

**UTILIZING THE ACT ENGAGE 6-9 TO EXPLORE NONCOGNITIVE
COLLEGE AND CAREER READINESS LEVELS AMONG
8TH-GRADE TEXAS 4-H PARTICIPANTS**

A Dissertation

by

EDWARD LAMONT TARLTON

Submitted to the Office of Graduate and Professional Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Chair of Committee,	Manuel Piña, Jr.
Committee Members,	Chris Boleman
	John T. Cooper
	Theresa Pesl Murphrey
Head of Department,	Clare Gill

September 2018

Major Subject: Agricultural Leadership, Education, and Communications

Copyright 2018 Edward Lamont Tarlton

ABSTRACT

The purpose of this study was to explore the impact of the 4-H Life Skills program on participants' noncognitive college and career readiness levels, utilizing the ACT Engage 6-9 instrument (formerly known as the Student Readiness Inventory—Middle School) to evaluate quantitatively the noncognitive (psychosocial) college and career readiness levels among eighth-grade public-schooled Texas 4-H participants with more than 2 years of tenure. ACT Engage 6-9 was developed to measure noncognitive (psychosocial) variables related to student academic achievement and student retention. This information, combined with results for the variables of gender, academic grade ranges, intended Texas Education Agency (TEA) high school diploma path, intended TEAC Grade 9 Endorsement Area selection, intended after-high-school plans, intended education level attainment goals, 4-H program participation, 4-H program tenure, and Future Farmers of American (FFA) participation, was used to measure the participants' college and career readiness. Findings from this study may serve as an early identifier of areas of noncognitive college and career readiness strengths and risk and inform the design of evidence-based interventions to support 4-H participants' college and career readiness, especially for rural students where a high percentage lag in college enrollment, take more remedial college courses, have fewer resources, and “undermatch” more when selecting colleges to attend.

The framework of the study was grounded in positive youth development theory, which focuses on engaging students in an institutional framework from a position of

strength and provides developmental, human, and funding resource assets to prepare them for the future. Using a quantitative research model with purposive sampling, an online survey was administered to 69 eighth-grade public-schooled Texas 4-H participants with more than 2 years of tenure. Descriptive statistics, means, standard deviations, and independent-samples *t* test were used to analyze participant responses from both the ACT Engage 6-9 and the variables framed by the literature.

While the findings apply only to the study group, they indicate that (a) 4-H participation had a statistically significant positive influence on these youths' noncognitive college and career readiness; (b) participants' secondary educational goals were "undermatched," meaning that they choose to pursue an Associate degree or attend a college that is less selective than their high school credentials permit access to; (c) students who earned mostly A's scored higher across the scales of academic discipline, optimism, and managing feelings; (d) students who participated in both 4-H and FFA scored higher on family attitude toward education, school safety climate, relationships with school personnel, and managing feelings compared to students who participated only in 4-H.

DEDICATION

This dissertation is dedicated to four special people.

George Robert Dabney, Sr., the *hardest-working man* I have ever known. This work rests on his backbreaking work of cleaning Trailways buses and raising hogs. As with him, this dissertation is not for me but for family. I love and miss you Grandpa!

Mary Willie Thomas Dabney, the glue that held and still holds this family together, even though she is no longer here. Her love and caring still makes all the difference. I could always count on her, no matter what. I love and miss you Granny!

Charles William Tarlton, Sr., the man I wanted to be like, then not like, and now find myself being very much like, and that makes me feel good! His work ethic set the standard that I live and have lived by. He was the first person who taught me that nobody will *give* you anything, not even your dad. If you want it, you have to want it more than the folks who do not want you to have it. I love and miss you and know that you would be very proud of me. I love and miss you Dad!

Shirley Ann Dabney Tarlton, the phenomenal Black woman who birthed me, provided unswerving love, discipline and support. Moreover, her Master's in Special Education laid the footsteps and blazed the path that Charles "Tee" William Tarlton, Jr. (Master's in Theology), Paula Nicole "Nikki" Tarlton Cole (MBA) and I (Ph.D.) followed. To this day, she is my biggest supporter; everything that I am I owe to her and her love. I love you Mumma! His Majesty, The King.

ACKNOWLEDGMENTS

First, I give glory and honor to God. Only because of Him was any of this possible. His blessing allowing me to wake up every day was all the motivation I needed.

I thank my committee members, Dr. Chris Boleman, Dr. John T. Cooper, Jr. and Dr. Theresa Pesl Murphrey, for their guidance and support throughout the course of this research. I look forward to the opportunity to work with all of them as colleagues.

I thank Dr. Shannon Van Zandt, my first doctoral program chair, for her support. While I switched doctoral programs, it was the research opportunity that she provided in Beaumont that planted the seeds for my revised academic and career research focus.

To Dr. Forster Ndubisi, my longtime University of Georgia professor, mentor, and friend, the opportunity you provided made all of this possible. Thanks for supporting me from probation as a first-semester graduate student to the earning of a doctorate. Please note that I share this accomplishment with you and the rest of my University of Georgia Dawgs.

Thanks to Dr. Toby L. Lepley and the Texas 4-H family for providing the data for this research. Moreover, thanks to the 4-H parents and students who took the time to complete the surveys. Their participation was invaluable.

I extend much gratitude and appreciation to Dr. Bo Xuan and the staff at Texas A&M's Beutel Health Clinic, especially Pod C, for keeping me alive over these 12 years. We had a few scares along the way, but I could always count on them to take care of me.

Thanks to Coach J.P. Miles, Mr. Neil French, Sr., Mr. Colton Poarch, Coach Jodie Micheaux, Mr. Legar Brazil, Mr. Victor Washington, Mr. Pat Murray, and Coach Gene Beard, my little league coaches, who inspired me and instilled confidence in me at an early age.

Thanks to Wendell Morris and John “Bubba” Lawson for taking the time to take me to the weight room and started me on the bench press with just the bar. That time you spent meant a lot and showed me that to get to where you want to go, you have to start somewhere.

Thanks to the people and places where I have worked that have taught me the value of hard work, sacrifice and perseverance: Bonanza Steak House, Western Sizzlin, Henrico County Public Schools, Niles Bolton Associates, Wilson, Moreth, Connock, Ltd., Charles Snead, Roy O. Ashley, Kerry Blind, and Chapel Valley Landscape Company. Also I want to thank Porter S. Garner III, Kelli Hutka, Kellie Malone, Kathryn Greenwade, Marty Holmes and the rest of The Association of Former Students family for allowing me so many special opportunities and moments to serve during my time at Texas A&M. Special thanks go out to Wayne Clark, Ira Johnson, Don Roberson, and Bro. Andy Vaughn of W.C.C. Landscaping for all the brotherhood, fellowship, mentorship, lessons taught, hard work, and laughs.

Thanks to my drinking boys, friends and mentors who helped me to keep my sanity during this ordeal: Dr. Domonic A. Bearfield, Dr. Galen D. Newman, Dr. Brian Walton, and Chad Spears. Thanks also to my Master of Land Development boys and study crew: Mannaser, Jay, Ohm, Boy, and Marcus. They planted the seed for me to

pursue the doctorate. After all, what else was a 37-year-old graduating Land Development student going to do in December of 2018? Go home and live with his momma? I think not! I can't forget Jason, Zach, Hayden, Joseph, and Wade, and the rest of my B/CS Chamber of Commerce family. Thanks again, fellas.

Thanks to the music of Chuck Brown, Sean P. Diddy Combs, The Notorious B.I.G., 50 Cent, DMX, 2Pac, Mase, Nas, Master P, Jay-Z, Eminem, UGK, Lil Boosie, Webbie, Dr. Dre, Ice Cube, Too Short, Snoop, Das EFX, Eight-Ball & MJG, The Migos, Rick Ross, Plies, The Gangsta of Love-Willie D, Slim Thug, The Game, Drake, Lil Wayne, Jeezy, Terrance Howard and "Hustle & Flow," Paul Wall, Lenny Kravitz, Bob Marley, Traci Chapman, Trinidad James, and Mike Jones. While I can only speak for the things that I have been through, I know firsthand that I would not have made it if my dues weren't paid. Chuuch!

Thanks to the young Nupes I met in College Station on their academic grinds: Danny P, Dr. Jason Anderson, Sted, Walt, Chris, Dr. Michael Rutledge, Paul, A.K., Jelks, and Kris. They welcomed me in and taught me what being a Black Heart Nupe, Black Aggie and the doctoral pursuit was all about. Tis' All in Phi, Nu, Pi!

A huge thanks go out to Bro. Dr. Walter Allen, Sr. and Bro. Dr. Anthony White, and my University of Georgia, Zeta Iota Chapter of Kappa Alpha Psi Fraternity, Inc., Brothers. The lessons learned, specifically from my D.P. Eric "Wild E" Robinson as a P-Boy, Scroller, and member served me well along this journey. A special thanks go out to all of the 10 FLAMES, but the support of Bros. Grady, Mareio, T.J. Joe, Kendall, Bolemite, Ozell, and E-Norman was instrumental in my persistence and completion.

Thanks also to Bro. Dr. Robert C.K. Harper my HELP business partner, friend, and mentor. Thanks for your belief in me as a businessman; it has made all the difference. To all of the “Bros,” as well as the ten founders of our fraternity, this is what “Achievement in Every Field of Human Endeavor” looks like! Yo Baby Yo

A huge thanks go out to my support group. Beverly and Jibri, thanks for your thoughts and prayers; out of sight did not mean out of mind. Thanks for allowing me this opportunity to grow. Tiffany, you have always had my back and your enduring support has been invaluable to my success. Alaina, you said it first-semester “Failure was not an option!” Yvonne, thanks for your talks, they helped me through more than you’ll ever know. Thena Simmons Morris, thank you for everything, baby. Dr. Fred A. Bonner II, thanks and that time is coming. Dr. Jay and the YAP family, I have no idea how I would have made it these past these last two years without your support, thanks.

Thanks to Ms. Clarice Fulton for her tireless assistance, support and her magic in making things happen. She made the ride much smoother and put up with me during the process.

A special thanks to Kevin Andrews, who showed me that there was another doctoral pathway that better fit who I was, what I am about, and the work that I do with HELP.

Thanks to my Mumma, Tee, Nikki, and Jacque for their prayers, encouragement, love, support, especially financial, and patience over the past 10 years and one semester. They all know whence I have come. Through the heartache, joy, and pain, they have always been there to support me. Mumma, still to this day, gives me her last and puts my

needs ahead of her own. I appreciate her unswerving support. We did this together, and I share this accomplishment with all my family, the Dabney's and the Tarlton's.

Jibri, Joshua, Journey, Max, and Natalie. . . . Who got next? If I can do it so can you!

Finally, thank you to my committee chair, Dr. Manuel Piña, Jr., for taking a chance on me and believing that I could and would complete this task. This opportunity would not have been possible without his support and guidance. He had the difficult job of serving as my chair, mentor, advisor, voice of reason, and sometimes office linebacker. Through God's grace and mercy, even in the midst of adversity, we finished. There is no doubt in my mind that you were God-ordained to be my chair, long before I started this journey. I continue to look to him for advice, constructive criticism, reality checks, and professional guidance in the next phase of my academic and professional career. He is irreplaceable, and I thank him for being in my corner.

“There is something that is much more scarce, something finer far, something rarer than ability. It is the ability to recognize ability.” Elbert Hubbard

CONTRIBUTORS AND FUNDING SOURCES

Contributors

This work was supported by a dissertation committee consisting of Professors Piña, Boleman, Cooper, and Murphrey of the Department of Agricultural Leadership, Education, and Communications. All work conducted for the dissertation was completed by the student independently.

Funding Sources

No outside funding was obtained for this dissertation research.

NOMENCLATURE

4-H: The only federally funded (U.S. Department of Agriculture) youth development and leadership organization; the organization is implemented through the Cooperative Extension Service and emphasizes use of students' heads, hearts, hands, and health to create better future citizens (Larkin, 1980).

Cooperative Extension Service: A division of the U.S. Department of Agriculture (USDA) created through passage of the Smith-Lever Act of 1914; the service is charged with delivering research-based educational programs (USDA, 2009).

ACT Engage 6-9 Survey (formerly the Student Readiness Inventory™): An instrument that measures academic behavior (also known in the literature as socioemotional or psychosocial factors) related to academic success and persistence for students in Grades 6 through 9 (Casillas et al., 2011).

Cognitive skills: Core academic skills and knowledge necessary to perform essential tasks in the core academic content areas of English language arts, mathematics, and science (Conley, 2008; Dede, 2010; National Research Council, 2013).

College and career readiness and risk: “The (in)ability of a student to qualify for and succeed (2.0 GPA) in entry-level, credit-bearing college courses leading to a baccalaureate, certificate, or career pathway-oriented training programs without the need for remedial or developmental coursework” (Conley, 2012, p. 1).

Noncognitive college and career readiness: Interpersonal, psychosocial, self-regulatory, and task-related behaviors that are important for adaptation to and successful performance in education and workplace settings (Camara, O'Connor, Mattern, &

Hanson, 2015) “that impact students’ levels of academic risk” (Casillas et al., 2011, p. iv).

Positive youth development theory: Learning framework derived from developmental systems theory (Lerner, 2002) in which youth are seen as resources to be developed by connecting them with positive institutions, influences, and assets.

TABLE OF CONTENTS

	Page
ABSTRACT	ii
DEDICATION	iv
ACKNOWLEDGMENTS.....	v
CONTRIBUTORS AND FUNDING SOURCES.....	x
NOMENCLATURE.....	xi
TABLE OF CONTENTS	xiii
LIST OF FIGURES	xvii
LIST OF TABLES	xviii
CHAPTER I INTRODUCTION	1
Statement of the Problem	3
Rationale for the Study.....	5
Purpose and Objectives of the Study.....	6
Assumptions	7
Limitations	7
Delimitations	9
Significance of the Study	9
CHAPTER II LITERATURE REVIEW.....	11
Selection of Articles and Criteria for Inclusion	11
Introduction	12
Positive Youth Development Theory.....	13
4-H.....	18
4-H Today	20
4-H as a Model of Youth Development.....	21
Experiential Learning.....	22
Life Skills	25
Positive Youth Development	28
The Current Educational Situation.....	31
Issues Faced by Rural Students.....	34
Toward a New Focus.....	38
House Bill 5: The TEA Version of Career Academies	40
Cognitive Versus Noncognitive	42
Noncognitive College and Career Readiness.....	46

	Page
The ACT Engage 6-9 College & Career Readiness Noncognitive Assessment	48
Chapter Summary.....	53
CHAPTER III METHODS	55
Goal	56
Study Objectives	56
Overall Research Design.....	56
Selection of the Population	58
Procedure.....	60
Instrumentation.....	61
Individual Research Objective Methods	64
Objective 1	64
Objective 2.....	65
Objective 3.....	67
Data Collection.....	67
Limitations	68
Delimitations	69
Assumptions.....	69
Dependent Variables	70
Data Analysis	70
Chapter Summary.....	71
CHAPTER IV FINDINGS.....	73
Respondents' Demographic Characteristics.....	75
Respondents' Educational Characteristics	76
Respondents' Risk Characteristics	76
Respondents' 4-H Involvement Characteristics	78
Respondents' 4-H Course Participation Characteristics	78
Study Research Objective 1	82
Study Research Objective 2	88
Comparison by Gender	90
Comparison by Prior Grades.....	91
Comparison by Participation in FFA.....	97
Chapter Summary.....	100
CHAPTER V SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS.....	103
Statement of the Problem	103
Goal	104
Review of Methods	105
Purpose and Objectives	105
Summary of Findings.....	106
Demographics	106
Domain and Scale Mean Scores	107

	Page
Independent-Samples <i>t</i> Test.....	107
Conclusions for the Research Objectives	108
Objective 1	108
Objective 2	109
Implications of the Study	115
Conclusion.....	117
Recommendations for Future Research	119
Change the Survey Method.....	120
Expand the Population	120
Stratify Administration of ACT Engage.....	121
Add Variables	123
Use Higher-Order Statistical Methods.....	124
Include Qualitative Research	124
Suggested Future Research Objectives for Future Research.....	125
Recommendations for Immediate Intervention.....	126
Specific ACT Engage 6-9 Domain and Scale Activity Interventions	126
Motivation and Skills Domain Interventions.....	127
Social Engagement Domain Interventions	130
Self-Regulation Domain Interventions	134
Overview of Texas 4-H Program Interventions.....	136
Short-Outcome Interventions.....	137
Medium-Outcome Interventions.....	138
Long-Outcome Recommendations	139
REFERENCES	141
APPENDIX A	155
APPENDIX B	157
APPENDIX C	158
APPENDIX D	159
APPENDIX E.....	160
APPENDIX F	161
APPENDIX G	163
APPENDIX H	164
APPENDIX I.....	165

APPENDIX J..... 166

LIST OF FIGURES

FIGURE		Page
1	Average ACT Engage 6-9 percentile scores (possible range 1 to 99) for 4-H students in this study and nationally	83
2	Percentages of 4-H students with ACT Engage 6-9 percentile scores in each broad range	83
3	Percentage of students with Academic Success Index scores in each broad range	85
4	Percentage of students with Graduation Index Scores in each broad range ..	85

LIST OF TABLES

TABLE	Page
1	Definitions of the Five Cs of Positive Youth Development Theory..... 16
2	Bloom’s Taxonomy: A Means of Classifying Learning..... 26
3	ACT Engage 6-9 Motivation and Skills Domain, Scales, and Definitions.... 50
4	ACT Engage 6-9 Social Engagement Domain, Scales, and Definitions 51
5	ACT Engage 6-9 Self-Regulation Domain, Scales, and Definitions..... 52
6	Respondents’ Demographic Characteristics 75
7	Respondents’ Educational Characteristics..... 77
8	Respondents’ Self-Reported Risk Characteristics 79
9	Respondents’ 4-H Involvement Characteristics 80
10	Respondents’ Participation in 4-H Courses 81
11	Percentile Scores on the ACT Engage 6-9 for Study Students and National Mean Scores..... 87
12	ACT Engage 6-9 Mean Scale Scores for 4-H Study Participants and National Mean Scores..... 89
13	Comparison of Motivation and Skills Domain Scale Scores by Gender..... 90
14	Results of <i>t</i> Test for Motivation and Skills Domain Scales by Gender 91
15	Comparison of Social Engagement Domain Scale Scores by Gender..... 92
16	Results of <i>t</i> Test for Social Engagement Domain Scales by Gender..... 92
17	Comparison of Self-Regulation Domain Scale Scores by Gender 93
18	Results of <i>t</i> Test for Self-Regulation Domain Scales by Gender 93
19	Comparison of Motivation and Skills Domain Scale Scores by Prior Grades 94
20	Results of <i>t</i> Test for Motivation and Skills Domain Scales by Prior Grades 94
21	Comparison of Social Engagement Domain Scale Scores by Prior Grades 95

TABLE	Page
22 Results of <i>t</i> Test for Social Engagement Domain Scales by Prior Grades	96
23 Comparison of Self-Regulation Domain Scale Scores by Prior Grades.....	96
24 Results of <i>t</i> Test for Self-Regulation Domain Scales by Prior Grades.....	97
25 Comparison of Motivation and Skills Domain Scale Scores by Participation in 4-H and Future Farmers of America (FFA)	98
26 Results of <i>t</i> Test for Motivation and Skills Domain Scale Scores by Participation in 4-H and Future Farmers of America (FFA)	98
27 Comparison of Social Engagement Domain Scale Scores by Participation in 4-H and Future Farmers of America (FFA)	99
28 Comparison of Social Engagement Domain Scale Scores by Participation in 4-H and Future Farmers of America (FFA)	100
29 Comparison of Self-Regulation Domain Scale Scores by Participation in 4-H and Future Farmers of America (FFA)	101
30 Results of <i>t</i> Test for Self-Regulation Domain Scale Scores by Participation in 4-H and Future Farmers of America (FFA)	101
31 ACT Engage 10-12 and College Student Readiness Inventory Domains, Scales, and Definitions	122
32 ACT Engage Grades 6-9 Motivation and Skills Domain, Academic Discipline Scale	127
33 ACT Engage Grades 6-9 Motivation and Skills Domain, Commitment to School Scale.....	128
34 ACT Engage Grades 6-9 Motivation and Skills Domain, Optimism Scale...	129
35 ACT Engage Grades 6-9 Social Engagement Domain, Family Attitude Toward Education Scale	130
36 ACT Engage Grades 6-9 Social Engagement Domain, Family Involvement Scale.....	131
37 ACT Engage Grades 6-9 Social Engagement Domain, Relationship With School Personnel Scale.....	132
38 ACT Engage Grades 6-9 Social Engagement Domain, School Safety Climate Scale	133
39 ACT Engage Grades 6-9 Self-Regulation Domain, Managing Feelings Scale.....	134

TABLE		Page
40	ACT Engage Grades 6-9 Self-Regulation Domain, Thinking Before Acting Scale.....	135
41	ACT Engage Grades 6-9 Self-Regulation Domain, Orderly Conduct Scale.....	136

CHAPTER I

INTRODUCTION

“Youth programs cannot remain static; they must expand and change in order to address the diverse and changing characteristics, needs, and interests of adolescents and their families” (Lerner & Lerner, 2013, p. 41). That being said, college and career readiness is a current hot research topic in the areas of youth development (Levy & Murnane, 2006), K–12 education (Casner-Lotto & Barrington, 2006), higher education (Business-Higher Education Forum [BHEF], 2003), 4-H (Copeland, Gillespie, James, Turner, & Williams, 2009; Lamm & Harder, 2009; Ratkos & Knollenberg, 2015) and the business sector (American Society for Training & Development [ASTD], 2006). Findings from studies in these research areas indicate that the 21st-century workforce will demand workers to have at least an Associate degree and the necessary skills to meet the demands to thrive in a prevailing, innovative, and rapidly changing economy. Moreover, recent studies have highlighted that noncognitive skills related to motivation, social engagement, and self-regulation are as essential as cognitive skills because they aid in supporting student academic success (Conley, 2007). A 2008 report from *Child Trends* revealed a considerable overlap in research on skills described as imperative for healthy youth development, for both college readiness and workforce readiness (Cochran, Catchpole, Arnett, & Ferrari, 2010).

Studies have highlighted that the most efficient way to prepare students is to identify at-risk students and intervene as early as possible (Beck & Davidson, 2001). However, most developmental strategies have been limited to focusing on cognitive

indicators such as grade point average (GPA) and test scores, with academic tutoring the sole intervention of choice Lotkowski, Robbins, & Noeth, 2004; Redd, Cochran, Hair, & Moore, 2002). These strategies do not take into account noncognitive (psychosocial) factors such as motivation and skills, self-regulation, and social engagement.

Developmental strategies must continue to evolve to prepare students for a global society.

While Extension has been successfully developing 4-H program youth into capable, competent, caring, contributing citizens for over 100 years through its Life Skills Model of Development, it is becoming increasingly evident that the skills needed for success today are not the same skills that were needed years ago [when 4-H was started]. (Cochran et al., 2010)

For 4-H youth in Texas, the 2013 passage of House Bill 5, Texas Education Agency [TEA] Foundation Graduation Plan, which required students to select one of five broad career pathway tracts (Science, Technology, Engineering, and Mathematics [STEM], Business and Industry, Arts and Humanities, Public Service, or Multi-Disciplinary) prior to entering Grade 9, highlights the need to emphasize college and career readiness skills earlier than the high school years.

As the nation's largest youth development program, 4-H, specifically Texas 4-H, if intentional, may be perfectly positioned to assist its participants by incorporating college and career readiness into its existing "life skills" programming. Moreover, if the program is implemented effectively, 4-H may have the ability to serve as an incubator of

evidence-based research in the pursuit of best practices to prepare students to enter, persist, and thrive in both college and the workforce.

Therefore, this study was designed to utilize the ACT Engage 6-9 instrument (formerly known as the Student Readiness Inventory—Middle School) to explore quantitatively noncognitive (psychosocial) college and career readiness levels among Grade 8 public-schooled Texas 4-H participants with more than 2 years of tenure. Findings from this study serve as an early identifier of areas of individual 4-H student and cohort noncognitive college and career readiness, strengths, and risks and inform design of evidence-based interventions. As Cochran and Ferrari (2009) summarized, “The time is [not only] right for youth development programs to consider a more intentional role in supporting adolescents’ [college and career readiness and] workforce preparation” (p. 21). That time is now.

Statement of the Problem

Very little is known about the impact of the 4-H Life Skills program on youth participants’ noncognitive college and career readiness levels. While data show that mathematics and reading level achievement rates of rural Grade 4 and Grade 8 students and high school graduation rates are higher than those for both their suburban and urban counterparts (Provasnik et al., 2007), studies continue to support unenviable facts with respect to rural students: (a) Rural students lag significantly in college enrollment, compared to suburban students (27% to 37%; Byun, Irvin, & Meece, 2015; Provasnik et al., 2007); (b) rural students take more remedial college courses, representing a larger proportion of the 42% of first-year students at 2-year colleges and 36% of first-year

students at 4-year colleges who are required to take at least one remedial course (Boyer, Butner, & Smith, 2007; Juskiewicz & American Association of Community Colleges, 2015); and (c) rural students “undermatch” more, meaning that they are more likely than their urban and suburban counterparts to choose to pursue an Associate degree or attend a college less selective than their high school credentials permit them to access, even though they are academically more qualified (Black, Cortes, & Lincove, 2015; Bowen, Chingos, & McPherson, 2009; Dillon & Smith, 2013; Fosnacht, 2014; Smith, Pender, & Howell, 2013).

The 4-H program is the largest and only federally funded youth leadership and development program in the nation and in Texas, with the largest adult paid support system composed of numerous university partners, the Cooperative Extension Service (Extension), and volunteers to deliver its Life Skills program (Texas 4-H & Youth Development, 2018). However, little is known about the impact of the Life Skills program on participants’ noncognitive college and career readiness levels.

Since 1908, youth have been gaining valuable hands-on applied soft and noncognitive life skills that support their school-driven academic (cognitive) skills through an array of activities offered in 4-H’s outreach educational programs, which engage more than 550,000 youth in Texas (Texas 4-H & Youth Development, 2018). Recognizing the gap in the research, this study was designed to utilize the ACT Engage 6-9 instrument (formerly known as the Student Readiness Inventory—Middle School) to explore quantitatively the noncognitive (psychosocial) college and career readiness levels among Grade 8 public-schooled Texas 4-H participants with more than 2 years of

tenure. The study was designed to achieve the following research objectives: (a) Objective 1— explore and describe participant noncognitive college and career readiness using the ACT Engage 6-9 instrument’s three domains and 10 scales; (b) Objective 2— identify and describe participant noncognitive college and career readiness levels across the variables of gender, academic grade range, intended TEA high school diploma path, intended TEA Grade 9 Endorsement Area selection, intended after-high-school plans, intended education level attainment goals, 4-H program participation, 4-H program tenure, and Future Farmers of America (FFA) participation ; and (c) Objective 3— recommend intervention activities to assist and improve participant noncognitive college and career readiness.

Rationale for the Study

This research is timely, pertinent, and of value because it is designed to explore the use of the ACT Engage 6-9 instrument to assess noncognitive college and career readiness levels among Grade 8 public-schooled Texas 4-H participants with more than 2 years of tenure, expressly in an environment with the following characteristics:

1. The mission of agricultural education is to prepare students for successful careers and a lifetime of informed choices (National FFA Organization, 2017).
2. College readiness is not only related to academics; it also includes nonacademic knowledge and skills required for a student to be successful in college (Conley, 2008).
3. “Enriching our Youth” is one of the College of Agriculture and Life Sciences “grand challenges.” The focus is promotion of faculty and programs specializing in

youth and community development, particularly for at-risk youth, to develop an educational and career plan, whether or not the youth are college bound (Texas A&M University, Agricultural & Life Sciences, n.d.).

4. TEA's Foundation Graduation Plan, enacted in 2013, requires that students select one of five broad career pathway tracks before entering Grade 9. This requirement exerts a significant negative impact on a larger proportion of rural students, as they have already been identified by researchers to be at higher risk in terms of readiness to make college and career decisions (Black et al., 2015; Bowen et al., 2009; Boyer et al., 2007; Byun et al., 2015; Dillon & Smith, 2013; Fosnacht, 2014; Juskiewicz & American Association of Community Colleges, 2015; Provasnik et al., 2007; J. Smith et al., 2013).

In times of increased budget cuts, it is essential to present evidence-based research that demonstrates a clear return on investment of 4-H's impact to federal, state, and local stakeholders to justify the continuation of public and private funding.

Purpose and Objectives of the Study

The purpose of this study was to utilize the ACT Engage 6-9 instrument (formerly known as the Student Readiness Inventory—Middle School) to explore quantitatively the noncognitive (psychosocial) college and career readiness levels among Grade 8 public-schooled Texas 4-H participants with more than 2 years of tenure. Using purposive sampling, the study was conducted using the ACT Engage 6-9 noncognitive college and career readiness assessment to achieve the following objectives: (a) explore and describe participant noncognitive college and career readiness using the ACT Engage 6-9 instrument's three domains and 10 scales; (b) identify and describe

participant noncognitive college and career readiness levels across the variables of gender, academic grade range, intended TEA high school diploma path, intended TEA Grade 9 Endorsement Area selection, intended After-high-school plans, intended education level attainment goals, 4-H program participation, 4-H program tenure, and FFA participation; and (c) recommend intervention activities to assist and improve participant noncognitive college and career readiness.

Assumptions

The following assumptions were made in this study:

1. Students who responded to the ACT Engage 6-9 survey answered the questions truthfully.
2. The phenomenon of student retention and academic success was able to be measured.
3. An intervention model was developed to help targeted “at-risk” Grade 8 4-H participants.
4. Students’ motivations and abilities were the same at home, in the evening, or on the weekend as they are when in school when the instrument was administered.
5. Students who took the ACT Engage 6-9 were representative of Grade 8 4-H students.
6. Students took the assessment uninterrupted and without assistance.

Limitations

1. This research was motivated by the researcher’s professional and educational experiences in the fields of college and career readiness and agricultural education.

Although previous and present personal experiences and work in the areas of college and career readiness and agricultural education may have served as a bridge for this study, they may also have served as a potential hindrance due to potential bias.

2. Funding for the research (\$6.25/survey) limited the study to a sample of the 69 Grade 8 students participating in Texas 4-H.

3. The study captured data at a specific point and time and did not track students' college and career readiness and persistence beyond the data collection point.

4. The data obtained from this study apply only to the defined population.⁴

5. Technical email issues, in which the researcher did not have access to the Texas A&M University's Internet server for 2 months to send study solicitations, limited the ability to reach potential participants. The researcher was advised by his committee to stop solicitation activities during summer 2017 and resume in September 2017. In September, the researcher continued with the same population of students who were now early ninth graders. Upon resumption in September, the same study solicitation procedures were followed until the needed response rate was achieved.

6. By examining only a sample of 4-H participants and not the entire Grade 8 Texas 4-H participant population, the findings cannot be generalized. However, the intent was not to generalize but to gain insight into noncognitive college and career readiness levels among Texas 4-H participants and to identify potential areas of strengths and weaknesses.

Delimitations

This study was delimited to Grade 8 public-schooled Texas 4-H participants with more than 2 years of tenure. The study did not investigate cognitive college and career readiness or school-level variables, economic status, nor extracurricular influences that could have an impact on students' noncognitive college and career readiness levels.

Significance of the Study

This study minimizes the gap in literature related to (a) positive youth development theory, specifically as it relates to its impact on and connection to the 4-H youth development program as a system of delivery; (b) noncognitive (psychosocial) factors of motivation and skills, social engagement, and self-regulation and their ability to account for and serve as important factors in the college and career readiness research in the population of Grade 8 public-schooled Texas 4-H participants with more than 2 years of tenure; (c) the ability of the ACT Engage 6-9 assessment to serve as an instrument to explore college and career readiness quantitatively; (d) the impact of the 4-H program and its Life Skills program to influence participants' college and career readiness levels; (e) obtaining critical previously unobserved data (noncognitive measures of college and career readiness) to provide evidence-based assessment of a population of current Grade 8 4-H students in Texas at a critical juncture in their educational careers; (f) advancing research related to the TEA Foundation Graduation Plan, and (g) proposing evidence-based interventions to respond to the findings of the study.

This study has the potential to help students, parents, Texas 4-H, 4-H nationally, Cooperative Extension (especially Texas A&M Extension), the U.S. Department of Agriculture, related college and universities (especially 1862 and 1890 Land Grant Institutions), the TEA, and other youth-serving educational, leadership, and development organizations. Specifically, this study generates critical previously unobserved data (noncognitive measures of college and career readiness) and provides evidence-based assessment of a population of Grade 8 public-schooled Texas 4-H participants with more than 2 years of tenure at a critical juncture in their educational careers, advances research related to the TEA Foundation Graduation Plan, and includes suggestions for the development of evidence-based interventions in response to the study's findings.

CHAPTER II

LITERATURE REVIEW

This chapter examines the theory, conceptual frameworks, and literature used in framing this study to provide the foundation for evidence-based interventions. Specifically, the literature reviewed in this chapter is based on research regarding positive youth development (PYD) theory, the 4-H program, TEA Foundation Graduation Plan, and noncognitive college and career readiness. PYD theory guided the researcher to ground the study within a youth, strength-based, and contextual systems approach. The 4-H program framed the youth-serving organization of the study for the specific psychosocial and demographic characteristics. The TEA Foundation Graduation Plan rules that govern the decisions that Texas students must make in their transition from middle school to high school set the stage for the target population: Grade 8 public-schooled Texas 4-H participants with more than 2 years of tenure. The ACT Engage 6-9 noncognitive college and career readiness assessment provided the instrumentation, unit of analysis, and data collection method.

Selection of Articles and Criteria for Inclusion

The researcher accumulated a database of materials from a wide variety of search engines, including but not limited to Google Scholar, ProQuest, and JSTOR. Empirical peer-reviewed articles were obtained from the Texas A&M Library System. The literature reviewed in this chapter was up-to-date, published primarily within the previous 10 years, and selected based on relevancy from among peer-reviewed articles and journals, books and book chapters, and government reports.

Introduction

“Youth programs must address both prevention and promotion [cognitive and noncognitive college and career readiness]; contrary to popular belief, focusing on one does not necessarily affect the other” (Lerner & Lerner, 2009, p. 19). K–12 educators, administrators, parents, and youth-serving organizations must have indicators to predict a student’s college and career readiness in order to strategize and design curricula and interventions to develop the necessary skills to assist students to be successful. In fact, studies show that the level of academic attainment by Grade 8 has a greater impact on college and career readiness than the level of academic attainment in high school (ACT, 2008). Therefore, it is important that educational theorists focus on middle school (for the purpose of this study, Grade 8 public-schooled Texas 4-H participants with more than 2 years of tenure) in order to have a meaningful impact on college and career readiness. This research can inform development of holistic intervention strategies.

Most important, this chapter serves as a guide for readers to examine current literature related to PYD theory, the Texas 4-H program, TEA Foundation Graduation Plan and the ACT Engage 6-9 noncognitive college and career readiness assessment instrument. While previous 4-H-specific education research has examined college transition (Ratkos & Knollenberg, 2015), participant perspectives on involvement (Astroth & Haynes, 2002), development of “life skills” (Boyd, Herring, & Briers, 1992), and college preparation (Copeland et al., 2009), this study is unique because it focuses on gaps related to (a) examining evidence-based assessment of current 4-H students, (b) targeting a specific population at a critical juncture in their education careers (Texas

eighth graders), (c) collecting critical previously unobserved data (noncognitive measures of college and career readiness), and (d) development of evidence-based interventions based on the study findings.

Positive Youth Development Theory

Historically, youth programs and intervention models addressed issues from a deficit model approach (Lerner, Almerigi, Theokas, & Lerner, 2005) by focusing on shortcomings and problem behavior areas but recently “there has been a new perspective gaining momentum that stresses a more positive vision and vocabulary for discussing issues surrounding youth, Positive Youth Development Theory” (Lerner, Almerigi, et al., 2005, p. 10). PYD, a “systems-grounded, strength-based conception of adolescence, was created to enable researchers to focus on and promote positive youth outcomes” (Lerner, Almerigi, et al., 2005, p. 10). Derived from developmental systems theory (Lerner, Almerigi, et al., 2005), PYD has its roots in academic research, including comparative psychology and evolutionary biology (Gottlieb, 1997), life-span developmental psychology (Baltes, Lindenberger, & Staudinger, 1998), bioecological developmental psychology (Bronfenbrenner, 2005), life course sociology (Elder, 1998), and community psychology (Trickett, Barone, & Buchanan, 1996). The culmination of these relationships stresses that the “potential for systematic change in behavior exists as a consequence of mutually influential relationships between the developing person and his or her biology, psychological characteristics, family, community, culture, physical and designed ecology, and historical niche” (Lerner, Almerigi, et al., 2005, p. 10).

PYD is said to “emerge when the potential plasticity of human development is aligned with developmental assets” (Lerner, Almerigi, et al., 2005, p. 10). Within this framework, plasticity is seen as the potential for change, which is a core strength of all youth—a strength that can be built on and is cause for optimism as it highlights the fact that life paths of all children can be positively influenced (Lerner & Lerner, 2013).

Using this perspective of PYD, “Youth are not seen as broken, in need of psychosocial repair, or as problems to be managed” (Lerner & Lerner, 2013, p. 9); instead, all youth are seen as resources to be developed (Roth & Brooks-Gunn, 2003). The resulting development focuses on the

strengths present within all young people and involves concepts such as developmental assets, moral development, civic engagement, well-being, and thriving, which are all concepts predicated on the idea that every young person has the potential for successful, healthy development and that all youth possess the capacity for positive change. (Lerner, Lerner, et al., 2005, p. 20)

The goals of PYD theory are to “promote health development to foster positive youth outcomes; focus ‘non-categorically’ on the whole child; focus on the achievement of developmental tasks; and focus on interactions with family, school, neighborhood, societal, and cultural contexts” (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2002, p. 12). By rejecting a deficit approach, this theory draws from multiple theories to create an atmosphere to encourage youth development (Catalano et al., 2002; Ungar, 2004) by focusing on existing positive assets and normal developmental processes (Lerner, Lerner, et al., 2005). Current research on PYD

has documented empirically the usefulness of applying this strength-based view of adolescent development within diverse youth and communities; the adequacy of conceptualizing PYD through the Five C's construct (competence, confidence, connection, character, and caring); the individual and ecological developmental assets associated with PYD; and implications for community programs and social policies pertinent to youth. (Lerner, Almerigi, et al., 2005, p. 10)

As the PYD model developed and researchers sought to develop and enhance frameworks to describe and measure the effect of the constructs of PYD and their impact on youth, the 4-H program became a central target of focus because of its programming experiences that are said to offer meaningful leadership opportunities, with positive and sustained relationships between youth and adults, and activities that build critical life skills that lead to developmental outcomes that are marked by the five “Cs” of youth development (5Cs), also contained in PYD (Table 1). In fact, Lerner, Dowling, and Anderson (2003) posited that young people who manifest these five Cs over the course of adolescence are more likely to be on a life trajectory marked by mutually beneficial person-related context relationships that contribute to self, family, community, and civil society, ultimately producing the sixth C—contribution.

While the 5Cs model of PYD was seen as the most empirically supported framework (Heck & Subramaniam 2009), with empirical evidence indicating the construct to have good psychometric properties and internal consistency (Lerner et al., 2005; Phelps, Zimmerman, Warren, Jeličić, von Eye, & Lerner, 2009), researchers needed to

Table 1

Definitions of the Five Cs of Positive Youth Development Theory

C	Definition
Competence	Positive view of one’s actions in domain-specific areas, including social, academic, cognitive, and vocational. <i>Social</i> competence pertains to interpersonal skills (e.g., conflict resolution). <i>Cognitive</i> competence pertains to cognitive abilities (e.g., decision making). School grades, attendance, and test scores are part of <i>academic</i> competence. <i>Vocational</i> competence involves work habits and career choice explorations, including entrepreneurship.
Confidence	An internal sense of overall positive self-worth and self-efficacy; one’s global self-regard, as opposed to domain-specific beliefs.
Connection	Positive bonds with people and institutions that are reflected in bidirectional exchanges between the individual and peers, family, school, and community in which both parties contribute to the relationship.
Character	Respect for societal and cultural rules, possession of standards for correct behaviors, a sense of right and wrong (morality), and integrity.
Caring	A sense of sympathy and empathy for others.
Contribution	Mutually beneficial person/context relationships that contribute to self, family, community, and civil society

Note: Derived from *The Positive Development of Youth: Comprehensive Findings From the 4-H Study of Positive Youth Development*, by R. M. Lerner & J. V. Lerner, 2013, p. 10, Chevy Chase, MD: National 4-H Council.

determine whether the model was valid for a larger age range of adolescents. (E. P. Bowers et al., 2010, p. 721)

Lerner took that challenge, and now one of the key strengths of the 5C model is that it was tested on a large diverse sample that included youth who were in 4-H, as well as youth who were not. The results showed that “4-H youth excel beyond their peers”

(Lerner & Lerner, 2013, p. i). In fact, the results of the 4-H Study of Positive Youth Development (Lerner & Lerner, 2013) are published on the National 4-H Council website. At least casually, it appears that the 5C model is how 4-H is described by program professionals in the field (Bottomley, 2013; Jones, 2005). Lerner, Lerner, et al. (2005) proposed that “there is reason to believe that both positive development and youth contributions to self and to their ecology are likely to take place in the context of community-based youth development programs” (p. 24). Moreover, “participation in youth programs [is] the key asset linked to exemplary positive development, or thriving, among contemporary American youth” (Lerner, Lerner, et al., 2005, p. 24).

The PYD model emphasizes the importance of the interaction between the youth being studied and adults, as well as interactions between the youth and their peers, to identify developmental pathways (Bronfenbrenner, 1977). Lerner (1998) developed this theory with the introduction of *developmental contextualism*, which states that youth are not only experiencing the effects of multiple systems in their lives but are also producing their own development by interacting with those systems and entities. Lerner (1998) concluded that youth produce their development primarily through interactions with “significant people in their context, for example, family members, caregivers, teachers, and peers” (p. 90).

PYD capitalizes on the interdependency of these multiple systems within a young person’s life by drawing out the strengths in one area to reinforce other areas. Rhodes, Spencer, Keller, Liang, and Noam (2006) theorized that adult mentoring fosters positive youth outcomes by promoting identity development. Halpern, Barker, and Mollard

(2000) determined that youth participation and the formation and quality of positive relationships with youth, staff, and their peers are significant indicators of youths' perceived effectiveness of programs. Anderson-Butcher, Newsome, and Ferrari (2003) suggested that youth express their satisfaction or dissatisfaction with programs by "voting with their feet" (p. 40). They explained that a youth development program requires that youth participate with sufficient frequency for a significant amount of time to achieve the desired outcomes (Anderson-Butcher et al., 2003).

According to Dukakis, London, McLaughlin, and Williamson (2009), any youth development program based on the PYD theory should provide a tri-level perspective by focusing on context to build the foundation and must recognize implementation issues, shortfalls, and success sharing. This tri-level perspective includes a comprehensive indicator system on individual, setting, and system levels. The levels are defined as follows: (a) individual—the personal progress and outcomes of each individual student are measured; (b) setting—resources and opportunities provided by the program are noted; and (c) system—the infrastructure of city, state, and national policies that are supportive of youth development programs (Dukakis et al., 2009).

4-H

4-H is one of the most studied programs in conjunction with PYD because of its application of the 5Cs model and its foundation built on evidence-based experiential learning models and strategies to help youth to develop life skills and become positive citizens who contribute to society (E. P. Bowers et al., 2010; Lerner et al., 2003; Lerner, Fisher, & Weinberg, 2000). This study addresses some of the gaps in research by

examining the impact of 4-H on youth's noncognitive college and career readiness levels.

The PYD-incorporating “system” of interest of this study is the 4-H program, specifically the Texas 4-H program. 4-H is the largest youth leadership development program, not only in Texas, where as a part of Texas A&M's AgriLife Extension Service and the Texas A&M System, it serves more than 550,000 youth participants (Texas 4-H and Youth Development, 2018), as well as nationally. 4-H in Texas has its roots in the Texas Boys Corn Club, started by Jack County Extension Agent Tom Marks in Jacksboro, Texas, in 1910, where boys learned, tested, and developed new farming techniques (White, 1994). The national 4-H organization was formed in 1914 out of a series of historical events and legislative acts.

With passage of the Smith-Lever Act in 1914, the 4-H program was nationalized and administered under the Cooperative State Research Education and Extension Service, an agency of the U.S. Department of Agriculture, with the mission of engaging youth to reach their fullest potential while advancing the field of youth development. The official name *4-H* was adopted in 1924, the same year in which the logo, the 4-H clover pin, was patented. This design is protected by the U.S. Congress from unauthorized or commercial use (National 4-H History Preservation Program, 2018). The 4-H color green symbolizes springtime and youth; white symbolizes high ideals (National 4-H History Preservation Program, 2018). A botanist from the U.S. Bureau of Plant Industry, Carrie Harrison, proposed the 4-H Motto: “To Make the Best Better,” which was officially adopted in 1927 (National 4-H History Preservation Program,

2018). Also adopted in 1927 was the original 4-H pledge at the National 4-H Club camp in Washington, DC suggested by Otis Hall. The pledge was changed slightly in 1973, when the words “and my world” were added (Oregon State University, 2018). Today, the 4-H pledge is as follows:

I pledge my head to clearer thinking,
My heart to greater loyalty,
My hands to larger service,
and my health to better living,
for my club, my community, my country, and my world. (National 4-H Council, 2018, para. 2)

4-H Today

Today’s 4-H highlights the success and impact of the organization on youth and in communities since its inception. With a mission to “engage youth to reach their fullest potential while advancing the field of youth development” (University of California, Agriculture and Natural Resources, n.d.), the 4-H program has grown to more than 6 million members nationwide, serving youth between the ages of 5 and 19 in urban, rural, and suburban communities by offering hands-on experiential learning programs (4-H, 2018). Internationally, 4-H has programs in more than 50 countries (4-H, 2018). Led by close to 4,000 4-H professionals and half a million volunteers, 4-H enrichment programs include community clubs, in-school and after-school programs, 4-H camps, and relationships with more than 100 public universities that offer experiential, hands-on learning. Programs range from the “sows, cows and plows” offerings, which most people

associate with 4-H as an agriculture program, to opportunities to engage in animal science, robotics, photography, debate, computer science, environmental protection, healthy living, science engineering, and technology. In these programs, participants work to solve real-world problems from sustainable energy to climate change, childhood obesity, local food safety, and global food security (4-H, 2018).

The primary goal of 4-H is to develop citizenship, leadership, responsibility, and life skills in youth through experiential learning programs utilizing a PYD approach (Seevers, Graham, & Conklin, 2007). The program is delivered by the Cooperative Extension Service in conjunction with more than 100 public universities across the United States. 4-H focuses on the development of youth through experiential educational programming whereby youth learn by doing and active exploration (Miller, 1991; Seevers et al., 2007).

4-H as a Model of Youth Development

Although 4-H programming may differ by state and county, the national organization is linked through the Targeting Life Skills (TLS) model, developed by Hendricks (1998) at Iowa State University and incorporated into the national curriculum. The TLS model incorporates major points of youth program planning: (a) assisting youth to reach their full potential through a positive approach to life skill development, (b) delivering information and skill practice at the appropriate developmental level for the target audience, (c) writing specific measurable learning objectives for life skill development, (d) completing an instructional plan that creates experiences based on experiential learning theory to achieve life skill development, and (e) identifying

observable/measurable indicators of change using these indicators to evaluate program impact (Hendricks, 1998).

The literature about 4-H addresses three primary areas: experiential learning, life skills, and PYD. Experiential learning (Dewey, 1938; Joplin, 1981; Kolb, 1984), also known as hands-on learning or learning by doing, is the primary model framing 4-H's philosophical approach to teaching and learning (Miller, 1991; Seevers et al., 2007). Five sequential steps of the 4-H experiential learning model form a framework for extension and 4-H volunteers to teach, engage, and model life skill lessons. The model is a culmination of precursor models of teaching and learning proposed by Dewey (1938), Kolb (1984), and Joplin (1981), respectively.

Experiential Learning

“All learning is experiential, but all experiences are not educational” (Dewey, 1938, as cited in Roberts, 2006, p. 17). This seminal statement is the foundation of 4-H's experiential learning model and its delivery of agricultural and educational programming.

For example, Stimson (1919, p. 32) asserted that, neither skill nor business ability can be learned from books alone, nor merely from observation of the work and management of others as both require active participation, during the learning period, in productive farming operations of real economic or commercial importance. (Roberts, 2006, p. 17)

Phipps and Osborne (1988, p. 19) said it clearest when they declared that the emphasis is on learning by doing, which is apparent in the attention given to

laboratory work, field trips, problem-solving, and supervised occupational experience programs. (Roberts, 2006, p. 17)

[In the literature], experiential learning is characterized in two ways. First, as set of theories focused on the process of experiential learning (Dewey, 1938; Joplin, 1981; Kolb, 1984); and second as set of theories related to the context in which experiential learning takes place (Dale, 1946; Joplin, 1981; Keeton, 1976). (Roberts, 2006, p. 18)

John Dewey, who is arguably the father of experiential learning, proposed that a central tenet of his educational philosophy was that, “amid all uncertainties there is one permanent frame of reference: namely, the organic connection between education and personal experience” (as cited in Roberts, 2006, p. 19). In *Experience and Education*, Dewey (1938, p. 69)

proposed that learning from experience involves: (1) Observation of surrounding conditions; (2) Knowledge of what has happened in similar situations in the past, a knowledge obtained partly by recollection and partly from the information, advice, and warning of those who have had a wider experience; (3) Judgment which puts together what is observed and what is recalled to see what they signify, and (4) That subsequent experience builds on past experiences, thus indicating cyclical process. (Roberts, 2006, p. 19)

In 1986, Joplin “asserted that all learning is experiential” (Roberts, 2006, p. 20). She proposed a 5-stage cyclical model of experiential learning, wherein at the completion of one cycle another one commences. The first stage of the cycle is “focus,”

in which the learner is first exposed to the phenomenon studied. The second stage is “challenging action,” whereby the learner has direct interaction or experience with the phenomenon. The third stage is “support,” which allows the learner to be challenged in a safe environment where risk taking is endorsed and assistance is available when needed. The fourth stage is “feedback,” which is necessary to provide the learner with an assessment of progress. The fifth stage is “debrief,” during which the learner is “recognized, articulated, and evaluated, which allows them to sort and order their observations from the experience and relate those observations to what is already known” (Roberts, 2006, p. 21).

Kolb (1984), building off previous work by Lewin, Dewey, and Piaget, proposed a cyclical model for experiential learning, focused on two stages: the grasping of information and the transformation of that information (Roberts, 2006). While Kolb asserted that the learning process can begin at any stage of the model, the following represents the stages of his model. First is “concrete experience,” in which the learner has direct interaction with the phenomenon being studied. Second is “reflective observation,” in which the learner reflects on what was experienced and intentionally transforms the information by mentally breaking apart the experience and internalizing the information. Third is “active experimentation,” where the learner tests the rules, generalizations, or hypotheses formed in the previous stage and transforms the information. The key to the development of these three experiential learning models is that all are derived from a stepped process in which learners engage in the experience; reflect on that experience; develop a theory, solution, or explanation of and or for the

experience; and then move forward to a solution that tests the theory, solution, or their explanation of the experience (Roberts, 2006).

The process is the culmination of these models and the research behind them that frame the foundation and building blocks of the five-stage model that 4-H employs to engage, teach, and promote experiential learning in its youth participants. As with the previous models, 4-H youth (a) experience the activity, (b) share the experience through describing, (c) process the experience to identify common themes, (d) generalize from the experience and relate it to their lives, and (e) apply what they have learned to a new situation (Norman & Jordan, 2006). Using this process, 4-H youth identify what they have learned from experiences or activities and apply that learning to other experiences or situations as they grow (Norman & Jordan, 2006).

Life Skills

Life skills, which can serve as an overarching theme for an array of youth development skill categories such as social skills, interpersonal skills, communication skills, and leadership skills, was defined by Seevers et al. (2007) as “competencies that help people function in the environment in which people live” (p. 81). In 4-H, life skills include a range of programs, activities, and career pathway options that, through sustained engagement, build on each other to help youth to acquire the skills necessary to lead productive and satisfying lives (Hendricks, 1998). The sustained engagement through programming that 4-H promotes is an important foundational component of the program as it allows for staged development for participants from Grade 5 through

Grade 12. As Bloom’s taxonomy highlights (Table 2), there is a building block process for development from youth to adulthood.

Table 2

Bloom’s Taxonomy: A Means of Classifying Learning

Level	Description
Creating	Putting together information in an innovative way
Evaluating	Using a set of guidelines to make judgments
Analyzing	Breaking concepts into parts and understanding their relationships
Applying	Using gained knowledge in new ways
Understanding	Making sense of new knowledge
Remembering	Recalling new knowledge from long-term memory

Note: From “Blooms Where You Are Planted [web log], by D. Sanborn, January 2015, retrieved from <https://debrasanborn.com/2015/01/07/blooms-where-you-are-planted>

Benjamin S. Bloom, an American educational psychologist, developed a taxonomy (classification) of student learning theory that is arguably the most widely used model in education. Since it was published, it has been translated into 22 languages and is one of the most widely applied and most often cited references in education (Forehand, 2010). Bloom’s taxonomy is a six-category hierarchical model used as a “tool for curriculum planning, instructional delivery and assessment (oz-TeacherNet, 2001) that requires achievement of the current level of skill or ability before students

may move to the next, more complex, one” (Forehand, 2010, p. 4). L. W. Anderson et al. (2001, pp. 67-68) described Bloom’s taxonomy levels as follows:

Remembering: Retrieving, recognizing, and recalling relevant knowledge from long-term memory.

Understanding: Constructing meaning from oral, written, and graphic messages through interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining.

Applying: Carrying out or using a procedure through executing, or implementing.

Analyzing: Breaking material into constituent parts, determining how the parts relate to one another and to an overall structure or purpose through differentiating, organizing, and attributing.

Evaluating: Making judgments based on criteria and standards through checking and critiquing.

Creating: Putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing.

The benefit of 4-H’s sustained educational curriculum as set within Bloom’s taxonomy is that, although it provides the framework for student development throughout a youth’s involvement from Grade 5 to Grade 12, the student always starts at the “remembering” level. This hierarchical participation design allows students to

engage at their individual learning, competency, and development levels (Forehand, 2010)..

Positive Youth Development

PYD engages the five Cs of (competence, confidence, character, connection, and caring), focusing on noncognitive psychological, emotional, and social development of youth through interaction with and support by adults (Hendricks, 1998; Stone & Rennekamp, 2004). Researchers have realized that, while the relationship between youth and risk/problem behaviors is not simple or uniform (4-H, 2018); they “hypothesized that the availability of activities that supported the five Cs would help steer young people toward a life of successful contributions (Benson, Scales, Hamilton, & Sesma, 2006; Benson et al., 2011; Lerner, 2005)” (4-H, 2018, p. 3).

The potential for change is a core strength of all youth—a strength that can be built upon. This strength is cause for optimism for it means we can positively influence the life paths of all children (Lerner, 2005). The contexts in which they live, learn, and play have resources to promote positive youth development. These resources can become the “development assets or nutrients” that young people need for healthy development (Benson, Scales, Hamilton, & Sesma, 2006, p. 915). Researchers and practitioners agree that this concept of developmental assets is key to understanding how to foster PYD in our homes, classrooms, and community-based programs.

PYD studies suggested a link between PYD and the developmental assets associated with youth programs—especially programs that go beyond simple extracurricular activities to focus specifically on promoting youth development

across the “Big Three” features of effective youth-serving programs [like 4-H] (Blum, 2003; Lerner, 2004; Roth & Brooks-Gunn, 2003), which include positive and sustained relationships between youth and adults; activities that build important life skills; and opportunities for youth to use these life skills as both participants in and as leaders of valued community activities. (4-H, 2018, p. 3)

In an effort to examine to answer the question, “How can we translate PYD theory into specific practices that will help young people thrive, and do PYD programs do this successfully?” (4-H, 2018, p. 3), 4-H entered into partnership with Tufts University in the first-of-its-kind research to measure the effectiveness of and definition of positive youth development, with a resulting model used to drive new thinking and approaches to youth development around the world. The annual 4-H Study of PYD began in the 2002-2003 school year with a cohort of fifth graders and ended in 2010 during their senior year. The longitudinal study followed more than 7,000 youth from various ethnic and economic backgrounds throughout the United States (4-H, 2018). Using the variables of gender, race/ethnicity, rural/suburban/urban community, family per capita income, mother’s education, and region of the country, the 4-H PYD study looked at mean scores (ranging from 0 to 100) on measures for each of the five Cs (competence, confidence, connection, character, caring) and the added 4-H C of contribution (4-H, 2018). Researchers theorized that young people who participated in 4-H and whose lives incorporated these five Cs would be on a developmental path that would result in development of a sixth C: “contributions to self, family, community, and to the institutions of a civil society” (4-H, 2018, p. 2). Strobel, Osberg, and McLaughlin

(2006) elaborated on the need to include *contribution* as part of the PYD model because contribution, addressed in its local context, is essential to development of many of the other skill sets associated with PYD.

Findings from the rigorous longitudinal study showed that, compared to their peers, youth who were involved in 4-H programs excelled in several areas:

- **Developmental Assets:** In general, 4-H youth appear to have higher levels of the developmental assets that the 4-H Study has found most important in promoting PYD: relationship with others, and in particular, caring, competent, and committed adults, such as parents, teachers, and mentors. In Grade 11, 4-H youth reported that they had more mentors than did comparison youth.
- **Contribution and Active/Engaged Citizenship:** In the point-in-time sample, 4-H youth are 3 times as likely as youth in other out-of-school-time (OST) activity programs to have higher scores for Contribution, and 1.6 times as likely to have higher scores for PYD. Consistent with the results from Grades 5 to 10, they found that, through Grade 11, 4-H youth in the longitudinal sample are 2.1 times more likely than other youth to make contributions to their communities. These same youth are also 1.8 times more likely to have higher scores on measures of active and engaged citizenship.
- **Education:** For educational measures assessed in the point-in-time sample, 4-H participants are 1.5 times as likely as youth in other OST programs to

report higher academic competence and 1.7 times as likely as youth in other OST programs to report higher engagement in school.

- **Healthy Living:** On health measures in the longitudinal analyses, 4-H participants are 1.6 times as likely as other youth to report healthy habits and 2.4 times as likely to delay sexual intercourse. They are less likely than youth in other OST programs to engage in delinquent behaviors by Grade 11.
- **Science:** In the longitudinal sample, 4-H participants are 1.6 times as likely as youth in other OST programs to participate in science, engineering, or computer technology programs in Grade 11. In the point-in-time sample, 4-H participants are 1.4 times as likely as youth in other OST programs to plan to pursue a career in science. Similarly, 4-H girls are 1.4 times as likely as girls in other OST programs to plan to pursue a career in science. (Lerner, Lerner, von Eye, Bowers, & Lewin-Bizan, 2011, pp. 1108-1109)

Findings from the Lerner et al. (2011) longitudinal study highlighted that 4-H, through implementation of PYD as its theoretical construct, can exert a positive impact on students from middle school through high school and influence factors outside of 4-H's "agricultural educational" programming. Based on these findings, this researcher decided to explore whether 4-H, using PYD, would have an effect on eighth-grade Texas 4-H students in terms of their college and career readiness levels.

The Current Educational Situation

In today's society, graduating from high school, enrolling in college, and obtaining a bachelor's degree are seen as the primary means of increasing one's

cultural capital and upward social mobility (Barnes & Slate, 2010; Barnes, Slate, & Rojas-LeBouef, 2010; Leonhardt, 2005, 2011). (Barnes & Slate, 2013, p. 1)

This process becomes “one’s passport to the American dream” (Symonds, Schwartz, & Ferguson, 2011, p. 2).

Although President Obama, in 2010, emphasized the need for college and career readiness, with the enactment of the No Child Left Behind (NCLB) program, for all high school graduates, the emphasis is clearly on college readiness, at the exclusion of other educational alternatives. (Barnes & Slate, 2013, p. 1)

However, a plethora of college-readiness researchers (Barnes & Slate, 2010, 2011; Barnes et al., 2010; Conley, 2010; Greene & Winters, 2005; Kahlenberg, 2010; Symonds et al., 2011; Leonhardt, 2005, 2011; Ravitch, 2010; Zhao, 2009a, 2009b) have reported that students in our nation’s high schools are earning diplomas, but they are graduating without the knowledge, skills, and metacognitive strategies needed to be successful at postsecondary institutions. (Barnes & Slate, 2013, p. 1)

According to college-readiness researchers, the federal government’s one-size-fits-all college-readiness agenda has resulted in students who do not graduate from high school or in students who graduate but are not academically prepared or college-ready (Barnes & Slate, 2010, 2011; Barnes et al., 2010; Berliner, 2006; Kahlenberg, 2010; Ravitch, 2010; Rosenbaum, Stephan, & Rosenbaum, 2010; Swanson, 2008; Symonds et al., 2011; Zhao, 2009a). (Barnes & Slate, 2013, p. 1)

Test scores reported by the ACT (2011a) in the annual college readiness report indicated that only 25% of high school students nationally who took the ACT test in 2011 were considered college ready based on all four college readiness benchmarks, with rates in Arizona, Florida, and Texas only 18%, 17%, and 24%, respectively (ACT, 2011a).

Ten years after the implementation of the NCLB Act, findings of annual ACT (2010, 2011) college-readiness reports, similar findings from the Texas college-readiness study (Barnes & Slate, 2011), and results of other studies (Braun, Wang, Jenkins, & Weinbaum, 2006; Carpenter, Ramirez, & Severn, 2006; Greene & Winters, 2005; Konstantopoulos & Hedges, 2005; Moore, Slate, Edmonson, Combs, Bustamante & Onwuegbuzie, 2010) throughout the first decade of the 21st century clearly indicate that the high stakes testing and stringent accountability measures, which have perpetuated the one-size-fits-all college readiness, agenda is not working. (Barnes & Slate, 2013, p. 3)

[While] the NCLB Act may have positive implications for college- and workforce-readiness; many researchers have argued that high-stakes testing and punitive accountability measures are detrimental to student learning, closing the achievement gap, lowering the dropout rate, increasing graduation rates, and preparing students for access to and success in academic endeavors beyond high school (Barnes et al., 2010; Berliner, 2006; Marchant, Paulson, & Shunk, 2006; Moore et al., 2010; Ravitch, 2010; Rosenbaum et al., 2010; Savitz-Romer et al.,

2009; Symonds et al., 2011; Tan, 2010; Tienken & Canton, 2009; Tienken & Zhao, 2010; Zhao, 2009a, 2009b). (Barnes & Slate, 2013, p. 3)

Issues Faced by Rural Students

While postsecondary opportunities are critical for all students, offering such opportunities is even more important for students from rural communities with scarce educational resources and limited employment opportunities (Israel, Beaulieu, & Hartless, 2001). Rural communities in the United States have undergone significant social, economic, and demographic changes in the past 100 years (Brown & Schafft, 2011; Edmondson, 2003; Elder & Conger, 2000; Johnson, 2006; Lyson & Guptill, 2004).

While some rural communities have been remade as high-amenity retirement destinations or have experienced in-migration of new and diverse populations, in other places the industrialization of agriculture and agribusiness consolidation have resulted in the decline of family farms, accompanied by brain drain and the closing of businesses that once served thriving farming communities (Brown & Schafft, 2011; Edmondson, 2003; Elder & Conger, 2000; Johnson, 2006; Lyson & Guptill, 2004). This has and continues to have dramatic effects and poses pressing challenges for many rural communities as they fight to educate and motivate youth and attract and employ these same youth and young adults (Artz, 2003; DeJong & Klein, 1999; Demi, McLaughlin & Snyder, 2009).

The term *brain drain* describes the phenomenon in which the most talented youth migrate out of rural communities in search of healthier labor markets and greater

opportunities (Carr & Kefalas, 2009; Gibbs, 2005; Sherman & Sage, 2011). “In 1900, 60 percent of the United States population lived in rural areas, compared to 25 percent in 1990 (Mills, 1995) and 17 percent in 2009 (Gallardo, 2010)” (Sherman & Sage, 2011, p. 2). “Much of this trend is due to the loss of young adults; between 2000 and 2009, rural counties lost individuals under the age of 45 at a higher rate than non-rural counties (Gallardo, 2010)” (Sherman & Sage, 2011, p. 2). Rural young adults, compared to nonrural young adults, are more likely to leave their home communities (Gibbs, 1998).

This brain drain/outmigration is problematic for rural communities for many reasons. First, those who leave tend to be better educated, have more educated parents, attain higher academic achievement, possess higher educational aspirations (Carr & Kefalas, 2009; Roscigno & Crowley, 2001), and are more highly trained than their counterparts who stay (Cushing, 1999; Gibbs & Cromartie, 1994; Mills & Hazarika, 2001).

Second, “those left behind tend to be disproportionately composed of the less well educated and individuals with lower incomes and fewer skills (Brown & Schafft, 2011; Cushing, 1999)” (Petrin, Schafft, & Meece, 2014, p. 295). In fact, “people with a high school diploma or less make up nearly two-thirds of adults who stay in their rural communities (Gibbs, 1998)” (Sherman & Sage, 2011, p. 2).

Third, rural brain drain exacerbates “local disadvantage not only because of shrinking economies but also because patterns of selective outmigration have fundamentally altered the demographic and socioeconomic composition of local populations” (Petrin et al., 2014, p. 295).

Last, and most impactful, these outmigration processes often create an environment that exacerbates educational apathy for those who stay behind because they do not see the importance of attaining education if they are to stay in a community with few opportunities and consider education not to be important for those who are available (Corbett, 2007; Woodrum, 2004).

Three areas are of specific concern with respect to the college and career readiness levels (or lack thereof) of rural students. The first area of concern is high school dropout, “as nationwide, policymakers have set a goal to reach a 90% high school completion rate by 2020” (Hardre & Reeve, 2003, p. 347). “The most recent data places the current national high school dropout rate at just over 12%, though dropout rates for rural high school students are about 20% and as high as 40% in the most remote schools” (Hardre & Reeve, 2003, p. 347).

The second area of concern is lack of resources. “External resources provide students with academic and social opportunities that contribute positively to their achievement and school retention, such as school–business partnerships, field trips, and secondary and higher education collaborations” (Hardre & Reeve, 2003, p. 347). “When schools face severe limitations in external resources (e.g., socioeconomic constraints), as is common with rural schools, they must rely on other kinds of resources to support the goals of achievement and persistence (Sherman & Sage, 2011, p. 3).

Although some rural students have at-home resources to support positive academic outcomes, many face at-home and community resource deficits associated with low achievement and dropout risk (e.g., low socioeconomic

status, single-parent families, low parental education, low parental and community valuing of education. (Hardre & Reeve, 2003, p. 347)

The third area of concern is *undermatch*, which is the phenomenon whereby high-ability students choose to pursue an Associate degree instead of a 4-year degree or attend relatively low-quality colleges instead of schools to which their grades afford them access. In fact, most students who undermatch either do not apply to a well-matched school or apply and are admitted but do not enroll (Dillon & Smith, 2009). The college attendance decisions that students make, especially students from rural areas, specifically as they relate to undermatching, have critical implications for the students, their families, and their home communities (Avery, 2010; Griffith & Rothstein, 2009; Howell, 2011; Pallais, 2012).

After two decades of research focused on a secondary school-centered approach, it is clear that NCLB's academic curriculum standardization and narrow accountability measures have not decreased the dropout rate, lessened the achievement gap, increased graduation rates, or improved college or career readiness rates (Balfanz, 2009; Balfanz & Legters, 2004; Ravitch, 2010; Roderick, Nagaoka, & Coca, 2009; Rosenbaum, Stephan, & Rosenbaum, 2010; Symonds et al., 2011; Zhao, 2009a, 2009b). Moreover, in 21st-century secondary education, with respect to college and career readiness, "the word *college* is used too often as a synonym for a bachelor's degree" (Rosenbaum et al., 2010, p. 3), and the word *career* is too often deemphasized (Asch, 2010; Rosenbaum et al., 2010; Symonds et al., 2011) in a world where the focus of measurement for college readiness has come to be determined primarily by standardized tests (Barnes & Slate,

2010, 2011). According to Asch (2010), “College prep has become a one-size-fits-all approach to secondary education, and some students simply do not fit” (p. 35).

“Although common core classes are relevant in elementary and junior high school, older adolescents must be provided with a broad range of curricular options to keep them engaged in their educational pursuits of career goal aspirations” (Barnes & Slate, 2013, p. 6). To that end, secondary education must look beyond its curriculum and walls for solutions to prepare students for college and career readiness.

While these interventions may not assist in bridging the brain drain/outmigration of the highest-achieving rural students, they offer all rural students the opportunity to increase their college and career readiness levels. Solutions have been proposed, many involving pathways to postsecondary education and career interventions, to stem the brain drain and outmigration in rural communities, dropout, lack of resources, and undermatching.

Toward a New Focus

Across the nation, states, cities, school districts, and schools are leaving the old stand-alone two-pathway system of preparing students for either college or careers in technical education (Visher & Stern, 2015). The latter is being addressed most notably through vocational programs. New approaches combine “career-technical education, rigorous academic coursework, and experiences that show students the relevance of education to their future, while teaching them the academic and employability skills they need to be successful in both college and career” (Visher & Stern, 2015, p. 1).

College and career pathways—or “pathways” for short—is used to refer to a range of models or approaches that attempt to create a clear path for students to follow to attain an educational and occupational goal, while learning the skills—sometimes called twenty-first century skills or transferable skills—they need to succeed in both domains. (Visher & Stern, 2015, p. 1)

As the literature indicates, all options should be open, including workforce readiness, career technology institutes, and 2- and 4-year college pathways. One of the leaders in this movement is the Career Academies program (Stern, Dayton, & Raby, 2010), which served as the model for the change in education in Texas. “A Career Academy is a type of school-within-a-school or small learning community (SLC) that provides a college-preparatory curriculum with a career-related theme” (Stern et al., 2010, pp. 2-3). True career academies share three basic features, as identified by researchers at Manpower Demonstration Research Corporation:

First], they are organized as small learning communities or schools within schools, typically serv[ing] 150 to 200 students from 9th-12th grade; second, the curriculum is organized around one career, occupation, or industry and combines academic and technical aspects relevant to the career; and third, the academies offer work-based learning experiences, often through partnerships with local employers to include summer employment, internships, and mentoring. (Kemple & Rock, 1996, p. 2)

Career Academies began in “Philadelphia, by the nonprofit Philadelphia Academies, Inc., in 1969, spread to California in 1981, and have now expanded across

the country in various forms” (Stern et al., 2010, pp. 2-3). While the “first academies began with a focus on dropout prevention and vocational preparation, academies soon evolved to include preparation for 4-year colleges and universities” (Stern et al., 2010, p. 6). “It is important to emphasize that career academies do not require students to commit to a field of work for the rest of their lives” (Stern et al., 2010, p. 20). Instead, they prepare students for both college and careers.

Because only 30% of all 25-to 29-year-olds in the U.S. actually have completed bachelor’s degrees (U.S. Digest of Education Statistics), it makes sense that high schools should also give students some real preparation for the labor market, and career academies do that. (Stern et al., 2010, p. 21)

The movement to combine career preparation with college preparation is gaining wider acceptance, as many states (including Texas) and agencies (e.g., TEA) have adopted the idea to offer a combined career-technical education within a core academic curriculum (Stern et al., 2010).

House Bill 5: The TEA Version of Career Academies

Texas House Bill 5, also known as the Foundation High School Program, was passed by the 83rd Texas Legislature, Regular Session, in 2013. The act, which models the Career Academies program curriculum, requires that all Texas eighth-grade students select one of two diploma selections (Distinguished or Foundation) and one of five college or career pathways or “endorsement areas” prior to entering high school: STEM, Business and Industry, Public Service, Arts and Humanities, or Multi-Disciplinary Studies (TEA, 2013).

As with the career academies model, the Foundation High School Program does away with the previous two-pathway system of college or workforce through career technology programming readiness (TEA, 2013). Regardless of the choice to pursue college or career, all students are required to complete a foundation of 22 core classes, after which they have the option to pursue four additional college or career endorsement hours in one of the aforementioned foundation areas (TEA, 2013).

Students who wish to be considered for the State of Texas's Top 10% automatic college admission program must pursue the Distinguished Diploma, which requires them to complete the Foundation program requirements, four credits in mathematics (including Algebra II), four credits in science, and at least one endorsement (TEA, 2016). The Top 10% program provides automatic college admission to public universities in Texas for students who meet Foundation Distinguished criteria and graduate in the top 10% of their class. (Note: Because of its small student population, students must be in the top 7% to be admitted to the University of Texas at Austin). In this new system, students who do not pursue the Distinguished designation or compete for the Top 10% designation receive a Foundation diploma. Unlike the previous system, this diploma prepares the student to enter college or to pursue a career pathway through a certificate program, technical training program, or 2- or 4-year college (TEA, 2013).

While PYD provided the “what” theoretical underpinning and 4-H the PYD “who” system of study, House Bill 5, the Foundation High School Program (TEA, 2013), and the requirement that eighth-grade students and parents make the choice prior to ninth grade with respect to diploma type and endorsement framed the “why.” For this

study, this population was considered an appropriate sample to be an excellent fulcrum to explore college and career readiness among Texas 4-H students. Findings from the study cannot highlight only downstream needs for students in Grades 5 through 7 but also upstream needs for students in Grades 9 through 12 as they navigate the college and career landscape within the K–12 system in and beyond high school.

Cognitive Versus Noncognitive

“Over the last several decades, academically rigorous curriculum and stringent accountability measures have been mandated by state and federal legislation in hopes of increasing the likelihood of students graduating from high school college-ready” (Barnes et al., 2010, p. 1).

Although the focus was intended to create avenues for academic success for students in the U.S., little did the researchers know that they set the course to high-stakes standardized testing and stringent accountability measures without considerations for fueling other requisite skills and strategies necessary for both college and career pathway success—creativity, critical thinking, self-efficacy, and self-regulation (Amrein-Beardsley, 2009; Bell, 1993; Berliner, 1993; Bracey, 1998, 2003; Crosby, 1993; National Commission on Excellence in Education, 1983; Ravitch, 2009, 2010; U.S. Department of Education, 2008; Zhao, 2009a, 2009b). (Barnes et al., 2010, p. 2)

While success in rigorous academic courses and high scores on standardized tests are good indicators of academic preparedness, middle and high school, and college personnel must work together to help students develop an understanding

of both the academic and non-academic expectations of both college and career pathway readiness, especially when we know that only approximately thirty percent of students will graduate with a college degree. (Barnes et al., 2010, p. 2)

“Although federal mandates for academic rigor in high school curricula have been in place well over 20 years, college-readiness rates of high school graduates continue to be low nationwide” (Barnes et al., 2010, p. 13).

Zhao (2006, 2009a) suggested that because of high-stakes testing and the NCLB Act accountability measures, students who met or exceeded college-readiness standards based on standardized test scores, were perhaps more academically prepared for college rather than college-ready. (Barnes et al., 2010, p. 13)

According to Zhao (2006), measuring college-readiness by centralized curriculum and excessive high-stakes assessments created a one size fits all syndrome, which negated creative and critical thinking; both of which were required to be successful at the postsecondary level and beyond [whether or not students attended college or entered the workforce]. (Barnes et al., 2010, p. 13)

After 27 years of high-stakes testing requirements and punitive accountability guidelines set forth in the NCLB Act, little, if any, change has occurred in the academic achievement of most American students (Amrein-Beardsley, 2009; Jones, Slate, Blake, & Sloas, 1995; Jones, Slate, & Marini, 1995; Lammers, Onwuegbuzie, & Slate, 2001; National Commission on Excellence in Education, 1983; NCLB, 2001; Nichols & Berliner, 2008; Ravitch, 2010; Slate, Jones, &

Dawson, 1993; Slate, Jones, & Harlan, 1998; and Slate, Jones, & Rodgers, 1997/98). (Barnes et al., 2010, p. 17)

In the end, “College-readiness is a multifaceted concept comprising numerous factors internal and external to classroom environments” (Conley, 2007, p. 6) with “academic preparedness serving as only one piece of the college-readiness puzzle” (Barnes et al., 2010, p. 19).

Nevertheless, instead of a strictly academically focused agenda that funnels all students toward college readiness, Conley (2007a, 2007b) posited that education should be more inclusive and include noncognitive (psychosocial) elements that include students’ self-efficacy (Bandura, 1997) and self-regulation (Young & Ley, 2002, 2003), in addition to knowledge of academic strategies for reading, writing, and critical thinking rather than specific content knowledge as measured by standardized tests. (Barnes et al., 2010, p. 13)

Focusing on academics alone, without considering noncognitive skills or capabilities, represented missed opportunities as a growing body of research has shown that both cognitive and noncognitive skills are important to success in education to prepare students not only for college but also for workforce readiness (Mattern et al., 2014).

Although cognitive predictors tend to be most strongly related to work success (e.g., supervisor performance ratings), noncognitive predictors such as personality, career interests, and self-beliefs are also reliable predictors of performance in the workplace (Barrick & Mount, 1991; Judge & Bono, 2001;

Nye, Su, Rounds, & Drasgow, 2012; Schmidt & Hunter, 1998). (Mattern et al., 2014, p. 4)

Moreover, the inclusion of a noncognitive focus does not take away from students academics, as literature reports that noncognitive skills can also reliably predict academic performance (Poropat, 2009; Richardson, Abraham, & Bond, 2012) and that personality trait conscientiousness was also found to predict college GPA as well as does cognitive ability (Poropat, 2009). (Mattern et al., 2014, p. 4)

To highlight the importance of a blended cognitive/noncognitive approach to college and career readiness, “In one survey of 431 U.S. employers, skills not traditionally considered core academic skills were more frequently rated as ‘very important’ than were core academic skills” (Casner-Lotto & Barrington, 2006) (Mattern et al., 2014, p. 10).

Research has also reported a lack of focus in current educational curricula on other important skills.

Specifically, oral communication, teamwork, work ethic, and critical thinking were all more frequently listed as “very important” than were knowledge of writing in English, the English language, mathematics, and science. Similarly, 52% of executives identified their employees’ inadequate problem-solving skills as a serious skills deficiency; 40% identified inadequate basic employability skills, including work ethic and punctuality; whereas only 30% cited inadequate mathematics skills (Deloitte and the Manufacturing Institute, 2011). Finally, in

yet another survey, an overwhelming majority of employers indicated that colleges should place more emphasis on written and oral communication (89%), critical thinking (81%), complex problem solving (75%), ethical decision making (75%), teamwork (71%), and innovation and creativity (70%). (Mattern et al., 2014, p. 10)

In general, “the results from these surveys indicate that employers are less concerned with the core academic preparation of graduates than they are with the cross-cutting capabilities and noncognitive skills” (Mattern et al., 2014, p. 11). This is important not only for college-going students who will be seeking employment after graduation but especially for students who are not tracking for college but are seeking to enter the workforce. Statistics show that 70% of those students will not complete college. Preparation of students for college and career pathway readiness must embrace the multidimensional nature of readiness for both education and workplace success. Preparation for college, careers, or life requires skills and competencies from both cognitive and noncognitive domains.

Noncognitive College and Career Readiness

ACT (2009) defined college readiness as mastery of the knowledge and skills needed to succeed in entry-level college courses without the need for remediation. David Conley (2010) founder of the Educational Policy Improvement Center (EPIC) stated educators must evaluate the mastery of both academic content and psychosocial skills. Conley (2010) defined *college ready* as the ability to “qualify for and succeed in entry-level, credit-bearing college courses leading to a baccalaureate, without the need for

remedial or developmental coursework” (p. 27). Conley (2010) emphasizes the multidimensional aspect of college readiness, including students’ knowledge, aspirations, and motivation.

In 2007, under the George W. Bush administration, the No Child Left Behind Act (NCLB) increased the federal government’s role in ensuring success of students by holding schools accountable for student outcomes to increase American competitiveness and reduce the achievement gap. However, NCLB received much criticism from educators because it systematically measured student success by standard achievement testing only.

ACT (2008) explored the fact that proper identification of and intervention for at-risk students require inclusion of the measurement of noncognitive factors as well as cognitive factors. According to Rosen, Glennie, Dalton, Lennon, and Bozick (2010), noncognitive factors are also known as socioemotional, psychosocial, and behavior factors. These interchangeable terms are used to describe the academic, attitudinal, behavioral, emotional, and occupational characteristics that are not analytical in nature and that are associated with the ability to function properly in one’s environment. Balfanz, Herzog, and MacIver (2007) posited that college and career readiness and student dropout rates can be improved by providing early intervention and assistance in educational development.

Educational theorists Rumberger and Lim (2008) identified several noncognitive factors that predict which students will graduate from high school and which will drop out. Grigorenko et al. (2009) and Yen, Konold, and McDemott (2004) conducted studies

to identify the effects of cognitive factors on student success. Their findings were consistent with an extensive research project with elementary and middle schoolers that found that a variety of noncognitive factors were key to supporting academic performance (Payton et al., 2008). Robbins, Allen, Casillas, Peterson, and Le (2006) examined students in their transition to postsecondary education and determined that noncognitive factors were as important as academic performance and standardized achievement factors in predicting college retention and academic success.

The ACT Engage 6-9 College & Career

Readiness Noncognitive Assessment

Catalano, Berglund, Ryan, Lonczak, and Hawkins (1999) noted, “A major obstacle to tracking indicators of positive youth development constructs is the absence of widely accepted measures for this purpose, and that many aspects of positive youth development go unassessed due to the underdeveloped state of the assessment tools” (p. vii). That said, after a review of the literature, the ACT Engage 6-9 College & Career Readiness noncognitive assessment instrument (formerly known as the Student Readiness Inventory—Middle School) established from the original Student Readiness Inventory™ instrument created by Robbins et al. (2004), was selected as the primary instrument for this study because of its validated ability to measure noncognitive (psychosocial) behaviors designed to determine students’ levels of academic risk related to college and career readiness (Le, Casillas, Robbins, & Langley, 2005).

The ACT Engage 6-9 instrument is a low-stakes 106-question self-reported instrument presented at a fourth-grade reading level. It uses a 6-point Likert-type scale

rating from *strongly agree* to *strongly disagree* (Robbins et al., 2004; Robbins et al., 2006; Robbins, Oh, Le, & Button, 2009). “ACT Engage reliability scales are relatively short (range = 9 to 12 items) and have good to excellent internal consistency reliabilities (Cronbach coefficient alpha range = .81 to .90; median = .87)” (Casillas et al., 2011, pp. 16-17). College and career readiness is measured in the ACT Engage 6-9 by the three domains (Motivation and Skills, Social Engagement, and Self-Regulation) across 10 scales (Robbins et al., 2009).

The first domain of the ACT Engage 6-9 is Motivation and Skills (Table 3). This domain includes personal characteristics that help students to succeed academically by focusing and maintaining energies on goal-directed activities. Measuring and understanding the predictive nature of psychosocial skills identifies key factors in college-ready students (Le et al., 2005). A review of motivational literature reveals the importance of motivation in preparing students for college.

The quality of student learning, as well as the will to continue learning, depends closely on the interaction between the kinds of social and academic goals students bring to the classroom, the motivating properties of these goals, and prevailing classroom reward structures. (Covington, 2000, p. 171)

Within the ACT 6-9, the scale of Academic Discipline is most strongly correlated with the likelihood of a student’s success and retention in high school and the ability to persist to graduation in a postsecondary college. Those who excel in this area are most likely to value academics, perform well in the classroom, and put a high priority on educational pursuits. In contrast, those who are lacking motivation for academic

Table 3

ACT Engage 6-9 Motivation and Skills Domain, Scales, and Definitions

Domain	Scale	Definition
Motivation and Skills: personal characteristics that help students to succeed academically by focusing and maintaining energies on goal-directed activities	Academic Discipline	Degree to which a student is hardworking and conscientious as evidenced by the amount of effort invested into completing schoolwork
	Commitment to School	Commitment to stay in high school and obtain a diploma
	Optimism	Having a hopeful outlook about the future in spite of difficulties or challenges

Note. Adapted from *Engage™ College User’s Guide*, by ACT, 2011b, Iowa City, IA: Author.

discipline show a lack of respect for education, attending class, completing homework, and other educationally related tasks (ACT, 2008).

The second domain of ACT Engage 6-9 is Social Engagement (Table 4). This domain includes interpersonal factors that influence students’ successful integration into their environment. *Student engagement* is defined as the tendency of students to be behaviorally, emotionally, and cognitively involved in school activities (Thijs & Verkuyten, 2009). Fredricks, Blumenfeld, and Paris (2004) compared engaged students with less engaged students and determined that engaged students displayed more positive emotions, demonstrated more effort, and paid more attention in the classroom. Connell, Spencer, and Aber (1994) studied engagement data and identified correlations

Table 4

ACT Engage 6-9 Social Engagement Domain, Scales, and Definitions

Domain	Scale	Definition
Social Engagement: interpersonal factors that influence students' successful integration or adaptation into their environment.	Family Attitude Toward Education	Positive family attitude regarding the value of education
	Family Involvement	Family involvement in a student's school life and activities
	Relationships With School Personnel	The extent to which students relate to school personnel as part of their connection to school
	School Safety Climate	School qualities related to students' perception of security at school

Source: Adapted from *Engage™ College User's Guide*, by ACT, 2011b, Iowa City, IA: Author.

between student engagement and positive student success, college readiness, higher grades, and increased retention rates.

The third domain of the ACT Engage 6-9 is Self-Regulation (Table 5). The domain includes cognitive and affective processes used to monitor, regulate, and control behavior related to learning. Rosen et al. (2010) defined *self-regulation* as the ability to monitor and regulate cognition, emotions, and behaviors independently; the ability is also referred to as *self-control*. Although self-regulation and self-control are distinct, they are related constructs (Zimmerman & Kitsantas, 2014) and the terms are used interchangeably in the literature. Several research studies have demonstrated that self-regulation is a key factor in determining academic success. For instance, self-regulation

Table 5

ACT Engage 6-9 Self-Regulation Domain, Scales, and Definitions

Domain	Scale	Definition
Self-Regulation: cognitive and affective processes used to monitor, regulate, and control behavior related to learning	Managing Feelings	Tendency to manage duration and intensity of negative feelings, (e.g., anger, sadness, embarrassment) and to find appropriate ways to express these feelings
	Orderly Conduct	Tendency to behave appropriately in class and avoid disciplinary action
	Thinking Before Acting	Tendency to think about consequences of one's actions before acting

Source: Adapted from *Engage™ College User's Guide*, by ACT, 2011b, Iowa City, IA: Author.

may play a role in maintaining attention and preventing disrupting classroom behaviors and problem behaviors (Harris, Friedlander, Saddler, Frizzelle, & Graham, 2005).

Dignath, Buttner, and Langfeldt (2008) studied the effectiveness of self-regulatory interventions and determined that self-regulation was significant in youth motivation and academic achievement. Zimmerman and Kitsantas (2014) identified a positive correlation between self-regulation and academic achievement. Educators have adopted a self-regulation model called the cyclical model, which contains three phases: (a) planning and forethought, (b) performance monitoring, and (c) reflections on performance (Zimmerman & Kitsantas, 2014).

[Data from the ACT Engage 6-9 highlight that] academic behaviors contribute to the prediction of future academic performance and thus can be useful in

identifying middle school students who are at high risk of failing academically and dropping out of high school, which has significant implications for combining academic behavior and achievement information to support the timely identification of at-risk students. (Casillas et al., 2011, p. 34)

If they are identified early,

the predictive factors in question were clearly present in middle school and can be assessed and used to help students, parents, schools and youth-serving organizations (Texas 4-H) to design interventions to assist students to better prepare for—and successfully navigate—the transition from middle to high school. (Casillas et al., 2011, p. 34)

More important than the improvement in prediction, measuring academic behaviors can help educators understand why students are at risk, as the dominance analysis shows (33% of the explained variation in early high school GPA is attributed to the combination of psychosocial factors and behavioral indicators), these factors play a prominent role in understanding students' risk for academic difficulties and will be key in intervening with students who are at risk. (Casillas et al., 2011, p. 34)

Chapter Summary

While a study to explore noncognitive (psychosocial) college and career readiness levels of Grade 8 public-schooled Texas 4-H participants with more than 2 years of tenure may seem narrow in scope, this population was extremely important because of the present graduation requirements in Texas. Findings from this study not

only provide valuable information for the study sample of eighth-grade students; results could also highlight downstream needs for students in Grades 5 through 7 and upstream needs for students in Grades 9 and 10 as students seek to navigate the college and career landscape in the Texas K–12 system and beyond high school.

This chapter identified the criteria for literature selection and the databases used for inclusion. PYD theory is the underlying framework for this study in order to support interventions to develop college and career readiness in youth in the Texas-based 4-H programs. The chapter reviewed relevant literature on the Texas 4-H and TEA Foundation Graduation Plan. The study was based in part on the lenses of the ACT Engage 6-9, current scholars and thought leaders, and historical, theoretical, and empirical data on youth to conceptualize their roles in college and career readiness.

CHAPTER III

METHODS

This chapter describes the methods used to carry out the study, giving special attention to the data collection process and analysis of data. The purpose of this study was to explore the impact of the 4-H Life Skills program on participants' noncognitive college and career readiness levels utilizing the ACT Engage 6-9 instrument (formerly known as the Student Readiness Inventory—Middle School) to evaluate quantitatively the noncognitive (psychosocial) college and career readiness levels among eighth-grade public school Texas 4-H participants with more than 2 years of tenure. Purposive sampling was used to survey 69 eighth-grade students (from a population of 1,697 students who were public-schooled Texas 4-H participants with more than 2 years of tenure. Response to a survey of the sample produced descriptive statistics (i.e., means, standard deviations, and independent-samples *t* tests) to investigate students' noncognitive college and career readiness levels. Independent variables were gender, grades, intent to gain a high school diploma, chosen ninth-grade TEA Endorsement Area, intentions after graduation, 4-H program participation, 4-H tenure, and FFA participation. These variables were studied across the ACT Engage 6-9 instrument's three domains and 10 scales. This chapter describes the method used to address the study's objectives, including a description of the design, population sample, instrument, and analysis process used to assess the data and achieve the objectives of the study.

Goal

The goals of this study were to utilize the ACT Engage 6-9 instrument to explore quantitatively the noncognitive (psychosocial) college and career readiness levels of eighth-grade public-schooled Texas 4-H participants with more than 2 years of tenure and to recommend intervention activities to address the high percentage of rural students who are either not enrolling in college, undermatching in college, or requiring remediation upon entering college.

Study Objectives

To achieve this study's goals, the objectives were as follows:

1. Explore and describe participant noncognitive college and career readiness using the ACT Engage 6-9 instrument's three domains and 10 scales;
2. Identify and describe participant noncognitive college and career readiness across the variables of gender, academic grade range, intended TEA high school diploma path, intended TEA Grade 9 Endorsement Area selection, intended After-high-school plans, intended education level attainment goals, 4-H program participation, 4-H program tenure, and FFA participation; and
3. Recommend intervention activities to assist and improve participant noncognitive college and career readiness.

Overall Research Design

The study explored associations of gender, academic grade range, intended TEA high school diploma path, intended TEA Grade 9 Endorsement Area selection, intended After-high-school plans, intended education level attainment goals, 4-H program

participation, 4-H program tenure, and FFA participation by 69 eighth-grade public-schooled Texas 4-H participants with more than 2 years of tenure across the three domains and 10 scales of the ACT Engage 6-9 instrument. Descriptive statistics, means, standard deviations, and independent-samples *t* tests were used to analyze participant domain and scale scores, describe student characteristics among the independent variables, identify populations at risk, and propose recommendations for targeted intervention activities to enhance students' noncognitive (psychosocial) skills and improve their college and career readiness levels.

While the disadvantages of descriptive statistics limited this study in terms of relating causal factors from the findings, these statistics were used specifically for their ability to provide a current first-stage account of the college and career readiness characteristics of eighth-grade Texas 4-H students and to highlight directions for future research, while not addressing causal factors or hypotheses (Carter, 2000; Clifford, 1997; Grimes & Schulz, 2002; Jack & Clarke, 1998). The strength of descriptive statistics in terms of “describing what exists, determining the frequency occurrence, categorizing information, and discovering new meaning” (Burns & Grove, 1999, p. 24) fit well with this study's goal to identify and describe 4-H students' college and career readiness so that more sophisticated research designs and robust statistical techniques can be applied in future research.

The ACT Engage 6-9 online student questionnaire, with additional questions designed by the researcher, was used to collect demographic information and data on psychosocial college and career readiness. This instrument met the research need and

matched the goal of the study. Additional advantages of the ACT Engage 6-9 instrument were that the survey was easy to access and designed to participant reading levels. The administration of the survey anonymously online was anticipated to provide more truthful participant responses than face-to-face administration of the survey (Leedy & Ormond, 2001).

Selection of the Population

The researcher used purposive sampling to identify and solicit participants. The list of potential participants was obtained from the Texas 4-H program's CONNECT enrollment system database. Purposive sampling was chosen because of its ability to identify targeted populations for study and to ensure that the sample was representative, the collected data were, and the study would be replicable (Alexiades, 1996; Bernard, 2002).

While non-probability methods such as purposive sampling are not free from bias, and participants are chosen out of convenience (Lopez, Atran, Coley, Medin & Smith, 1997; Seidler 1974; Smith 1983; and Zelditch 1962), the strength of the method, and its ability to provide reliable and robust data actually lies in its intentional bias (Bernard 2002, Lewis & Sheppard 2006; Poggie 1972; Tremblay 1957). In fact, purposive sampling provides external validity as it becomes valid over the realm it represents. (Tongco, 2007, pp. 153-154)

“When a purposive sample is measured correctly, it becomes valid for the sample, thus providing internal validity” (Tongco, 2007, p. 154).

While purposive sampling contributes more to internal validity than external validity, it is important to state the bias clearly when the results are analyzed and interpreted so as not to mislead people into inferring general conclusions (Bernard 2002; Godambe 1982; and Snedecor 1939). (Tongco, 2007, p. 154)

Specifically, the population of Texas Grade 8 4-H participants was chosen because of Texas House Bill 5, also known as the Foundation High School Program. The act requires that all Texas eighth-grade students select one of two diploma selections (Distinguished or Foundation) and one of five college or career pathways (STEM, Business and Industry, Public Service, Arts and Humanities or Multi-Disciplinary Studies), termed endorsement areas, prior to entering high school. The researcher judged that this population would be an excellent fulcrum with which to study college and career readiness. Findings from the study could not only elicit valuable information for the eighth-grade students under study but also highlight downstream needs for students in Grades 5 through 7 and upstream needs for students in Grades 9 and 10 as they seek to navigate the college and career landscape within the Texas K–12 system and beyond high school.

Because the participants were under 18 years of age, contact was made only through the parents of participants. Study solicitation requests, with approval by the Internal Review Board (IRB) and all necessary documentation, were emailed to parents. Only parents who signed consent forms were sent surveys to administer to their eighth-grade public-schooled Texas 4-H participants with more than 2 years of tenure.

Procedure

Potential participants were solicited in two waves: (a) May through June 2017, and (b) September through December 2017. The latter wave was added due to lack of response during the first wave. Steps in the researcher's process for achieving consent, assent, and data collection were as follows. First, the researcher applied for and received IRB approval from Texas A&M's University Human Subjects Protection Program on April 15, 2017. Second, Texas 4-H provided a list of currently enrolled eighth-grade public-schooled Texas 4-H participants with more than 2 years of tenure from their 4-H CONNECT enrollment system database. Third, using Research Randomizer, an online software program (<https://www.randomizer.org/>), a list of unique random numbers from 1 to 2,609 was produced to guide selection of potential participants, with the first 200 serving as primary participants and the remaining used to replace nonparticipants. Fourth, prior to the solicitation emails to parents of targeted eighth-grade 4-H students, Texas 4-H County Extension Agents received an email from Dr. Toby Lepley, Associate Professor and Extension 4-H and Youth Development Specialist, informing them of the study and inviting them to share with parents that they might receive an email solicitation to participate in the approved research project (Appendix A). Fifth, 7 days after Dr. Lepley's letter was distributed, emails were sent to parents of students selected by the randomizer in waves of 200. The introduction letter included a description of the study, the IRB approval letter, a Parent and Guardian Consent Form, a Student Assent Form, and a sample of the ACT Engage 6-9 Student Report that participating students would receive upon completion of the survey (Appendices B through F). Sixth, parents

who returned signed assent and consent forms were sent a thank you email that included directions to access and complete the ACT Engage 6-9 survey (Appendix G). Seventh, an Excel tracking system was used to identify parents who had agreed to participate but did not complete the Engage survey. After 1 week, they were sent a reminder email message encouraging them to complete the survey (Appendix. H). No further contact was made with nonrespondents, and they were replaced by students from the pool of extra randomized numbers. Eighth, to encourage timely completion, participants who completed the survey within 7 days of receiving their emails were entered in a drawing for one of three \$50 Walmart gift cards. All participants who completed the survey were sent a thank you letter (Appendix I). Participants who were eligible for the prize were assigned a random number (1-69), and winners were selected through a computer-based randomizer.

Technical email issues exerted an impact on data collection. The researcher did not have access to the Texas A&M University Internet server for 2 months, which limited the ability to reach potential participants. The researcher was advised by his committee to stop solicitation activities during summer 2017 and resume in September 2017. In September, the researcher continued with the same population of students, who were by that time ninth graders. Upon resumption in September, the same solicitation procedures were followed until the needed response rate was achieved.

Instrumentation

After a review of the literature, the widely used ACT Engage 6-9 instrument (formerly known as the Student Readiness Inventory—Middle School) established from

the original Student Readiness Inventory™ instrument created by Robbins et al. (2004) was selected as the instrument for this study because of its validated ability to measure noncognitive (psychosocial) behaviors designed to determine students' levels of academic risk related to college and career readiness (Le et al., 2005). Using a construct validation approach (Clark & Watson, 1995; Loevinger, 1957; Nunnally & Bernstein, 1994), Robbins et al. (2004) conducted a meta-analysis in which they examined over 109 studies (with a sample of more than 150,000 students), from educational persistence and motivational models of college success to determine the validities of various psychosocial and study skill constructs in predicting two important college success criteria: academic performance (i.e., college GPA) and persistence (i.e., college retention). (ACT, 2011b, p. 45)

Based on the existing literature, ACT researchers generated a comprehensive conceptual model for assessing middle school academic risk focused on predictors from five primary categories: (a) prior academic achievement; (b) noncognitive factors including motivation and skills, social engagement, and self-regulatory factors; (c) observable behavioral indicators including time spent on homework and absenteeism; (d) school factors including average class size and percent of students eligible for free/reduced lunch; and (e) demographic factors including gender, race/ethnicity, and parental education. (Casillas et al., 2011, p. 5)

Exploratory and confirmatory factor analyses were used to examine the factors with the “field study leading to the final instrument development focused on a large

cohort of seventh- and eighth-grade students across 24 middle schools from 13 districts throughout the Midwest and Southern regions of the U.S.” (Casillas et al., 2011, p. 10). The resulting ACT Engage 6-9 instrument is a low-stakes 106-question self-reported instrument designed on a fourth-grade reading level. The instrument uses a 6-point Likert-type scale with response choices ranging from *strongly agree* to *strongly disagree* (Robbins et al., 2004; Robbins et al., 2006; Robbins et al., 2009). “ACT Engage 6-9 reliability scales are relatively short (range = 9 to 12 items) and have good to excellent internal consistency reliabilities (Cronbach coefficient alpha range = .81 to .90; median = .87” (Casillas et al., 2011, pp. 16-17).

The ACT Engage 6-9 instrument demonstrated the expected higher-order structure incremental validity for the instrument’s three domains of: 1. Motivation and Skills, 2. Social Engagement, and 3. Self-regulation and their associated scales which parallels that of the college version of the ACT Engage instrument (ACT, 2011; Le, Casillas, Robbins & Langley, 2005). (Casillas et al., 2011, p. 33)

ACT Engage 6-9 data is significant in the fact that findings confirm that academic achievement indicators (i.e., prior grades, standardized achievement scores) are the strongest predictors of future academic success and that these findings are consistent with those of earlier longitudinal studies, in which course performance during middle school was a key indicator of subsequent academic performance and eventually high school graduation (Allensworth & Easton, 2005, 2007; Bowers, 2010; MacIver 2010). (Casillas et al., 2011, p. 33)

ACT Engage 6-9 can assist in identifying middle school students who are at academic risk, may drop out, or may not persist to high school diploma (ACT, 2012). It highlights specific noncognitive areas that can be addressed to increase student readiness. With this information, students, parents, K–12 programs, institutions of higher education, and youth-serving organizations such as Texas 4-H may be able to design, implement, and bolster current programming to address the specific needs of their participant populations.

Individual Research Objective Methods

Objective 1

Objective 1 was to explore and describe participant noncognitive college and career readiness using the ACT Engage 6-9 instrument's three domains and 10 scales. The quantitative research design included dependent variables from the 10 scales, measured along the instrument's three domains of Motivation and Skills, Social Engagement, and Self-Regulation. The Motivation and Skills domain scales were Academic Discipline, Commitment to School, and Optimism. The Social Engagement domain scales are Family Attitude Toward Education, Family Involvement, and Relationship with School Personnel. The Self-Regulation domain scales were Managing Feelings, Thinking Before Acting, and Orderly Conduct. The independent variables were (a) student individual domain scale scores, (b) average ACT Engage percentile scores for study 4-H students and nationally, (c) percentage of 4-H students with ACT Engage percentile scores in each broad range, (d) percentage of students with Academic Success Index scores in each broad range, (e) percentage of students with Graduation Index

scores in each broad range, (f) 4-H students and national mean ACT Engage percentile scores, and (g) 4-H students and national mean ACT Engage scale scores. The instrument was the ACT Engage 6-9 survey. Regarding validity and reliability, Engage scales are relatively short (9 to 12 items) and have good to excellent internal consistency reliabilities (Cronbach coefficient alpha range = .81 to .90, median = .87; Robbins et al., 2004).

The ACT Engage 6-9 survey was administered as a web-based survey completed by parents. Data were accessible to the researcher from the ACT website upon completion. Descriptive data were computed and provided by ACT with the instrument's scales offering indices data that highlighted students' raw and percentage scores to assist in comparing participants' college and career readiness levels to national averages for students in Grades 6 through 9 and to aid in identification of students who were at risk for academic failure (Casillas et al., 2012; Le et al., 2005; Robbins et al., 2004; Robbins et al., 2009).

Objective 2

Objective 2 was to identify and describe participant noncognitive college and career readiness across the variables of gender, academic grade range, intended TEA high school diploma path, intended TEA Grade 9 Endorsement Area selection, intended After-high-school plans, intended education level attainment goals, 4-H program participation, 4-H program tenure, and FFA participation. The quantitative design included dependent variables measured along the ACT Engage 6-9 noncognitive college and career readiness instrument's three domains of Motivation and Skills, Social

Engagement, and Self-Regulation and its 10 scales. The Motivation and Skills domain scales were Academic Discipline, Commitment to School, and Optimism. The Social Engagement domain scales were Family Attitude Toward Education, Family Involvement, and Relationship with School Personnel. The Self-Regulation domain scales were Managing Feelings, Thinking Before Acting, and Orderly Conduct. The independent variables included the following student demographic data: (a) gender: (M/F); (b) Academic Grade Ranges (Mostly As, Mostly Bs, Mostly Cs, Less than Mostly Cs), (c) intended TEA high school diploma path (Distinguished Plan Diploma, Foundation Plan Diploma, or Foundation Plan Career and Technology Education [CTE] Diploma); (d) intended TEA Grade 9 Endorsement Area selection: STEM, Business and Industry, Public Services, Arts and Humanities, or Multidisciplinary Studies; (e) intended education level attainment: high school diploma, specialized licensure, Associate degree, undergraduate degree from a 4-year college, Master's degree from a 4-year college, or doctorate from a 4-year college); (f) intended after-high-school plan: enter workforce, military, 2-year community college only, 2-year community college then transfer to a 4-year college, or 4-year college); (g) 4-H program tenure: 1-6 years; (h) 4-H program participation in any of 39 program areas; and (h) FFA participation (Yes/No).

The data collection instrument was the ACT Engage 6-9 survey, with additional researcher-developed questions (Appendix J). Regarding validity and reliability,

The strength of the method, and its ability to provide reliable and robust data actually lies in its intentional bias (Bernard 2002; Lewis & Sheppard 2006;

Poggie 1972; Tremblay 1957), because its sampling provides external validity as it becomes valid over the realm it represents. (Tongco, 2007, pp. 153-154)

“When a purposive sample is measured correctly, it becomes valid for the sample, thus providing internal validity” (Tongco, 2007, p. 154).

The ACT Engage 6-9 instrument was administered as a web-based survey to parents. Data were accessible from the ACT website upon completion. Responses from each participant were coded numerically, entered into the Statistical Package for Social Sciences (SPSS) 17.0 for Windows, and analyzed. Descriptive statistics, including means, standard deviations, and *t* tests, were used to determine the degree of the relationship between total scores and the various independent variables. Alpha level was set at .10.

Objective 3

Objective 3 was to recommend intervention activities to assist and improve participant noncognitive college and career readiness. The recommendations were based on the findings derived from analysis of the responses to the survey.

Data Collection

Archival data of current Texas 4-H participants were collected from Texas 4-H’s CONNECT enrollment system database in both participant solicitation periods May through June 2017 and September through December 2017. Collected data were responses to the ACT Engage 6-9 online assessment, with questions added regarding gender, academic grade range, intended TEA high school diploma path, intended TEA Grade 9 Endorsement Area selection, intended After-high-school plans, intended

education level attainment goals, 4-H program participation, 4-H program tenure, and FFA participation.

Limitations

This research was motivated by the researcher's professional and educational experiences in the fields of college and career readiness and agricultural education. Although previous and present personal experiences and work in the areas of college and career readiness and agricultural education served as a bridge for this study, they presented a potential hindrance due to possible bias. Other limitations included the following: First, available funds for administration of the survey (\$6.25 per participant) limited the study to a sample of 69 eighth-grade Texas 4-H participants. Second, the study captured data at a specific point and time and did not track students' college and career readiness and persistence beyond the data collection point. Third, the data obtained in this study applied only to the population defined in the study. Fourth, the researcher did not have access to the Texas A&M University's Internet server for 2 months, during which time participant invitations could not be sent. The researcher was advised by his committee to stop solicitation activities during summer 2017 and resume in September 2017. In September, the researcher continued with the same population of students, who by that time were early ninth graders. Upon resumption in September, the same study solicitation procedures were followed until the needed response rate was achieved. Fifth, by examining only a sample of 4-H participants and not the entire eighth-grade Texas 4-H population, the findings may not permit generalizations. However, the intent of the study was not to generalize, but to gain insight into

noncognitive college and career readiness levels among Texas 4-H participants and to identify potential areas of strengths and weaknesses.

Delimitations

This study was delimited to eighth-grade public schooled Texas 4-H participants with more than 2 years of tenure. The study did not investigate cognitive college and career readiness or school-level variables, economic status, nor extracurricular influences that might have an impact on students' noncognitive college and career readiness levels.

Assumptions

The following assumptions were made in conducting this study:

1. Students who responded to the ACT Engage 6-9 survey answered the questions truthfully.
2. The phenomenon of student retention and academic success was able to be measured.
3. An intervention model was developed to help targeted "at-risk" Grade 8 4-H participants.
4. Students' motivations and abilities were the same at home, in the evening, or on the weekend as they are when in school when the instrument was administered.
5. Students who took the ACT Engage 6-9 were representative of Grade 8 4-H students.

Dependent Variables

College and career readiness, as measured by the three domains of Motivation and Skills, Social Engagement, and Self-Regulation, within the ACT Engage 6-9 survey, served as the dependent variables for this study. The Motivation and Skills domain addresses personal characteristics that help students to succeed academically by focusing on and maintaining energies for goal-directed activities. The Social Engagement domain addresses interpersonal factors that influence students' successful integration into their environment. The Self-Regulation domain addresses cognitive and affective processes used to monitor, regulate, and control behavior related to learning. Within these three domains are 10 scales that measure noncognitive college and career readiness: academic discipline, general determination, goal striving, commitment to college, study skills, communication skills, social engagement, social connection, social activity, self-regulation, academic self-confidence, and steadiness. The independent variables were gender, academic grade ranges, TEA intent to gain a high school diploma, graduation intention, 4-H program participation, 4-H tenure, and FFA participation.

Data Analysis

This study used archival data from the Texas 4-H program's CONNECT Enrollment System, which was queried for data from eighth-grade public-schooled Texas 4-H participants with more than 2 years of tenure. The independent variables of interest were gender, academic grade range, intended TEA high school diploma path, intended TEA Grade 9 Endorsement Area selection, intended After-high-school plans, intended education level attainment goals, 4-H program participation, 4-H program

tenure, and FFA participation. The dependent variables were the 10 scales measured along the three domains of Motivation and Skills, Social Engagement, and Self-Regulation within the ACT Engage 6-9 noncognitive college and career readiness instrument.

Results from the analyses are displayed in tables designed to demonstrate the relevancy of each independent variable in predicting college and career readiness. SPSS 17.0 was used for all statistical procedures. Descriptive statistics, including means and percentages, were used to compare and evaluate participant data results. Standard deviations were analyzed to quantify the amount of variation in respondent data. An independent-samples *t* test, which is commonly used with small sample sizes when the variances of two normal distributions are not known (Fisher, 1912; Pearson, 1929; Student, 1908), was used to measure differences among the independent variables of gender, grades, and FFA participation.

Chapter Summary

The purpose of this study was to explore the impact of the 4-H Life Skills program on participants' noncognitive college and career readiness levels utilizing the ACT Engage 6-9 instrument (formerly known as the Student Readiness Inventory—Middle School) to evaluate quantitatively the noncognitive (psychosocial) college and career readiness levels among eighth-grade public-schooled Texas 4-H participants with more than 2 years of tenure. Based on responses to the ACT Engage 6-9 instrument, this study utilized descriptive statistics, means, standard deviations, and *t* tests to determine the variance in the variables of gender, academic grade range, intended TEA high school

diploma path, intended TEA Grade 9 Endorsement Area selection, intended After-high-school plans, intended education level attainment goals, 4-H program participation, 4-H program tenure, and FFA participation along the ACT Engage 6-9 three domains and 10 scales. The results may guide Texas 4-H, Extension, and K–12 educators in developing college- and career-ready students by identifying areas of noncognitive college and career readiness strengths and risk in the studied population and recommending targeted evidence-based intervention activities to assist and improve eighth-grade 4-H participants' noncognitive college and career readiness levels.

CHAPTER IV

FINDINGS

The purpose of this study was to utilize the ACT Engage 6-9 instrument (formerly known as the Student Readiness Inventory—Middle School) to explore quantitatively the noncognitive (psychosocial) college and career readiness levels among eighth-grade public-schooled Texas 4-H participants with more than 2 years of tenure. Descriptive statistics, including means, standard deviations, and results of independent-samples *t* tests were used to determine the variance in the variables of gender, academic grade range, intended TEA high school diploma path, intended TEA Grade 9 Endorsement Area selection, intended After-high-school plans, intended education level attainment goals, 4-H program participation, 4-H program tenure, and FFA participation.

The results are presented and discussed in this chapter, along with techniques used to analyze the data as they relate to each of the research objectives. Given the significance of studying college and career readiness, especially among eighth graders affected by the TEA Foundation Graduation Plan, it is essential that stakeholders, including students, parents, educators, youth support programs, and policymakers, understand current student college and career readiness levels and be cognizant of their implications. Findings from this study may serve as an early identifier of areas of student and cohort noncognitive college and career readiness strengths and risk and inform the design of evidence-based interventions that can be implemented to support student and 4-H cohort college and career readiness.

The students who completed the ACT Engage 6-9 survey were eighth-grade and early ninth-grade public-schooled Texas 4-H participants with more than 2 years of tenure. A total of 69 response sets was received from a population set of 1,697), for a response rate of 4.0%. The confidence level was set at 90% ($p < .10$) and the confidence interval at 10.

The purpose of the study was (a) to explore the impact of the 4-H Life Skills program on participants' noncognitive college and career readiness levels utilizing the ACT Engage 6-9 instrument (formerly known as the Student Readiness Inventory—Middle School), and (b) to evaluate quantitatively the noncognitive (psychosocial) college and career readiness levels among eighth-grade public-schooled Texas 4-H participants with more than 2 years of tenure. Using purposive sampling, the study was conducted by administering the ACT Engage 6-9 noncognitive college and career readiness assessment to achieve three following objectives: (a) explore and describe participant noncognitive college and career readiness using the ACT Engage 6-9 instrument's three domains and 10 scales; (b) identify and describe participant noncognitive college and career readiness levels across the variables of gender, academic grade range, intended TEA high school diploma path, intended TEA Grade 9 Endorsement Area selection, intended After-high-school plans, intended education level attainment goals, 4-H program participation, 4-H program tenure, and FFA participation; and (c) recommend intervention activities to assist and improve participant noncognitive college and career readiness.

Respondents' Demographic Characteristics

Demographic identifiers of the respondents were used to characterize the respondent sample. Table 6 provides a profile of the respondents based on demographic characteristics. The 69 respondents consisted of 37 (53.6%) females and 32 (46.4%) males. According to race/ethnicity, the distribution was skewed, with the largest percentage being White (57, 82.6%), followed by Hispanic/Latino, Black/African American, two or more races, and Native Hawaiian/Pacific Islander; there were no American Indian, Alaskan Native, or Asian respondents.

Table 6

Respondents' Demographic Characteristics (N = 69)

Characteristic and category	<i>f</i>	%
Gender		
Female	37	53.6
Male	32	46.4
Race/Ethnicity		
White/Caucasian	57	82.6
Hispanic/Latino	7	10.1
Black/African American	2	2.9
Native Hawaiian/Pacific Islander	1	1.4
Two or more races	2	2.9
American Indian, Alaskan Native	0	0.0
Asian	0	0.0

Note. Percentages may not add to 100% due to rounding.

Respondents' Educational Characteristics

Current educational information about grades, perceptions of future plans regarding the TEA Foundation Graduation Plan and Endorsement Area selection, after-high-school plans, and education level attainment goals was collected to gain insight into the academic factors that might affect participants' college and career readiness levels. Respondents' self-reported data indicated that two thirds earned mostly As and almost one third earned mostly Bs. For TEA High School Diploma Path, three fourths selected the Distinguished Diploma, one fifth selected the Foundation Plan, and about one-eighth selected the Foundation-Career Tech Focus. Among the five TEA Endorsement Areas from which students must select prior to entering high school, almost half indicated that they would pursue STEM and one fourth Business and Industry, followed by Public Service, Arts and Humanities, and Multi-Disciplinary Areas. Respondents reported the plans after high school, with almost 80% intending to enter a 4-year college, followed by about 15% intending to enter a 2-year college and then transfer to a 4-year college, followed by miscellaneous other plans. Among the self-selected education level attainment goals, almost half planned to obtain a doctorate and one third planned to obtain a master's degree, followed by miscellaneous other plans (Table 7).

Respondents' Risk Characteristics

From the literature on college and career readiness research, certain activities have been demonstrated to exert a statistical impact on risk levels. Among the respondents, about two thirds had not changed schools; others had changed schools ranging from one to seven or eight times. One third of the students reported that they

Table 7

Respondents' Educational Characteristics (N = 69)

Characteristic and category	<i>f</i>	%
Grades		
Mostly A	47	68.1
Mostly B	21	30.4
Mostly C	1	1.4
Mostly D	0	0.0
Mostly F	0	0.0
TEA high school diploma path		
Distinguished	53	76.8
Foundation	5	7.2
Foundation-Career Tech Focused	11	15.9
TEA Endorsement Area selection		
STEM	34	49.3
Business & Industry	16	23.2
Public Service	5	7.2
Arts & Humanities	5	7.2
Multidisciplinary	9	13.0
After-high-school plans		
Work	2	2.9
Military	1	1.4
2-year college only	1	1.4
2-year college to 4-year college	10	14.5
4-year college	55	79.7
Education level attainment goals		
High school diploma	2	2.9
License	1	1.4
Associate degree	0	0.0
Undergraduate degree	11	15.9
Master's degree	24	34.8
Doctorate	31	44.9

Note. Percentages may not add to 100% due to rounding. TEA = Texas Education Agency, STEM = science, technology, engineering, and mathematics.

never come to class without homework, followed by one half who rarely did so and others who did so frequently and/or daily. One fourth of the respondents reported that they did not watch television, but more than half reported watching 1-2 hours a day, followed by as much as 7 hours or more a day. Three fourths reported that they did not engage in video gaming, followed by one fifth who played 1-2 hours per day and small percentages who did so up to 5 or 6 hours per day. Similar to video gaming, Internet usage was not high on the list of items in which the respondents engage after school: more than one half used the Internet only 1-2 hours per day, followed by those who used it up to 5-6 hours a day. All but 2 respondents reported that they had never skipped class, and two thirds reported that they had not missed school in the previous month; other responses ranged as high as 5 to 6 days. Most students reported that they were never late for school (Table 8).

Respondents' 4-H Involvement Characteristics

Table 9 summarizes data related to student participation characteristics, including tenure, perceptions about continued membership, and FFA involvement. More than half of the respondents had been members of 4-H for 6 years. Sixty-one students (88.5%) stated that they were likely to continue 4-H participation, and half reported that they also participated in FFA.

Respondents' 4-H Course Participation Characteristics

4-H has developed centers for experiential learning. Youth can participate in one or more events in these centers. Respondents reported on the frequency of their participation in these events. Table 10 summarizes this participation by the respondents.

Table 8

Respondents' Self-Reported Risk Characteristics (N = 69)

Characteristic and category	<i>f</i>	%
Changed schools		
1 time	13	18.8
2 times	3	4.3
3 times	3	4.3
4 times	2	2.9
5-6 times	2	2.9
7-8 times	1	1.4
Never	45	65.2
Come to class without homework		
Daily	5	7.2
Frequently	5	7.2
Sometimes	6	8.7
Rarely	31	44.9
Never	22	31.9
Homework (hours per day)		
None	31	44.9
1-2 Hours	5	7.2
3-4-Hours	5	7.2
5-6 Hours	22	31.9
Television watching (hours per day)		
None	18	26.1
1-2	39	56.5
3-4	7	10.1
5-6	3	4.3
7 or more	2	2.9
Video game playing (hours per day)		
None	52	75.4
1-2	14	20.3
3-4	2	2.9
5-6	1	1.4
Internet usage (hours per day)		
1-2	39	56.5
3-4	7	10.1
5-6	3	4.3
None	2	2.9

Table 8 (continued)

Characteristic and category	<i>f</i>	%
Skipped class		
Never	67	97.1
Rarely	1	1.4
Sometimes	1	1.4
Days absent (previous month)		
None	45	65.2
1-2	17	24.6
3-4	6	8.7
5-6	1	1.4
Days late (previous month)		
3-4	3	4.3
1-2	10	14.5
None	56	81.2

Note. Percentages may not add to 100% due to rounding.

Table 9

Respondents' 4-H Involvement Characteristics (N = 69)

Characteristic and category	<i>f</i>	%
4-H participation (years)		
2	6	8.7
3	4	5.8
4	8	11.6
5	13	18.8
6	38	55.1
4-H continued participation		
Likely	61	88.4
Not likely	2	2.9
Maybe	6	8.7
FFA participation		
Yes	37	53.6
No	32	46.4

Note. Percentages may not add up to 100% due to rounding. FFA = Future Farmers of America.

Table 10

Respondents' Participation in 4-H Courses (N = 69)

STEM	4-H course	<i>f</i>	%
	Community Service	35	50.7
x	Food & Nutrition	28	40.6
	Leadership	20	29.0
	Photography	20	29.0
	Shooting	19	27.5
x	Swine	17	24.6
x	Beef Cattle	16	23.2
x	Goats	16	23.2
	Clothing	15	21.7
	Consumer Education	15	21.7
	Public Speaking	15	21.7
x	Rabbits	13	18.8
	Citizenship	10	14.5
x	Horse	8	11.6
x	Robotics	6	8.7
x	Dogs	5	7.2
x	Sheep	5	7.2
x	Wildlife	5	7.2
x	Science	4	5.8
x	Veterinarian	4	5.8
x	Outdoor Education	3	4.3
x	Plants	3	4.3
	Theatre	3	4.3
	Careers	2	2.9
x	Dairy	2	2.9
x	Meat Science	2	2.9
x	Natural Resources	2	2.9
x	Poultry	2	2.9
	Safety	2	2.9
	Sport Fishing	2	2.9
x	Entomology	1	1.4
x	Range Science	1	1.4
x	Small Animal	1	1.4
	Entrepreneur	1	1.4
x	Forestry	0	1.4
	Interior Design	0	1.4
	International Travel	0	1.4
x	Rockets	0	1.4
	Water Conservation	0	1.4

Note. Percentages may not add to 100% due to rounding. STEM = science, technology, engineering, and mathematics.

Study Research Objective 1

Objective 1 was to explore and describe participant noncognitive college and career readiness using the ACT Engage 6-9 instrument's three domains and 10 scales. Respondents to this survey were eighth-grade public-schooled Texas 4-H participants with more than 2 years of tenure. From the ACT Engage 6-9 responses, descriptive statistics were computed and analyzed via the instrument's scales offering indices data to compare students' raw and percentage scores on college and career readiness levels with national averages for students in Grades 6 through 9 and aid in identification of students who were at risk for academic failure (Casillas et al., 2012; Le et al., 2005; Robbins et al., 2009; Robbins et al., 2004). Figure 1 shows the average percentile scores for participants across the 10 ACT Engage 6-9 scales and the Academic Success and Graduation indices for students who completed the survey compared to the national average scores ($N = 76,842$) for students who completed ACT Engage 6-9. 4-H students who participated in this study scored higher than the national averages on the Academic Success and Graduation indices and across all 10 scales and three domains. (Note: Later tables present detailed descriptive statistics and comparisons.)

Figure 2 is a graphic representation of 4-H participant ACT Engage 6-9 scores on each of the scales by broad percentile range. The percentile ranges represented are Low (≤ 25 th percentile), Medium (26th to 75th percentile), and High (≥ 76 th percentile). Commitment to School, School Safety Climate, and Thinking Before Acting received the highest scores (16%), followed by Family Attitude Toward Education and Relationships with School Personnel (each 13%) and Academic Discipline and

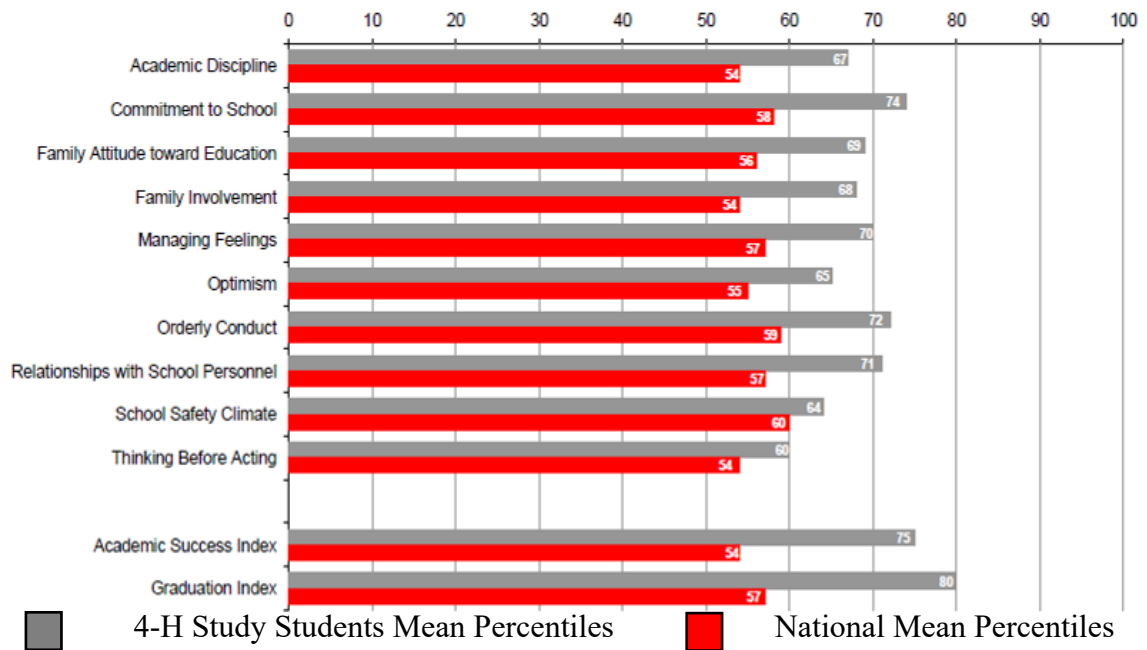


Figure 1. Average ACT Engage 6-9 percentile scores (possible range 1 to 99) for 4-H students in this study and nationally.

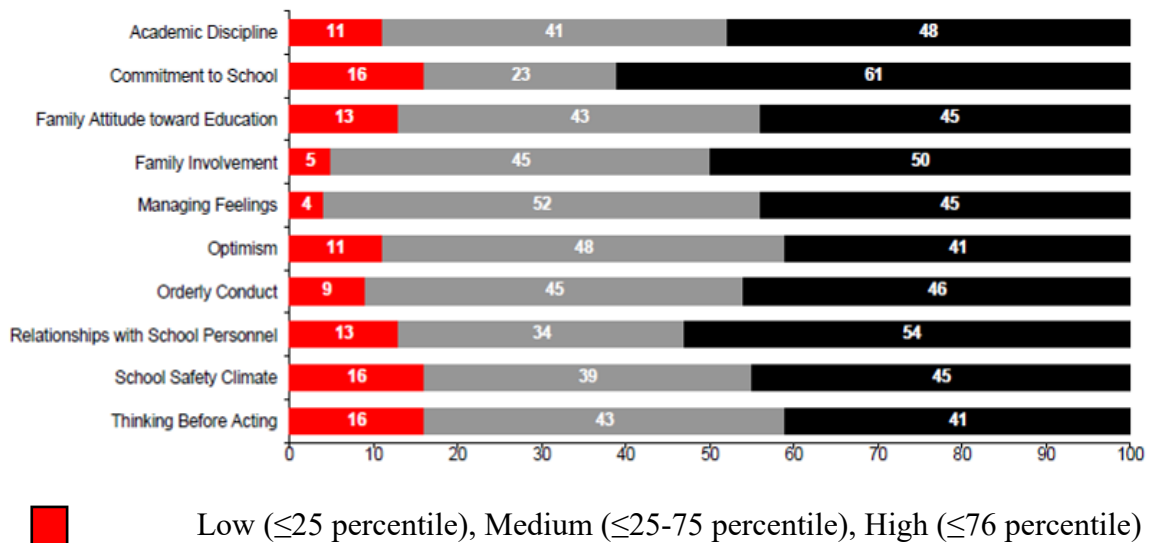


Figure 2. Percentages of 4-H students with ACT Engage 6-9 percentile scores in each broad range. $N = 69$. Percentiles may not add to 100% due to rounding.

Optimism (11%). The lowest scores were for Family Involvement and Managing Feelings at 4% and 5%, respectively. Scales with low averages indicate areas in which students are at risk for academic difficulties and in need of appropriate interventions.

Figure 3 features summary Academic Success Index information for the 4-H students in the study, which combines information from the various ACT Engage 6-9 scales, behavioral indicators, and self-reported prior grades into a single number. Research has shown that this index is “predictive of future academic success, meaning the likelihood of obtaining a GPA of 2.0 or higher in school grades (6-9) or after the first semester at a postsecondary institution (10-12 and College)” (ACT, 2015, p. 50); therefore, it assists in identifying students who are at risk of academic difficulties. Reported on a scale from 1 to 99, index scores with larger values represent increased likelihood of academic success, as indicated by higher high school GPAs. In other words, a higher Academic Success Index means that the student is less likely to be at academic risk. In contrast, a student with a low Academic Success Index is more likely to be at risk of experiencing academic difficulties, such as failing classes. Ninety-three percent of the students in this study scored in the medium (39%) or high (54%) levels.

Figure 4 summarizes ACT Engage 6-9 information about the distribution of Graduation Index scores for the 4-H students who participated in this assessment. The Graduation Index combines information from various ACT Engage 6-9 scales into a single number and predicts the likelihood of students persisting to high school graduation in 4 years. Reported on a scale from 1 to 99, indexes with larger values represent higher retention rates and lower risk of dropping out. “Using this index, the

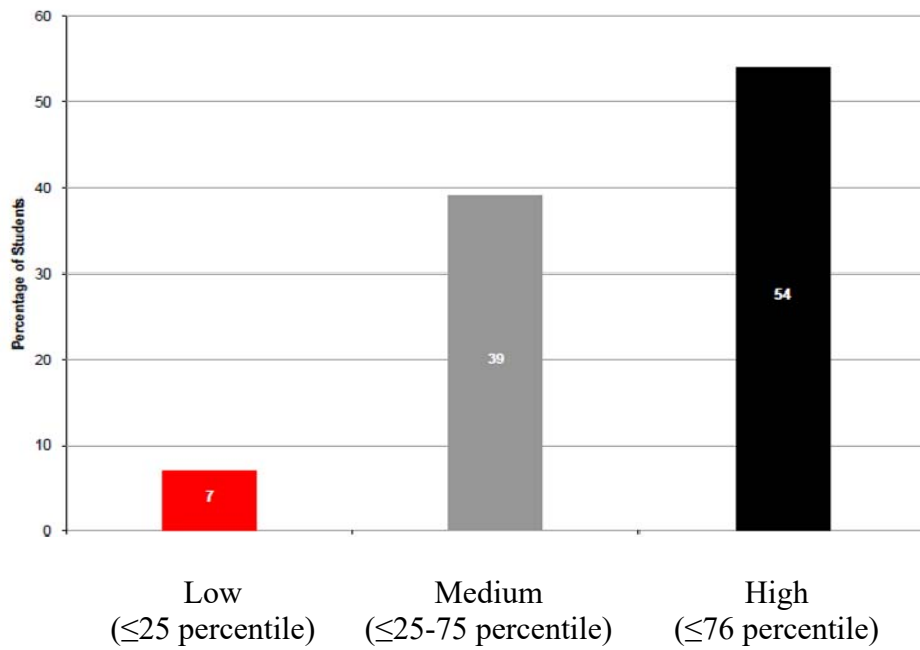


Figure 3. Percentage of students with Academic Success Index scores in each broad range. $N = 69$. Percentages may not add to 100% due to rounding.

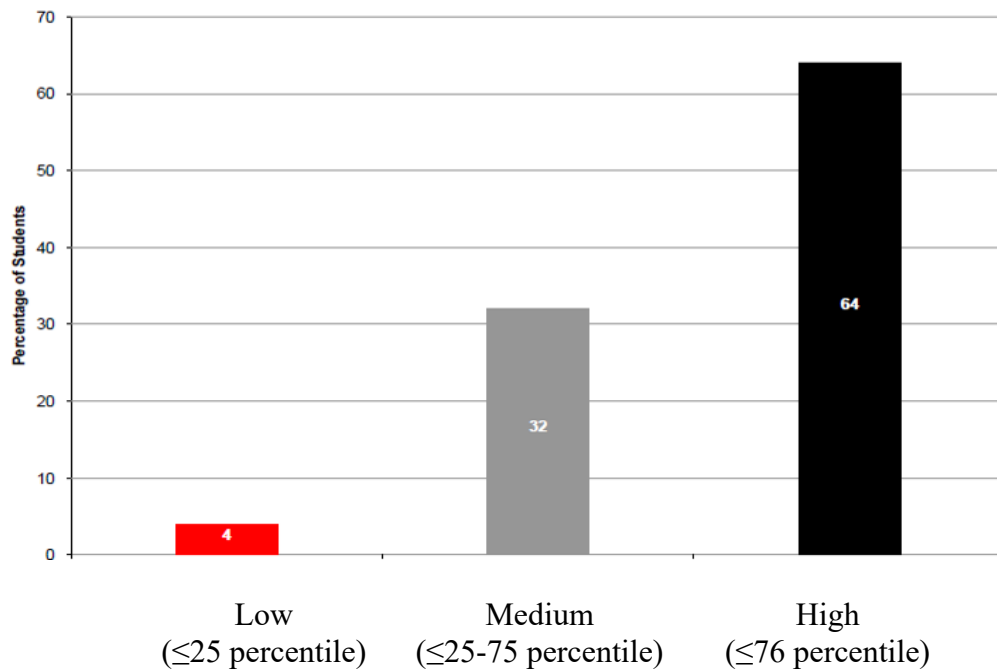


Figure 4. Percentage of students with Graduation Index Scores in each broad range. $N = 69$. Percentages may not add to 100% due to rounding.

rate of identification of students at risk of dropping out of high school is increased over random prediction by as much as 25%” (ACT, 2015, p. 50). In other words, a higher Graduation Index indicates that the student is less likely to leave school before obtaining a high school diploma; a student with a low Graduation Index is more likely to be at risk of not persisting or stopping high school before completing 4 years and graduating.

Table 11 displays ACT Engage 6-9 percentile means, standard deviations, and differences among scores for the 4-H study participants and students in Grades 6 through 9 nationally across the ACT Engage 6-9 instrument’s three domains, 10 scales, and two indices. Although 4-H domain and scale mean percentile scores range from a low of 60.4% (Thinking Before Acting) to a high of 73.6% (Commitment to School), all 4-H participant mean scores were higher than the national scores. The largest mean percentile differences between study participants and national scores occurred across Commitment to School (+15.4%), Family Involvement (+13.9%), Managing Feelings (+13.6%), Relationships with School Personnel (+13.2%), and (+12.9%) for both Academic Discipline and Family Attitude Toward Education. While the standard deviation percentiles of Commitment to School between study participants and national scores was the same at 34.4, the mean percentiles showed the largest difference at 73.6% versus 58.2%. With respect to national scores, the largest standard deviation percentile differences occurred across Managing Feelings (+7.3%), Family Involvement (-3.6%), and Relationships With School Personnel (-2.9%).

The 4-H Respondents’ Academic Success Index mean percentage score of 74.9% ($SD = 23.7$) was 20.5% ($SD = -5.4$) higher than the national mean of 54.40% ($SD =$

Table 11

Percentile Scores on the ACT Engage 6-9 for Study Students and National Mean Scores

Domain	Scale	Study participants (<i>N</i> = 69)		Nationally (<i>N</i> = 76,842)		Difference	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Motivation and Skills	Academic Discipline	67.3	27.6	54.4	29.0	12.9	-1.4
	Commitment to School	73.6	34.4	58.2	34.4	15.4	0.0
	Optimism	65.2	27.1	54.7	28.7	10.5	-1.6
Social Engagement	Family Attitude toward Education	69.0	31.4	56.1	32.6	12.9	-1.2
	Family Involvement	68.0	24.8	54.1	28.4	13.9	-3.6
	Relationships With School Personnel	70.6	25.7	57.4	28.6	13.2	-2.9
	School Safety Climate	64.2	29.1	60	27.8	4.2	1.3
Self-Regulation	Managing Feelings	70.5	20.9	56.9	28.2	13.6	-7.3
	Orderly Conduct	71.6	30.9	59.0	31.9	12.6	-1.0
	Thinking Before Acting	60.4	27.5	53.6	28.1	6.8	-0.6
Indices	Academic Success Index	74.9	23.7	54.4	29.1	20.5	-5.4
	Graduation Index	80.1	22.5	57.0	29.9	23.1	-7.4

Note. Lower scores indicate higher risk.

29.1). The 4-H Graduation Index mean percentage score was 80.1% ($SD = 22.5$), compared to the national mean of 57% ($SD = 29.9$), is a 23.1% ($SD = -7.4$) difference.

Table 12 displays 4-H and national ACT Engage scale score means, standard deviations, and differences across the ACT Engage 6-9 instrument's 10 scales. Scale scores are not norm referenced so, unlike percentage scores reported above, scale scores can be used to compare students from different grades, cohorts, or years. While 4-H study participant subject domain and scale mean scores ranged from 43.0 (School Safety Climate) to 57.5 (Commitment to School), which was also the high in the percentage scale, all 4-H study participant scale scores were larger than national scores. The largest scale score differences between study participants and national scores occurred across Orderly Conduct (+4.3), Managing Feelings (+3.9), Relationships with School Personnel (+3.7), and Family Involvement (+3.6). Standard deviation scale differences were minimal, with a range of difference favoring 4-H with 0 to -2.9, with national scores less in Academic Discipline (0.5) and School Safety Climate (0.8).

The 4-H respondents' Academic Success Index mean scale score was higher than the national mean. The 4-H Graduation Index mean scale score was also higher than the national mean. Scale scores with statistically significant differences between study participant and national student scores, as identified by the ACT Engage 6-9 instrument, are marked with an (X) on the last column to the right in Table 12.

Study Research Objective 2

Objective 2 was to identify and describe participant noncognitive college and career readiness levels across the variables of gender, academic grade range, intended

Table 12

ACT Engage 6-9 Mean Scale Scores for 4-H Study Participants and National Mean Scores

Scale	Study participants (<i>N</i> = 69)		Nationally (<i>N</i> = 76,842)		Difference		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Academic Discipline	51.3	9.0	48.9	8.5	2.4	0.5	X ^a
Commitment to School	57.5	4.8	56.2	5.7	1.3	-0.9	X
Optimism	51.7	7.1	49.1	8.5	2.6	-1.4	X
Family Attitude toward Education	57.2	4.7	55.7	5.5	1.5	-0.8	X
Family Involvement	51.4	7.4	47.8	9.0	3.6	-1.6	X
Relationships With School Personnel	44.5	8.8	40.8	9.7	3.7	-0.9	X
School Safety Climate	43.3	10.0	43.2	9.2	0.1	0.8	
Managing Feelings	46.3	7.8	42.4	10.7	3.9	-2.9	X
Orderly Conduct	50.2	12.8	45.9	13.7	4.3	-0.9	X
Thinking Before Acting	42.2	8.6	40.7	8.6	1.5	0.0	
Academic Success Index	85.7	13.4	75.2	19.3	10.5	-5.9	X
Graduation Index	94.0	8.7	85.5	17.3	8.5	-8.6	X

^aX designates a mean scale or index score that is significantly different from that of the study participants ($p \leq .10$). Lower scores indicate greater risk.

TEA high school diploma path, intended TEA Grade 9 Endorsement Area selection, intended After-high-school plans, intended education level attainment goals, 4-H program participation, 4-H program tenure, and FFA participation. Independent-samples

t tests were used to compare scores by gender, students with mostly Grade A versus those with mostly Grade B or C, and students who participated in 4-H only versus those who participated in both 4-H and FFA. The purpose of the *t* test was to determine whether there were statistically significant differences in these pairings across the ACT Engage 6-9 instrument's three domains (Motivation and Skills, Social Engagement, and Self-Regulation) and 10 scales (Academic Discipline, Commitment to School, Optimism, Family Attitude Toward Education, Family Involvement, Relationship with School Personnel, School Safety Climate, Managing Feelings, Thinking before Acting, and Orderly Conduct).

Comparison by Gender

In the Motivation and Skills Domain, results of the *t* test indicated that student scores did not differ by gender on Academic Discipline, Commitment to School, or Optimism (Tables 13 and 14).

Table 13

Comparison of Motivation and Skills Domain Scale Scores by Gender

Scale	Gender	<i>n</i>	<i>M</i>	<i>SD</i>	SE Mean
Academic Discipline Percentile	Male	32	64.16	31.86	5.633
	Female	37	66.81	24.16	3.972
Commitment to School Percentile	Male	32	69.25	37.94	6.706
	Female	37	73.51	31.81	5.229
Optimism Percentile	Male	32	66.28	23.54	4.162
	Female	37	62.76	27.92	4.589

Table 14

Results of t Test for Motivation and Skills Domain Scales by Gender

Scale	<i>t</i>	<i>df</i>	<i>Sig.</i> ^a	Mean difference	SE difference	95% CI of difference Lower Upper	
Academic Discipline Percentile	-.393	67	.696	-2.655	6.757	-16.142	10.833
Commitment to School Percentile	-.508	67	.613	-4.264	8.396	-21.021	12.494
Optimism Percentile	.562	67	.576	3.524	6.273	-8.996	16.045

^aTwo-tailed.

In the Social Engagement Domain, results of the *t* test indicated that student scores did not differ by gender on Family Attitude Toward Education, Family Involvement, Relationships With School Personnel, or School Safety Climate (Tables 15 and 16).

In the Self-Regulation Domain, results of the *t* test indicated that student scores did not differ by gender on Managing Feelings, Thinking Before Acting, or their Orderly Conduct (Tables 17 and 18).

Comparison by Prior Grades

In the Motivation and Skills Domain, results of the *t* test indicated that scores for students whose prior grades were Mostly A were statistically significantly different from scores for students whose prior grades were Mostly B or C on Academic Discipline

Table 15

Comparison of Social Engagement Domain Scale Scores by Gender

Scale	Gender	<i>n</i>	<i>M</i>	<i>SD</i>	SE Mean
Family Attitude Toward Education Percentile	Males	32	72.19	32.056	5.667
	Females	37	66.22	28.662	4.712
Family Involvement Percentile	Males	32	68.16	23.047	4.074
	Females	37	68.54	21.776	3.580
Relationships With School Personnel Percentile	Males	32	74.06	21.408	3.785
	Females	37	69.41	26.515	4.359
School Safety Climate Percentile	Males	32	70.28	24.734	4.372
	Females	37	58.27	28.408	4.670

Table 16

Results of t Test for Social Engagement Domain Scales by Gender

Scale	<i>t</i>	<i>df</i>	<i>Sig.^a</i>	Mean difference	SE difference	95% CI of difference	
						Lower	Upper
Family Attitude Toward Education Percentile	.817	67	.417	5.971	7.310	-8.619	20.561
Family Involvement Percentile	-.071	67	.943	-0.384	5.401	-11.165	10.396
Relationships With School Personnel Percentile	.794	67	.430	4.657	5.863	-7.045	16.359
School Safety Climate Percentile	1.859	67	.067	12.011	6.463	-0.889	24.911

^aTwo-tailed.

Table 17

Comparison of Self-Regulation Domain Scale Scores by Gender

Scale	Gender	<i>n</i>	<i>M</i>	<i>SD</i>	SE Mean
Managing Feelings Percentile	Males	32	72.03	17.32	3.062
	Females	37	70.86	22.10	3.633
Thinking Before Acting Percentile	Males	32	59.72	25.59	4.524
	Females	37	61.00	28.45	4.677
Orderly Conduct Percentile	Males	32	67.00	30.17	5.334
	Females	37	75.97	28.43	4.674

Table 18

*Results of *t* Test for Self-Regulation Domain Scales by Gender*

Scale	<i>t</i>	<i>df</i>	<i>Sig.</i> ^a	Mean difference	SE difference	95% CI of difference	
						Lower	Upper
Managing Feelings Percentile	0.241	67	.810	1.166	4.836	-8.486	10.818
Thinking Before Acting Percentile	-0.195	67	.846	-1.281	6.558	-14.371	11.809
Orderly Conduct Percentile	-1.271	67	.208	-8.973	7.061	-23.066	5.120

^aTwo-tailed.

($p = .004$). Results of the *t* test indicated that scores for students whose prior grades were Mostly A were statistically significantly lower than those for students whose prior grades were Mostly B or C on Optimism ($p = .029$). Students whose prior grades were

Mostly A did not differ from students whose prior grades were Mostly B or C on Commitment to School ($p = .191$). Tables 19 and 20 present these results.

Table 19

Comparison of Motivation and Skills Domain Scale Scores by Prior Grades

Scale	Prior grades	<i>n</i>	<i>M</i>	<i>SD</i>	SE Mean
Academic Discipline Percentile	Mostly A	47	72.13	24.96	3.641
	Mostly B or C	22	51.59	28.98	6.178
Commitment to School Percentile	Mostly A	47	75.28	31.98	4.664
	Mostly B or C	22	63.55	39.19	8.356
Optimism Percentile	Mostly A	47	69.00	23.85	3.479
	Mostly B or C	22	54.55	27.74	5.913

Table 20

Results of t Test for Motivation and Skills Domain Scales by Prior Grades

Scale	<i>t</i>	<i>df</i>	<i>Sig.</i> ^a	Mean difference	SE difference	95% CI of difference	
						Lower	Upper
Academic Discipline Percentile	3.024	67	.004	20.537	6.790	6.983	34.090
Commitment to School Percentile	1.320	67	.191	11.731	8.887	-6.006	29.469
Optimism Percentile	2.226	67	.029	14.455	6.492	1.496	27.413

^aTwo-tailed.

In the Social Engagement Domain, results of the *t* test indicated that scores for students whose prior grades were Mostly A were not statistically significantly different from scores for students whose prior grades were Mostly B or C regarding Family Attitude Toward Education, Family Involvement, Relationships With School Personnel, or School Safety Climate (Tables 21 and 22).

Table 21

Comparison of Social Engagement Domain Scale Scores by Prior Grades

Scale	Prior grades	<i>n</i>	<i>M</i>	<i>SD</i>	SE Mean
Family Attitude Toward Education Percentile	Mostly A	47	70.32	28.55	4.164
	Mostly B or C	22	66.14	34.01	7.251
Family Involvement Percentile	Mostly A	47	71.77	20.33	2.965
	Mostly B or C	22	61.09	24.00	
Relationships With School Personnel Percentile	Mostly A	47	75.47	22.08	3.221
	Mostly B or C	22	63.23	26.92	5.739
School Safety Climate Percentile	Mostly A	47	67.47	25.35	3.698
	Mostly B or C	22	56.09	30.073	6.412

In the Self-Regulation Domain, results of the *t* test indicated that scores for students whose prior grades were Mostly A were statistically significantly different from those for students whose prior grades were Mostly B or C on Managing Feelings. The average Managing Feelings percentile for the students with Mostly B or C grades was significantly lower than that percentile for students with Mostly A grades. Students whose prior grades were Mostly A did not differ from students whose prior grades were Mostly B or C for Thinking Before Acting or Orderly Conduct (Tables 23 and 24).

Table 22

Results of t Test for Social Engagement Domain Scales by Prior Grades

Scale	<i>t</i>	<i>df</i>	<i>Sig.</i> ^a	Mean difference	SE difference	95% CI of difference Lower Upper	
Family Attitude Toward Education Percentile	.533	67	.596	4.183	7.844	-11.474	19.840
Family Involvement Percentile	1.896	67	.062	10.675	5.631	-0.564	21.914
Relationships With School Personnel Percentile	1.999	67	.050	12.241	6.123	0.019	24.463
School Safety Climate Percentile	1.636	67	.107	11.377	6.954	-2.503	25.257

^aTwo-tailed.

Table 23

Comparison of Self-Regulation Domain Scale Scores by Prior Grades

Scale	Prior grades	<i>n</i>	<i>M</i>	<i>SD</i>	SE Mean
Managing Feelings Percentile	Mostly A	47	75.94	17.36	2.532
	Mostly B or C	22	61.73	21.84	4.657
Thinking Before Acting Percentile	Mostly A	47	63.74	24.21	3.532
	Mostly B or C	22	53.27	31.52	6.720
Orderly Conduct Percentile	Mostly A	47	74.77	27.03	3.943
	Mostly B or C	22	65.50	33.66	7.177

Table 24

Results of t Test for Self-Regulation Domain Scales by Prior Grades

Scale	<i>t</i>	<i>df</i>	<i>Sig.</i> ^a	Mean difference	SE difference	95% CI of difference Lower Upper	
Managing Feelings Percentile	2.913	67	.005	14.209	4.877	4.474	23.943
Thinking Before Acting Percentile	1.517	67	.134	10.472	6.902	-3.304	24.248
Orderly Conduct Percentile	1.225	67	.225	9.266	7.562	-5.827	24.359

^aTwo-tailed.

Comparison by Participation in FFA

With regard to participation in FFA by 4-H students, scores for those who participated in both 4-H and FFA did not differ from scores for students who participated in 4-H only in the Motivation and Skills Domain, in the scales of Academic Discipline, Commitment to School, or Optimism (Tables 25 and 26).

In the Social Engagement Domain, results of the *t* test indicated that scores for students who participated in both 4-H and FFA were statistically significantly different from scores for students who participated in 4-H only based on Family Attitude Toward Education. The average Family Attitude Toward Education percentile for students who participated in 4-H only was significantly lower than the percentile for students who participated in both 4-H and FFA. Second, results of the *t* test indicated

Table 25

Comparison of Motivation and Skills Domain Scale Scores by Participation in 4-H and Future Farmers of America (FFA)

Scale	FFA	<i>n</i>	<i>M</i>	<i>SD</i>	SE Mean
Academic Discipline Percentile	4-H+FFA	37	69.54	26.57	4.367
	4-H Only	32	61.00	28.94	5.115
Commitment to School Percentile	4-H+FFA	37	71.95	32.67	5.370
	4-H Only	32	71.06	37.21	6.1578
Optimism Percentile	4-H+FFA	37	69.14	23.36	3.841
	4-H Only	32	58.91	27.83	4.919

Table 26

Results of t Test for Motivation and Skills Domain Scale Scores by Participation in 4-H and Future Farmers of America (FFA)

Scale	<i>t</i>	<i>df</i>	<i>Sig.</i> ^a	Mean difference	SE difference	95% CI of difference	
						Lower	Upper
Academic Discipline Percentile	1.278	67	.206	8.541	6.684	-4.801	21.882
Commitment to School Percentile	0.105	67	.917	.883	8.411	-15.905	17.672
Optimism Percentile	1.660	67	.102	10.229	6.162	-2.071	22.528

^aTwo-tailed.

that scores for students who participated in both 4-H and FFA were statistically significantly different from scores for students who participated in 4-H only based on Relationships With School Personnel. The average Relationships With School Personnel

percentile for students who participated in 4-H only was significantly lower than the percentile for students who participated in both 4-H and FFA. Third, results of the *t* test indicated that percentiles for students who participated in both 4-H and FFA were statistically significantly lower in School Safety Climate than the percentile for students who participated in both 4-H and FFA. The two groups did not differ significantly in Relationships With School Personnel (Tables 27 and 28).

Table 27

Comparison of Social Engagement Domain Scale Scores by Participation in 4-H and Future Farmers of America (FFA)

Scale	FFA	<i>n</i>	<i>M</i>	<i>SD</i>	SE Mean
Family Attitude Toward Education Percentile	4-H + FFA	37	35.78	29.00	4.767
	4-H Only	32	61.13	30.10	5.321
Family Involvement Percentile	4-H + FFA	37	71.59	19.902	3.272
	4-H Only	32	64.63	24.394	4.312
Relationships With School Personnel Percentile	4-H + FFA	37	79.24	19.250	3.165
	4-H Only	32	62.69	26.546	4.693
School Safety Climate Percentile	4-H + FFA	37	70.22	24.310	3.996
	4-H Only	32	56.47	28.947	5.117

In the Self-Regulation Domain, results of the *t* test indicated that scores for students who participated in both 4-H and FFA were statistically significantly different from scores for students who participated in 4-H only based on their Managing Feelings percentile. The average Managing Feelings percentile for the students who participated

Table 28

Results of t Test for Social Engagement Domain Scale Scores by Participation in 4-H and Future Farmers of America (FFA)

Scale	<i>t</i>	<i>df</i>	<i>Sig.^a</i>	Mean difference	SE difference	95% CI of difference Lower Upper	
Family Attitude Toward Education Percentile	2.058	67	.044	14.659	7.124	0.439	28.879
Family Involvement Percentile	1.307	67	.196	6.970	5.334	-3.676	17.616
Relationships With School Personnel Percentile	2.993	67	.004	16.556	5.532	5.514	27.598
School Safety Climate Percentile	2.144	67	.036	13.747	6.411	0.951	26.544

^aTwo-tailed.

in 4-H only was significantly lower than the percentile for students who participated in both 4-H and FFA. Students who participated in both 4-H and FFA did not differ from students who participated in 4-H Only based on Thinking Before Acting or Orderly Conduct (Tables 29 and 30).

Chapter Summary

This chapter reported results of exploration of the variables to enhance noncognitive college and career readiness by utilizing the ACT Engage 6-9 with Texas 4-H eighth-grade public-schooled Texas 4-H participants with more than 2 years of tenure. Findings from this study can provide educators with strategies for early

Table 29

Comparison of Self-Regulation Domain Scale Scores by Participation in 4-H and Future Farmers of America (FFA)

Scale	FFA	<i>n</i>	<i>M</i>	<i>SD</i>	SE Mean
Managing Feelings Percentile	4-H + FFA	37	75.89	17.384	2.858
	4-H Only	32	66.22	21.569	3.813
Thinking Before Acting Percentile	4-H + FFA	37	65.70	25.705	4.226
	4-H Only	32	54.28	27.502	4.862
Orderly Conduct Percentile	4-H + FFA	37	72.24	28.842	4.742
	4-H Only	32	71.31	30.446	5.382

Table 30

Results of t Test for Self-Regulation Domain Scale Scores by Participation in 4-H and Future Farmers of America (FFA)

Scale	<i>t</i>	<i>df</i>	<i>Sig.</i> ^a	Mean difference	SE difference	95% CI of difference	
						Lower	Upper
Managing Feelings Percentile	2.062	67	.043	9.673	4.691	0.310	19.037
Thinking Before Acting Percentile	1.782	67	.079	11.421	6.410	-1.372	24.215
Orderly Conduct Percentile	0.130	67	.897	0.931	7.144	-13.33	15.191

^aTwo-tailed.

intervention in the areas of student noncognitive factors to identify both strengths and risks in the study population. Four positive attributes to 4-H and FFA participation were identified through the lens of PYD theory.

1. Overall, 4-H participation positively influenced youth noncognitive and career readiness outcomes.

2. Rural participant secondary education goals in this study were undermatched.

3. Participation in both 4-H and FFA versus participated in 4-H only was associated with higher scores in Family Attitude Toward Education, Relationship With School Personnel, and School Safety Climate. This association is posited to result from increased contact with adults in academic systems that support student development.

4. Students who participated in both 4-H and FFA scored higher in self-efficacy beliefs. Based on previous studies, positive self-efficacy beliefs will lead to increased noncognitive college and career readiness.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This dissertation concludes with a comprehensive overview of the study, including a restatement of the research problem, followed by a review of the methods used in the study and a summary discussion of the findings related to each research objective. Within the discussion, in addition to interpretation and implications of the findings, are the relationship to research, recommendations for further research, and proposed immediate, short-term, medium-term, and long-term interventions for scholars and practitioners.

Statement of the Problem

College and career readiness are current research topics in youth development, K–12 education, higher education, 4-H, and the business sector because research highlights that workers will need at least an Associate degree and requisite skills to meet the demands of the 21st-century workforce. Recent studies have highlighted not only that noncognitive skills are as essential as cognitive skills in aiding student academic success (Conley, 2007) but also that there is considerable overlap between psychosocial skills for both college readiness and workforce readiness (Cochran et al., 2010).

While data show that rural students are higher academic achievers than their suburban and urban counterparts (Provasnik et al., 2007), they lag in college enrollment, take more remedial classes, and have a higher rate of undermatch. The 4-H program is the largest and only federally funded youth leadership and development program in the nation, with the largest adult paid support system composed of university partners,

Extension, and volunteers to deliver its Life Skills program. However, little is known about impact on participants' noncognitive college and career readiness levels.

In Lerner's PYD, the focus is on engagement of students within an institutional framework from a position of strength to prepare them for the future through provision of developmental, human, and funding resource assets (Lerner, 2005; Lerner, Almerigi, et al., 2005; Lerner, Lerner, et al., 2005). For Texas eighth-grade students, that future is now, as TEA's Foundation Graduation Plan requires them to select one of five broad career pathway tracks (STEM, Business and Industry, Arts and Humanities, Public Service, or Multi-Disciplinary) prior to entering Grade 9.

Scholars in the area of youth development agree, "Youth programs cannot remain static; they must expand and change in order to address the diverse and changing characteristics, needs, and interests of adolescents and their families" (Lerner, Lerner, Phipps, & Colleagues, 2008, p. 19). The research in this study supports the premise that 4-H, through its "Life Skills" programming, can lead the charge to include noncognitive measures of college and career readiness to address P-20 pipeline challenges to students, especially those from rural Texas populations.

Goal

The goal of this study was to utilize the ACT Engage 6-9 instrument to explore quantitatively the noncognitive (psychosocial) college and career readiness levels among eighth-grade public-schooled Texas 4-H participants with more than 2 years of tenure and to recommend intervention activities to address the high percentage of rural students

who are either not enrolling in college, are undermatched in college, or require remediation upon entering college.

Review of Methods

This study explored associations among the variables of gender, academic grade range, intended TEA high school diploma path, intended TEA Grade 9 Endorsement Area selection, intended After-high-school plans, intended education level attainment goals, 4-H program participation, 4-H program tenure, and FFA participation among 69 eighth-grade public-schooled Texas 4-H participants with more than 2 years of tenure across the three domains and 10 scales of the ACT Engage 6-9 instrument. Purposive sampling was used to recruit participants to respond to the survey. Descriptive statistics, including means, standard deviations, and *t* tests, were analyzed to describe those students' noncognitive college and career readiness levels.

Purpose and Objectives

The purpose of the study was to utilize the ACT Engage 6-9 instrument (formerly known as the Student Readiness Inventory—Middle School) to explore quantitatively the noncognitive (psychosocial) college and career readiness levels in 69 of 1,697 eighth-grade public-schooled Texas 4-H participants with more than 2 years of tenure. The study focused on three objectives:

Objective 1: Explore and describe participant noncognitive college and career readiness using the ACT Engage 6-9 instrument's three domains and 10 scales;

Objective 2: Identify and describe participant noncognitive college and career readiness levels across the variables of gender, academic grade range, intended TEA

high school diploma path, intended TEA Grade 9 Endorsement Area selection, intended After-high-school plans, intended education level attainment goals, 4-H program participation, 4-H program tenure, and FFA participation; and

Objective 3: Recommend intervention activities to assist and improve participant noncognitive college and career readiness.

Summary of Findings

Study findings were reported in Chapter 4 in alignment with the three research objectives of the study. This section provides pertinent study demographic data, restates each of the research objectives and summarizes the results.

Demographics

The ACT Engage 6-9 assessment was completed by a sample ($N = 69$) of 1,697 eighth-grade public-schooled Texas 4-H participants with more than 2 years of tenure. The response rate was 4.0%, the confidence level was 90% ($p < .10$), and a confidence interval of 10. Of the 69 respondents, 37 were females and 32 were males; race/ethnicity was chiefly White. Respondents self-reported that about half earned mostly A grades and one third earned mostly B grades. Among the five TEA Endorsement Areas, half reported that they would pursuing STEM, followed by Business and Industry, Public Service, Arts and Humanities, and Multi-Disciplinary. About half selected TEA's high school Distinguished Diploma plan, followed by those with college aspirations and Career and Technical Education career plan. Two thirds had never changed schools; one third reported doing 5-6 hours of homework a day and about half said that they spent no hours on homework. Three fourths did not play video games at all, about half used the

Internet 1-2 hours per day, and only 2 reported having ever skipped class. Just over 85% had been members of 4-H for 4 to 6 years; a similar percentage stated that they were likely to continue 4-H participation, and half reported that they also participated in FFA. Almost 80% reported intentions to go to a 4-year college after high school; others planned to enter a 2-year college, then pursue transfer to a 4-year college, with small percentages planning to enter a 2-year college only, enter military service, or directly enter the workforce. Self-selected education attainment goals showed that half aspired to a doctorate and one third to a master's degree.

Domain and Scale Mean Scores

4-H subject domain and scale mean scores are used currently to compare students, grades, cohorts, and years in terms of noncognitive college and career readiness. Scores in this study ranged from 43.0 (School Safety Climate) to 57.5 (Commitment to School). All 4-H participant scale scores in this study were higher than national scores, with the greatest differences in Orderly Conduct (+4.3), Managing Feelings (+3.9), Relationships with School Personnel (+3.7), and Family Involvement (+3.6). Standard deviation scale differences were minimal.

Independent-Samples *t* Test

The independent-samples *t* test, a statistical method commonly used with small sample sizes when the variances of two normal distributions are not known (Fisher, 1912; Pearson, 1929; Student, 1908), was used to measure the differences among respondents on the independent variables of gender, academic grade range, and FFA participation. The study revealed seven areas of statistically significant results across the

ACT Engage 6-9 Motivation and Skills domain's Academic Discipline and Optimism scales; Social Engagement domain's Family Attitude Toward Education, Relationships With School Personnel, and School Safety Climate scales, and Self-Regulation domain's Managing Feelings scale.

Conclusions for the Research Objectives

Objective 1. The first objective was to explore and describe participant noncognitive college and career readiness using the ACT Engage 6-9 instrument's three domains and 10 scales. The data showed that 93% of the 4-H students in this study scored in the medium (39%) to high (54%) levels on the Academic Success Index, which combines information from ACT Engage scales, behavioral indicators, and self-reported prior grades. The Academic Success Index mean scale score was higher than the national mean. Research has shown that this index is "predictive of future college and career readiness, meaning the likelihood of obtaining a GPA of 2.0 or higher in high school and the first semester at a postsecondary institution (10-12 and College)" (ACT, 2015, p. 50).

The data showed that 96% of the students in this study scored in the medium (32%) or high (64%) levels on the Graduation Index, which combines information from ACT Engage scales and predicts the likelihood of students persisting to high school graduation in 4 years. The Graduation Index mean scale score for respondents in this study was higher than the national mean score. "Research has shown that this index's rate of identifying students at risk of dropping out of high school is 25% higher than random prediction" (ACT, 2015, p. 50).

Respondents' domain and scale mean scores, used to compare students, grades, cohorts, and years, were higher than national scores, with differences on 8 of the 10 scale scores shown to be statistically significant in this descending order: Orderly Conduct, Managing Feelings, Relationships With School Personnel, Family Involvement, Optimism, Academic Discipline, Family Attitude Toward Education, and Commitment to School.

First, these findings indicate that participation in 4-H exerts an influence on youth noncognitive college and career readiness outcomes. Second, the findings validate research on 4-H's ability as a youth development and leadership program to apply Lerner's (2005) PYD theory by teaming youth strengths with beneficial people and resources to accentuate the positive and influence the life paths of its participants (Goodwin, Carroll, & Oliver, 2007; Lerner & Lerner, 2013; Lerner, Almerigi, et al., 2005a). Third, the findings corroborate studies by Matulis, Hedges, Barrick, and Smith (1988) and by Boleman, Merten, and Hall (2008) that showed that 4-H contributes to career awareness and influences participant career goals. Fourth, the findings substantiate work by the Copeland et al. (2009) study that showed that 4-H assists in placing college within reach of for its participants and corroborate research by Ratkos and Knollenberg (2015) that showed that 4-H benefits youth and helps them to prepare for and succeed in college.

Objective 2. The second objective was to identify and describe participant noncognitive college and career readiness levels across the variables of gender, academic grade range, intended TEA high school diploma path, intended TEA Grade 9

Endorsement Area selection, intended After-high-school plans, intended education level attainment goals, 4-H program participation, 4-H program tenure, and FFA participation.

Participants' demographic characteristics. Gender of the 69 respondents was fairly equal, in agreement with the 2011 National 4-H Enrollment Report (Hamilton, Northern, & Neff, 2014). In fact, “Bartoszuk and Randall (2011) found that adolescent girls in the 4-H program had more satisfying 4-H experiences than boys, as did Homan, Dick, and Hedrick (2007), who also found that parents and friends tended to encourage girls to be more active in 4-H than boys” (Hamilton et al., 2014, p. 8). While the race/ethnicity distribution was predominately White (82.6%), it reflects the national distribution (Lerner & Lerner, 2013). This skewness can be attributed to three primary factors. First, 4-H's primary participant population consists of rural students. Second, 80% of African Americans in Texas live in urban areas. Third, 99% of 4-H volunteer leaders are White (Hamilton et al., 2014).

Participants' academic grade range, intended TEA high school diploma path, intended TEA Grade 9 Endorsement Area selection, intended after-high-school plans, intended education level attainment goals, 4-H program participation, and 4-H program tenure results. Respondents' self-reported grades indicated that two thirds earned mostly grades of A, with none earning mostly D or F grades. This is consistent with the report by Provasnik et al. (2007) that rural students are high achievers and work by Astroth and Haynes (2001) and by Goodwin et al. (2005) that showed that that 4-H participants were more likely than other youth to succeed in school, earning A grades.

Most of the responding students reported intentions to pursue the Distinguished and Foundation TEA high school diploma pathways. Among the five TEA Endorsement Areas, about half reported plans to pursue STEM and one fourth planned to pursue Business and Industry, followed by small percentages in Public Service, Arts and Humanities, and Multi-Disciplinary. Most planned to enter a 4-year college after high school, followed by choices to attend a 2-year college and then a 4-year college or other college or career choices. Self-selected education attainment goals were predominately a doctoral degree or master's degree.

Unfortunately, these findings put these students directly in the cross-hairs of the research on rural student undermatch, in which, regardless of academic achievement and intentions, rural students are statistically more likely than their urban or suburban counterparts to pursue only an Associate degree or to attend a college that is less selective than their high school credentials permit them to access (Black et al., 2015; Bowen et al., 2009; Dillon & Smith, 2013; Fosnacht, 2014; Smith et al., 2013).

Between-participant gender, academic grade range, and FFA participation characteristics. In an exploration of college and career readiness, it was important to look not only at the 4-H participation group characteristics, but also the within-participant characteristics. Results of the independent-samples *t* tests showed distribution modes and probability differences in variances for the independent variables of gender, academic grade range, and FFA participation. Seven scales showed statistically significant results on these measures

Significant differences ($p = .004$) were found in the Motivation and Skills domain Academic Discipline scale, where the mean score for students whose prior grades were Mostly A ($M = 72.13$) was higher than the mean score for those whose prior grades were Mostly B or C ($M = 51.59$).

Significant differences ($p = .029$) were found in the Motivation and Skills domains Optimism scale, where the mean scores for students whose prior grades were Mostly A ($M = 69.00$) was higher than the mean score for students whose prior grades were Mostly B or C ($M = 54.55$).

These findings indicate that grades exert a significant impact on these 4-H students' motivation concerning academic discipline and foster increased optimism in students. These findings support social learning theorist Albert Bandura's (1986, 1997) research, in which he "hypothesized that self-efficacy beliefs are developed as individuals interpret information from four sources, with the most powerful being the interpreted result of one's previous attainments, or mastery experience" (Usher & Pajares, 2009, p. 89). "Mastery of experience is particularly powerful and can have lasting effects on self-efficacy when one overcomes obstacles or succeeds on challenging tasks [as in this example of earning Mostly A], especially those that are difficult for others" (Bandura, 1997, as cited in Usher & Pajares, 2009, p. 89).

Significant differences ($p = .044$) were found in the Social Engagement domain's Family Attitude Toward Education scale, where the mean score for students who participated in both 4-H and FFA ($M = 75.78$) was higher than the mean score for students who participated only in 4-H ($M = 61.13$).

Significant differences ($p = .036$) were found in the Social Engagement domain's School Safety Climate scale, where the mean scores for students who participated in both 4-H and FFA ($M = 70.22$) was higher than the mean scores for students who participated only in 4-H ($M = 56.47$).

Significant differences ($p = .004$) were found in the Social Engagement domain's Relationships With School Personnel scale, where the mean score for students who participated in both 4-H and FFA ($M = 79.24$) was higher than the mean score for students who participated only in 4-H ($M = 62.69$).

Across the ACT Engage 6-9's Social Engagement domain, there were positive statistically significant differences between students who participated in both 4-H and FFA and those who participated in only 4-H on the scales of Family Attitude Toward Education, Relationships With School Personnel, and School Safety Climate. These data show that 4-H serves as a vehicle for PYD theoretical principles and that increased engagement via participation in FFA increases scores on Family Attitude Toward Education, Relationships With School Personnel, and School Safety Climate. Both 4-H and FFA focus on education and training of rural youth and sometimes collaborate in delivery approaches. Although FFA is primarily a formal education program sponsored by local schools and 4-H is an after-school program sponsored by Extension, the two programs work together in some areas. Participation in both means that students increase their contact with adults and the systems that support their development.

This leveraged engagement highlights a growing body of literature that indicates that relationships matter, especially regarding increased engagement in school and

adults' support of student performance, perceptions, and success outcomes (Finn, 1993; Marks, 2000). First, the finding supports Lerner's PYD research, in which he stated that mutually beneficial relationships between youth and institutions assist youth to have positive conceptions toward and contribute to self, family, community, and society (Lerner, 2005). Second, the finding endorses both Bandura's (1997) and Hattie and Timperley's (2007) social cognitive self-efficacy research that posits that

Encouragement and [involvement] from parents, and teachers whom students trust can boost students' confidence in their academic capabilities and provide supportive messages that can serve to bolster student's effort and self-confidence, particularly when accompanied by conditions and instruction [experiential learning opportunities] that help bring about students success. (Usher & Pajares, 2009, p. 89)

Third, the finding validates Wentzel's (1999) assertions that this web of relationships between youth and adults, within their immediate environments,

provides social capital (Coleman, 1988) for youth, as it not only assist youth to develop positive behavioral and social patterns but also positively affects all aspects of that child's development among the various microsystems that children occupy, including home and school. (Woolley & Bowen, 2007, p. 93)

Significant differences ($p = .005$) were found in the Self-Regulation domain's Managing Feelings scale, where the mean score for students who participated in both 4-H and FFA ($M = 75.89$) was higher than the mean score for students who participated only in 4-H ($M = 66.22$).

Significant differences ($p = .005$) were found in the Self-Regulation domain's Managing Feelings scale, where the mean score for students whose prior grades were Mostly A ($M = 75.94$) was higher than the mean score for students whose prior grades were Mostly B or C ($M = 61.73$).

Within ACT Engage 6-9's Self-Regulation domain, significant differences were found on the Managing Feelings scale for students who participated in both 4-H and FFA versus those who participated only in 4-H, and between students whose prior grades were Mostly A versus those whose prior grades were Mostly B or C. These results support Bandura's (1997) social cognitive self-efficacy research that posits that support and heightened engagement from parents and teachers (Extension and FFA advisors and mentors), and self-efficacy beliefs due to higher grades increase students' well-being, providing them the ability to manage "emotional and physiological states such as anxiety, stress, fatigue, and moods" (Usher & Pajares, 2009, p. 90). This resiliency and strengthened self-efficacy assists to reduce negative emotional states and high anxiety that can undermine school-related tasks and increase student college and career readiness risk.

Implications of the Study

The third class under the TEA Foundation Graduation Plan requirements will have graduated in spring 2018. The findings from this study provide a platform for Texas 4-H to (a) seek to validate these exploratory findings, (b) address the areas of risk identified in the interpretation of findings, (c) look for opportunities to implement some of the intervention recommendations through its life skills and experiential learning

activity programming, and (d) use the theoretical underpinning, foundational literature, methods, instrumentation, and benchmarks of this study for future noncognitive college and career readiness research and intervention modeling.

The study makes the following contributions to the literature and to knowledge about 4-H programs in Texas.

- The study sets the stage for 4-H, specifically Texas 4-H, to take the lead at being “intentional” in its mission of preparing students for successful careers and a lifetime of informed choices (National FFA Organization, 2017) by improving their participants’ college and career readiness levels and address the literature that reports rural students’s deficits in enrollment, remedial class rates, and college undermatch.
- The study suggests a pipeline to prepare and educate not only 4-H students but also their parents regarding college and career pathway decisions to be made prior to entering Grade 9, based on requirements of the Texas Education Agency’s Foundation Graduation program.
- The study provides baseline data, a reliable and valid instrument, sound methods, and evidence-based recommendations for the “Enriching Our Youth” Challenge of the College of Agriculture & Life Sciences, which focuses on promotion of faculty and programs specializing in youth and community development, particularly for at-risk youth, to develop an educational and career plan, whether or not the plan includes college.

- In times of increased budget cuts, the study provides evidence-based research that 4-H matters by demonstrating a clear return on investment of 4-H's value to federal, state, and local stakeholders and justifies continuation of essential public and private funding.
- The study provides a framework that may be generalized to address additional 4-H concerns, especially those related to increasing diversity of student participations and the continued educational development of Extension agents and volunteers to meet the demands of a 21st-century college and career ready workforce.

For scholars and practitioners alike, especially those in Texas 4-H and like youth-serving organizations (e.g., FFA, Boys & Girls Club, Boy Scouts and Girl Scouts, Jack & Jill, fraternity and sorority programs), this study substantiates Lerner et al. (2013) PYD research, which posits that, when systems intentionally engage youth from a strength perspective and provide supportive people and resources, youth can thrive.

Conclusion

Findings from this research of eighth-grade public-schooled Texas 4-H participants with more than 2 years of tenure. have provided the following evidence:

1. 4-H participation had a statistically significant positive influence on youth's noncognitive college and career readiness.
2. Initiatives to develop intervention programs for middle school students are needed to prevent undermatched college selections.

3. Students who participated in both 4-H and FFA scored higher on measures of family attitude toward education, school safety climate, relationships with school personnel, and self-management, all strengths to enhance students' college and career readiness.

The inclusion of noncognitive (psychosocial) college and career readiness measures, as included in the ACT Engage 6-9 assessment in this study, and PYD theory is foundational to preparing students to succeed in postsecondary and career opportunities. Improving students' noncognitive college and career readiness measures must be intentional and must continue to have prominence in educational reform. This is especially true in Texas, where the TEA Foundation Graduation Plan requires students to select a career pathway track prior to entering Grade 9.

Furthermore, it was concluded that the persistent success of the Texas 4-H program is based on utilization of the ACT Engage 6-9 instrument to provide an evidence-based foundation for parents, teachers, counselors, and other stakeholders to refine and renew early noncognitive college and career readiness strategies to meet the changing needs and demographics of middle school students. Such action justifies continued federal, local, and volunteer support.

This study has been both valuable and rewarding for the researcher. Findings will be utilized to enhance programming his nonprofit organization, Higher Education & Learning Professional Consulting, Inc. (HELP) to serve youth in Texas and throughout the nation. Upon reflection and in the hope of future contributions to college and career

readiness literature, the researcher recommends the following strategies be added to the complexity of future research:

1. Change the survey method to access students at their 4-H program sites to maximize participation levels.
2. Add survey variables to gather richer data.
3. Expand the population to include downstream Texas 4-H participants in Grades 5 through 7 and upstream Texas 4-H participants in Grades 9 and 10; eventually include 4-H participants in other states.
4. Stratify use of the array of ACT Engage instruments to use the one that best fits individual state educational requirements and students' needs and preparation levels.
5. Use higher-order statistical methods, specifically multiple regression, to "explain and predict."
6. Include qualitative research, expanding the current quantitative research to a mixed-methods design.

Based on the findings of this study, previous research cited in the literature review, and the objective to recommend intervention activities to assist and improve participant noncognitive college and career readiness, the researcher proposes the following future research and 4-H immediate, short-term, medium-term, and long-term outcome interventions.

Recommendations for Future Research

This study adds to the research related to PYD, noncognitive college and career readiness, the Texas 4-H program by reporting statistically significant findings across

both of its research objectives. However, improvements can be made in terms of the following recommendations for future research.

Change the Survey Method

The depth of the current research study was limited by the study's small participation level ($N = 69$). Thus, there are opportunities to strengthen the research method in future studies (Dillman, 2000). Historically, web surveys typically generate a lower response rate than alternative survey modes due to concerns associated with Internet security and privacy, researcher time constraints, and cost of the instrument (Dillman, 2000; Sax, Gilmartin, & Bryant, 2003; Vehovar, Lozar Manfreda, & Batagelj, 2001). Although the researcher anticipated that, based on the high participation rate of 4-H parents and students, the response rate would be higher than normal, this was not the case. This web-based communication and survey administration method was wrought with problems, including email addresses that were no longer associated with parents, parents' blocked work emails, and restrictions on the number of emails that could be sent via the university web server. Future researchers should seek to access students directly at their 4-H program sites to maximize participation levels.

Expand the Population

While this study used purposive random sampling and only surveyed eighth-grade public-schooled Texas 4-H participants with more than 2 years of tenure, future researchers should consider a different sampling method and increasing the target population from eighth-grade public-schooled Texas 4-H participants with more than 2

years of tenure to include downstream students in Grades 5 through 7 and upstream students in Grades 9 and 10.

Stratify Administration of ACT Engage

In this study, the ACT Engage 6-9 instrument was selected because eighth graders fall within the instrument's Grades 6–9 parameters, as the TEA Foundation Graduation Plan requires Texas 4-H students to make career pathway decisions prior to entering the ninth grade, a decision that is normally made later in high school. Future researchers should consider stratifying administration of all three ACT Engage instruments (6–9, 10–12, and College) across Grades 5 through 12.

In Texas specifically, students in Grades 5 through 7 should take the ACT Engage 6-9, which was administered in this study. The ACT Engage 6-9 provides

a profile of a student's strengths and needs and captures students' perceptions of themselves, their families' commitment to education, school safety climate, school-related factors, optimism, and important behavioral indicators that serve as an early warning indicator of academic risk when students get to high school and helps predict academic performance and timely graduation. (ACT, Engage Overview, 2012, p. 4)

Students in Grades 8 and 9 should take the ACT Engage 10-12 (Table 31).

[This instrument] captures students' perceptions of their own motivation, commitment to education, and other key predictors of academic success, persistence, behavioral strengths and needs, which helps to predict future college academic performance and retention, and provides insight about their academic

Table 31

ACT Engage 10-12 and College Student Readiness Inventory Domains, Scales, and Definitions

Domain	Scale	Definition
Motivation and Skills	Academic discipline	The amount of effort you put into your schoolwork, and the degree to which you see yourself as hardworking and conscientious.
	Commitment to college	Your commitment to staying in college and getting a degree.
	Communication skills	How attentive you are to others' feelings and how flexible you are in resolving conflicts with others.
	Study skills	The extent to which you believe you know how to assess an academic problem, organize a solution, and successfully complete academic assignments.
	General determination	The extent to which you strive to follow through on commitments and obligations.
Social Engagement	Goal striving	The strength of your efforts to achieve your objectives and end goals.
	Social activity	How comfortable you feel meeting and interacting with other people.
Self-Regulation	Social connection	One's feelings of connection and involvement with the school community.
	Steadiness	Your responses to strong feelings and how you manage those feelings
	Academic self-confidence	The extent to which you believe you can perform well in school.

Source: Adapted from *Engage™ College User's Guide*, by ACT, 2011b, Iowa City, IA: Author.

self-confidence, social connection, goal striving, and seven other behavioral scales, to identify interventions to help your students succeed in their transition to postsecondary studies. (ACT, Engage Overview, 2012, p. 5)

Students in Grades 11 and 12 should take the ACT Engage College instrument (Table 31). The ACT Engage College instrument

measures students' behaviors and psychosocial attributes, which are critical but more often overlooked components of their success as they enter college, and identifies—with a remarkable degree of accuracy—how likely incoming first-year students are to return for the second year, and whether they will earn at least a 2.0 GPA. (ACT, Engage Overview, 2012, p. 6)

Add Variables

While this study is comprehensive in the variables that were examined, a larger study could include the following variables: (a) participant's zip code; (b) self-selection of urban, rural, or suburban geographic residential designation; (c) economic status, reported by both individual student participation and school percentage of students in the federal free or reduced-price lunch program; (d) parents' educational attainment; (e) FFA variables related to tenure, activities offered, and participation in those activities; and (f) number and type of 4-H programs offered (in order to not make assumptions about lack of participation). Questions about these variables would yield more detailed information on individual students. Because not all 4-H programs offer a full range of 4-H programs based on available expertise and resources, it is important to determine the number and types of 4-H programs offered in each area before making assumptions

about lack of participation. The addition of these items to future research could bridge gaps and build on this body of research to provide additional insight into predictors of college and career readiness.

Use Higher-Order Statistical Methods

The exploratory nature of this study lent itself to the descriptive statistical methods that were used, including included means, standard deviations, and independent-samples *t* tests, to analyze respondents' college and career readiness. The ACT Engage 6-9 domain and scale scores described student characteristics according to the independent variables, leading to identification of populations at risk and proposed recommendations for targeted intervention activities. The independent-samples *t* test is commonly used with small sample sizes when the variances of two normal distributions are not known (Pearson, 1929). This test was conducted to measure the differences between this study's independent variables of gender, grades, and FFA participation. Future research could look not only to explore a larger participant group but also to predict and explain participants' college and career readiness levels. This expansion would require advanced statistical methods, including multiple regression, not only to project or predict individual college and career readiness levels but to assist in the understanding participants' college and career readiness levels by examining correlations of group-level variables (Anderson & Shanteau, 1977; DeGroot, 1969; Scriven, 1959).

Include Qualitative Research

While this study used quantitative methods to explore 4-H participants' noncognitive college and career readiness, future research should use a mixed-methods

design, utilizing both quantitative and qualitative approaches. As Denzin (1989) stated, qualitative inquiry via individual interviews and/or focus groups can elicit invaluable anecdotal narratives from key informants and stakeholders to assist in interpreting and qualifying the quantitative results. Moreover, this qualitative inquiry may assist in developing additional variables for analysis and identifying key differences in characteristics among and between participants.

Suggested Future Research Objectives for Future Research

1. Describe and assess noncognitive college and career readiness among 4-H participants in Grades 5 through 7, using the ACT Engage 6-9 instrument's domains and scales.

2. Describe and assess noncognitive college and career readiness among 4-H participants in Grades 8 and 9, using the ACT Engage 10-12 instrument's domains and scales.

3. Describe and assess noncognitive college and career readiness among 4-H participants in Grades 10 through 12, using the ACT Engage College instrument's domains and scales.

4. Identify and describe noncognitive college and career readiness among 4-H participants in Grades 5 through 12 across the following variables: (a) gender, (b) grades (nominal for students in Grades 10 through 12), (c) high school diploma sought, (d) intended Grade 9 TEA Endorsement Area, (e) intentions after graduation, (e) 4-H program participation, (f) 4-H tenure and FFA participation, (g) zip code, (h) geographic residential designation (urban, rural, suburban), (i) economic status (both for individual

students and school percentage level using the federal free or reduced-cost lunch program), (j) name of school, (k) parents' education levels, (l) description of head(s) of household, (m) FFA variables related to tenure and activities offered and participated in, (n) 4-H District and Region designations, and (o) number and type of 4-H programs offered in each 4-H District and Region

5. Determine which variables account for the variance in students' ACT Engage (6-9, 10-12, and College) instrument domains and scales reflecting noncognitive college and career readiness levels.

6. Determine whether 4-H participants in Grades 5 through 12 are more college and career ready (based on ACT Engage 6-9, 10-12, and College scores) than the national norm for their grade levels.

7. Determine whether there are differences between respective ACT Engage scores (6-9, 10-12, College) for 4-H participants in Grades 5 through 12 regarding college and career readiness levels as related to specific demographic variables.

8. Identify predictors of ACT Engage (6-9, 10-12, College) college and career readiness levels for 4-H participants in Grades 5 through 12 regarding college and career readiness levels as related to specific demographic variables.

Recommendations for Immediate Intervention

Specific ACT Engage 6-9 Domain and Scale Activity Interventions

While the findings from responses to the survey in this study indicate that Texas 4-H participants' scores showed statistically significant differences across all three ACT Engage 6-9 domains and eight of the 10 scales, there is always room for improvement,

especially in the dynamic situations that make up the lives of teens. Tables 32 through 41 provide information about each of the ACT Engage 6-9 scales, including the scale definition, a sample items from the scale, characteristics of of high- and low-scoring students, possible intervention foci, and a recommended activity that can be implemented by 4-H leaders to improve students’ college and career readiness across these skills. The infusion of these questions and activities related to them could ensure that college and career readiness is integrated into every 4-H program immediately.

Motivation and Skills Domain Interventions

Table 32

ACT Engage Grades 6-9 Motivation and Skills Domain, Academic Discipline Scale

Scale definition	Sample item	Students who score high	Students who score low	Possible intervention focus
Degree to which a student is hard-working, measured by amount of effort invested in completing schoolwork	“I turn in my homework on time.”	Place great value and high priority on school work	Cut classes, place other responsibilities higher than school work	Introduce goal setting, time management, and prioritization skills

Activity: Develop an activity that allows students to open up about their individual academic needs and share their answers with the group to allow for a shared learning experience. Suggested questions: “What are your best and worse subjects? What would help you to do better in school? Do you need to spend more time studying? What is the most effective way for you to study? Do you need help in certain subjects? How important is it to you to earn good grades? Do you study alone or with peers?”

Note. Adapted from “The Forgotten Middle: Ensuring That All Students Are on Target for College and Career Readiness Before High School,” by ACT, 2008, retrieved from <http://act.org/research/policymakers/pdf/ForgottenMiddle.pdf>

Table 33

ACT Engage Grades 6-9 Motivation and Skills Domain, Commitment to School Scale

Scale definition	Sample item	Students who score high	Students who score low	Possible intervention focus
Student's commitment to finish high school	"A high school diploma is important to getting ahead in life."	Value education, are determined to complete high school regardless of obstacles	Do not see the benefit of high school, feel ambivalent about earning a diploma	Stress benefits of education; draw a clear connection between school work and careers

Activity: Develop an activity that would allow students to explore their aspiring career interests and pathways to reaching career goals. Suggested questions: "Which occupations are you considering? What skills do you need to enter those occupations? What kind of education or training is needed for those occupations? Which classes are important to your future? Are you on a path to reach those goals? What can you change to get on the correct pathway?"

Note. Adapted from "The Forgotten Middle: Ensuring That All Students Are on Target for College and Career Readiness Before High School," by ACT, 2008, retrieved from <http://act.org/research/policymakers/pdf/ForgottenMiddle.pdf>

Table 34

ACT Engage Grades 6-9 Motivation and Skills Domain, Optimism Scale

Scale definition	Sample item	Students who score high	Students who score low	Possible intervention focus
Having a hopeful outlook about the future in spite of difficulties or challenges	“I am confident that everything will turn out alright.”	Focus on the positive in a situation	Focus on the negative in a situation	Help students to develop a balanced perspective, focus on strength as a way to address challenges

Activity: Develop an activity to allow students to talk about individual challenges. Have one-on-one conversations to develop strategies to assist them to address these issues. Invite professionals to talk to the group and to provide individual assistance. Suggested questions: “When you are coping with difficult situations, do you become discouraged and feel hopeless? Does it seem that bad things over which you have no control happen to you? Getting through bad situations requires confidence that things will get better; do you have confidence in yourself and the future?”

Note. Adapted from “The Forgotten Middle: Ensuring That All Students Are on Target for College and Career Readiness Before High School,” by ACT, 2008, retrieved from <http://act.org/research/policymakers/pdf/ForgottenMiddle.pdf>

Social Engagement Domain Interventions

Table 35

ACT Engage Grades 6-9 Social Engagement Domain, Family Attitude Toward Education Scale

Scale definition	Sample item	Students who score high	Students who score low	Possible intervention focus
Student's perception of the family's attitude toward education	"Education is important to my family."	Have family members who stress the importance of education	Have family members who do not value education	Work with students and families to stress the value of education

Activity: Develop an activity for students to explore and share information about their individual family situations and perceptions regarding education and college. Suggested questions: "Does your family value education and college? Why do they want you to get an education? How do they feel it will benefit you? Do they support your dreams, plans, and goals? How do they show their support for your education? Do you have a quiet place to do homework? Do your parents remind you of deadlines and help you when you have problems? What would you like them to do that they are not doing to support you? If you could change anything about the way they feel about education, what would it be?"

Note. Adapted from "The Forgotten Middle: Ensuring That All Students Are on Target for College and Career Readiness Before High School," by ACT, 2008, retrieved from <http://act.org/research/policymakers/pdf/ForgottenMiddle.pdf>

Table 36

ACT Engage Grades 6-9 Social Engagement Domain, Family Involvement Scale

Scale definition	Sample item	Students who score high	Students who score low	Possible intervention focus
The degree in which student's family is involved in his or her education	"I talk to my family about school accomplishments."	Have family members involved in academics and extracurricular activities	Have family members who value other things above school	Parent-teacher conferences to engage parents in educational planning

Activity: Develop an activity to allow students to talk openly about their family's involvement in their education and school. Suggested questions: "Is your family involved in your education and school? Do they know your teachers? Are they aware of your TEA Endorsement Foundation Area and did they assist you to select it? Do they attend school functions? Do they help you with homework? Do they ask you questions about class? Would you want them more or less involved? Why and or how? What would you change about your family's involvement in your education that would help you?"

Note. Adapted from "The Forgotten Middle: Ensuring That All Students Are on Target for College and Career Readiness Before High School," by ACT, 2008, retrieved from <http://act.org/research/policymakers/pdf/ForgottenMiddle.pdf>

Table 37

ACT Engage Grades 6-9 Social Engagement Domain, Relationship With School Personnel Scale

Scale definition	Sample item	Students who score high	Students who score low	Possible intervention focus
Extent to which students relate to school personnel as part of their connection to school	“Adults at my school understand my point of view.”	Have strong connections at school and bond with school personnel	Are detached from school, have no bond with school personnel	Introduce and connect students with school personnel.

Activity: Develop an activity to allow students to talk about relationships with school personnel. Suggested questions: “How would you describe your relationship with teachers, administrators, and counselors? Do you have a favorite among the three? How was that relationship developed? Is there a particular person whom you would like to know more about; if so, why?” Have students interview school personnel and share the interviews with the class. “What did you find out that was most surprising? Do you have commonalities with school personnel?”

Note. Adapted from “The Forgotten Middle: Ensuring That All Students Are on Target for College and Career Readiness Before High School,” by ACT, 2008, retrieved from <http://act.org/research/policymakers/pdf/ForgottenMiddle.pdf>

Table 38

ACT Engage Grades 6-9 Social Engagement Domain, School Safety Climate Scale

Scale definition	Sample item	Students who score high	Students who score low	Possible intervention focus
Student's perception of school's quality as related to security	"I feel safe at school."	Believe that the school provides a safe learning environment	Are concerned about bullying and violence, are less likely to succeed academically	Enforce rules, consistently, practice safety drills

Activity: Develop an activity to allow students discuss their perceptions of their school safety climate. Suggested questions: "Do you consider this school safe? Why or why not? What safety issues concern you (bullying, gangs, drugs, fire, gun violence)? Do you know how to report unsafe behaviors? Are you comfortable in reporting unsafe behaviors? Why or why not? What would you change about the safety climate of the school and how? How do you contribute to or defend against perceived unsafe behaviors?"

Note. Adapted from "The Forgotten Middle: Ensuring That All Students Are on Target for College and Career Readiness Before High School," by ACT, 2008, retrieved from <http://act.org/research/policymakers/pdf/ForgottenMiddle.pdf>

Self-Regulation Domain Interventions

Table 39

ACT Engage Grades 6-9 Self-Regulation Domain, Managing Feelings Scale

Scale definition	Sample item	Students who score high	Students who score low	Possible intervention focus
Manage duration and intensity of negative feelings, appropriate ways to express them	“I walk away when someone wants to fight me.”	Manage negative emotions and prevent the emotions from affecting other areas	May be easily frustrated and find it difficult to express emotions	Help students to find positive and appropriate outlets for frustrations

Activity: Develop an activity to allow students to discuss how they manage their feelings. Suggested questions: “What makes you upset and where (home, school, in extracurricular activities)? What is your level of anger for these issues? How does it affect you behaviorally? Do you act out, or become quiet? How do you deal with intense feelings? Do you get frustrated, angry, or discouraged? What helps you to feel better? Do you share your feelings with others? Do you work out your feelings in some other way?” The key to this exercise is to let students know that, while everyone gets upset at times, it is important to know how to manage strong feelings. Moreover, it is important to know people who can help to manage feelings effectively. Ask students to provide examples of how they would deal with issues. Would they share feelings with friends, family, or adults at school (such as a counselor)?

Note. Adapted from “The Forgotten Middle: Ensuring That All Students Are on Target for College and Career Readiness Before High School,” by ACT, 2008, retrieved from <http://act.org/research/policymakers/pdf/ForgottenMiddle.pdf>

Table 40

ACT Engage Grades 6-9 Self-Regulation Domain, Thinking Before Acting Scale

Scale definition	Sample item	Students who score high	Students who score low	Possible intervention focus
Tendency to think about consequences of one's actions	"I think about what might happen before I act."	Tend to think about the consequences of actions before acting	Tend to act impulsively, without regard for consequences	Help students to develop decision-making skills

Activity: Develop an activity to allow students to talk about how they react to situations. Help them to develop decision-making skills by reacting to scenarios that make them consider "what-ifs" regarding consequences of decisions. Ask them to select option "A" or "B" and act out that option, then rewind to show the other option, then discuss their perceptions of each choice. Reinforce that students often do not take sufficient time to make sound decisions. Stress the importance to "think before you act" and consider possible consequences (punishment, loss of privileges, hurting others' feelings) before acting.

Note. Adapted from "The Forgotten Middle: Ensuring That All Students Are on Target for College and Career Readiness Before High School," by ACT, 2008, retrieved from <http://act.org/research/policymakers/pdf/ForgottenMiddle.pdf>

Table 41

ACT Engage Grades 6-9 Self-Regulation Domain, Orderly Conduct Scale

Scale definition	Sample item	Students who score high	Students who score low	Possible intervention focus
Good behavior in class	“I enjoy class and use my class time effectively.”	Tend to obey school rules and behave appropriately in class	Are likely to break school rules and disturb class	Use incentives to increase compliance with rules in class

Activity: Develop an activity to allow students to explore and share about their orderly conduct. Suggested questions: “What do you consider orderly and nonorderly conduct in school? (Provide examples of both.) Do you often find yourself in trouble? Do you enjoy breaking rules? Are there too many rules? Are the rules unfair? Do students know the school rules?” Do a Think Before You Act activity to list actions and possible consequences (punishment, loss of privileges, hurting others’ feelings). Assign students to groups to create a skit exemplifying orderly/disorderly conduct and invite the class to give feedback. How did the situation go right? How could it have gone wrong? Make the point that learning environments require order and calm and students who respect one another. Point out that school rules are designed to keep everyone focused on school work.

Note. Adapted from “The Forgotten Middle: Ensuring That All Students Are on Target for College and Career Readiness Before High School,” by ACT, 2008, retrieved from <http://act.org/research/policymakers/pdf/ForgottenMiddle.pdf>

Overview of Texas 4-H Program Interventions

Data from this study indicated that the Texas 4-H participants in this study were high-achieving and highly engaged students, reflected in the fact that their scores were statistically significantly higher than the national average on all three domains and eight of the 10 ACT Engage 6-9 scales. However, the study’s findings identified areas in which 4-H leaders could intervene more aggressively to serve as a positive influence on students regarding their noncognitive college and career readiness.

While data from this study indicate that Texas 4-H participants are high achieving and highly engaged, as reflected in their statistically higher-than-the-national-average scores across all three domains and 8 of the 10 ACT Engage 6-9 scales, the findings identified areas in which 4-H leaders could intervene more aggressively to serve as a positive influence on students regarding their noncognitive college and career readiness. In fact, Results from this study indicate that, while high-achieving Grade 8 students who participate in Texas 4-H programs indicated that they wanted to pursue STEM and Business and Industry TEA Foundation Endorsement Areas, their 4-H involvement did not match these career pathway goals (acknowledging that not all program activities were offered to these students). The responding students were involved in the following 4-H activities related to STEM or Business and Industry: 28 (40.6%) in Food and Nutrition, 19 (27.5%) in Swine, 16 (23.2%) in Beef Cattle and Goats, 15 (21.7%) in Clothing and Consumer Education, and 13 (18.8%) in Rabbits. Only 20 students participated in any of the 17 remaining areas: Horse, Robotics, Dogs, Sheep, Wildlife Science, Veterinarian, Plants, Dairy, Meat Science, Natural Resources, Poultry, Entomology, Range Science, Small Animal, Forestry, Rockets, and Water Conservation, all of which are STEM- and Business & Industry-based activities. The Entrepreneur and Careers activities had only 1 and 2 participants, respectively.

Short-Outcome Interventions

4-H should administer a college and career readiness assessment to all current members in Grades 8 through 12 to gauge their potential career pathway interests. Data from such a study would assist Texas 4-H and Extension leaders to identify gaps in

current program activity participation, 4-H leadership, and volunteer needs, allowing 4-H to allocate developmental, human, and funding resource assets to appropriate areas to align program activities with student career pathway interests. This approach would allow evidence-based assessment results to drive 4-H program offerings based on youth interests, rather than on traditional 4-H program offerings. Data from this study lead to the conclusion that 4-H may be not be offering all programs that interest students. This realignment and new offerings could not only match current students' needs but could invite more participation by other students. The findings support research by Cano and Bankston (1992) and Lent, Brown, and Hackett (2002) that reported that youth are more likely to participate in activities in which they have interest, resulting in increased self-efficacy.

Medium-Outcome Interventions

4-H should realign employees, volunteers, and funding resources to offer courses based on the findings from the assessment about college and career readiness pathways to tailor activities to meet students' interests.

The college and career readiness instrument used in this study should become part of the current members' annual 4-H evaluation and planning process and implemented with all new members as a part of their 4-H onboarding process.

Current Extension, 4-H leaders, and volunteers should be trained on college and career readiness, current 4-H assessment results, and how these assessment results can be used in current programming to assist youth in preparing for the future.

These suggestions are consistent with research by Serafino (2001), who found that volunteer training was more than likely limited in its focus to initial onboard training and did not “satisfy role requirements focused on long-term, continuing volunteering and [new program intervention requirements]” (as cited in Fox, Hebert, Martin, & Bairnsfather, 2009, p.2).

Long-Outcome Recommendations

4-H could collaborate with schools to survey entire student populations, not only to gauge students’ college and career pathway interests but also to provide targeted presentation of matching 4-H programming offerings and benefits to parents and students.

Data from the population surveys could be used to realign Extension, 4-H leaders, and volunteers and funding resources to offer courses based on the college and career readiness pathway findings from the assessment to tailor activities to student interests. This could potentially become instrumental in gaining participation from students who do not currently participate in 4-H due to its “sows, plows, and cows” programming perceptions and limited programming offerings that may not align with student interests.

4-H and Extension, through their relationships with colleges, could incorporate college and career readiness programs as part of curricula to inform and prepare the next generation of agriculture educators as they seek to engage, develop, and inspire youth. While work by Super (1990) spoke to the ability of role models to serve as important influencers on career development for youth, effective implementation of PYD through

4-H programming requires that 4-H leaders, Extension workers, and volunteers be properly trained on how to deliver, infuse, and promote college and career readiness in their programming.

REFERENCES

- 4-H. (2018). *The positive development of youth*. Retrieved from <https://4-h.org/about/research/>
- ACT. (2006). *Student readiness inventory*. Retrieved from <http://www.act.org/sri/pdf/UserGuide.pdf>
- ACT. (2008). *The forgotten middle: Ensuring that all students are on target for college and career readiness before high school*. Retrieved from <http://act.org/research/policymakers/pdf/ForgottenMiddle.pdf>
- ACT. (2009). *How much growth toward college readiness is reasonable to expect in high school?* Retrieved from <http://act.org/research/policymakers/pdf/ReasonableGrowth.pdf>
- ACT. (2011a). *The condition of college and career readiness 2011*. Retrieved from <http://www.act.org/research/policymakers/cccr11/pdf>
- ACT. (2011b). *Engage college user's guide*. Iowa City, IA: Author.
- ACT. (2012). *ENGAGE: Assess and strengthen academic behavior: ACT's College Readiness System*. Iowa City, IA: ACT.
- ACT. (2015). *ACT Engage grades 10-12 guide to using results*. Iowa City, IA: Author.
- Alexiades, M. N. (Ed.). (1996). *Selected guidelines for ethnobotanical research: A field manual*. New York, NY: New York Botanical Garden.
- American Society for Training & Development. (2006). *Bridging the skills gap: How the skills shortage threatens growth and competitiveness and what to do about it*. Retrieved from <http://www.astd.org/NR/rdonlyres/FB4AF179-B0C4-4764-9271-17FAF86A8E23/0/BridgingtheSkillsGap.pdf>
- Anderson, L. W., Krathwohl, D. R., Airasian, P. W., Cruikshank, K. A., Mayer, R. E., Pintrich, P. R., . . . Wittrock, M. C. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives* (Abridged ed.). White Plains, NY: Longman.
- Anderson, N. H., & Shanteau, J. (1977). Weak inference with linear models. *Psychological Bulletin*, *84*, 1155-1170.
- Anderson-Butcher, D., Newsome, W. S., & Ferrari, T. M. (2003). Participation in Boys and Girls Clubs and relationship to youth outcomes. *Journal of Community Psychology*, *31*(1), 39-55.
- Artz, G. (2003). Rural brain drain: Is it a reality? *Choices*, *4*, 11-15.

- Asch, C. M. (2010). The inadvertent bigotry of inappropriate expectations. *Education Week*, 29, 35-38.
- Astroth, K. A., & Haynes, G. W. (2001). *Final report of the Montana Public School Students' Out-Of-School time Study*. Bozeman: Montana State University.
- Astroth, K. A., & Haynes, G. W. (2002). More than cows and cooking: Newest research shows the impact of 4-H. *Journal of Extension*, 40(4), 1-12.
- Avery, R. J. (2010). An examination of theory and promising practice for achieving permanency for teens before they age out of foster care. *Children and Youth Services Review*, 32, 399-408.
- Balfanz, R. (2009). Can the American high school become an avenue of advancement for all? *The Future of Children*, 19(1), 17-38.
- Balfanz, R., Herzog, L., & MacIver, D. J. (2007). Preventing student disengagement and keeping students on the graduation path in urban middle-grades: Early identification and effective interventions. *Educational Psychologist*, 42, 223-235.
- Balfanz, R., & Legters, N. (2004). *Locating the dropout crisis: Which high schools produce the nation's dropouts?* Baltimore, MD: Johns Hopkins University Center for the Social Organization of Schools.
- Baltes, P. B., Lindenberger, U., & Staudinger, U. M. (1998). Life-span theory in developmental psychology. In W. Damon (Series Ed.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (5th ed., pp. 1029-1144). New York, NY: Wiley.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Freeman.
- Barnes, W. B., & Slate, J. R. (2010). *College-readiness: The current state of affairs*. Retrieved from <http://www.academicleadership.org/article/college-readiness-the-current-state-of-affairs>
- Barnes, W. B., & Slate, J. R. (2011). College-readiness rates in Texas: A statewide, multiyear study of ethnic differences. *Education and Urban Society*, 46(1), 59-87. <https://doi.org/10.1177/0013124511423775>
- Barnes, W. B., & Slate, J. R. (2013). College-readiness is not one-size-fits-all. *Current Issues in Education*, 16(1), 1-11.
- Barnes, W., Slate, J. R., & Rojas-LeBouef, A. M. (2010). *College-readiness and academic preparedness: The same concepts?* Retrieved from <http://contentcat.fhsu.edu/cdm/ref/collection/p15732coll4/id/537>

- Beck, H. P., & Davidson, W. D. (2001). Establishing an early warning system: Predicting low grades in college students from survey of academic orientations scores. *Research in Higher Education, 42*, 709-723.
- Benson, P. L., Scales, P. C., Hamilton, S. F., & Sesma, A., Jr. (2006). Positive youth development: Theory, research, and applications. In R. M. Lerner (Ed.), *Theoretical models of human development* (Vol. 1 of Handbook of child psychology, 6th ed., pp. 894-941). Hoboken, NJ: Wiley.
- Bernard, H. R. (2002). *Research methods in anthropology: Qualitative and quantitative methods* (3rd ed.). Walnut Creek, CA: AltaMira.
- Black, S. E., Cortes, K. E., & Lincove, J. A. (2015). Academic undermatching of high-achieving minority students: Evidence from race-neutral and holistic admissions policies. *American Economic Review, 105*, 604-610.
- Boleman, C. T., Merten, K., & Hall, G. (2008). State 4-H council: A look back on what it meant to serve. *Decision Making, 3*, 69-71.
- Bottomley, L. (2013, June 7). *Building youth with the five C's: Competence* [Web log post]. Retrieved from http://msue.anr.msu.edu/news/building_youth_with_the_five_cs_competence
- Bowen, W. G., Chingos, M. M., & McPherson, M. S. (2009). *Crossing the finish line: Completing college at America's public universities*. Princeton, NJ: Princeton University Press.
- Bowers, E. P., Li, Y., Kiely, M. K., Brittan, A., Lerner, J. V., & Lerner, R. M. (2010). The five Cs model of positive youth development: A longitudinal analysis of confirmatory factor structure and measurement invariance. *Journal of Youth and Adolescence, 39*, 720-735.
- Boyd, B. L., Herring, D. R., & Briers, G. E. (1992). Developing life skills in youth. *Leadership, 4*(38), 6-80.
- Boyer, P., Butner, B., & Smith, D. (2007). A portrait of remedial instruction: Faculty workload and assessment techniques. *Higher Education, 54*, 605-613.
- Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist, 32*, 513-531.
- Bronfenbrenner, U. (Ed.). (2005). *Making human beings human: Bioecological perspectives on human development*. Thousand Oaks, CA: Sage.
- Brown, D. L., & Schafft, K. A. (2011). *Rural people and communities in the 21st century: Resilience and transformation*. Malden, MA: Polity Press.
- Burns, N., & Grove, S. K. (1999) *Understanding nursing research* (2nd ed.). Philadelphia, PA: Saunders.

- Business-Higher Education Forum. (2003). *Building a nation of learners: The need for changes in teaching and learning to meet global challenges*. Retrieved from http://www.bhef.com/publications/documents/building_nation_03.pdf
- Byun, S., Irvin, M. J., & Meece, J. L. (2015). Rural-non rural differences in college attendance patterns. *Peabody Journal of Education, 90*, 263-279.
- Camara, W., O'Connor, R., Mattern, K., & Hanson, M. A. (2015). *Beyond academics: A holistic framework for enhancing education and workplace success* (ACT Research Report Series 2015-4). Iowa City, IA: ACT, Inc.
- Cano, J., & Bankston, J. (1992). Factors which influence participation and non-participation of ethnic minority youth in Ohio 4-H programs. *Journal of Agricultural Education, 33*(1), 23-29.
- Carr, P. J., & Kefalas, M. J. (2009). *Hollowing out the middle: The rural brain drain and what it means for America*. Boston, MA: Beacon.
- Carter, D. E. (2000) Descriptive research. In D. Cormack (Ed.), *The research process in nursing* (4th ed.). Oxford, UK: Blackwell Science.
- Casillas, A., Allen, J., Kuo, Y. L., Pappas, S., Hanson, M. A., & Robbins, S. (2011). *Development and validation of ENGAGE grades 6–9*. Iowa City, IA: ACT, Inc.
- Casillas, A., Robbins, S., Allen, J., Kuo, Y. L., Hanson, M. A., & Schmeiser, C. (2012). Predicting early academic failure in high school from prior academic achievement, psychosocial characteristics, and behavior. *Journal of Educational Psychology, 104*(2), 407-411.
- Casner-Lotto, J., & Barrington, L. (2006). *Are they really ready to work? Employers' perspectives on the basic knowledge and applied skills of new entrants to the 21st US workforce*. New York, NY: The Conference Board.
- Catalano, R. F., Berglund, M. L., Ryan, J. A., Lonczak, H. S., & Hawkins, J. D. (1999). *Positive youth development in the United States: Research findings on evaluations of positive youth development programs*. Washington, DC: U.S. Department of Health and Human Services.
- Catalano, R. F., Berglund, M. L., Ryan, J. A., Lonczak, H. S., & Hawkins, J. D. (2002). Positive youth development in the United States: Research findings on evaluations of positive youth development programs. *Prevention & Treatment, 5*(1), 85-115.
- Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment, 7*, 309-319.
- Clifford, C. (1997). *Nursing and health care research: A skills-based introduction* (2nd ed.). London, UK: Prentice-Hall.

- Cochran, G. R., Catchpole, K., Arnett, N., & Ferrari, T. M. (2010). Extension's role in preparing youth for the workforce: A challenge to extension professionals. *Journal of Extension, 48*(4), 1-6.
- Cochran, G. R., & Ferrari, T. M. (2009). Preparing youth for the 21st century knowledge economy: Youth programs and workforce preparation. *Afterschool Matters, 8*, 11-25.
- Conley, D. T. (2007). The challenge of college readiness. *Educational Leadership, 64*, 23-48.
- Conley, D. T. (2008). Rethinking college readiness. *New Directions for Higher Education, 144*, 3-13.
- Conley, D. T. (2010). *College and career ready: Helping all students succeed beyond high school*. San Francisco, CA: Jossey-Bass.
- Conley, D. T. (2012). *A complete definition of college and career readiness*. Eugene, OR: Educational Policy Improvement Center.
- Connell, J., Spencer, M., & Aber, J. (1994). Educational risk and resilience in African American youth: Context, self, action, and outcomes in school. *Child Development, 65*, 493-506.
- Copeland, A., Gillespie, T., James, A. G., Turner, L. J., & Williams, B. (2009). 4-H youth futures: College within reach. *Journal of Extension, 47*(1), 1IAW1.
- Corbett, M. (2007). *Learning to leave: The irony of schooling in a coastal community*. Black Point, Nova Scotia, Canada: Fernwood.
- Covington, M. V. (2000). Goal theory, motivation, and school achievement: An integrative review. *Annual Review of Psychology, 51*, 171-200.
- Cushing, B. (1999). Migration and persistent poverty in rural America. In K. Pandit & S. D. Withers (Eds.), *Migration and restructuring in the United States* (pp. 15-36). Lanham, MD: Rowman & Littlefield.
- Dede, C. (2010). Comparing frameworks for 21st-century skills. *21st-Century Skills: Rethinking How Students Learn, 20*, 51-76.
- DeJong, G. F., & Klein, P. (1999). *Educational attainment of Pennsylvania's young workers: What's it worth?* Harrisburg, PA: Pennsylvania State Data Center.
- DeGroot, A. D. (1969). *Methodology: Foundations of inference and research in the behavioral sciences*. The Hague, The Netherlands: Mouton.
- Demi, M. A., McLaughlin, D. K., & Snyder, A. R. (2009). Rural youth residential preferences: Understanding the youth development-community development nexus. *Community Development, 40*, 311-330.

- Denzin, N. K. (1989). *Interpretive biography: Qualitative research methods* (Series 17). Thousand Oaks, CA: Sage.
- Dewey, J. (1938). *Experience and education*. New York, NY: Kappa Delta Pi.
- Dignath, C., Buttner, G., & Langfeldt, H. (2008). How can primary school students learn self-regulated learning strategies most effectively? A meta-analysis on self-regulation training programmes. *Educational Research Review*, 3, 101-129.
- Dillman, D. A. (2000). *Mail and Internet surveys: The tailored design method*. New York, NY: Wiley.
- Dillon, E. W., & Smith, J. A. (2013). *The determinants of mismatch between students and colleges*. Ann Arbor, MI: University of Michigan.
- Dukakis, K., London, R., McLaughlin, M., & Williamson, D. (2009). *Positive youth development: Individual, setting, and system-level indicators*. Stanford, CA: John Gardner Center for Youth and Their Communities.
- Edmondson, J. (2003). *Prairie town: Redefining rural life in the age of globalization*. New York, NY: Rowman & Littlefield.
- Elder, G. H. (1998). The life course and human development. In W. Damon (Series Ed.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (5th ed., pp. 939-991). New York, NY: Wiley.
- Elder, G. H., & Conger, R. D. (2000). *Children of the land*. Chicago, IL: University of Chicago Press.
- Finn, J. D. (1993). *School engagement & students at risk*. Washington, DC: National Center for Education Statistics.
- Fisher, R. A. (1912), On an absolute criterion for fitting frequency curves. *Messenger of Mathematics*, 41, 507-521.
- Forehand, M. (2010). Bloom's taxonomy. In M. Orey (Ed.), *Emerging perspectives on learning, teaching, and technology* (pp. 41-47). Meadville, PA: CreateSpace.
- Fosnacht, K. (2014, April). *Selectivity and the college experience: How undermatching shapes the college experience among high-achieving students*. Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.
- Fox, J., Hebert, L., Martin, K., & Bairnsfather, D. (2009). An examination of the benefits, preferred training delivery modes, and preferred topics of 4-H youth development volunteers. *Journal of Extension*, 47(1), 1-2.
- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, 74(1), 59-109.

- Gibbs, R. M. (1998). College completion and return migration among rural youth. In R. M. Gibbs, P. L. Swaim, & R. Teixeira (Eds.), *Rural education and training in the new economy: The myth of the rural skills gap* (pp. 61-80). Ames, IA: Iowa State University Press.
- Gibbs, R. M. (2005). *Education as a rural development strategy*. Retrieved from <http://www.ers.usda.gov/AmberWaves/December11/Features/Education.htm>
- Gibbs, R. M., & Cromartie, J. B. (1994). Rural youth outmigration: How big is the problem and for whom? *Rural Development Perspectives, 10*, 9-16.
- Goodwin, J., Barnett, C., Pike, M., Peutz, J., Lanting, R., & Ward, A. (2005). Idaho 4-H impact study. *Journal of Extension, 43*, Art. 4FEA4.
- Goodwin, J., Carroll, J. B., & Oliver, M. (2007). Accentuating the positive: Colorado 4-H impact study. *Journal of Extension, 45*(5), Art. 5RIB8.
- Gottlieb, G. (1997). *Synthesizing nature-nurture: Prenatal roots of instinctive behavior*. Mahwah, NJ: Erlbaum.
- Griffith, A., & Rothstein, D. (2009). "Can't get here from there:" The decision to apply to a selective institution. *Economics of Education Review, 28*, 620-628.
- Grigorenko, E. L., Jarvin, L., Diffley, R., III, Goodyear, J., Shanahan, E. J., & Sternberg, R. J. (2009). Are SSATs and GPA enough? A theory-based approach to predicting academic success in secondary school. *Journal of Educational Psychology, 101*, 964-981.
- Grimes, D. A., & Schulz, K. F. (2002). Descriptive studies: What they can and cannot do. *The Lancet, 359*, 145-149.
- Halpern, R., Barker, G., & Mollard, W. (2000). Youth programs as alternative spaces to be: A study of neighborhood youth programs in Chicago's West town. *Youth and Society, 31*, 469-506.
- Hamilton, S. F., Northern, A., & Neff, R. (2014). Strengthening 4-H by analyzing enrollment data. *Journal of Extension, 52*(3), Art. 3FEA7.
- Hardre, P. L., & Reeve, J. (2003). A motivational model of rural students' intentions to persist in, versus drop out of, high school. *Journal of Educational Psychology, 95*(2), 347-354.
- Harris, K. R., Friedlander, B. D., Saddler, B., Frizzelle, R., & Graham, S. (2005). Self-monitoring of attention versus self-monitoring of academic performance: Effects among students with ADHD in the general education classroom. *Journal of Special Education, 39*(3), 145-156.
- Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research, 77*, 81-112.

- Hendricks, P. A. (1998). Developing youth curriculum using the Targeting Life Skills Model: Incorporating developmentally appropriate learning opportunities to assess impact of life skill development (Iowa State Extension Publication 4-H-137A). Ames: Iowa State University.
- Howell, J. S. (2011). What influences students' need for remediation in college? Evidence from California. *Journal of Higher Education*, 82, 292-318.
- Israel, G. D., Beaulieu, L. J., & Hartless, G. (2001). The influence of family and community social capital on educational achievement. *Rural Sociology*, 66(1), 43-68.
- Jack, B., & Clarke, A. M. (1998). The value of quantitative research in nursing. *Professional Nurse*, 13(1), 753-775.
- Johnson, K. (2006). *Demographic trends in rural and small town America*. Durham, NH: University of New Hampshire, Carsey Institute.
- Jones, K. (2005). *Positive youth development and 4-H: Making the connection*. Lexington: University of Kentucky Cooperative Extension.
- Joplin, L. (1981). On defining experiential education. *Journal of Experiential Education*, 4(1), 17-20.
- Juskiewicz, J., & American Association of Community Colleges. (2015). *Trends in community college enrollment and completion data, 2015*. Washington, DC: American Association of Community Colleges.
- Kemple, J. J., & Rock, J. L. (1996). *Career academies: Early implementation lessons from a 10-site evaluation*. New York, NY: MDRC.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice-Hall.
- Lamm, A., & Harder, A. (2009). 4-H going beyond life skill development. *Journal of Extension*, 47(4), 1-4.
- Larkin, W. D. (1980). *The leadership skills needed by 4-H club members to become effective leaders as perceived by 4-H extension agents* (Doctoral dissertation). The Ohio State University, Columbus.
- Le, H., Casillas, A., Robbins, S. B., & Langley, R. (2005). Motivational and skills, social, and self-management predictors of college outcomes: Constructing the Student Readiness Inventory. *Educational and Psychological Measurement*, 65, 482-508.
- Leedy, P. D., & Ormond, J. E. (2001). *Planning and design: Practical research*. New York, NY: Pearson.
- Lent, R. W., Brown, S. D., & Hackett, G. (2002). Social cognitive career theory. *Career Choice and Development*, 4, 255-311.

- Lerner, R. M. (1998). Developmental contextualism. In G. Greenberg & M. H. Haraway (Eds.), *Comparative psychology: A handbook* (pp. 88-97). New York, NY: Garland.
- Lerner, R. M. (2002). *Concepts and theories of human development* (3rd ed.). Mahwah, NJ: Erlbaum.
- Lerner, R. M. (2005, September). *Promoting positive youth development: Theoretical and empirical bases*. White paper prepared for the Workshop on the Science of Adolescent Health and Development, National Research Council/Institute of Medicine, Washington, DC.
- Lerner, R. M., Almerigi, J. B., Theokas, C., & Lerner, J. V. (2005). Positive youth development: A view of the issues. *Journal of Early Adolescence*, 25(1), 10-16.
- Lerner, J. V., Bowers, E. P., Minor, K., Boyd, M. J., Mueller, M. K., & Schmid, K. L. (2013). Positive youth development: Processes, philosophies, and programs. In R. M. Lerner, M. A., Easterbrooks, & J. Mistry (Eds.), *Handbook of psychology, Vol. 6: Developmental Psychology* (2nd ed., pp. 365-392). Hoboken, NJ: Wiley.
- Lerner, R. M., Dowling, E. M., & Anderson, P. M. (2003). Positive youth development: Thriving as the basis of personhood and civil society. *Applied Developmental Science*, 7(3), 172-180.
- Lerner, R. M., Fisher, C. B., & Weinberg, R. A. (2000). Toward a science for and of the people: Promoting civil society through the application of developmental science. *Child Development*, 71(1), 11-20.
- Lerner, R. M., & Lerner, J. V. (2009). *Report of the findings from the first six years of the 4-H Study of Positive Youth Development*. College Station, TX: Agrilife Communications.
- Lerner, R. M., & Lerner, J. V. (2013). *The positive development of youth: Comprehensive findings from the 4-H Study of Positive Youth Development*. Chevy Chase, MD: National 4-H Council.
- Lerner, R. M., Lerner, J. V., Almerigi, J. B., Theokas, C., Phelps, E., Gestsdottir, S., . . . von Eye, A. (2005). Positive youth development, participation in community youth development programs, and community contributions of fifth-grade adolescents: Findings from the first wave of the 4-H study of Positive Youth Development. *Journal of Early Adolescence*, 25(1), 17-71.
- Lerner, R. M., Lerner, J. V., Phipps, E., & Colleagues. (2008). *The positive development of youth: Report of the finding from the first four years of the 4-H study of PYD*. Institute for Applied Research Youth Development, Tufts University. Retrieved from <http://ase.tufts.edu/iaryd/researchPositive4HPublications.htm>
- Lerner, R. M., Lerner, J. V., von Eye, A., Bowers, E. P., & Lewin-Bizan, S. (2011). Individual and contextual bases of thriving in adolescence: A view of the issues. *Journal of Adolescence*, 34, 1107-1114.

- Levy, F., & Murnane, R. J. (2006). Why the changing American economy calls for twenty-first century learning: Answers to educators' questions. *New Directions for Youth Development, 110*, 53-62.
- Loevinger, J. (1957). Objective tests as instruments of psychological theory. *Psychological Reports, 3*, 635-694.
- Lotkowski, V. A., Robbins, S. B., & Noeth, R. J. (2004). The role of academic and non-academic factors in improving college retention (ACT Policy Report). Washington, Dc: American College Testing, Inc.
- Lyson, T. A., & Guptill, A. (2004). Commodity agriculture, civic agriculture and the future of U.S. farming. *Rural Sociology, 69*, 370-385.
- Marks, H. M. (2000). Student engagement in instructional activity: Patterns in the elementary, middle, and high school years. *American Educational Research Journal, 37*, 153-184.
- Mattern, K., Burrus, J., Camara, W., O'Connor, R., Hansen, M. A., Gambrell, J., & Bobek, B. (2014). *Broadening the definition of college and career readiness: A holistic approach* (ACT Research Report Series 2014-5). Iowa City, IA: ACT, Inc.
- Matulis, J. K., Hedges, L. E., Barrick, K., & Smith, K. L. (1988). *4-H strikes a positive note*. Retrieved from <http://www.joe.org/joe/1988spring/a5.html>
- Miller, J. P. (1991). Linking 4-H youth development programs with adolescent developmental theory: A review of literature. *Agricultural and Extension Education Research Series, 31*(1).
- Mills, B., & Hazarika, G. (2001). The migration of young adults from non-metropolitan counties. *American Journal of Agricultural Economics, 83*, 329-340.
- National 4-H Council. (2018). *4-H pledge*. Chevy Chase, MD: Author.
- National 4-H History Preservation Program. (2018). *4-H history in brief*. Retrieved from http://4-hhistorypreservation.com/History/Hist_Nat/
- National FFA Organization. (2017). *FFA fact sheet*. Retrieved from www.ffa.org/about/mediacenter/ffa-fact-sheet
- National Research Council. (2013). *Education for life and work: Developing transferable knowledge and skills in the 21st century*. Washington, Dc: National Academies Press.
- Norman, M. N., & Jordan, J. C. (2006). *Using an experiential model in 4-H*. Gainesville: University of Florida Extension.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York, NY: McGraw-Hill.

- Oregon State University. (2018). *General 4-H information*. Retrieved from <http://oregon.4-H.oregonstate.edu/about/general-info>
- oz-TeacherNet. (2001). *Revised Bloom's taxonomy*. Retrieved from teachernet/index.php?module=ContentExpress&func=display&ceid=29
- Pallais, A. (2012). *Small differences that matter: Mistakes in applying to college*. Retrieved from http://scholar.harvard.edu/files/pallais/files/small_differences_that_matter_1.pdf
- Payton, J., Weissberg, R. P., Durlak, J. A., Dymnicki, A. B., Taylor, R. D., Schellinger, K. B., & Pachan, M. (2008). *The positive impact of social and emotional learning for kindergarten to eighth-grade students: Findings from three scientific reviews*. Trenton, NJ: Collaborative for Academic, Social, and Emotional Learning.
- Pearson, E. (1929), Review of R. A. Fisher: *Statistical methods for research workers* (2nd ed.). *Nature*, 30, 866-867.
- Petrin, R. A., Schafft, K. A., & Meece, J. L. (2014). Educational sorting and residential aspirations among rural high school students: What are the contributions of schools and educators to rural brain drain? *American Educational Research Journal*, 51, 294-326.
- Provasnik, S., KewalRamani, A., Coleman, M. M., Gilbertson, L., Herring, W., & Xie, Q. (2007). *Status of education in rural America* (NCES 2007-040). Washington, DC: National Center for Education Statistics.
- Ratkos, J., & Knollenberg, L. (2015). College transition study shows 4-h helps youth prepare for and succeed in college. *Journal of Extension*, 53(4), Art. 4.
- Ravitch, D. (2010). *The death and life of the great American school system: How testing and choice are undermining education*. New York, NY: Basic Books.
- Redd, Z., Cochran, S., Hair, E., & Moore, K. (2002). *Academic achievement programs and youth development: A synthesis*. Washington, DC: Child Trends.
- Rhodes, J. E., Spencer, R., Keller, T. E., Liang, B., & Noam, G. (2006). A model for the influence of mentoring relationships on youth development. *Journal of Community Psychology*, 34, 691-707.
- Robbins, S. B., Allen, J., Casillas, A., Peterson, C., & Le, H. (2006). Unraveling the differential effects of motivational and skills, social, and self-management measures from traditional predictors of college outcomes. *Journal of Educational Psychology*, 98, 598-616.
- Robbins, S. B., Lauver, K., Le, H., Davis, D., Langley, R., & Carlstrom, A. (2004). Do psychosocial and study skill factors predict college outcomes? A meta-analysis. *Psychological Bulletin*, 130, 261-288.

- Robbins, S. B., Oh, I., Le, H., & Button, C. (2009). Intervention effects on college performance and retention as mediated by motivational, emotional, and social control factors: Integrated meta-analytic path analyses. *Journal of Applied Psychology, 94*, 1163-1184.
- Roberts, T. G. (2006). A philosophical examination of experiential learning theory for agricultural educators. *Journal of Agricultural Education, 47*(1), 17-24.
- Roderick, M., Nagaoka, J., & Coca, V. (2009). College readiness: The challenge for urban high schools. *The Future of Children, 19*(1), 185-210.
- Roscigno, V. J., & Crowley, M. L. (2001). Rurality, institutional disadvantage, and achievement/attainment. *Rural Sociology, 66*, 268-292.
- Rosen, J. A., Glennie, E. J., Dalton B. W., Lennon, J. M., & Bozick, R. N. (2010). *Noncognitive skills in the classroom: New perspectives on educational research*. Research Triangle Park, NC: RTI International.
- Rosenbaum, J. E., Stephan, J. L., & Rosenbaum, J. E. (2010). Beyond one-size-fits-all college dreams: Alternative pathways to desirable careers. *American Educator, 34*(3), 1-12.
- Roth, J. L., & Brooks-Gunn, J. (2003). What is a youth development program? Identification and defining principles. In F. Jacobs, D. Wertlieb, & R. M. Lerner (Vol. Eds.), *Enhancing the life chances of youth and families: Public service systems and public policy perspectives: Vol. 2. Handbook of applied developmental science: Promoting positive child, adolescent, and family development through research, policies, and programs* (pp. 197-223). Thousand Oaks, CA: Sage.
- Rumberger, R. W., & Lim, S. A. (2008). *Why students drop out of school: A review of 25 years of research*. Santa Barbara, CA: California Dropout Research Project.
- Sax, L. J., Gilmartin, S. K., & Bryant, A. N. (2003). Assessing response rates and nonresponse bias in web and paper surveys. *Research in Higher Education, 44*, 409-432.
- Scriven, M. (1959). Explanation and prediction in evolutionary theory. *Science, 130*, 477-482.
- Seevers, B., Graham, D., & Conklin, N. (2007). *Education through cooperative extension* (2nd ed.). Columbus: The Ohio State University.
- Serafino, A. (2001). Linking motivation and commitment through learning activities in the volunteer sector. *Journal of Volunteer Administration 19*(4), 15-20.
- Sherman, J., & Sage, R. (2011). *Sending off all your good treasures: Rural schools, brain-drain, and community survival in the wake of economic collapse*. Retrieved from <http://jrre.psu.edu/articles/26-11.pdf>.

- Smith, J., Pender, M., & Howell, J. (2013). The full extent of student-college academic undermatch. *Economics of Education Review*, 32, 247-261.
- Stern, D., Dayton, C., & Raby, M. (2010). *Career academies: A proven strategy to prepare high school students for college and careers*. Berkeley, CA: Career Academy Support Network.
- Stone, B., & Rennekamp, R. (2004). *New foundations for the 4-H youth development profession: 4-H professional research, knowledge, and competencies study, 2004*. Retrieved from <http://extension.missouri.edu/hr/documents/PRKCStudy.pdf>
- Strobel, K. R., Osberg, J., & McLaughlin, M. W. (2006). Participation in social change: Shifting adolescents' developmental pathways. In S. Ginwright, P. Noguera, & J. Cammarota (Eds.), *Beyond resistance: Youth activism and community change* (pp. 197-214). New York, NY: Routledge.
- Student. (1908). The probable error of a mean. *Biometrika*, 6, 1-25.
- Super, D. E. (1990). A life-span, life-space approach to career development. In D. Brown, L. Brooks, & Associates (Eds.), *Career choice and development: Applying contemporary theories to practice* (2nd ed., pp. 197-261). San Francisco, CA: Jossey-Bass.
- Symonds, W. C., Schwartz, R. B., & Ferguson, R. (2011). *Pathways to prosperity: Meeting the challenge of preparing young Americans for the 21st century*. Boston, MA: Pathways to Prosperity Project and Harvard Graduate School of Education.
- Texas A&M University, Agriculture & Life Sciences. (n.d.). *Enriching our youth*. Retrieved from <https://grandchallenges.tamu.edu/enriching-our-youth/>
- Texas 4-H and Youth Development. (2018). *About Texas 4-H*. Retrieved from <https://texas4-h.tamu.edu/about/what-is-4-h/>
- Texas Education Agency. (2013). *House Bill 5: Foundation High School Program*. Retrieved from <https://tea.texas.gov/graduation-requirements/hb5.aspx>
- Thijs, J., & Verkuyten, M. (2009). Students' anticipated situational engagement: The roles of teacher behavior, personal engagement, and gender. *Journal of Genetic Psychology*, 170, 268-286.
- Tongco, M. D. C. (2007). Purposive sampling as a tool for informant selection. *Journal for Plant, People, and Applied Research*, 5, 147-158.
- Trickett, E. J., Barone, C., & Buchanan, R. M. (1996). Elaborating developmental contextualism in adolescent research and intervention: Paradigm contributions from community psychology. *Journal of Research on Adolescence*, 6, 245-269.
- Ungar, M. (2004). A constructionist discourse on resiliency: Multiple contexts, multiple realities among at-risk children and youth. *Youth & Society*, 35, 341-365.

- University of California, Agriculture and Natural Resources. (n.d.). *4-H Youth Development Program*. Retrieved from <https://grandchallenges.tamu.edu/enriching-our-youth/>
- U.S. Department of Agriculture (USDA). (2009). *National Institute of Food and Agriculture: About us*. Washington, DC: Author.
- Usher, E. L., & Pajares, F. (2009). Sources of self-efficacy in mathematics: A validation study. *Contemporary Educational Psychology, 34*(1), 89-101.
- Vehovar, V., Lozar Manfreda, K., & Batagelj, Z. (2001). Sensitivity of e-commerce measurement to the survey instrument. *International Journal of Electronic Commerce, 6*(1), 31-52.
- Visher, M. G., & Stern, D. (2015). *New pathways to careers and college: Examples, evidence, and prospects*. New York, NY: MDRC.
- Wentzel, K. R. (1999). Social-motivational processes and interpersonal relationships: Implications for understanding motivation at school. *Journal of Educational Psychology, 91*, 76-97.
- Woodrum, A. (2004). State-mandated testing and cultural resistance in Appalachian schools: Competing values and expectations. *Journal of Research in Rural Education, 19*, 1-8.
- Woolley, M. E., & Bowen, G. L. (2007). In the context of risk: Supportive adults and the school engagement of middle school students. *Family Relations, 56*(1), 92-104.
- White, J. (1994). *Tomato clubs in Texas: The beginnings of 4-H*. Retrieved from <http://aggie-horticulture.tamu.edu/newsletters/hortupdate/2011/sep/tomato-club.html>
- Yen, C., Konold, T. R., & McDermott, P. A. (2004). Does learning behavior augment cognitive ability as an indicator of academic achievement? *Journal of School Psychology, 42*, 157-169.
- Zhao, Y. (2009a). *Catching up or leading the way: American education in the age of globalization*. Alexandria, VA: ASCD.
- Zhao, Y. (2009b). Comments on common core standards initiative. *American Association of School Administrators Journal of Scholarship and Practice, 6*(3), 46-54.
- Zimmerman, B. J., & Kitsantas, A. (2014). Comparing students' self-discipline and self-regulation measures and their prediction of academic achievement. *Contemporary Educational Psychology, 39*(2), 145-155.

APPENDIX A

INITIAL STUDY INTRODUCTION LETTER TO 4-H EXTENSION AND PARENTS FROM TEXAS 4-H

May 2, 2017

Dear County Extension Agents and 4-H Parents!

We are contacting you to make you aware that Texas 4-H is participating in a survey with Edward Tarlton an Agriculture Education doctoral candidate at Texas A&M University. As a result of us participating in this research project on Career and College Readiness, you may receive an email from Mr. Tarlton (etarlton@tamu.edu) informing you that your child, or a 4-H member from your county, has been randomly selected to participate in an online survey.

Texas 4-H supports Mr. Tarlton's study as it has the opportunity to help improve our college readiness experiences within 4-H. We hope, as a parent, you will allow your child to participate through the signing of the consent forms. Additionally, we want you to know that:

- Participation is voluntary. If you or your child chooses not to be in this study or stop being in the study, there will be no effect on your relationship with Texas 4-H, Extension or Texas A&M University.
- Aside from their time (15-20 min.), there are no costs or risk involved in taking part in the study
- Students will not be paid for their participation, but those that complete the survey within seven (7) days of receiving the email to access the questionnaire will be put into a raffle for one of three (3) \$50 American Express gift cards
- The records of this study will be kept private. No identifiers linking you or your child to this study will be included in any report that might be published. Research records will be stored securely, and only the Principal Investigator and other research study personnel will have access to the records

About the study and its goal:

The study seeks to survey 8th grade 4-H youth that has participated for at least 2-years and attend public school. The goal of the study is to assess students' non-academic college and career readiness levels. Specifically, your child will be taking the ACT ENGAGE 6-9 survey which asks questions related to motivation, self-regulation, and social engagement. Information about the survey can be found

here: <http://www.act.org/content/act/en/products-and-services/act-ENGAGE/about-act-ENGAGE.html>.

The benefit to students & parents:

At the survey completion, participants will receive a link to download a PDF copy of their assessment report, which highlights areas of strength and those that can be improved. The report provides parents and students suggested interventions to assist students to improve their noncognitive and cognitive academic success levels. (See the attached Sample Student ACT 6-9 Report)

The benefit to Texas 4-H:

Findings from the study will be used to assist the researcher to propose interventions that Texas 4-H can use to design interventions to include in all of its “life skills” programs to improve Students College and career readiness.

Thank you in advance for your time and consideration. Do not hesitate to contact Edward Tarlton at [301.803.0110](tel:301.803.0110) or myself should you have questions. **Lastly, we appreciate your help in improving the 4-H Program and the positive impact it has on the youth of Texas.**

Sincerely,
Toby Lepley, Ph.D.
Associate Professor, Assistant State
4-H Leader – Operations
Texas 4-H Youth Development Program
Texas A&M AgriLife Extension Service
1470 William D. Fitch Parkway
College Station, TX 77845
Voice: [979.845.1212](tel:979.845.1212)
Email: t-lepley@tamu.edu
Web: texas4-h.tamu.edu



APPENDIX B

STUDY INTRODUCTION SOLICITATION LETTER

Howdy 8th-grade 4-H'ers and 4-H Parents!

Your child has been selected at random to participate in a study by a doctoral student at Texas A&M University! WHOOP

The study seeks to survey 8th-grade 4-H youth that has participated for at least 2-years and attend public school. The goal of the study is to assess students' non-academic college and career readiness levels. Specifically, your child will be taking the commonly known and widely used ACT ENGAGE 6-9 non-cognitive survey which asks questions related to students' motivation, self-regulation, and social engagement. More information about the ACT ENGAGE 6-9 survey can be found here: <http://www.act.org/content/act/en/products-and-services/act-engage/about-act-engage.html>.

Two things will come from this study.

1. At the completion of the survey, participants will receive a link to download a PDF copy of their personal College and Career Readiness Assessment. This report will pinpoint behavioral areas of strength and those that can be improved. Moreover, it will provide parents and students suggested interventions to assist students to improve their non-cognitive and cognitive academic success levels. (see the attached Sample Student ACT 6-9 Report)
2. Findings from the study will be used to assist the researcher to propose interventions that Texas 4-H can use to design interventions to include in all of its "life skills" programs to assist students to improve their college and career readiness levels.

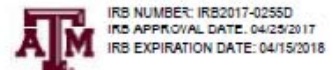
Next Steps:

1. Complete and sign the attached Parent Consent and the Minor Assent Forms.
2. Email the signed Parent Consent and the Minor Assent Forms to: (etarlton@tamu.edu).
3. Upon receipt, we will email you directions for the survey and an access link to the survey website. We will also follow-up with a phone call from (301.803.0100) to make sure you received it and answer any questions you may have.

P.S. Students that participate and complete the survey within seven days of receiving the email access to begin will be put into a raffle for one of three (3) \$50 gift cards!

Thank you in advance for your time and consideration. Do not hesitate to contact Edward Tarlton should you have questions (301.803.0100). Lastly, HELP us to HELP 4-H to HELP your students! WIIIOOP

Thanks & Gig 'em



APPENDIX C

4-H LETTER OF STUDY SUPPORT

TEXAS 4-H YOUTH DEVELOPMENT



LETTER OF SUPPORT

April 24, 2017

Texas A&M University
Division of Research
Jack K. Williams Administration Building,
Suite 312
1112 TAMU
College Station, TX 77843-1112

RE: Edward L. Tarlton, Dissertation Survey IRB Letter of Support

Dear Institutional Review Board Chair and Members:

I am writing this letter for Edward L. Tarlton, a doctoral student in Texas A&M's College of Agriculture and Life Sciences, Agriculture Education program. On behalf of the Texas 4-H Program, I would like to inform you that we are in full support of Mr. Tarlton's study titled:

Exploring the use of The Act Engage 6-9 to Assess Non-Cognitive College and Career Readiness Levels Among 8th Grade Texas 4-H Participants

In fact, Mr. Tarlton, reached out to us early on to inform of his idea to potentially conduct this study. Since that time, myself and Dr. Chris Boleman, one of Edward's committee members and the former Texas 4-H Program Director with Texas A&M AgriLife Extension, have been instrumental in assisting him to frame the population that he has identified in his proposal submission. It is my understanding that once Edward receives IRB approval, we will be assisting him to select and contact study participants that fit his studies requirements through our 4-H CONNECT system.

We are very interested in his efforts, the potential findings and moreover how his research can assist Texas 4-H to provide better college and career readiness programming for its youth participants.

If you have any questions or need further assistance, please contact me at (979) 845-1212.

Sincerely,

A handwritten signature in blue ink that reads "Toby L. Lepley".

Toby Lepley, Ph.D.
Associate Professor and Extension 4-H and Youth Development Specialist

Toby L. Lepley, Ph.D.
Texas 4-H Youth Development Program
Texas A&M AgriLife Extension Service
1470 William D. Fitch Parkway | College Station, TX 77845
E-mail: t-lepley@tamu.edu | Tel. 979.845.1212 | Fax. 979.845.8495
AgriLifeExtension.tamu.edu | Texas4-H.tamu.edu

Educational programs of the Texas A&M AgriLife Extension Service are open to all people without regard to race, color, or national origin. The Texas A&M University System, U.S. Department of Agriculture, and the County of Harris County are equal opportunity providers.



IRB NUMBER: IRB2017-0255D
IRB APPROVAL DATE: 04/25/2017
IRB EXPIRATION DATE: 04/15/2018

APPENDIX D

PARENT CONSENT FORM

TEXAS A&M UNIVERSITY HUMAN SUBJECTS PROTECTION PROGRAM
PARENTAL PERMISSION AND CONSENT FORM

**Project Title: EXPLORING THE USE OF THE ACT ENGAGE 6-9 TO ASSESS
NON-COGNITIVE COLLEGE AND CAREER READINESS LEVELS AMONG
8TH GRADE TEXAS 4-H PARTICIPANTS**

You and your 8th-grade child that is involved in the 4-H Youth Development Program have been invited to take part in a research study being conducted by a research team from Texas A&M University. The information in this form is provided to help you and your child decide whether or not to take part. If you decide to participate and allow your child to take part in the study, you will be asked to sign this permission form. If you decide you or your child do not want to participate, there will be no penalty to you or your child, and you and your child will not lose any benefits they normally would have.

Why Is This Study Being Done?

The purpose of this study is to help us understand the current non-cognitive college and career readiness levels of 8th grade, public schooled, Texas 4-H participants, with over two years of tenure in order to design interventions to assist you, your child, 4-H "life skills" programs and other youth serving extension activities. Specifically, your child will be taking the commonly known and widely used ACT ENGAGE 6-9 non-cognitive survey which asks questions related to students' motivation, self-regulation, and social engagement. More information about the ACT ENGAGE 6-9 survey can be found here: <http://www.act.org/content/act/en/products-and-services/act-engage/about-act-engage.html>.

Why is My Child Being Asked to Be in This Study?

You and your child are being asked to be in this study because they fit the population being studied: 8th grade, public schooled, Texas 4-H participants, with over two years of tenure.

How Many People Will Be Asked To Be In This Study?

2,600 participants will be invited to participate in this study.

What Are the Alternatives to being in this study?

The alternative to being in the study is not to participate.

What Will my Child and I Be Asked To Do In This Study?

You will be asked to assist your child to log onto an online survey that they will complete by themselves. The survey, which takes approximately 15-30 minutes, asks questions related to non-academic measures of motivation, self-regulation and social engagement that are shown in the literature to factor into student college and career readiness levels.

Are There Any Risks To Myself or My Child?

The things that you and your child will be doing present no more risks than you would come across in everyday life.

Will There Be Any Costs To My Child and Me?

Aside from their time, there are no costs for taking part in the study.

Will My Child or I Be Paid To Be In This Study?

While students will not be paid for their participation, those that complete the survey within seven (7) days of receiving the email to access the questionnaire will be put in a raffle for one of three (3) \$50 American Express gift cards.



IRB NUMBER: IRB2017-02550
IRB APPROVAL DATE: 04/25/2017
IRB EXPIRATION DATE: 04/15/2018

APPENDIX E

STUDENT ASSENT FORM

TEXAS A&M UNIVERSITY HUMAN SUBJECTS PROTECTION PROGRAM
MINOR'S ASSENT FORM

Project Title: EXPLORING NON-ACADEMIC RELATED COLLEGE AND CAREER READINESS LEVELS AMONG 8TH GRADE TEXAS 4-H PARTICIPANTS

Howdy Texas 4-H'er!

You are being asked to join a research study. A research study is a science project that is trying to answer a question. This research project is trying to look at non-academic related college and career readiness levels among 8th-grade Texas 4-H participants. The purpose of this study is to help Texas 4-H add college and career readiness elements into all of its youth "life skills" programs. To do this, we will need to survey students like you to see exactly what programming is needed. If you agree, you will take an online survey at your home without any help from parents, brothers, sisters or friends. The survey will take approximately 15-30 minutes.

You do not have to be in this research study, and you can stop at any time. If you have any questions, you can talk to your parents or have them contact the researcher for this study to answer any questions you may have.

Do you have any questions? Do you want to be in this research study? If so, please sign below.

Minor's Name (print)

Minor's Signature (*typed name to serve as signature*)

Date

Parents Signature (*typed name to serve as signature*)

Date

If signed assent is not obtained, provide the rationale below:



APPENDIX F

SAMPLE STUDENT ACT ENGAGE 6-9 REPORT

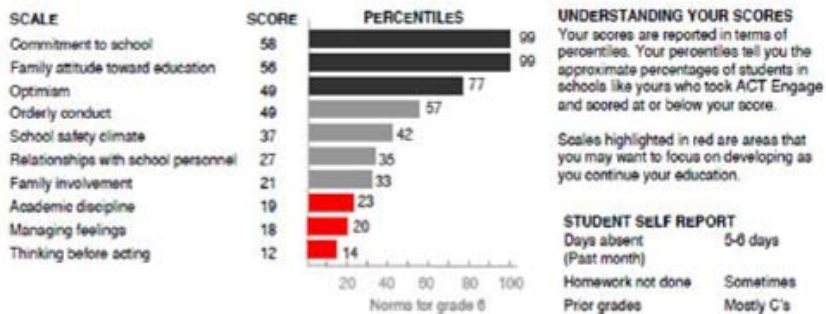
Sample Student

Tested on MM/DD/YY
6th Grade - ID 926096433



SAMPLE MIDDLE SCHOOL Class/section: 009

ACT Engage Grades 6-9 measures personal, behavioral, and academic skills critical to middle and high school success. Low scores on ACT Engage represent areas that, when improved, may increase your grades and make it easier to focus on completing middle school and high school. This report is designed to help you identify your strengths and weaknesses in order to ensure that you are successful in your academic career.



Capitalize on your strengths

99 Commitment to school

Commitment to stay in school and obtain a high school diploma — Your responses suggest that you are confident in your reasons for attending high school and getting an education (such as career and life goals). You see yourself as determined to invest the necessary time and effort required to obtain a high school diploma regardless of obstacles.

99 Family attitude toward education

Positive family attitude regarding the value of education — Your responses suggest that you perceive that your family members are frequently interested in education-related topics and that they think it is important for you to get an education. Continue using your family as a source of support as you pursue your educational goals and aspirations.

77 Optimism

A hopeful outlook about the future in spite of difficulties or challenges — Your responses suggest that you often focus on the positive aspects of situations and that you try hard when you encounter challenges in your academic or personal life in order to overcome them. You rarely let disappointments get in the way of reaching your goals. This ability to focus on the positive will continue to be helpful to you and could also be helpful to others who have a less optimistic view.

Continue to develop your skills

57 Orderly conduct

Tendency to behave appropriately in class and avoid disciplinary action — Your responses indicate that you usually behave appropriately at school and follow school rules and regulations. Students with similar scores occasionally get into trouble for misbehaving, but not to the point that their behavior leads to academic problems. Continue to do your best to behave appropriately in school, as this will help to support your academic progress.

© 2011 by ACT, Inc. All rights reserved.



42 School safety climate

School qualities related to students' perception of security at school — Your responses suggest that you perceive your school environment as usually safe and providing an adequate foundation for pursuing your academic goals. Students with similar scores sometimes report some safety concerns at their schools, but these concerns do not usually interfere with students' academic progress.

35 Relationships with school personnel

The extent to which students relate to school personnel as part of their connection to school — Your responses suggest that you usually feel connected to school and the people at your school. Students with similar scores are usually involved in some school activities and usually get along well with teachers and school personnel. Continue to develop these relationships, as they can be a helpful resource in supporting your academic progress or providing assistance when you run into challenging situations.

33 Family involvement

Family involvement in a student's school life and activities — Your responses suggest that you perceive that your family members are usually involved in your school life, whether in academic or extra-curricular activities, and that they generally keep track of how you are doing in school. Continue using your family's involvement in your school life as a way to reinforce your educational goals and aspirations.

Make plans for improvement**23 Academic discipline**

Degree to which a student is hardworking and conscientious as evidenced by the amount of effort invested into completing schoolwork — Your responses indicate that you frequently approach academic tasks with less enthusiasm and effort than other students. You may frequently rush through your homework without paying much attention to detail, turn in poor or incomplete work, or give up on difficult tasks or problems.

20 Managing feelings

Tendency to manage duration and intensity of negative feelings, (e.g., anger, sadness, embarrassment) and to find appropriate ways to express such feelings — Your responses indicate that you may struggle controlling your feelings and dealing effectively with stress. You may lose your temper easily or experience difficulty managing frustration, sadness, or embarrassment. This may have a negative impact on your ability to complete academic work, or possibly interfere with other important activities in your life.

14 Thinking before acting

Tendency to think about the consequences of one's actions before acting — Your responses suggest that you may behave impulsively at times and may not consider the consequences of your actions. As a result, you may do things quickly but inaccurately, or experience unintended consequences from your behavior (such as hurting someone's feelings after you have said something). Students with similar scores benefit from taking things more slowly and thinking through their behavior before acting or speaking.

Recommended plan of action

Your ACT Engage scores provide information that can help you develop your personal and academic-related skills, which in turn can help you perform well in school and attain your high school diploma. By focusing on building those skills for which you obtained relatively lower scores, you can derive maximum benefit from the learning and growth opportunities available to you.

APPENDIX G

STUDENT PARTICIPATION AND DIRECTIONS EMAIL

Howdy again 8th-grade 4-H'ers and 4-H Parents!

Thank you for consenting and assenting to participate in the Non-Cognitive College & Career Readiness Study.

As mentioned, the study seeks to survey 8th-grade 4-H youth that has participated for at least 2-years and attend public school, with our goal to assess students' non-academic college and career readiness levels.

Before starting the survey, remember that:

1. Students that participate and complete the survey within seven (7) days of receiving this email will be put into a raffle for one of three (3) \$50 gift cards!
2. At the completion of the survey, you will receive a link to download a PDF copy of your personal College and Career Readiness Assessment Report. This report will pinpoint behavioral areas of strength and those that can be improved. Moreover, it will provide suggested interventions to assist students to improve their non-cognitive and cognitive academic success levels. Should you have questions call Edward L. Tarlton at 301.803.0100.

Next Steps to begin the survey:

1. Identify a time where you as a student can have at least 30 minutes of quiet uninterrupted time at a computer by yourself with no parents, friends or siblings.
2. Click this link to log into the survey:
<https://engage.act.org:443/ereg/pr/83/1/register/WRP-565-473>
3. Disregard the "Student ID" blank on ACT-E Registration page. No Student ID is needed for this survey.
4. Remember to click the link at the end to download a PDF copy of your personal College and Career Readiness Assessment Report.
5. Call Edward L. Tarlton at 301.803.0100 if you have questions.

Once again, THANK YOU in advance for your time and consideration. Your participation will HELP us to HELP 4-H to HELP your students! WHOOP

Thanks & Gig 'em

Sincerely,



Edward L. Tarlton, *Researcher*
Department of Agricultural Leadership, Education, and Communications
Texas A&M University



IRB NUMBER: IRB2017-0255D
IRB APPROVAL DATE: 04/25/2017
IRB EXPIRATION DATE: 04/15/2018

APPENDIX H

STUDY PARTICIPATION FOLLOW-UP LETTER

Howdy 8th-grade 4-H'ers and 4-H Parents!

This is a courtesy email to follow-up with you on the invitation that your child received via their 4-H Extension Agent. If we do not receive a response within 3 days, we will assume that you would not like to participate and you will not receive any more correspondence.

Per the announcement, your child was selected at random to participate in a study by a doctoral student at Texas A&M University! A copy of all the documents needed to participate are attached in this email. WHOOP

The study seeks to survey 8th-grade 4-H youth that has participated for at least 2-years and attend public school. The goal of the study is to assess students' non-academic college and career readiness levels. Specifically, we will be asking questions related to students' motivation, self-regulation, and social engagement.

Two things will come from this study.

1. At the completion of the survey, participants will receive a link to download a PDF copy of their personal College and Career Readiness Assessment. This report will pinpoint behavioral areas of strength and those that can be improved. Moreover, it will provide parents and students suggested interventions to assist students to improve their non-cognitive and cognitive academic success levels. (see the attached Sample Student ACT 6-9 Report)
2. Findings from the study will be used to assist the researcher to propose interventions that Texas 4-H can use to design interventions to include in all of its "life skills" programs to assist students to improve their college and career readiness levels.

Next Steps:

1. Complete and sign the attached Parent Consent and the Minor Assent Forms.
2. Email the signed Parent Consent and the Minor Assent Forms to: (etarlton@tamu.edu).
3. Upon receipt, we will email you directions for the survey and an access link to the survey website. We will also follow-up with a phone call from (301.803.0100) to make sure you received it and answer any questions you may have.

P.S. Students that participate and complete the survey within seven (7) days of receiving the email access to begin will be put into a raffle for one of three (3) \$50 gift cards!

Thank you in advance for your time and consideration. Do not hesitate to contact Edward Tarlton should you have questions (301.803.0100). Lastly, HELP us to HELP 4-H to HELP your students! WHOOP

Thanks & Gig 'em



IRB NUMBER: IRB2017-0255D
IRB APPROVAL DATE: 04/25/2017
IRB EXPIRATION DATE: 04/15/2018

APPENDIX I

STUDY PARTICIPATION THANK YOU LETTER

Howdy again 8th-grade 4-H'ers and 4-H Parents!

Thank you for your time in participating in the Non-Cognitive College & Career Readiness Study.

As mentioned, the study seeks to survey 8th-grade 4-H youth that has participated for at least 2-years and attend public school, with our goal to assess students' non-academic college and career readiness levels.

Once again, THANK YOU! Should you have questions call Edward L. Tarlton at 301.803.0100. As mentioned previously, your participation will HELP us to HELP 4-H to HELP your students! WHOOP

Thanks & Gig 'em

Sincerely,



Edward L. Tarlton, *Researcher*
Department of Agricultural Leadership, Education, and Communications
Texas A&M University



IRB NUMBER: IRB2017-0255D
IRB APPROVAL DATE: 04/25/2017
IRB EXPIRATION DATE: 04/15/2018

APPENDIX J

QUESTIONS ADDED TO THE SURVEY

1.
 - a. Distinguished Plan Diploma-Requires 26 Credits plus Algebra II, students are eligible for Top 10% automatic admissions to Texas Public Universities
 - b. Foundation Plan Diploma-Requires Foundation plan, an additional advanced math and endorsements
 - c. Career and Technology Education (CTE) Plan Diploma- Foundation plan and endorsements

2. Regardless of your diploma plan, which endorsement area will you be selecting?
 - a. Science, Technology, Engineering and Math (STEM) – includes courses directly related to science, including environmental science, technology, computer science, engineering, and advanced mathematics.
 - b. Business and Industry – includes courses directly related to database management, information technology, communications, accounting, finance, marketing, graphic design, architecture, construction, welding, logistics, automotive technology, agricultural science, and heating, ventilation, and air- conditioning.
 - c. Public Services – includes courses directly related to health sciences and occupations, education and training, law enforcement, and culinary arts and hospitality.
 - d. Arts and Humanities – includes courses directly related to political science, world languages, cultural studies, English literature, history, and fine arts. (A student pursuing an Arts and Humanities endorsement can, with written parental permission, substitute an advanced course related to the fourth science credit for the fourth science credit.)
 - e. Multidisciplinary Studies – allows a student to select courses from the curriculum of each endorsement area described above and earn credits in a variety of advanced courses from multiple content areas sufficient to complete the Distinguished Level of Achievement under the Foundation program.

3. After high school, my plans right now are to:
 - a. Go to work
 - b. Go to the military
 - c. Go to a 2-year community college “ONLY”
 - d. Go to a 2-year community college then transfer to a 4-year college
 - e. Go to a 4-year college

4. The highest level of education I want to gain is:
 - a. High School diploma
 - b. Specialized Licensure (Auto-mechanic, Cosmetology, Barbers License, Plumbing License, etc.)
 - c. Associates degree
 - d. Undergraduate degree from a 4-year college
 - e. Master’s degree from a 4-year college
 - f. Doctorate from a 4-year college

5. How many years have you participated in 4-H? _____

6. What 4-H programs have you “participated in” (the next question will ask which you have competed in)? (Select all that apply)

- | | |
|-----------------------------------|-----------------------------------|
| Beef Cattle | Photography & Video |
| Careers & Workforce Prep | Plants & Gardening |
| Citizenship | Poultry |
| Clothing & Textiles | Public Speaking |
| Community Service | Rabbits |
| Consumer Education | Range Science |
| Dairy Cattle | Robotics |
| Dog Care & Training | Rocketry & Aerospace |
| Entomology | Safety |
| Food & Nutrition | Science, Engineering & Technology |
| Forestry | Sheep |
| Goats | Shooting Sports |
| Horse | Small and Companion Animals |
| Interior Design & Green Living | Sportfishing |
| International Travel | Swine |
| Leadership | Theater & Performance Arts |
| Meat Science | Veterinary Science |
| Natural Resources | Water Conservation & Education |
| Outdoor Education & Living Skills | Wildlife & Fisheries |
| | Youth Entrepreneurship |

7. What 4-H programs have you “competed in”? (Select all that apply)

- | | |
|-------------------------------------|-----------------------------------|
| I have not competed in any programs | Photography & Video |
| Beef Cattle | Plants & Gardening |
| Careers & Workforce Prep | Poultry |
| Citizenship | Public Speaking |
| Clothing & Textiles | Rabbits |
| Community Service | Range Science |
| Consumer Education | Robotics |
| Dairy Cattle | Rocketry & Aerospace |
| Dog Care & Training | Safety |
| Entomology | Science, Engineering & Technology |
| Food & Nutrition | Sheep |
| Forestry | Shooting Sports |
| Goats | Small and Companion Animals |
| Horse | Sportfishing |
| Interior Design & Green Living | Swine |
| International Travel | Theater & Performance Arts |
| Leadership | Veterinary Science |
| Meat Science | Water Conservation & Education |
| Natural Resources | Wildlife & Fisheries |
| Outdoor Education & Living Skills | Youth Entrepreneurship |

8. Do you also participate in FFA-Future Farmers of America?

Yes

No

9. How likely are you to continue your participation in 4-H through all of your high school years?

Yes

No

Maybe