurship: A dialectical approach. *Journal of Enterprising Culture*, 18(2), 193–203.

- Developing Trends in Delivery and Reimbursement of Pharmacist Services. (2015). Avalere Health LLC.
- Dillman, D. A. (2000). *Mail and internet surveys: The tailored design method* (Vol. 2). Wiley New York.
- Dillman, D.A., Smyth, J.D., & Christian, L.M. (2009). *Internet, mail, and mix-mode surveys: The tailored design method*. Hoboken, NJ: Wiley.
- Domke-Damonte, D., Faulstich, J.A., & Woodson III, W. (2008). Entrepreneurial orientation in a situational context: Comparisons between Germany and the United States. *Journal of Business Strategies*, 25(1), 15.
- Doucette, W.R., Kreling, D.H., Schommer, J.C., Gaither, C.A., Mott, D.A., & Pedersen, C.A. (2006). Evaluation of community pharmacy service mix: Evidence from the 2004 National Pharmacist Workforce Study. *Journal of the American Pharmacists Association*, 46(3), 348–355.
- Doucette, W.R., Nevins, J.C., Gaither, C., Kreling, D.H., Mott, D.A., Pedersen, C.A., & Schommer, J.C. (2012). Organizational factors influencing pharmacy practice change. *Research in Social and Administrative Pharmacy*, 8(4), 274–284.
- Drucker, P.F. (2006). *Innovation and Entrepreneurship* (Reprint edition). New York, NY: HarperBusiness.
- Eddy, J. M. (2006). Epistemology of the health education process. *American Journal of Health Education*, 37(5), 258–270.
- Eddy, J. M., Donahue, R., & Chaney, J. D. (2001). A contextual relative approach to designing a masters program in health education using distance education technologies. *The International Electronic Journal of Health Education*, 4, 377–384.

- Eddy, J. M., & Stellefson, M. L. (2009). Entrepreneurship in Health Education and Health Promotion: Five Cardinal Rules. *Health Promotion Practice, 10*(3), 333–341.
- Eisenberger, R., Armeli, S., Rexwinkel, B., Lynch, P. D., & Rhoades, L. (2001). Reciprocation of perceived organizational support. *Journal of Applied Psychology, 86*(1), 42.
- Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived Organizational Support. *Journal of Applied Psychology, 71*(3), 500–507.
- Elliott, M.E., Meek, P.D., Kanous, N.L., Schill, G.R., Weinswig, P.A., Bohlman, J.P., Binkley, N.C. (2002). Osteoporosis screening by community pharmacists: Use of national osteoporosis foundation resources. *Journal of the American Pharmacists Association, 42*(1), 101–111.
- Engel, G.V. (1970). Professional autonomy and bureaucratic organization. *Administrative Science Quarterly, 12*–21.
- Exploring Pharmacists' Role in a Changing Healthcare Environment. (2014). Avalere Health LLC. Retrieved from <https://www.nacds.org/pdfs/comm/2014/pharmacist-role.pdf>
- Fayolle, A., Gailly, B., & Lassas-Clerc, N. (2006). Assessing the impact of entrepreneurship education programmes: A new methodology. *Journal of European Industrial Training, 30*(9), 701–720.
- Fayolle, A., & Klandt, H. (Eds.). (2006). *International entrepreneurship education: issues and newness*. Cheltenham, UK ; Northampton, MA: Edward Elgar Publishing.
- Fjortoft, N. (2016). The Challenge of the accreditation council for pharmacy education's standard four: Identifying, teaching, measuring. *American Journal of Pharmaceutical Education, 80*(5), 73.
- Fowler Jr, F. J. (2013). *Survey research methods*. Thousand Oaks, CA: Sage publications.

- Freudenthaler, H.H., Neubauer, A.C., Gabler, P., Scherl, W.G., & Rindermann, H. (2008). Testing and validating the trait emotional intelligence questionnaire (TEIQue) in a German-speaking sample. *Personality and Individual Differences, 45*(7), 673–678.
- Fuentes, D.G., Caudill, W., Henriksen, J.A., & Smith, T. (2014). The CAPE outcomes revisions should not require drastic changes to pharmacy curricula. *American Journal of Pharmaceutical Education, 78*(1).
- Brazeau, G.A., Meyer, S.M., Belsey, M., Bednarczyk, E.M., Bilic, S., Bullock, J., (2009). Preparing pharmacy graduates for traditional and emerging career opportunities. *American Journal of Pharmaceutical Education, 73*(8).
- Goleman, D. (1995). Emotional intelligence. New York: Bantam. *Surveying the Influence of Transformational Leadership on Empowerment, 509*.
- Gubbins, P.O., Micek, S.T., Badowski, M., Cheng, J., Gallagher, J., Johnson, S. G., (2014). Innovation in clinical pharmacy practice and opportunities for academic–practice partnership. *Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy, 34*(5), e45–e54.
- Hackman, J.R., & Oldham, G.R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance, 16*(2), 250–279.
- Harris, M.L., & Gibson, S.G. (2008). Examining the entrepreneurial attitudes of US business students. *Education+Training, 50*(7), 568–581.
- Hata, M., Klotz, R., Sylvies, R., Hess, K., Schwartzman, E., Scott, J., & Law, A.V. (2012). Medication therapy management services provided by student pharmacists. *American Journal of Pharmaceutical Education, 76*(3).



- Henry, C., Hill, F., & Leitch, C. (2005). Entrepreneurship education and training: Can entrepreneurship be taught? Part I. *Education + Training*, 47(2), 98–111.
- Hepler, C.D., & Strand, L.M. (1990). Opportunities and responsibilities in pharmaceutical care. *American Journal of Health-System Pharmacy Pharm*, 47(3), 533–543.
- Hermansen-Kobulnicky, C.J., & Moss, C.L. (2004). Pharmacy student entrepreneurial orientation: a measure to identify potential pharmacist entrepreneurs. *American Journal of Pharmaceutical Education*, 68(5).
- Hills, G.E. (1988). Variations in University entrepreneurship education: An empirical study of an evolving field. *Journal of Business Venturing*, 3(2), 109–122.
- Hisrich, R.D. (1990). Entrepreneurship/intrapreneurship. *American Psychologist*, 45(2), 209–222.
- Hohmeier, K.C., & Gatwood, J. (2016). Toward intrapreneurship in pharmacy education. *American Journal of Pharmaceutical Education*, 80(3).
- Holiday-Goodman, M. (2012). Entrepreneurship, resource management, organizational culture, and other “business” factors influencing pharmacy practice change. *Research in Social and Administrative Pharmacy*, 8(4), 269–271.
- Hornsby, J.S., Kuratko, D.F., & Zahra, S.A. (2002). Middle managers’ perception of the internal environment for corporate entrepreneurship: assessing a measurement scale. *Journal of Business Venturing*, 17(3), 253–273.
- Hughes, M., & Morgan, R.E. (2007). Deconstructing the relationship between entrepreneurial orientation and business performance at the embryonic stage of firm growth. *Industrial Marketing Management*, 36(5), 651–661.

- Hult, G.T.M., Hurley, R.F., & Knight, G.A. (2004). Innovativeness: Its antecedents and impact on business performance. *Industrial Marketing Management*, 33(5), 429–438.
- Hult, G.T.M., & Ketchen, D.J. (2001). Does market orientation matter?: A test of the relationship between positional advantage and performance. *Strategic Management Journal*, 22(9), 899–906.
- Ibrahim, A.B., & Goodwin, J.R. (1986). Perceived causes of success in small business. *American Journal of Small Business*, 11(2), 41–50.
- Iyer, S., & Doucette, W.R. (2003). The influence of environmental attributes on the relationship between entrepreneurial orientation and performance in independent community pharmacies. *Journal of Pharmaceutical Marketing & Management*, 15(2), 25–46.
- Jacobs, I., Sim, C.W., & Zimmermann, J. (2015). The German TEIQue-SF: Factorial structure and relations to agentic and communal traits and mental health. *Personality and Individual Differences*, 72, 189–194.
- Jambulingam, T., & Doucette, W.R. (1999). Pharmacy entrepreneurial orientation: antecedents and its effect on the provision of innovative pharmacy services. *Journal of Social and Administrative Pharmacy*, 16(1), 26–37.
- Jambulingam, T., Kathuria, R., & Doucette, W.R. (2005). Entrepreneurial orientation as a basis for classification within a service industry: the case of retail pharmacy industry. *Journal of Operations Management*, 23(1), 23–42.
- Johannisson, B. (1991). University training for entrepreneurship: Swedish approaches. *Entrepreneurship & Regional Development*, 3(1), 67–82.
- Joint Commission of Pharmacy Practitioners. (2004). Future vision of pharmacy practice. Retrieved from <https://www.accp.com/docs/positions/misc/JCPPVisionStatement.pdf>

- Kanter, R.M. (2000). When a thousand flowers bloom: Structural, collective, and social conditions for innovation in organization. *Entrepreneurship: The Social Science View*, 167–210.
- Kauffman Foundation. (2007). Entrepreneurship in American higher education: A report from the Kauffman panel on Entrepreneurship Curriculum in Higher Education. Ewing Marion Kauffman Foundation. Kansas City, Missouri.
- Kent, C.A., Sexton, D.L., & Vesper, K.H. (1982). *Encyclopedia of Entrepreneurship* (SSRN Scholarly Paper No. ID 1496225). Rochester, NY: Social Science Research Network.
- Knapp, D.A. (2002). Professionally determined need for pharmacy services in 2020. *American Journal of Pharmaceutical Education*, 66(4), 421–429.
- Koh, H. (1996). Testing hypotheses of entrepreneurial characteristics: A study of Hong Kong MBA students. *Journal of Managerial Psychology*, 11(3), 12–25.
- Kolvereid, L. (1996). Prediction of employment status choice intentions. *Entrepreneurship: Theory and Practice*, 47.
- Krueger, N.F., Reilly, M.D., & Carsrud, A.L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing*, 15(5), 411–432.
- Kuratko, D.F. (2005). The emergence of entrepreneurship education: Development, trends, and challenges. *Entrepreneurship Theory and Practice*, 29(5), 577–598.
- LaVecchia, O., & Mitchell, S. (2014). North Dakota's pharmacy ownership law ensuring access, competitive prices, and quality care. Washington, DC: Institute for Local Self-Reliance.
- Lee, S.M., & Peterson, S.J. (2001). Culture, entrepreneurial orientation, and global competitiveness. *Journal of World Business*, 35(4), 401–416.

- Levenburg, N.M., & Schwarz, T.V. (2008). Entrepreneurial orientation among the youth of India: the impact of culture, education and environment. *Journal of Entrepreneurship*, 17(1), 15–35.
- Luca, M.R., Cazan, A.M., & Tomulescu, D. (2013). Entrepreneurial personality in higher education. *Procedia-Social and Behavioral Sciences*, 84, 1045–1049.
- Luchsinger, V., & Ray Bagby, D. (1987). Entrepreneurship and intrapreneurship: Behaviors, comparisons, and contrasts. *SAM Advanced Management Journal (07497075)*, 52(3), 10.
- Lumpkin, G.T. (2007). Intrapreneurship and Innovation. *The Psychology of Entrepreneurship*, 237.
- Lumpkin, G.T., & Dess, G.G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21(1), 135–172.
- Marotta, R. (2016). The state of provider status: An update for pharmacy students. *Pharmacy Times*, Pharmacy & healthcare Communications, LLC.
- Marvel, M.R., Griffin, A., Hebda, J., & Vojak, B. (2007). Examining the technical corporate entrepreneurs' motivation: Voices from the field. *Entrepreneurship Theory and Practice*, 31(5), 753–768.
- Mason, H.L., Assemi, M., Brown, B., Cain, J.J., Cox, W.C., Cutler, S.J., Plaza, C.M. (2011). Report of the 2010-2011 academic affairs standing committee. *American Journal of Pharmaceutical Education*, 75(10).
- Matlay, H. (2008). The impact of entrepreneurship education on entrepreneurial outcomes. *Journal of Small Business and Enterprise Development*, 15(2), 382–396.

- Medina, M.S., Plaza, C.M., Stowe, C.D., Robinson, E.T., DeLander, G., Beck, D.E. (2013a). Center for the advancement of pharmacy education 2013 educational outcomes. *American Journal of Pharmaceutical Education*, 77(8).
- Medina, M.S., Plaza, C.M., Stowe, C.D., Robinson, E.T., DeLander, G., Beck, D. E. (2013b). Report of the 2012-2013 academic affairs standing committee: Revising the Center for the Advancement of Pharmacy Education (CAPE) educational outcomes 2013. *American Journal of Pharmaceutical Education*, 77(8).
- Midwest Pharmacy Workforce Research Consortium. (2010). *2009 National pharmacist workforce survey*. Alexandria, VA.
- Midwest Pharmacy Workforce Research Consortium. (2015). *2014 National pharmacist workforce survey*. Minneapolis, MN.
- Miller, D. (1983). The correlates of entrepreneurship in three types of firms. *Management Science*, 29(7), 770–791.
- Monsen, E., Patzelt, H., & Saxton, T. (2010). Beyond simple utility: Incentive design and trade-offs for corporate employee-entrepreneurs. *Entrepreneurship Theory and Practice*, 34(1), 105–130.
- Morgan, R.E., & Strong, C.A. (2003). Business performance and dimensions of strategic orientation. *Journal of Business Research*, 56(3), 163–176.
- Mortan, R.A., Ripoll, P., Carvalho, C., & Bernal, M.C. (2014). Effects of emotional intelligence on entrepreneurial intention and self-efficacy. *Revista de Psicología Del Trabajo Y de Las Organizaciones*, 30(3), 97–104.

- Mueller, S.L., & Thomas, A.S. (2001). Culture and entrepreneurial potential: A nine country study of locus of control and innovativeness. *Journal of Business Venturing*, 16(1), 51–75.
- Nunnally, J. (1978). *Psychometric theory*. New York, NY: McGraw-Hill.
- Oosterbeek, H., van Praag, M., & Ijsselstein, A. (2010). The impact of entrepreneurship education on entrepreneurship skills and motivation. *European Economic Review*, 54(3), 442–454.
- Pearce, J.A., Kramer, T.R., & Robbins, D.K. (1997). Effects of managers' entrepreneurial behavior on subordinates. *Journal of Business Venturing*, 12(2), 147–160.
- Perepelkin, J., & Findlay, I. (2009). Autonomy and orientation of entrepreneurial community pharmacists and corporate pharmacy managers: a comparative study. In *ASAC* (Vol. 30). Retrieved from <http://ojs.acadiau.ca/index.php/ASAC/article/viewFile/610/519>
- Pérez, J.C., Petrides, K.V., & Furnham, A. (2005). Measuring trait emotional intelligence. *Emotional Intelligence: An International Handbook*, Cambridge, MA: Hogrefe & Huber Publishers. 181–201.
- Petrides, K. V. (2009). Psychometric properties of the trait emotional intelligence questionnaire (TEIQue). In J.D.A. Parker, D.H. Saklofske, & Stough, C. (Eds.), *Assessing Emotional Intelligence* (pp. 85–101). Boston, MA: Springer US.
- Petrides, K.V., & Furnham, A. (2001). Trait emotional intelligence: Psychometric investigation with reference to established trait taxonomies. *European Journal of Personality*, 15(6), 425–448.

- Petrides, K.V., & Furnham, A. (2006). The role of trait emotional intelligence in a gender-specific model of organizational variables. *Journal of Applied Social Psychology, 36*(2), 552–569.
- Petrides, K.V., Pérez-González, J.C., & Furnham, A. (2007). On the criterion and incremental validity of trait emotional intelligence. *Cognition and Emotion, 21*(1), 26–55.
- Petrides, K.V., Pita, R., & Kokkinaki, F. (2007). The location of trait emotional intelligence in personality factor space. *British Journal of Psychology, 98*(2), 273–289.
- Piasecik, P. (2013). CAPE outcomes 2013: Building on two decades of advances to guide the future of pharmacy education. *American Journal of Pharmaceutical Education, 77*(8).
- Pinchot, G. (1985). *Intrapreneuring*. New York: Harper & Row.
- Qualtrics. (2005). Provo, Utah, USA: Qualtrics. Retrieved from <http://www.qualtrics.com>
- Raposo, M., & Do Paço, A. (2011). Entrepreneurship education: Relationship between education and entrepreneurial activity. *Psicothema, 23*(3), 453–457.
- Rauch, A., & Frese, M. (2000). Psychological approaches to entrepreneurial success: A general model and an overview of findings. *International Review of Industrial and Organizational Psychology, 15*, 101–142.
- Rauch, A., & Frese, M. (2007). Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits, business creation, and success. *European Journal of Work and Organizational Psychology, 16*(4), 353–385.
- Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory and Practice, 33*(3), 761–787.

- Refai, D., & Thompson, J.L. (2011). The significance of problem-based learning in the development of enterprise skills for pharmacy students in UK HEI. In: ISBE Conference 2011 sustainable futures: Enterprising landscapes and communities, Sheffield, UK. (Unpublished)
- Rigtering, J.P.C., & Weitzel, U. (2013). Work context and employee behaviour as antecedents for intrapreneurship. *International Entrepreneurship and Management Journal*, 9(3), 337–360.
- Robinson, P.B., Stimpson, D.V., Huefner, J C., & Hunt, H.K. (1991). An attitude approach to the prediction of entrepreneurship. *Entrepreneurship: Theory & Practice*, 15(4), 13–31.
- Ross, M. (2015). Pharmacists gain ground on provider status in North Dakota. *Pharmacy Times*, Pharmacy & Healthcare Communications, LLC.
- Rubach, M.J., Bradley, D.B., & McGee, J.E. (2001). Is uniqueness enough? An examination of the services of independent pharmacies. *Journal of Business and Entrepreneurship*, 13(1), 111–113.
- Rubino, L., & Freshman, B. (2005). Developing entrepreneurial competencies in the healthcare management undergraduate classroom. *Journal of Health Administration Education*, 399-416.
- Salkind, N.J., & Rainwater, T. (2003). *Exploring research*. Prentice Hall Upper Saddle River, NJ.
- Salovey, P. (1997). *Emotional development and emotional intelligence: Educational implications*. New York, NY: Basic Books.
- Salovey, P., & Mayer, J.D. (1990). Emotional intelligence. *Imagination, cognition and personality*, 9(3), 185–211.



- Samah, A.J.A., & Omar, A. (2011). Say you, say me: On entrepreneurship education as a differentiation strategy. *World Review of Business Research, 1*(1), 132–149.
- Schumock, G.T., Butler, M.G., Meek, P.D., Vermeulen, L.C., Arondekar, B.V., & Bauman, J.L. (2003). Evidence of the economic benefit of clinical pharmacy services: 1996–2000. *Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy, 23*(1), 113–132.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review, 25*(1), 217–226.
- Siegling, A.B., Vesely, A.K., Petrides, K.V., & Saklofske, D.H. (2015). Incremental validity of the trait emotional intelligence questionnaire–short form (TEIQue–SF). *Journal of Personality Assessment, 97*(5), 525–535.
- Simpson, S.H., Johnson, J.A., & Tsuyuki, R.T. (2001). Economic impact of community pharmacist intervention in cholesterol risk management: An evaluation of the study of cardiovascular risk intervention by pharmacists. *Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy, 21*(5), 627–635.
- Solomon, G. (2007). An examination of entrepreneurship education in the United States. *Journal of Small Business and Enterprise Development, 14*(2), 168–182.
- Solomon, G., Raposo, M., do Paço, A., & Ferreira, J. (2008). Entrepreneur's profile: a taxonomy of attributes and motivations of university students. *Journal of Small Business and Enterprise Development, 15*(2), 405–418.
- Solomon, G.T., Duffy, S., & Tarabishy, A. (2002). The state of entrepreneurship education in the United States: A nationwide survey and analysis. *International Journal of Entrepreneurship Education, 1*(1), 65–86.

- Spreitzer, G.M. (1995). Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of Management Journal*, 38(5), 1442–1465.
- Stamatopoulou, M., Galanis, P., & Prezerakos, P. (2016). Psychometric properties of the Greek translation of the trait emotional intelligence questionnaire-short form (TEIQue-SF). *Personality and Individual Differences*, 95, 80–84.
- Stewart Jr, W.H., & Roth, P.L. (2004). Data quality affects meta-analytic conclusions: A response to Miner and Raju (2004) concerning entrepreneurial risk propensity. *Journal of Applied Psychology*, 89(1), 14-21.
- Stewart Jr, W.H., Watson, W.E., Carland, J.C., & Carland, J.W. (1999). A proclivity for entrepreneurship: A comparison of entrepreneurs, small business owners, and corporate managers. *Journal of Business Venturing*, 14(2), 189–214.
- Sweaney, A.M., Casper, K.A., Hoyt, C.D., & Wehr, A.M. (2014). Student pharmacists' and recent graduates' perception of and interest in independent pharmacy ownership. *INNOVATIONS in Pharmacy*, 5(4), Article 182.
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2, 53.
- Tice, B.P. (2005). 2005 Prescott Lecture: Advancing pharmacy through entrepreneurial leadership by combining principles of entrepreneurship with those of leadership, pharmacists can create value in emerging, innovative pharmacy-based services and products. *Journal of the American Pharmacists Association*, 45(5), 546–553.
- Tice, B., & Phillips, C.R. (2002). Implementation and evaluation of a lipid screening program in a large chain pharmacy. *Journal of the American Pharmacists Association*, 42(3), 413–419.

- Tindall, W.N. (1985). Entrepreneurism as a means of faculty development. *American Journal of Pharmaceutical Education*, 49(4), 372–374.
- Tinelli, M., Bond, C., Blenkinsopp, A., Jaffray, M., Watson, M., Hannaford, P. (2007). Patient evaluation of a community pharmacy medications management service. *Annals of Pharmacotherapy*, 41(12), 1962–1970.
- Tsuyuki, R.T., Johnson, J.A., Teo, K.K., Ackman, M.L., Biggs, R.S., Cave, A., & Taylor, J.G. (1999). Study of cardiovascular risk intervention by pharmacists (SCRIP): A randomized trial design of the effect of a community pharmacist intervention program on serum cholesterol risk. *Annals of Pharmacotherapy*, 33(9), 910–919.
- Vandel, J.H. (1985). Developing a spirit of entrepreneurism and a managerial attitude in students. *American Journal of Pharmaceutical Education*, 49(4), 371–372.
- Venkataraman, S. (1997). The distinctive domain of entrepreneurship research. *Advances in Entrepreneurship, Firm Emergence and Growth*, 3(1), 119–138.
- Wang, C.L. (2008). Entrepreneurial orientation, learning orientation, and firm performance. *Entrepreneurship Theory and Practice*, 32(4), 635–657.
- Wong, C.S., & Law, K.S. (2002). The effects of leader and follower emotional intelligence on performance and attitude: An exploratory study. *The Leadership Quarterly*, 13(3), 243–274.
- Young, T.J., & Pritchard, K.W. (1985). Sociological analysis of pharmacy as a quasi-profession. *Free Inquiry in Creative Sociology*, 13, 63–66.
- Zampetakis, L.A., Beldekos, P., & Moustakis, V.S. (2009). “Day-to-day” entrepreneurship within organisations: The role of trait emotional intelligence and perceived organisational support. *European Management Journal*, 27(3), 165–175.

- Zampetakis, L.A., Kafetsios, K., Bouranta, N., Dewett, T., & Moustakis, V.S. (2009). On the relationship between emotional intelligence and entrepreneurial attitudes and intentions. *International Journal of Entrepreneurial Behavior & Research*, 15(6), 595–618.
- Zhao, H., Seibert, S.E., & Lumpkin, G.T. (2010). The relationship of personality to entrepreneurial intentions and performance: A meta-analytic review. *Journal of Management*, 36(2), 381–404.
- Zhou, J., & George, J.M. (2001). When job dissatisfaction leads to creativity: Encouraging the expression of voice. *Academy of Management Journal*, 44(4), 682–696.

## APPENDIX A. INSTRUMENT

### EXPLORATION OF THE ENTREPRENEURIAL ORIENTATION AND TRAIT EMOTIONAL INTELLIGENCE OF PRACTICING PHARMACISTS STUDY

#### Entrepreneurial Orientation-Trait Emotional Intelligence (EO-tEI)

Strongly Disagree	Disagree	Disagree Somewhat	Agree Somewhat	Agree	Strongly Agree
1	2	3	4	5	6

1. The term 'risk taker' is considered a positive attribute for pharmacists	1	2	3	4	5	6
2. I am encouraged to take risks with new ideas	1	2	3	4	5	6
3. I am encouraged to explore and experiment for opportunities	1	2	3	4	5	6
4. I actively introduce improvements in my pharmacy	1	2	3	4	5	6
5. I am creative in how I perform my work tasks	1	2	3	4	5	6
6. I seek out new ways to do things	1	2	3	4	5	6
7. I always try to take the initiative in every situation	1	2	3	4	5	6
8. I excel at identifying opportunities	1	2	3	4	5	6
9. I initiate actions to which other pharmacies respond	1	2	3	4	5	6
10. I am intensely competitive	1	2	3	4	5	6
11. In general, I take a bold approach when competing	1	2	3	4	5	6
12. I respond to actions which competing pharmacies initiate	1	2	3	4	5	6
13. I am permitted to act and think without interference	1	2	3	4	5	6
14. I am allowed to make changes in the way I perform my work tasks	1	2	3	4	5	6
15. I am given freedom and independence to decide how to go do my work	1	2	3	4	5	6

16. Expressing my emotions with words is not a problem for me.	1	2	3	4	5	6
17. I often find it difficult to see things from another person's viewpoint.	1	2	3	4	5	6
18. On the whole, I'm a highly motivated person.	1	2	3	4	5	6
19. I usually find it difficult to regulate my emotions.	1	2	3	4	5	6
20. I generally don't find life enjoyable.	1	2	3	4	5	6
21. I can deal effectively with people.	1	2	3	4	5	6
22. I tend to change my mind frequently.	1	2	3	4	5	6
23. Many times, I can't figure out what emotion I'm feeling.	1	2	3	4	5	6
24. I feel that I have a number of good qualities.	1	2	3	4	5	6
25. I often find it difficult to stand up for my rights.	1	2	3	4	5	6
26. I'm usually able to influence the way other people feel.	1	2	3	4	5	6
27. On the whole, I have a gloomy perspective on most things.	1	2	3	4	5	6
28. Those close to me often complain that I don't treat them right.	1	2	3	4	5	6
29. I often find it difficult to adjust my life according to the circumstances.	1	2	3	4	5	6
30. On the whole, I'm able to deal with stress.	1	2	3	4	5	6
31. I often find it difficult to show my affection to those close to me.	1	2	3	4	5	6
32. I'm normally able to "get into someone's shoes" and experience their emotions.	1	2	3	4	5	6
33. I normally find it difficult to keep myself motivated.	1	2	3	4	5	6
34. I'm usually able to find ways to control my emotions when I want to.	1	2	3	4	5	6
35. On the whole, I'm pleased with my life.	1	2	3	4	5	6
36. I would describe myself as a good negotiator.	1	2	3	4	5	6
37. I tend to get involved in things I later wish I could get out of.	1	2	3	4	5	6

38. I often pause and think about my feelings.	1	2	3	4	5	6
39. I believe I'm full of personal strengths.	1	2	3	4	5	6
40. I tend to "back down" even if I know I'm right.	1	2	3	4	5	6
41. I don't seem to have any power at all over other people's feelings.	1	2	3	4	5	6
42. I generally believe that things will work out fine in my life.	1	2	3	4	5	6
43. I find it difficult to bond well even with those close to me.	1	2	3	4	5	6
44. Generally, I'm able to adapt to new environments.	1	2	3	4	5	6
45. Others admire me for being relaxed.	1	2	3	4	5	6

## GENERAL EMPLOYMENT STATUS AND WORK ENVIRONMENT

1. Please check the category that best matches your employment status.

- Practicing as a pharmacist  
 Employed in a pharmacy-related field or position, but not practicing as a pharmacist  
 Retired, but still working in pharmacy or employed part-time as a pharmacist  
 Retired, do not practice pharmacy at all  
 Employed in a career not related to pharmacy  
 Unemployed (check one:  seeking  not seeking employment)

2. Please check the item that best describes your primary place of employment.

- Independent community pharmacy (fewer than 4 stores under the same ownership)  
 Small chain community pharmacy (4 to 10 stores under the same ownership)  
 Large chain community pharmacy (more than 10 units under same ownership)  
 Mass merchandiser (for example, Costco, Target, Wal-Mart)  
 Supermarket pharmacy  
 Clinic-based pharmacy (a licensed pharmacy located in or near a medical clinic)  
 Mail service pharmacy  
 Specialty pharmacy  
 Government hospital / health-system ( inpatient  outpatient)  
 Non-government hospital / health-system ( inpatient  outpatient)  
 Home health / Infusion  
 Nursing home / Long term care  
 Ambulatory care (e.g., medical clinic, office-based practice, not a licensed pharmacy)  
 Pharmacy benefit administration (e.g., PBM, managed care)  
 Academic institution \_\_\_\_\_

Other organization, please describe: \_\_\_\_\_

3. What is the zip code for your primary place of employment? \_\_\_\_\_

4. Number of years employed by your present employer: \_\_\_\_\_ years

5. Which of the following best describes your current position?

\_\_\_\_\_ Owner/partner/executive officer (If applicable, percent ownership: \_\_\_\_\_%)

\_\_\_\_\_ Management (e.g. director, manager, assistant manager, supervisor)

\_\_\_\_\_ Staff (e.g. clinical, consultant, staff, floater, or relief pharmacist)

\_\_\_\_\_ Other (explain): \_\_\_\_\_

### YOUR PRACTICE SITE

1. Pharmacists have started to provide a variety of services at their practice sites. From the list below, please indicate which services are provided at your practice site by pharmacists. Check all that apply.

\_\_\_\_\_ Disease state management

\_\_\_\_\_ Discharge counseling

\_\_\_\_\_ Complex non-sterile compounding

\_\_\_\_\_ Medication reconciliation

\_\_\_\_\_ Medication therapy management services

\_\_\_\_\_ Complex sterile compounding

\_\_\_\_\_ Adjusting medication therapy

\_\_\_\_\_ Health screening or coaching

\_\_\_\_\_ Immunization

\_\_\_\_\_ Point of care testing

\_\_\_\_\_ Ordering lab tests

\_\_\_\_\_ Collaborative practice agreements

\_\_\_\_\_ Med to bed

2. Are the following monitored or evaluated at your primary work setting?

Activity	Yes	No
Patient satisfaction		
Quality of care		
Patient outcomes		
Patient safety		

3. Are you a part of an interprofessional health care team or group that is actively involved in the delivery of nondispensing patient care activities?

\_\_\_\_\_ Yes \_\_\_\_\_ No

4. Do you personally have regular, direct contact with a physician and/or other health care provider regarding patient care activities such as discussing medication therapy goals or outcomes of medication therapy (not including routine prescription refills or verification of orders)?

\_\_\_\_\_ Yes \_\_\_\_\_ No



5. Is your practice setting currently involved in a patient-centered medical home?

Yes  No  Don't know

6. Is your practice setting currently affiliated with an accountable care organization?

Yes  No  Don't know

### INFORMATION ABOUT YOURSELF

1. What is your age in years? \_\_\_\_\_

2. In what year were you first licensed as a pharmacist? \_\_\_\_\_

3. Please identify any educational experiences you have completed/earned? (check all that apply)

- Bachelor of Science Pharmacy (BS)
- Certificate program, please describe \_\_\_\_\_
- Doctor of Pharmacy (PharmD)
- Residency, please describe \_\_\_\_\_
- Fellowship
- Master of Science (MS)
- Master of Arts (MA)
- Master of Public Health (MPH)
- Master of Business Administration (MBA)
- Doctor of Philosophy (PhD)
- Other, please describe \_\_\_\_\_

4. What is your gender?  Male  Female

5. How would you identify your ethnicity or race?

American Indian  Latino/Latina  Asian  White/Caucasian   
Black/African American  Other (specify): \_\_\_\_\_

6. In what U.S. states are you currently licensed as a pharmacist? (List all U.S. states) \_\_\_\_\_

7. What is the zip code of your current primary residence? \_\_\_\_\_

# APPENDIX B. NORTH DAKOTA STATE UNIVERSITY INSTITUTIONAL REVIEW

## BOARD APPROVAL



May 18, 2017

Dr. Myron Eighmy  
School of Education

Re: IRB Determination of Exempt Human Subjects Research:  
Protocol #HE17251, "Exploration of the Entrepreneurial Orientation and Trait Emotional intelligence of Pharmacists"

Co-investigator(s) and research team: Jeanne Frenzel  
Certification Date: 5/18/2017 Expiration Date: 5/17/2020  
Study site(s): online  
Sponsor: n/a

The above referenced human subjects research project has been certified as exempt (category #2) in accordance with federal regulations (Code of Federal Regulations, Title 45, Part 46, Protection of Human Subjects). This determination is based on the original protocol submission (received 5/10/2017).

Please also note the following:

- If you wish to continue the research after the expiration, submit a request for recertification several weeks prior to the expiration.
- The study must be conducted as described in the approved protocol. Changes to this protocol must be approved prior to initiating, unless the changes are necessary to eliminate an immediate hazard to subjects.
- Notify the IRB promptly of any adverse events, complaints, or unanticipated problems involving risks to subjects or others related to this project.
- Report any significant new findings that may affect the risks and benefits to the participants and the IRB.

Research records may be subject to a random or directed audit at any time to verify compliance with IRB standard operating procedures.

Thank you for your cooperation with NDSU IRB procedures. Best wishes for a successful study.  
Sincerely,

  
Digital signed by Kristy Shirley  
DN: cn=Kristy Shirley, o=NDSU, ou=Institutional Review  
Board, email=kristy@ndsu.edu, c=US  
Date: 2017.05.18 12:21:49P

Kristy Shirley, CIP, Research Compliance Administrator

For more information regarding IRB Office submissions and guidelines, please consult [http://www.ndsu.edu/research/integrity\\_compliance/irb/](http://www.ndsu.edu/research/integrity_compliance/irb/). This Institution has an approved FederalWide Assurance with the Department of Health and Human Services: FWA00002439.

### INSTITUTIONAL REVIEW BOARD

NDSU Dept 4000 | PO Box 6050 | Fargo ND 58108-6050 | 701.231.8995 | Fax 701.231.8098 | [ndsu.edu/irb](http://ndsu.edu/irb)

Shipping address: Research 1, 1735 NDSU Research Park Drive, Fargo ND 58102

NDSU is an EQUIA university.

## APPENDIX C. INFORMED CONSENT

NDSU            North Dakota State University  
                  Department of Pharmacy Practice  
NDSU Dept. 2660  
PO Box 6050  
Fargo, ND 58108-6050

Exploration of the Entrepreneurial Orientation and Trait Emotional Intelligence of Pharmacists

Dear Colleague,

My name is Dr. Jeanne Frenzel. I am a faculty member in the School of Pharmacy and a doctoral student in the School of Education at North Dakota State University. I am studying the entrepreneurial orientation and trait emotional intelligence of pharmacists in North Dakota, South Dakota, Minnesota, Iowa, and Nebraska. This information will be used to characterize pharmacists in District Five and to inform admission processes and curricular development at our colleges and schools of Pharmacy. This work will ensure graduates are prepared for an expanded scope of practice.

You are invited to participate in this study because you are a pharmacist. Your participation in this study is voluntary, confidential, and involves a simple 10 minute online survey.

It is not possible to identify all potential risks to participants, but safeguards are in place to minimize any known risks such as a loss of confidentiality.

You are not expected to get any benefit from being in this research study. However, data will be used to guide the development of future pharmacists in entrepreneurship.

Your participation in this research is your choice. You may choose not to participate. If you decide to participate in the study, you may change your mind and stop participating at any time. If you choose to participate, you may opt to be included in a drawing for one six prizes valued up to \$100.00.

If you withdraw before the research is over, your information will be retained in the research record or removed at your request, and we will not collect additional information about you.

All information collected in this study will remain confidential. Only authorized research personnel will have access to the data. When reporting on the results of this study the data will be reported only in summary form, combining the information collected from all participants.

If you have any questions about the study contact, Jeanne Frenzel at 701-231-8546, 118F Sudro Hall, NDSU, Fargo, ND 58108-6050, Jeanne.Frenzel@ndsu.edu or Myron Eighmy, Doctoral Advisor, at 701-231-5775, 216D EML, NDSU, Fargo, ND 58105-6050, Myron.Eighmy@ndsu.edu.

You have rights as a participant in research. If you have questions about your rights, or complaints about this research, you may talk to the researcher or contact the NDSU Human Research Protection Program by:

- Telephone: 701-231-8995 or toll-free 1-855-800-6717
- Email: [ndsu.ird@ndsu.edu](mailto:ndsu.ird@ndsu.edu)
- Mail: NDSU HRPP Office, NDSU Dept. 4000, PO Box 6050, Fargo, ND 58108-6050.

The role of the Human Research Protection Program is to see that your rights are protected in this research; more information about your rights can be found at: [www.ndsu.edu/ird](http://www.ndsu.edu/ird) .

You are freely making a decision whether to be in this research study. Signing this form means that

1. you have read and understood this consent form
2. you have had your questions answered, and
3. you have decided to be in the study.

## APPENDIX D. PILOT PRE-NOTIFICATION LETTER

What kind of pharmacist will you be?

Dear future pharmacist,

Can you help me? As some of you know, I am in the final stages of completing my Doctor of Philosophy (PhD) in Adult and Occupational Education. My doctoral research project is the study of the entrepreneurial orientation and trait emotional intelligence of pharmacists in North Dakota, South Dakota, Minnesota, Iowa, and Nebraska.

I need your help testing my research tool. On Thursday, you'll receive an email from me with a link to a survey. You'll be asked to answer a series of questions measuring your entrepreneurial orientation and trait emotional intelligence. Each set of questions will be followed by a question asking you to comment on the readability of the questions. Once I've received your feedback, I can refine the tool, then use it to collect and analyze data from pharmacists, publish my results, and hopefully graduate (with you!)

Thanks for your help! Go Bison!

Jeanne

Jeanne Frenzel, PharmD  
Associate Professor, School of Pharmacy  
PhD Candidate

Myron Eighmy, EdD  
Professor, School of Education  
PhD Advisor, School of Education

Entrepreneurial Orientation and Trait Emotional Intelligence of Pharmacists Survey

## APPENDIX E. PILOT SURVEY EMAIL

What kind of pharmacist will you be?

Dear future pharmacist,

Can you help me? As some of you know, I am in the final stages of completing my Doctor of Philosophy (PhD) in Adult and Occupational Education. My doctoral research project is the study of the entrepreneurial orientation and trait emotional intelligence of pharmacists in North Dakota, South Dakota, Minnesota, Iowa, and Nebraska.

I need your help testing my research tool. You'll be asked to answer a series of questions measuring your entrepreneurial orientation and trait emotional intelligence. Each set of questions will be followed by a question asking you to comment on the readability of the questions. Once I've received your feedback, I can refine the tool, then use it to collect and analyze data from pharmacists, publish my results, and hopefully graduate (with you!)

**Follow this link to the Survey:**

[\\${1://SurveyLink?d=Take the Survey}](#)

**Or copy and paste the URL below into your internet browser:**

[\\${1://SurveyURL}](#)

Thanks for your help! Go Bison!

Jeanne

Jeanne Frenzel, PharmD  
Associate Professor, School of Pharmacy  
PhD Candidate

Myron Eighmy, EdD  
Professor, School of Education  
PhD Advisor, School of Education  
Follow the link to opt out of future emails:  
[\\${1://OptOutLink?d=Click here to unsubscribe}](#)

## APPENDIX F. PRE-NOTIFICATION LETTER

Dear Pharmacy Colleague,

Are pharmacists entrepreneurial? Innovative and proactive? Do pharmacists take risk?

I am studying the entrepreneurial orientation and trait emotional intelligence of pharmacists in North Dakota, South Dakota, Minnesota, Iowa, and Nebraska. Trait emotional intelligence is a personality trait that has been shown to predict entrepreneurial orientation. This information will be used to characterize pharmacists in the Midwest. From the information I gather, I will make recommendations to schools and colleges of pharmacy as to how to best prepare new graduates to be innovative and entrepreneurial in anticipation for an expanded scope of practice.

On Monday, you will receive an email from me with a link to a survey. You will be asked to answer a series of questions measuring your entrepreneurial orientation and trait emotional intelligence. You will also be asked to describe yourself and your practice site.

In appreciation for completing this survey, you may opt into a drawing for prizes valued at up to \$100.00 including an Amazon Fire TV stick, an Amazon Kindle E-Reader, a Garmin Vivofit® Fitness band, a one year subscription to Netflix, a Redbox eGift card, or a Roku Premiere streaming player. If you complete the survey by July 28, 2017 your name will be entered into the drawing twice!

Your responses will add value to this work!

Thank you,

Jeanne Frenzel, PharmD  
Associate Professor, School of Pharmacy  
North Dakota State University  
PhD Candidate

Myron Eighmy, EdD  
Professor, School of Education  
North Dakota State University  
PhD Advisor, School of Education

## APPENDIX G. SURVEY EMAIL

Subject: Are pharmacists entrepreneurial? Dear Pharmacy Colleague,

Are pharmacists entrepreneurial? Innovative and proactive? Do pharmacists take risk?

I am studying the entrepreneurial orientation and trait emotional intelligence of pharmacists in North Dakota, South Dakota, Minnesota, Iowa, and Nebraska. Trait emotional intelligence is a personality trait that has been shown to predict entrepreneurial orientation. This information will be used to characterize pharmacists in the Midwest. From this information, I will make recommendations to schools and colleges of pharmacy as to how to best prepare new graduates to be innovative and entrepreneurial in anticipation for an expanded scope of practice.

You are invited to participate in this study because you are a pharmacist. Your participation in this study is voluntary, anonymous, and involves a simple 10 minute online survey. You will be asked to answer a series of questions measuring your entrepreneurial orientation and trait emotional intelligence. You will also be asked to describe yourself and your practice site.

In appreciation for completing this survey, you may opt into a drawing for prizes valued at up to \$100.00 including an Amazon Fire TV stick, an Amazon Kindle E-Reader, a Garmin Vivofit® Fitness band, a one year subscription to Netflix, a Redbox eGift card, or a Roku Premiere streaming player. If you complete the survey by July 28, 2017 your name will be entered into the drawing twice! To enter the drawing, provide your contact information when prompted at the end of the survey.

Thank you for your participation in this study. The results will be useful to pharmacists as well as others interested in pharmacy practice. If you have questions regarding the survey, please contact Jeanne Frenzel at North Dakota State University 701-231-8546 or [Jeanne.Frenzel@ndsu.edu](mailto:Jeanne.Frenzel@ndsu.edu) or Myron Eighmy at NDSU 701-231-5775 or [Myron.Eighmy@ndsu.edu](mailto:Myron.Eighmy@ndsu.edu). If you have any questions about the rights of human research participants, please contact the NDSU Institutional Research Board Office at 701-231-8908.

Please click on the link below to enter the survey.

[\\${1://SurveyLink?d=Pharmacist%20Entrepreneurship%20Survey}](#)

Thank you,

Jeanne Frenzel, PharmD  
Associate Professor, School of Pharmacy  
North Dakota State University  
PhD Candidate

Myron Eighmy, EdD  
Professor, School of Education  
North Dakota State University  
PhD Advisor, School of Education



## APPENDIX H. SURVEY POSTCARD

Dear Colleague,

You are invited to participate in this study because you are a pharmacist. Your participation involves a simple 10 minute, voluntary, anonymous, online survey.

I am studying the entrepreneurial orientation and trait emotional intelligence of pharmacists in the Midwest. From the information I gather, I will make recommendations to schools and colleges of pharmacy as to how to best prepare new graduates to be innovative and entrepreneurial in anticipation for an expanded scope of practice.

Your responses will add value to this work!

Thank you,  
Jeanne Frenzel, PharmD  
PhD Candidate, School of Education

Myron Eighmy, EdD  
PhD Advisor, School of Education

**NDSU** | NORTH DAKOTA STATE UNIVERSITY

Jeanne Frenzel, PharmD  
Pharmacy Practice  
NDSU Department 2660  
PO Box 6050  
Fargo, ND 58108-6050

To:

---

---

---

---

# What kind of PHARMACIST are you?

*Are you innovative and proactive? Do you take risks?*

**Take the Survey**

<http://tiny.cc/cm5dly>

In appreciation for completing the survey, you may opt into a drawing for prizes valued at up to \$100.

Complete the survey by 8/5/17 and your name will be entered twice!

Amazon Fire TV stick  
Amazon Kindle E-Reader  
Garmin Vivofit® band  
Netflix subscription  
Redbox eGift card  
Roku Premiere player



*Take the Survey*

**NDSU** | NORTH DAKOTA STATE UNIVERSITY