

**FACTORS INFLUENCING INDIANA RESIDENTS' LEVEL OF
INTEREST IN ENGAGING WITH PURDUE UNIVERSITY**

by
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To my family

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ABSTRACT

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The land-grant university system was founded in the 19th century as a public means to help improve people's everyday lives. A century and a half later, the challenges that the public faces to live a quality life are constantly changing, creating a need for the land-grant system to respond and adapt to continue to fulfill its mission. While the literature contains a wealth of conceptual papers addressing the role and mission of land-grant universities, relatively few papers could be found that reported empirical data or proposed and tested metrics for public engagement constructs. The current study sought to address this void in the literature through the investigation of factors influencing Indiana residents' level of interest in engaging with Purdue University. Mail survey methods were used in which up to three contacts were made with adult members of 4,500 Indiana households identified through address-based sampling. Stratified random sampling was employed to ensure adequate rural household participation for other project purposes. Usable responses were received from 1,003 households representing 87 Indiana counties for a total response rate of 26%.

A theoretical perspective was developed from Public Sphere Theory and the social science writings of Jurgen Habermas and Alexis de Tocqueville. Descriptive findings revealed some to moderate concerns about community and social issues such as affordable health care, violent crime, pollution and prescription drug abuse. Moderate levels of anomie, or perceived social disconnectedness, were also reported by respondents. Several items tapped respondents' past levels of interaction with and current perceptions of Purdue University. Nearly a fifth of respondents reported interacting with Purdue University by having visited a website for news or information, followed by interacting with a Purdue University Extension professional. Regarding perceptions of Purdue University, the results of this study revealed relative consensus among respondents that Purdue University makes a positive contribution to the state of Indiana through its educational, research and outreach programs. For a majority of the perceptual items regarding

Purdue University, more than one-third of the respondents neither agreed nor disagreed with the statement, suggesting some areas in which the university might improve its reputational standing with Indiana residents in the future. Nearly one-quarter to about half of the respondents indicated interest in topical areas addressed by Purdue Extension programs as well as an interest in engaging with the university. Respondents reported the highest levels of interest in free Extension programs in their local area, followed by the topics of science and technology, health and well-being, and gardening.

A predictive model of respondent interest in engaging with Purdue University was developed and tested using binary logistic regression procedures. The model was shown to be of modest utility in accounting for variance in respondent interest in engaging with Purdue University, explaining 12% to 16% of total variance. Past interaction with Purdue University, perceived level of concern for social and community issues, and highest level of education were the strongest predictors in the model.

The current research was completed in 2019 as Purdue University celebrated its 150th anniversary. Results and implications of this study provide important insight into current engagement levels, concerns and perceptions of residents within the state of Indiana, whom the university is mandated to serve. One of the study's primary contributions is the establishment of baseline engagement data on current levels of Indiana residents' interest in engaging with Purdue University on selected topics. Findings from this study could be of benefit to university administrators, faculty, staff and Extension professionals in assessing and improving future programming and setting strategic priorities. This study also adds to the conceptual and empirical body of literature, which may help inform future public engagement efforts at other land-grant universities. Periodic social science and public opinion research is needed to keep pace with the changing needs and perceptions of Indiana residents. Different data collection modes should be utilized to reach more audience segments and add to the growing knowledge base of public engagement.

CHAPTER 1. INTRODUCTION

1.1 Introduction

During 2019, Purdue University celebrated its 150th anniversary as Indiana's land-grant institution. This achievement is marked by 150 years of education and research. Nonetheless, there is a lack of public-centric research measuring current engagement levels (Mahony & Stephansen, 2016), as well as knowledge about the concerns of stakeholders, in order to further the mission of the land-grant institution. In addition, many social issues cause a strain on community resources and economies while causing unquantifiable hardships for families. These social and community issues may inhibit some residents from engaging with and turning to their land-grant universities for resources and education, in many different forms. As a publicly funded entity established by the Morrill Act in 1862, land-grant institutions are charged with the mission of serving the diverse needs of the public. As a public institution with many different responsibilities in a democratic society, today, some believe land-grant institutions have fallen behind in their mandate to serve the public's needs (Byrne, 2016).

1.1.1 The Current State of Land-Grant Universities

As a public entity, land-grant universities have a directive to serve and meet the needs of the diverse communities within their state. Since the passing of the Morrill Act in 1862, the United States has experienced dramatic changes in population demographics, technological systems and resourcing of higher education (Meyers & Irani, 2011; Nelson, Lewis, & Lei, 2016). As a result, some argue that higher education has fallen behind in its ability to adapt and evolve to the changing needs of the public (Byrne, 2016). Historically, the U.S. population was mostly rural and agrarian, but today, urban and suburban areas have grown substantially. According to the National Institute of Food and Agriculture, at the beginning of the twentieth century, farmers

made up 38% of the workforce in America (2014). Today, farm and ranch families make up only two percent of the population (American Farm Bureau Federation, 2017). In addition, the Health Resources and Services Administration (HRSA), an agency of the U.S. Department of Health and Human Services, reported in its 2010 Census that over 19% of the population was rural, while more than 95% of land area was still classified as rural (2016). Land-grant universities were created at a time when the public was highly involved and dependent on agriculture, but today the needs of the public have changed (Byrne, 2016), bringing about the need for land-grant universities to shift their approach to fulfilling the land-grant mission of teaching, research and service.

Alperovitz and Howard (2005, p. 154) stated the following about land-grant universities:

These institutions were meant to serve as intellectual and practical training grounds for non-elites to become more effective participants in the nation's political democracy. This mission has never been more important than it is today, at a time when public opinion polls consistently show that the great majority of Americans no longer believe their voice matters in government, when electoral participation.... is extremely low, and when millions of new immigrants, racial minorities, and disenfranchised populations remain detached from local and national decision making.

Societal changes in funding, population and industry have challenged communities to solve issues on the local level (Checkoway, 1997). Consequently, access to resources is an everyday issue in low-income rural and urban communities (Checkoway, 1997), putting these communities at a disadvantage. Some have argued that democratic partnerships involving universities, schools and community organizations are the most promising means of improving the lives of young people and strengthening communities (Harkavy & Hartley, 2009). A

democratic partnership between the university and community would ensure that all members have a voice at the table (Jaeger, Jameson, & Clayton, 2012), would mutually benefit all parties involved (Checkoway, 1997) and through engagement, would allow a shared vision reflecting the concerns of all residents (Moore, 2014, ix). University resources such as esteemed faculty in various disciplines, educational databases, research laboratories and innovative technologies, coupled with the fact the university is a major employer and provider of goods and services, creates a powerful social and economic influence (Checkoway, 1997). Consequently, this engagement era leans on publicly supported academics to contribute attention, resources and expertise to solving timely problems in local communities (McGrath, 2006).

Research universities are charged with preparing students for active citizenship in a democratic society (Checkoway, 1997), but because of the tripartite mission of the land-grant university, this charge extends beyond campus to the communities that may not typically have access to resources that which the university offers. Universities are committed to the spirit of inquiry, which make them an important asset to the public. “It is the search for understanding that marks the academy, and which shapes both the opportunities and limits of its influence in the public sphere” (Anderson, 2012, p. 392). By fostering engagement and participation in the current democratic society of America, land-grant universities have the potential to improve access to educational resources and improve overall quality of life for all residents. In fact, sustaining modern democracy relies heavily on effective citizen participation (Jacob, 2013).

1.1.2 The History of Land-Grant Institutions

The beginning of land-grant institutions in the United States is marked by the passing of the Morrill Act in 1862 (National Research Council [NRC], 1995). This Act granted land to each state for the establishment of one or more colleges or universities for the purpose of teaching

agriculture and mechanical arts, in addition to the other typical areas of study. The passing of the Hatch Act in 1887 established the State Agricultural Experiment Stations (SAESs). In 1890, the Second Morrill Act was passed, which provided funds to further support land-grant institutions, forbade racial discrimination and allowed for the establishment of separate land-grant for African Americans (National Research Council, 1995). The Smith-Lever Act, passed in 1914, created the Cooperative Extension Service, to aid in disseminating useful information to the public, presumably those not attending the college, for practical application. Soon after in 1917, the Smith-Hughes Vocational Education Act was passed, establishing vocational education in schools and providing funds for teacher training. Next came the Purnell Act of 1925, which provided funding for economic and sociological research to be conducted on rural populations. This specifically allowed for the study of farm family conditions, and the first regional farm housing surveys were administered in 1930s, during The Great Depression (Thorne, 1985). This was one of the first efforts by the land-grant university to gather information from rural stakeholders. Much later, in 1994, the Elementary and Secondary Education Reauthorization Act gave land-grant status to the 29 Native American colleges that make-up the American Indian Higher Education Consortium (National Research Council, 1995). Thus, these three Acts passed in 1862, 1890 and 1994, established the current land-grant university system in the United States, while the Smith-Lever Act, Smith-Hughes Vocational Education Act and Purnell Act added to the purpose and role of land-grant institutions.

1.1.3 The Purdue University Land-Grant System

Purdue University in West, Lafayette, Indiana, is the only land-grant institution in Indiana. After President Abraham Lincoln signed the Morrill Act in 1862, the Indiana General Assembly officially voted to participate and establish an institution in 1865 (Purdue University

Office of Marketing and Media, 2018). By 1869, the Lafayette area was chosen for the institution, followed by John Purdue gifting \$150,000, Tippecanoe County gifting \$50,000 and area residents collectively donating 100 acres. Lastly, the name “Purdue University” was chosen by the legislature. Two years later in 1871, groundbreaking for the first campus buildings began. The first Purdue University degree was earned by John Bradford Harper in 1875 (Purdue University Office of Marketing and Media, 2018). As of fall 2018, there were 43,411 students enrolled at Purdue University’s West Lafayette campus as an undergraduate, professional or graduate degree-seeking student (Purdue University Office of Admissions, 2018).

The Purdue University Cooperative Extension Service has educators, specialists, and volunteers in all ninety-two counties in Indiana (Purdue Extension, 2016). Purdue Extension is made-up of four program areas: Agriculture and Natural Resources, Health and Human Sciences, Economic, Community Development and 4-H Youth Development. According to the Purdue Extension Annual Report, in 2017, there were 11,574 educational programs offered in person and online, and 310,283 participants in learning events. 4-H Youth Development had over 59,000 youth members in 4-H clubs and over 12,000 4-H volunteers in 2017 (Purdue Extension, 2018). Purdue Extension’s mission is, “We deliver practical, research-based information that transforms lives and livelihoods” (Purdue Extension, 2016). Designed to be a local resource, Extension aims to meet the needs of the community, especially those who may not have access to research, information and education directly from Purdue University.

1.1.4 The Public Value of Extension

Cooperative Extensions throughout the U.S. are increasingly expected to show the value and worth of their programs and services to the public (Franz, 2011; Franz, 2013; Franz, Arnold, & Baughman, 2014; Kalambokidis, 2004; Kalambokidis, 2011). One piece of measurement,

evaluations, often serve as evidence of Extension's private value (Franz, Arnold, & Baughman, 2014). In times of budget restraints, policymakers and citizens seek proof that the public dollars that fund Extension are indeed benefiting the public. Harvard professor, Mark Moore, explained how government organizations create public value when their services benefit society as a whole (Kalambokidis, 2004). In contrast, private value is something that only the direct purchaser or user of a service can accrue. Moore explains how the value of public products must exceed the value of resources used to produce it, in order for it be deemed public, instead of private (Kalambokidis, 2004). Today, not only are direct users of Extension services expected to benefit, indirect users must also recognize a benefit for themselves. Therefore, Extension must respond to these accountability expectations, in order to maintain public support and improve public perceptions of programmatic impacts (Franz, 2011).

1.1.5 Public Perceptions of Land-Grant Universities

Several researchers have studied the public perception surrounding Cooperative Extension Services (Boone, Sleichter, Miller, & Breiner, 2007; Kelsey & Mariger, 2003; Warner, Christenson, Dillman, & Salant, 1996; Weerts, 2005b). Boone et al., utilized the Tailored Design Method to survey a random sample of Extension users from county office mailing lists. Non-users of Extension were randomly sampled via telephone survey. Data was collected from 481 Extension users and 449 non-users. The results indicated that users of Kansas State Extension were generally older than non-users and had higher household income levels. Among non-users, 70% had heard of Extension, and 40% had used the service at one time (2007). Regarding, level of satisfaction with Kansas State Research and Extension, 64% of users were very satisfied, while 71% of non-users were very satisfied. When asked about the importance of subject matter to the respondents as individuals, users ranked lawn/gardening, followed by health and safety,

environment preservation, youth development, farming/ranching, family skills and community development.

There have been a vast array of studies assessing faculty engagement in public scholarship (Colbeck & Michael, 2006; Colbeck & Weaver, 2008; Glass, Doberneck & Schweitzer, 2011; Peters, Alter, & Schwartzbach, 2008; Peters, Jordan, Alter, & Bridger, 2003), faculty engagement in knowledge transfer activities (Jacobson, Butterill, & Goering, 2004), and implementing a community-engaged scholarship faculty development program (Jaeger et al., 2012). While still other researchers focused on building a more effective engagement model for universities through community engagement (Brackmann, 2015; Byrne, 2016; Franz, 2014; Furco, 2010; Moore, 2014; Stephenson, 2010), civic engagement (Alperovitz & Howard, 2005; Nelson, Lewis, & Lei, 2017), public engagement (Weerts, 2007; Weerts & Freed, 2016), public participation (Middendorf & Busch, 1997), and integrating scholarly engagement in Extension (McGrath, 2006).

On the local level, several studies investigated the community-university relationship, not going beyond the residents of the local community (Bruning, McGrew & Cooper, 2005; Fisher, Fabricant, & Simmons, 2008; Harkavy & Hartley, 2009; Kim, Carvalho and Cooksey, 2007; Moore, 2014; Torres, 2010; Weerts, 2005a; Weerts, 2005b). Bruning, McGrew and Cooper found that community respondents who attended an event on campus were more likely to regard the university positively and that respondents would like the university to invite them to campus (2005).

To find out how community partners validate institutional commitment to engagement, Weerts conducted interviews with campus and community leaders involved in Extension and outreach partnerships at three land-grant universities (2005b). The results showed that

community partners' perceptions were informed by visible and active campus executives, readiness of faculty and staff to work with the community and the extent of campus buildings being accessible and welcoming (Weerts, 2005b, Findings and Discussion section, para. 1). Community members also looked to newspapers, events and public announcements, to see if the university's initiatives were part of a larger strategy of connection with the outside community. Community partners monitored the rhetoric and behaviors of top executives, to see if these leaders played an active role in supporting engagement. Faculty and staff having the appropriate attitudes, training and social skills to work with community members was also important. Lastly, community partners thought impenetrable structures overall impede access to the university (Weerts, 2005b).

Kim, Carvalho and Cooksey (2007) used a combination of content analysis and survey data from area residents of Auburn University. The results showed that negative news publicity may lead to unfavorable public perceptions of an organization. Results also indicated that those who did not find the university trustworthy were less willing to engage in supportive behaviors.

On the state-wide level, Meyers and Irani (2005) conducted a public value telephone survey, to gather perceptions about the University of Florida's Institute of Food and Agricultural Sciences' (IFAS) from agricultural producers and community leaders (n=707). The results showed that almost 73% of respondents had used IFAS programs and 74% were either very or somewhat familiar with IFAS programs. In addition, the Public Value Index scores increased as respondents' level of familiarity increased and also if they had used IFAS in the past. When asked to allocate a hypothetical sum of \$100 among the three areas within IFAS to show their level of support for each component of the land-grant mission, respondents allocated the most to teaching, followed by research and Extension. Also, on a state-wide level, Abrams, Meyers,

Irani, and Baker (2010) studied stakeholders' brand awareness of the University of Florida's IFAS. A telephone survey was conducted with key audiences, including agricultural producers and community leaders. Respondents included 352 producers and 355 community leaders, who rated agriculture and food, as the most important IFAS program area. When asked about their awareness of IFAS subject areas, the majority of respondents were most aware of agriculture, and the minority of respondents were least aware of disaster preparation and recovery. Regarding areas of IFAS information sought by respondents, producers sought information about agriculture (73%), environment (45.5%), lawn and garden (41.5%) and 4-H youth development (27.6%). Community leaders sought information about agriculture (60.3%), lawn and garden (51.5%), environment (49.6%) and 4-H youth development (41.7%).

On the national level, Christenson, Dillman, Warner, and Salant (1995), conducted a survey of American adults' view of land-grant universities. When asked about the importance of five services provided by the land-grant university in their state, a majority of respondents rated all five as very important. These services included undergraduate teaching, graduate teaching, teaching classes to older, non-degree seeking students, off-campus Extension work, and research on problems facing businesses, residents and state and local government. When asked to allocate a hypothetical sum of \$100 of taxpayer services beyond high school, respondents allocated the most to teaching students on campus, followed by providing off-campus educational and technical help, and doing research. Regarding Extension, 85% of respondents had heard of Extension before, while only eight percent had used the services or programs in the last year. The study also found that respondents knew of land-grant universities, but often did not recognize the term *land-grant* (Christenson et al., 1995).

1.1.6 Social and Community Issues in the U.S.

Individuals, families and communities in the United States are faced with many challenges every day. These social and community issues may necessitate individuals to seek information or resources provided by the land-grant university in their state. From affording health care to putting food on the table to saving for a future education, many individuals do not have access to resources and struggle to make ends meet. Overall, American's express positivity about the economy, and in 2017, 50% of Americans said there were plenty of jobs available in their communities. Nonetheless, approximately half (49%) of Americans still reported that their family's income was not keeping up with the cost of living (Pew Research Center, 2017). Also, older Americans more frequently reported financial difficulties making ends meet. A national survey by the Pew Research Center conducted in January 2018, found that the public's top priorities for 2018 included terrorism (73%), education (72%), the economy (71%) and health care costs (68%) (2018).

In the era of online communication, social media and hashtags, free speech is often a topic of public debate. A 2015 Global Attitudes Survey found that Americans were most supportive of free speech and internet freedom out of 38 nations around the world (Wike, 2016). Specifically, 71% of Americans said it is very important that people can say what they want without state/government censorship, 69% said it is very important that people can use the internet without state/government censorship, and 67% said it is very important that media can report the news without the state/government censorship. In addition, the U.S. was the most supportive of free expression on an index based on survey questions about free speech and free media (Wike, 2016). Free speech was also supported with few differences between political parties, including Democrats, Republicans and Independents. Free speech and free expression

continue to be discussed throughout the U.S. Overall, research shows that the majority of Americans do not want more state or government censorship of their rights.

The United States is facing many current crises, including an increase in prescription drug abuse (HHS Press Office, 2017) and an increase in suicides (Centers for Disease Control and Prevention, 2018). Since the 1990s, there has been a rise in prescription drug abuse across the country. This epidemic is drastically affecting communities and families across the nation, as well as communities and families in Indiana. Due to the escalating opioid crisis, in 2017, a nationwide public health emergency was declared by the U.S. Department of Health and Human Services (HHS Press Office, 2017). From 2007 to 2016, Indiana experienced an increase of 95% in drug overdose deaths. More than half (55%) of the deaths were due to opioids (Kooreman, 2018). The demographic groups most affected by opioid overdose deaths in Indiana include whites, males, and individuals 25 to 34 years old. In 2016, the National Survey of Drug Use and Health (NSDUH), estimated that approximately 270,000 Indiana residents' 12 and older misused opioid analgesics in the past year (Kooreman, 2018). Nationally, drug overdose deaths continue to climb, reaching over 70,000 deaths in 2017, causing the current period to be the deadliest drug overdose epidemic in U.S. history (Stobbe, 2018). Dr. Holly Hedegaard, a CDC injury researcher, shared that accidental drug overdoses account for more than a third of unintentional injury deaths, and intentional drug overdoses account for about a tenth of suicides (Stobbe, 2018).

Across the entire U.S., the suicide death rate in 2017 was the highest it has been in at least 50 years (Stobbe, 2018). In fact, suicides and drug overdoses are contributing to a declining life expectancy in America. Overall, the U.S. life expectancy is in the longest period of decline since the 1910s. Although the nation's population is growing and aging overall, the group having

the largest impact on life expectancy calculations are younger, particularly middle-age adults (Stobbe, 2018).

According to the National Center for Health Statistics, in 2016, suicide became the tenth leading cause of death in Indiana (Centers for Disease Control and Prevention, 2018). In addition, the National Center for Injury Prevention and Control states that Indiana's suicide rate increased almost 32% from 1999 to 2016 (2018). Research continues to indicate that suicide rates are nearly twice as high in rural than urban counties (Stobbe, 2018). Factors contributing to suicide among individuals with and without mental health conditions include relationship problems, crisis in the past or upcoming two weeks, problematic substance use, physical health problem, job or financial problem, criminal legal problems and loss of housing (National Center for Injury Prevention and Control, 2018).

1.1.7 Indiana Rankings

The state of Indiana is located in the Midwestern United States and has a population of over 6.5 million people. According to U.S. News and World Report, in 2017, out of the 50 continental U.S. states, Indiana ranked number 33 when evaluated on thousands of data points to measure how well Indiana was performing for its citizens. Specifically, Indiana ranked number 48 in quality of life, 40 in health care, 35 in education, 30 in infrastructure, 30 in crime and corrections, 25 in economy, 11 in opportunity and eight in fiscal stability. In 2017, Indiana's high school graduation rate was 87.1%, which was above the national average. Almost 11% of adults in Indiana did not have health insurance in 2017, which was just below the national average. Specifically, in long-term fiscal stability, the state of Indiana ranked number two. Voter participation for congressional and presidential elections was almost 45%, which was slightly below the national average. The poverty rate in Indiana was 14.1%, and the median household

income was \$52,314 (U.S. News and World Report, 2019). While Indiana ranked among the top in opportunity and fiscal stability, poverty is nonetheless still a prevalent issue affecting both rural and urban communities.

1.2 Statement of the Problem

There is an overall lack of empirical research on public engagement from a sociological perspective (Hartmann, 2016), and lack of public-centric research in public engagement and participation (Mahony & Stephansen, 2016). As the only public land-grant institution in Indiana, it is crucial that Purdue University understands and meets the needs of the diverse communities it is mandated to serve, within the democratic society of the United States. Purdue University administrators need empirical data on current levels of Indiana residents' interests in engaging with Purdue, and the factors that affect residents' interests in engaging. Therefore, this study was guided by the following question: What are Indiana residents' current levels of interest in engaging with Purdue University?

1.3 Need for Study

Overall, few studies have specifically investigated the public's perceptions and interest in engaging with a land-grant university. While some studies mentioned the importance of democracy in land-grant universities, no prior research studies were found that utilized classical theoretical and conceptual frameworks that account for the time period when land-grant universities were created and also account for the current society that universities exist in today. Lastly, there have been few studies conducted statewide from residents who may have no prior interaction or knowledge of the land-grant university, in an attempt to gain a baseline index for level of public interest in engagement. Instead, studies have focused on key stakeholders of the

university or organization and the local community, who tend to be individuals already actively aware of and somewhat engaged with the university or organization.

1.4 Significance of the Study

The purpose of this study was to explain and predict factors influencing Indiana residents' level of interest in engaging with Purdue University. Results from this study are significant for three overarching reasons. First, as results are disseminated by the researchers, the findings may be used to inform future outreach, engagement and educational efforts of Purdue staff, faculty and Extension professionals. This study also created a novel model that established baseline data on current levels of Indiana resident interest in engagement with Purdue. This model included how engagement differs amongst Indiana residents by demographic factors such as socioeconomic level, geographic location and highest level of education. The model also included how engagement differs amongst Indiana residents by other attitudinal characteristics, such as level of concern for selected social and community issues, level of anomie (i.e., a feeling of being culturally and societally disconnected), perception of Purdue and past interaction with Purdue. Secondly, this study has the potential to reach populations in Indiana that have previously not been reached, such as rural and urban residents, in fulfillment of the land-grant mission. Improving access to educational resources such as innovative research, academic professionals and youth and adult Extension programming, may improve quality of life for Indiana residents. Lastly, this study has the potential to be applied to other colleges and universities beyond Purdue University and Indiana, as results are presented at scholarly conferences and published in academic journals.

1.5 Purpose of the Study

The purpose of this study was to explain and predict Indiana residents' level of interest in engaging with Purdue University based on level of concern for social and community issues, level of anomie, past interactions with Purdue, and perceptions of Purdue.

1.6 Research Questions

1. What were respondents' characteristics for the major study variables (i.e., level of concern for social and community issues, level of anomie, past interactions with Purdue, and perceptions of Purdue)?
2. What were respondents' level of interest in engaging with Purdue University?
3. To what extent can respondents' level of interest in engagement be explained by level of concern for social and community issues, level of anomie, past interactions with Purdue, and perceptions of Purdue?

1.7 Basic Assumptions

This explanatory, predictive research study utilized a quantitative research design. The researcher used a post-positivist paradigm and deductive inquiry to guide the study. The ontology is objective realism, meaning reality is external and independent of social actors (Saunders, Lewis, & Thornhill, 2009). The researcher's epistemology is one of a dualist and objectivist; meaning the findings are observed, measured, descriptive and generalizable (Wahyuni, 2012). The following assumptions underpin the current research:

1. Researchers may be biased by worldviews, cultural experiences and upbringing (Wahyuni, 2012).
2. Respondents completed the questionnaire independently and responded truthfully.

3. Respondents who completed the questionnaire were at least 18 years of age and resided within a household in Indiana.
4. Respondents' level of interest in engaging with Purdue was influenced by their attitudes and social norms.

1.8 Definition of Terms

Anomie: A feeling of being socially and culturally disconnected (Bonell et al., 2013). An overall feeling of hopelessness.

Association: A central part of democracy in America. Associations in the twenty-first century can be small or large, and may be formed for political, commercial, industrial, religious, educational or advocacy purposes (Tocqueville, 1835/2003, p. 596).

Democracy: People working together to improve society for the better (Harkavy & Hartley, 2009). Brookfield (2005a, 2005b) states that democracy cannot exist without a public sphere (Torres, 2010).

Engagement: A two-way, mutually beneficial "...partnership of university knowledge and resources with those of the public and private sectors to enrich scholarship, research, and creative activity; enhance curriculum, teaching and learning; prepare educated, engaged citizens; strengthen democratic values and civic responsibility; address critical societal issues; and contribute to the public good" (CIC, 2005, p. 2).

Land-Grant University: A public institution of higher education established into law by the Morrill Act of 1862, Second Morrill Act of 1890 or the Elementary and Secondary Education Reauthorization Act of 1994.

Participation: A decision making process where the public is involved, either passively or actively, with issues that affect them (Reed et al., 2018).

Public Sphere: A space where private individuals come together to discuss shared concerns and issues (Habermas, 1962/1991).

Tripartite Mission: The threefold mission of U.S. land-grant universities is teaching, research and service (National Research Council, 1995).

CHAPTER 2. REVIEW OF LITERATURE

2.1 Introduction

This chapter begins by summarizing the purpose and research questions of the current research, followed by the literature review methodology. This chapter then addresses the theoretical framework and provides a historical and modern-day context of the theoretical and contextual support for this study. The writings of Alexis de Tocqueville, a French aristocrat, on nineteenth century democracy in America, helped to frame the context of education in America, and the beginnings of land-grant universities. The writings of Jurgen Habermas, a German philosopher and sociologist, during the nineteenth and twentieth centuries, on Public Sphere Theory, helped to frame and guide the theoretical context of this study, and set the stage for conceptualizing the role the public plays in a democratic society then and now.

Key constructs from the theoretical perspective were used to develop a predictive model of Indiana residents' level of interest in engaging with Purdue University. Constructs included in the model are discussed in the following sections. This chapter concludes with a summary of hypotheses tested in the model. Measurement and other model details are addressed in Chapter 3.

2.2 Purpose of the Study

The purpose of this study was to explain and predict Indiana residents' level of interest in engaging with Purdue University based on level of concern for social and community issues, level of anomie, past interactions with Purdue, and perceptions of Purdue.

2.3 Research Questions

1. What were respondents' characteristics for the major study variables (i.e., level of concern for social and community issues, level of anomie, past interactions with Purdue, and perceptions of Purdue)?
2. What were respondents' level of interest in engaging with Purdue University?
3. To what extent can respondents' level of interest in engagement be explained by level of concern for social and community issues, level of anomie, past interactions with Purdue, and perceptions of Purdue?

2.4 Literature Review Methodology

Several sources were used to conduct the review of literature for the present study. The researcher utilized the Purdue University online catalogs, databases and online journals to find relevant literature and research studies. Additionally, several journals were canvassed, including the *Journal of Applied Communications*, *Journal of Extension* and *Journal of Higher Education Outreach and Engagement*. The Agricultural Communication Documentation Center, a collection of over 45,000 agricultural communications documents maintained by agricultural communications faculty members at the University of Illinois, was also searched. Lastly, Google Scholar searches were conducted to locate relevant articles, books and papers.

2.5 Theoretical Framework

The following sections provide an overview of the theoretical framework used to guide this study. The concept of democracy and Public Sphere Theory framed and guided the context of this study.

2.5.1 The United States Spirit of Inquiry

Land-grant institutions are large, multifaceted organizations with diverse bodies of stakeholders, which exist within a democratic society. The researchers acknowledged that public expectations held of the university, are broader than those of any single stakeholder group it serves. Further, no stakeholder view is necessarily more important than another. In order to maintain an unbiased viewpoint, the researchers looked to literature that would provide a broader, societal view of these institutions. The writings of Alexis de Tocqueville, which preceded the land-grant legislation in the nineteenth century, and the writings of Jurgen Habermas, which were published later, allowed the researchers to conceptualize and theorize the role and responsibilities of these institutions throughout history, to the present twenty-first century.

In *Letters from America*, Alexis de Tocqueville, a French aristocrat and lawyer who spent a year travelling throughout America in 1831, observed that one of America's most remarkable features was the value placed on education. Tocqueville was originally commissioned by the French government, along with fellow lawyer Gustave de Beaumont, to study America's prison system. Inevitably, Tocqueville and Beaumont studied much more through their travels and observations in nineteenth century America, including political, economic and social systems (Brown, 2010). "The effort made in this country to disseminate learning is truly prodigious" (Tocqueville, 1831/2010, p. 208). Tocqueville continues that regardless of an individual's political or religious beliefs, this pursuit of knowledge is common, universal and "...in the American grain" (Tocqueville, 1831/2010, p. 208). Much in the same fashion, this spirit of inquiry which was noticeable during Tocqueville's travels throughout America in 1831, helped establish the land-grant university system in the United States in 1862.

2.5.2 Democracy in America

Every American president since Dwight D. Eisenhower has quoted *Democracy in America*—the book Tocqueville wrote after spending nearly a year traveling throughout America in 1831 (Kramnick, 2003, p. ix). “No book, speech, or article on almost any American subject in recent decades is considered complete without some thoughtful words, not from Jefferson, but from Tocqueville” (Kramnick, 2003, p. x). Isaac Kramnick proposes that Alexis de Tocqueville is “America’s public philosopher” due to the vast number of times he has been cited by politicians, journalists, and scholars in America, even more than influential presidents, such as Abraham Lincoln (Kramnick, 2003, p. ix). Tocqueville believed that the United States was a nation whose citizens unite together to promote opinions or ideas in society, moving from individuals who were isolated, to a powerful united influence (Tocqueville, p. 599, 1835/2003). Today, Americans, regardless of age, condition or disposition, frequently unite together for a cause and form an association. Associations in the twenty-first century can be small or large, and may be formed for political, commercial, industrial, religious, educational or advocacy purposes. Tocqueville noted that hospitals, prisons, and schools are established in much the same way as associations (Tocqueville, 1835/2003, p. 596). Even in 2019, associations of all kinds are a vital part of the success of the democratic structure in America. “The only way opinions and ideas can be renewed, hearts enlarged, and human minds developed is through the reciprocal influence of men upon each other” (Tocqueville, p. 598, 1835/2003).

Purdue University has associations within its body, but also collaborates and works with associations in the community, for a variety of purposes. Associations and collaboration between associations can potentially be a powerful influencer of change in communities. Challenging social issues, such as prescription drug abuse and crime, cannot be addressed on an individual

level basis. These issues must be discussed and combatted from collaboration among individuals, communities, associations, and presumably, the land-grant university.

2.5.3 Public Sphere Theory

Citizen associations are formed and exist within the public sphere. A vibrant public sphere, in which citizens exchange information and ideas, is often assumed to exist underneath public opinion as the laboratory in which individual opinions are developed (Perrin & McFarland, 2011).

While it is typical for an essentially contested concept to have a fixed definition, such is not the case for the public sphere (Rauchfleisch, 2017). Previous scholarship has debated the concept of the public sphere, but Rauchfleisch's co-citation analysis of the last 20 years of research found that the most cited literature on the public sphere was still Habermas' English first edition of *The Structural Transformation of the Public Sphere*, published in 1989, which guides this study. According to Habermas, "...the 'world' in which the public was constituted designated the realm of the public sphere" (1962/1991, p. 106). The meaning and significance of public versus private has been traced back to Greek origin (Habermas, 1962/1991, p. 3) and is relevant today. This complex reciprocal relationship causes the public and private spheres to be mutually dependent (Susen, 2011). "Citizens who are forced to take a part in public affairs must turn from the circle of their private interests..." (Tocqueville, p. 592, 1835/2003). In Bourgeois society, coffee houses, salons and public libraries were just some of the places where "privatized individuals" came together to discuss matters of interest (Habermas, 1962/1991, p. 51). Coffee served as circulation hubs of news and information, amongst citizens who previously did not discuss issues in public settings (Pincus, 1995). Thus, a public sphere of rational-critical debate was formed, which in turn could inform public policy in hopes to benefit civil society.

Habermas noted that the public sphere took on a few certain characteristics, regardless of where privatized people met or who was a part of the conversation. A central feature of the public sphere is the idea that social statuses that may have previously divided individuals are “disregarded” altogether (Habermas, 1962/1991, p. 36). No social rank was ascribed to people in these spaces. Secondly, discussion centered on topics that had previously not been discussed amongst people of non-church or state authority. Topics such as philosophy, literature and art became subjects for open public discussion. These products or commodities which for so long had been dictated by authority figures were now available to private individuals, and thus these individuals through rational communication with one-another had to decipher their meaning and value. Lastly, the public is inherently inclusive. “However exclusive the public might be in any given instance, it could never close itself off entirely and become consolidated as a clique...” (Habermas, 1962/1991, pp. 36-37). Because this sphere could not be closed off entirely, this meant that all individuals had to have access and the ability to participate, which shaped and molded discussions. Nonetheless, these meetings or conversations were not the public in its entirety, but instead a group of “discussants” or at most a “mouthpiece” for the public (Habermas, 1962/1991, p. 37). While the public sphere was the most open public place during its’ conception, it was not until much later that women and minorities were allowed in these spaces (Pincus, 1995).

2.5.4 Tocqueville and Habermas in Modern Times

The idea of discussions and collaborations amongst organizations and citizens is in fact, not new. M. L. Wilson, Assistant Secretary and later Undersecretary to the U. S. Secretary of Agriculture during the 1930s, believed that citizens needed opportunities “...to discuss issues with neighbors and colleagues in order to understand and address those issues” (Shaffer, 2017,

section 2, para. 3). Public entities such as land-grant institutions, Extension and the U.S. Department of Agriculture could initiate these discussions. In 1935, representatives from land-grant institutions in 10 states met to consider the use of discussion group methods in communities. With the approval of the USDA, Extension agents gathered rural residents in their homes and community buildings “...to introduce them to discussion methods and to engage in democratic discussion about matters of local and national importance” (Lord, 1939, p. 168, as cited in Shaffer, 2017). Extension thus served as a bridge between government and rural communities.

While today the public sphere and citizen associations may look different than in the nineteenth and twentieth centuries, they are both still relevant. As literacy and education levels rise, cities and urban areas expand, and technological innovations increase, the public sphere and associations find themselves in new places and forms. What started in Habermas’s and Tocqueville’s time as letter writing and face-to-face meetings, today takes on electronic forms—texting, video chat, email and social media. In fact, the internet has completely redefined communication between individuals and the community, the private and the public. The fading of the physical community has been replaced by the digital community (Nelson, Lewis, Lei, 2017). Therefore, it is important for land-grant universities to recognize that citizen groups are increasingly occurring in other public spheres, notably the Internet (Nelson, Lewis, Lei, 2017). It is in the public sphere where the public and university can come together to discuss issues and solutions to current problems and concerns in society. Most importantly, every person is welcome in these modern public sphere spaces (Habermas, Lennox, & Lennox, 1964). For Indiana, these spaces may look like online book clubs, churches, Extension workshops, sporting events, political fundraisers, or coffee shops. In order for Purdue employees and administrators

to know what current problems Indiana communities are currently facing, the university must first ask residents what their concerns and needs are. Then Purdue must collaborate with residents and communities to develop a plan to address and work towards solving the concerns and pressing needs of residents in the state of Indiana.

2.6 Conceptual Framework

The conceptual framework of this study was developed based on key factors thought to influence Indiana residents' level of interest in engaging with Purdue University (Figure 2.1). These key factors included level of concern, level of anomie, past interactions with Purdue and perceptions of Purdue. In addition, demographic characteristics, such as sex, age, education level and gross household income were also included. Other key constructs included that of the land-grant university, the public and the fact that the United States is a democratic society where within public spheres occur.

2.6.1 Level of Interest in Engaging with Purdue University

Purdue Extension focuses on four key areas, including agriculture and natural resources, community development, health and human sciences, and 4-H youth development. The state of Indiana is unique in that all 92 counties have a Purdue Cooperative Extension office located in them (Purdue Extension, 2018). This means that communities have closer access to resources, and Extension employees have easier access to communities within their county. Cooperative Extension is a vital part of the land-grant university system, by serving as the outreach and on-the-ground resource for all communities, including those who may typically not have access to a college campus.

Warner and Christenson (1984), found that respondents were more supportive of extension programs if they were involved, had experience and were satisfied (as cited in Meyers & Irani, 2011). Christenson, Dillman, Warner, and Salant (1995), found that one-third of respondents were very interested in getting additional education or training offered by universities. Loible, Diekmann and Batte (2010), found that the majority of respondents had participated in programs provided by the Agriculture and Natural Resources program area of Ohio State University Extension, followed by 4-H Youth Development programs, Family and Consumer Sciences programs and Community Development programs.

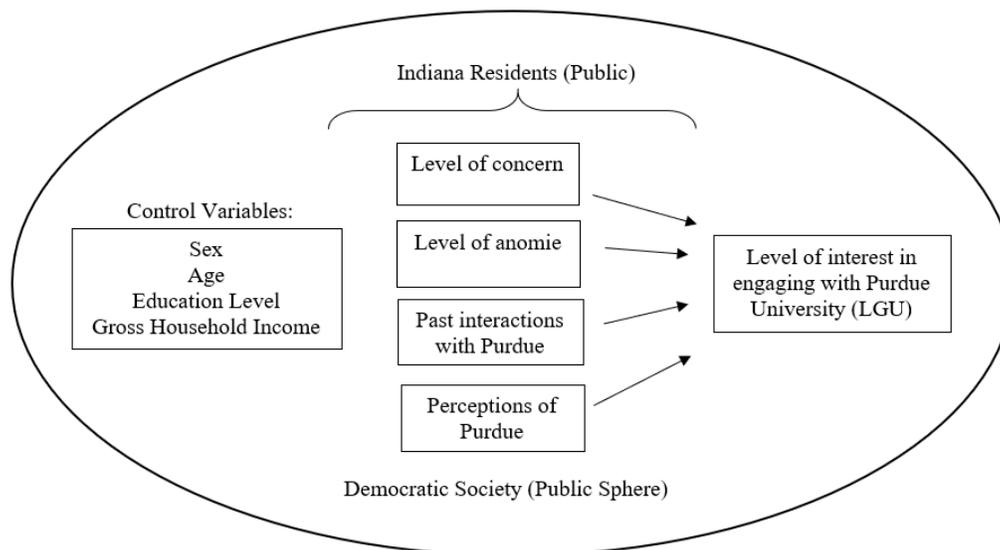


Figure 2.1: Conceptual Diagram of the Study's Domains and Variables

2.6.2 Level of Concern

Every individual faces a variety of concerns in their day-to-day life. Such concerns would be expected to increase information seeking behaviors by the individual. For this study, respondents were asked to indicate their level of concern for selected social and community issues they feel may pose a threat to their own or their family's well-being or way of life. The list of concerns, developed through a review of literature, is as follows: lack of good jobs, affordable

health care, violent crime, prescription drug abuse, pollution, making ends meet, restrictions on free speech, climate change, terrorist attack and genetic modification of foods.

Devoe et al. (2007), found that families faced three major barriers to health care access: lack of insurance coverage, poor access to services and unaffordable costs. The results showed that having insurance and/or access did not ensure care. In addition, publicly insured families were most concerned about access, while privately insured families were most concerned about costs (DeVoe et al., 2007). Affordable health care is a serious concern of many Americans, regardless of age, employment status, or socioeconomic situation.

One major public health concern that has a costly economic influence is prescription drug abuse. Recent studies have found a link between increased opioid prescriptions and increased rates of opioid abuse in adults (Groenewald, Rabbitts, Gebert, & Palermo, 2016). Not only are opioids the most commonly abused drug in the United States, they are also increasingly becoming abused by adolescents (Groenewald et al., 2016). Increasing rates of drug abuse may be due in part to the fact that "...rates of opioid prescriptions to family members of children and adolescents increased substantially between 1996 and 2012, placing children at greater risk for exposure to opioids in their homes and communities" (Groenewald et al., 2016, p. 1026). Prescription drug abuse is a concern that affects almost every community in the United States.

Climate change is another social issue affecting communities. Researchers evaluated over 30 years of public opinion data about global warming and the environment (Scruggs & Benegal, 2012). Results indicated that since 2008, the American public's concern about climate change has dramatically declined. The researchers believe this decline is due to the economic insecurity caused by the Great Recession. Similarly, Brulle, Carmichael, and Jenkins (2012) conducted an empirical analysis from surveys over a nine-year period and found that U.S. public concern about

climate change significantly decreases when there is an increase in unemployment. The public's first and foremost concern is day-to-day survival, and if these needs are not being met, then the public may shift beliefs about long-term issues (e.g., climate change), to reduce cognitive dissonance about short term needs (Scruggs & Benegal, 2012).

2.6.3 Level of Anomie

Anomie is a feeling of being culturally and societally disconnected. The construct was originally studied in the context of suicide by French sociologist Émile Durkheim in the late nineteenth century. Individuals experiencing anomie perceive a feeling of lack of social norms and personal disconnect from greater society, resulting in hopelessness (Bonell et al., 2013). Dr. William Dietz, a disease prevention expert at George Washington University, believes there is a feeling of increasing hopelessness amongst Americans today, which may lead to drug abuse and suicide. He suggests that financial struggles, a widening income gap and divisive politics contribute to this hopeless feeling (Stobbe, 2018). Other significant societal events such as war, crime, recession, and the rapid advance of technology can contribute to feelings of anomie. Research by Achterberg, de Koster and van der Waal (2017) showed that individuals who are less educated demonstrate higher levels of anomie. Anomie is also often accompanied by distrust in modern institutions of science, such as land-grant universities. This distrust may be due to an institution's complex, contemporary social and cultural order (Achterberg et al., 2017). VoteCast, a survey of more than 115,000 voters nationwide conducted by The Associated Press, found that about half of voters expect life in America for the next generation to be worse than it is today (Stobbe, 2018). Therefore, according to the theoretical perspective used to guide this study, increased feelings of hopeless and disconnect will decrease interaction and interest with

science-based organized. This may affect Indiana residents' level of interest in engaging with Purdue University.

2.6.4 Past Interactions with Purdue University

According to the theoretical perspective used to guide this study, respondents who have previously interacted with Purdue, will be more likely to interact in the future. Interaction can be a variety of actions, such as attending an Extension workshop, visiting Purdue websites or enrolling in a class. Meyers and Irani (2011) found that almost three-quarters of respondents (i.e., agricultural producers and community leaders) had used University of Florida's Institute of Food, Agriculture and Science programs or services. By conducting a survey of Ohio residents, researchers found that respondents were most likely to interact with Extension by reading a publication, followed by listening to a report on the radio, visiting one of the websites, direct contact with an educator, participation in meetings, or serving on a planning or advisory committee (Loible, Diekmann, & Batte, 2010). Researchers conducted a study of Ohio Cooperative Extension Service clientele who had previously participated in Extension programs. Five factors emerged from the analysis of responses related to participation: low anticipated difficulties with arrangements, high commitment to the Extension organization, anticipated positive social involvement, anticipated high quality of the information, and possession of high internal motivation to learn (Norland, 1992).

2.6.5 Perceptions of Purdue University

According to the theoretical perspective used to guide this study, respondents who have a positive perception of Purdue University will be more likely to have interest in engaging with Purdue University. Warner, Christenson, Dillman and Salant (1995) found in 1982 and 1995 that

the public values the services provided by land-grant universities. Marlowe detailed that it is important to know how those served by an organization view it (2005).

Universities across the United States face increasing public criticism (Alperovitz & Howard, 2005; Bridger & Alter, 2006; Byrne, 1998; Furco, 2010; Kellogg Commission, 1999; Leveille, 2005). Rising cost, limited access, large class sizes and accountability issues concern legislators, students, parents and tax payers (Bridger & Alter, 2006). In addition, faculty are faulted for putting research before teaching, conducting research not relevant to current real-world problems and focusing on their own advancement instead of service to the community (Bridger & Alter, 2006). Furthermore, budget constraints have caused universities to pursue federal, corporate and philanthropic research dollars (Alperovitz & Howard, 2005). Critics of higher education expect public universities to provide evidence that their research informs the teaching mission of the university, as well as evidence that the university is fulfilling its historical commitment to help meet the needs of society (CIC, 2005). Today, universities are seeking ways to become more relevant to their changing audience, address social and economic problems, and "...offer leadership within society consistent with their core values of openness, integrity, and inclusion" (CIC, 2005, p. 2).

2.6.6 Democracy and the Land-Grant University

This study's domains and variables (i.e., level of interest in engaging with Purdue, level of concern, level of anomie, past interactions with Purdue and perceptions of Purdue) were developed based on the complex relationship of the land-grant university, the public and democracy in the United States. Nonprofit organizations, such as the public land-grant university aid in fostering civil society and democratic governance (Rawlings, 2012). Thus, universities have the potential to aid in preparing citizens for an engaged public life. Land-grant universities

were founded on the principles of democracy, and the fact that no person is beneath the university (Kelsey, 2002; McDowell, 2001, as cited in Alperovitz and Howard, 2005). Universities must be aware of the diverse needs of the communities who they serve. “In exchange for being publicly funded, higher education establishes an educated and trained citizenry, reproduces democratic practices, and produces both social and economic outcomes for the public” (Brackmann, 2015, p. 117). An engaged and informed citizenry is necessary to have a successful democracy (Visser, Holbrook, & Krosnick, 2007).

2.6.7 Demographic Control Variables

This study had four main demographic and sociodemographic control variables including sex, age, education level and gross household income. These variables may account for some variance in the model. Therefore, by controlling for them, their variance will be accounted for, and the remaining variance will go to the independent variables (i.e., level of concern, level of anomie, past interactions with Purdue and perceptions of Purdue). In a similar study, Meyers and Irani (2011) controlled for demographic variables, due to the fact these variables were not theorized to influence the dependent variable. The demographic variables collected by Meyers and Irani (2011) included gender, ethnicity, age, years living in Florida, education, University of Florida alumni, College of Agricultural and Life Sciences alumni, and employment in the agriculture industry.

2.7 Hypotheses

The hypotheses for this study were guided by the literature and were developed based off the relationship of the dependent variable (i.e., level of interest in engaging with Purdue) and the

four independent variables (i.e., level of concern, level of anomie, past interaction with Purdue and perception of Purdue).

Regarding level of concern, Case (2007) cites multiple research studies, including those by Chen and Hernon (1982), and Dervin, Ellyson, Hawkes, Gugnano, and White (1984). In a classic, widely-cited research study that investigated the information needs and uses of 2,400 New England residents conducted in 1982, Chen and Hernon found that 52% of respondents' information-seeking situations were needs to solve day-to-day problems. The rest of the information needs were dispersed across 18 problem situations. When asked what sources they used to address these problems, respondents cited their own experiences (74%), friend, neighbor or relative (57%), newspaper, magazine or book (45%), store, company or business (45%), coworker (43%) and professional (41%). Other sources such as government, TV/radio, library, telephone book, social service agency or religious leader were cited less frequently (as cited in Case, 2007, p. 289).

Two years after in 1984, Dervin, Ellyson, Hawkes, Gugnano, and White interviewed 1,040 Californians, about personal gaps in life. Over two-thirds of respondents reported areas such as family/friends, managing money, shopping/buying, or learning as the most common concerns. In addition, over 40% of respondents mentioned current events, recreation, health, jobs, children, transportation, or housing. Regarding sources to address these problems, respondents cited own experiences (89%), authorities/professionals (58%), family members (52%), and friends/neighbors (48%). Other sources cited less frequently included coworkers, media, schools/colleges, business persons, and libraries (as cited in Case, 2007, p. 289). All-in-all, "...interpersonal providers of information were ranked as much more important than

institutions or mass media,” but institutions are still nonetheless, a source of information citizens seek out (Case, 2007, p. 289).

Regarding anomie, research has shown that anomie is often accompanied by distrust in modern institutions of science (Achterberg et al., 2017). Anomie is a feeling of being disconnected from society, either socially or culturally. It often stems from significant events that take place in ones’ life. In a study of understanding the decision to participate, Henry and Basile (1994) found that adults were less likely to enroll in a formal adult education class, if a major change occurred in their life. Major life changes may impede participation because of difficulty, inconvenience or inability.

Regarding previous interaction and perception of an organization from those “outside” of the organization, Ouelette and Wood (1998) conducted a meta-analytic synthesis of prior research. The findings describe how strategies to adopt a new behavior should ensure an immediate positive consequence, within a stable supporting environment in which the behavior can be repeated. As a result of these conditions, frequent performance of the new behavior is likely to produce habitual repetition in the future. When a behavior is not well learned or is performed in difficult contexts, conscious decision making is necessary to carry out the behavior. When this is the case, past behavior, attitudes and subjective norms may contribute to intentions, which guide behavior (Ouelette & Wood, 1998). Regarding online interaction, in a previous study of agricultural audiences’ adoption of internet communication tools, the strongest predictors of behavioral intent for all participants was experience and perceived usefulness (Irani, 2000). Bruning, McGrew and Cooper (2005) found that community respondents who attended an event on campus were more likely to regard the university positively. In the context of Purdue University, those who repeatedly interact or engage with any aspect of the University

or Extension in stable conditions, are creating a habit, which over time may become a natural part of their life. In addition, when individuals attend university events, they may be more likely to regard the university positively.

Regarding previous interaction and perception of an organization from those “inside” the organization, Ki and Hon (2011) found that among four relationship quality dimensions, including control mutuality, satisfaction, trust and commitment, current members’ attitudes towards the organization are positively influenced by their perceptions of relationship trust and commitment. In addition, among members of a key public, the study found that supportive behavior toward the organization is influenced by the public’s perception of commitment.

Therefore, the hypotheses for this study are as follows:

1. Increased concern for social and community issues is associated with increased interest in engaging with Purdue on selected topics.
2. Increased anomie towards society and way of life is associated with decreased interest in engaging with Purdue on selected topics.
3. Past interaction with Purdue University is associated with increased interest in engaging with Purdue on selected topics.
4. A more positive perception of Purdue University is associated with increased interest in engaging with Purdue on selected topics.

2.8 Summary

In summary, this chapter reviewed the relevant historical and modern literature, theories and contexts that framed and guided this study. First, this chapter explored Alexis de Tocqueville’s writings on democracy in America, and Jurgen Habermas’s writings on the Public Sphere Theory. Then Tocqueville’s and Habermas’s writings were applied to the current context.

Next, the conceptual framework was discussed, including the dependent variable (i.e., level of interest in engaging with Purdue), independent variables (i.e., level of concern, level of anomie, past interactions with Purdue and perceptions of Purdue) and demographic control variables (i.e., sex, age, education level and gross household income). The relevant literature relating to democracy, land-grant universities and the public was reviewed, with a conclusion that there is a significant need for studies in this multifaceted area of scholarship.

CHAPTER 3. METHODOLOGY

3.1 Introduction

This chapter provides an overview of procedures and methods used to carry out the current research. This chapter will review the purpose, research questions and hypotheses for this study. Next, a description of the research design, participants, field test, development of the survey instrument, and threats to validity and reliability are provided. Lastly, this chapter explains the procedures for data collection, including survey response, data entry, data management, data cleaning, data weighting and data analysis. The research received IRB exemption on February 5, 2018, as IRB protocol: 1712020022 (Appendix A).

3.2 Purpose of the Study

The purpose of this study was to explain and predict Indiana residents' level of interest in engaging with Purdue University based on level of concern for social and community issues, level of anomie, past interactions with Purdue, and perceptions of Purdue.

3.3 Research Questions

1. What were respondents' characteristics for the major study variables (i.e., level of concern for social and community issues, level of anomie, past interactions with Purdue, and perceptions of Purdue)?
2. What were respondents' level of interest in engaging with Purdue University?
3. To what extent can respondents' level of interest in engagement be explained by level of concern for social and community issues, level of anomie, past interactions with Purdue, and perceptions of Purdue?

3.4 Hypotheses

1. Increased concern for social and community issues is associated with increased interest in engaging with Purdue on selected topics.
2. Increased anomie towards society and way of life is associated with decreased interest in engaging with Purdue on selected topics.
3. Past interaction with Purdue University is associated with increased interest in engaging with Purdue on selected topics.
4. A more positive perception of Purdue University is associated with increased interest in engaging with Purdue on selected topics.

3.5 Research Design

The purpose of this study was to explain and predict Indiana residents' level of interest in engaging with Purdue University. The research design was a modified Tailored Design Method, a scientific approach to survey research that involves "customizing" survey procedures for each survey situation (Dillman, Smyth, & Christian, 2014, p. 16). This methodology reduces four sources of survey error—coverage, sampling, nonresponse, and measurement. The research team also worked with a research methodology consultant from National Opinion Research Center (NORC) at the University of Chicago who assisted with research design and instrumentation. The study used mail survey research methods. Stratified random sampling was used with two strata: rural and urban. This sampling design was used to assure an adequate number of rural respondents for other project purposes beyond the scope of this study. In total, 3,196 urban (71%) and 1,304 rural (29%) addresses were randomly selected (see Table 3.1). The mailing address information for the sample of 4,500 households was purchased from a prominent private market list vendor. This methodology, known as addressed-based sampling (ABS), utilizes lists

updated by the United States Postal Service (USPS) Computerized Delivery Sequence (CDS) file (Harter et al., 2016).

Table 3.1: Mail Survey Strata in Current Research

Stratum	n	%
Urban	3,196	71%
Rural	1,304	29%
Total	4,500	100%

Due to the decline in response rates in all types of public surveys in the United States and abroad (Pew Research Center, 2012), the research team explored other research methods, such as telephone and electronic surveys. According to the Pew Research Center (2012), telephone survey response rate fell from 36% in 1997, to only nine percent in 2012. This is due in part because of increased cellular phone usage, decreased landline phone usage and an overall increase in call-screening capabilities of devices (Pew Research Center, 2012; Harter et al., 2016). In comparison, electronic surveys may experience higher rates of bias due to lack of access to broadband internet or computers, especially in low-income areas. In contrast, a mailed questionnaire can guarantee confidentiality and anonymity and decrease interviewer bias, thus increasing the accuracy of the responses (Ary et al., 2014, p. 411). Regardless of declining response rates in all types of research, “Surveys are a popular research tool to use for the purpose of gathering data from participants of public decision-making processes in order to test a hypothesis” (Webler, 1999, p. 57). Public opinion surveys can not only obtain an accurate representation of the many views of the public (Perrin & McFarland, 2011), but they can also include views from individuals who may have no other form of representation (Middendorf & Busch, 1997). In the case of public engagement, this may very well be the public who does not choose to engage with any aspect of the land-grant university or is simply not aware of the many

services and resources provided to the public but is nonetheless still affected by the land-grant university by simply residing in a household in Indiana. All-in-all, Babbie (2005) argued that surveys allow standardization of data, have the potential to reach reclusive audiences, encourage honest responses and are still considered valid for studying large populations (Case, 2007, p. 205).

3.6 Research Approval

To protect the rights of the respondents involved, the researchers completed the Collaborative Institutional Training Initiative (CITI) Course in the Protection of Human Research Subjects online training module. Following a completion of the CITI training, an application, complete with all materials and instrumentation was submitted to the Institutional Review Board (IRB) and Committee on the Use of Human Research Subjects at Purdue University by the research team. IRB granted the research team approval for the study “Best Practices to Engage the Indiana Public on Emergent Science and Technology” (IRB protocol: 1712020022) on February 5, 2018. IRB protocol information and letter can be found in Appendix A.

3.7 Population and Respondents

The sample population for this study was adults, age 18 or older, who occupied a household in the state of Indiana, thus were taxpaying Indiana residents. This sample population was selected because these individuals are stakeholders of Purdue University, and their various needs are to be served by the state’s land-grant university.

According to the United States Census Bureau, there are approximately 6.7 million residents in the state of Indiana (2017). At a margin of error of five percent, a 95% confidence level, this study required a sample size of 384 respondents (Krejcie & Morgan, 1970). This

assumes that respondents were randomly selected from a list free from frame error, or sampling error, and that all 384 respondents fully participated in the study. Under these conditions, the findings could be generalized to the population. Unfortunately, even though the research team implemented recommended survey methodology practices, limitations in the study cause a certain degree of frame error in which households were sampled, as well as sampling error, and not all respondents chose to respond. “Research shows that respondents tend to differ from nonrespondents in characteristics such as education, intelligence, motivation, and interest in the topic of the survey” (Ary et al., 2014, p. 433). This can cause the survey data to be biased, especially if nonresponse was not randomly distributed. These sources of error pose threats to external validity, affecting the generalizability of findings to the sample and, hence, to the population. Unfortunately, none of these types of errors can be avoided entirely, nor can they be measured with complete accuracy in this research. At a margin of error of one-and-a-half percent, and a 95% confidence interval, this study required 4,269 respondents. Therefore, the researchers, in accordance with their budget, increased the sample size to 4,500 respondents to compensate for these sources of error. However, McCarty (2003) notes that the effect of nonresponse may not be as pronounced as once thought, and low response rates may not necessarily indicate bias (as cited in Ary, Jacobs, Sorenson, & Walker, 2014). In addition, Teitler, Reichman, and Sprachman (2003) state that there is also a point of diminishing returns beyond which the benefits of trying to improve response rate are marginal (as cited in Ary, Jacobs, Sorenson, & Walker, 2014).

3.8 Instrumentation

The survey instrument used in this study was designed by the researchers to fulfill multiple aims of a larger project. The complete questionnaire was 12 pages long with 15 sections

and a total of 132 items focusing on various attitudinal and behavioral aspects of public engagement, emergent science and technology, social and community concerns, cultural worldviews, media system dependency and other topic areas. One page was devoted to sociodemographic items. The current study focused specifically on six sections of the questionnaire with a total of 45 items. The partial instrument is provided in Appendix B.

All questionnaire items and attitude scales were modeled after variables found in the refereed research literature, many of which reported procedures for establishing validity and reliability. In addition, a professional research methodologist from the National Opinion Research Center (NORC) at the University of Chicago was engaged to review all survey items and format the instrument according to best practices.

3.9 Measurement

The following sections discuss the measurement of the variables used in this study. Level of measurement, example questions and coding used for data entry and data analyses are also discussed.

3.9.1 Level of Interest in Engaging with Purdue University

The dependent variable, level of interest in engaging with Purdue, was adapted from Pew Research Center studies (Horrigan, 2017). The questionnaire assessed respondents' level of interest in engaging with Purdue. There were nine items in this section measured on a 3-point nominal rating scale, (i.e., "Yes," "No," and "I have done so before." Respondents were asked, "Now, we'd like to know if you are interested in learning about or engaging with Purdue University on any of the following topics. Items in this section were as follows: Food and nutrition, youth programs, agriculture, health and well-being, science and technology, free

Extension programs in your area, environmental topics, home and money and gardening. For the purpose of this study, the researchers only utilized respondents' answers to the "Yes" and "No" categories. Item analysis was used to assess reliability of the nine items. Results are reported in Table 3.5.

The nine items were used to form a composite measure of interest in engaging with Purdue University. A response of one for any of the nine items resulted in a scale score of one. In cases where all item responses were zero, the resulting scale score was zero. The dichotomous scale measure served as the dependent variable in the study.

3.9.2 Level of Concern

Level of concern about social and community issues that may pose a threat to a subject's well-being or way of life was adapted from public opinion research (Johnson, 2017) and public concern research (Macnaghten & Chilvers, 2014). There were 10 items in the section measured on a summated 5-point rating scale (i.e., major concern = 5, moderate concern = 4, some concern = 3, slight concern = 2, and no concern = 1. Respondents were asked "People may have concerns about issues they feel pose a threat to their well-being or way of life. What is your level of concern about the items listed below?" Items in this section were as follows: Lack of good jobs, affordable health care, violent crime, prescription drug abuse, pollution, making ends meet, restrictions on free speech, climate change, terrorist attack and genetic modification of foods.

Item analysis was used to assess reliability of the 10 items. Results are reported in Table 3.5. The 10 items were combined to form a scale measure of level of concern. The scale measure was used in regression modeling.

3.9.3 Level of Anomie

Level of anomie items were adapted from public opinion studies (Achterberg et al., 2017; Roberts & Rokeach, 1956; Srole, 1956). There were four items in this section measured on a summated 5-point rating scale (i.e., strongly agree = 5, somewhat agree = 4, neither agree nor disagree = 3, somewhat disagree = 2, and strongly disagree = 1). Respondents were asked, “Please let us know the degree to which you agree with the following statements.” Items in this section were as follows: “These days a person does not really know whom he or she can count on,” “Nowadays, a person has to live pretty much for today and let tomorrow take care of itself,” “It is hardly fair to bring a child into the world with the way things look for the future,” and “You sometimes cannot help wondering whether anything is worthwhile anymore.”

Item analysis was used to assess reliability of the four items. Results are reported in Table 3.5. The four items were combined to form a scale measure of level of anomie. The scale measure was used in regression modeling.

3.9.4 Past Interactions with Purdue University

Past interactions with Purdue University was adapted from university-community engagement studies (Abrams, Meyers, Irani, & Baker, 2010; Boone et al., 2007; Bruning, McGrew, & Cooper, 2006; Christenson, Dillman, Warner, & Salant, 1995; Kelsey & Mariger, 2003; Meyers & Irani, 2011; Warner, Christenson, Dillman, & Salant, 1996; Weerts, 2005a; Weerts, 2005b). The questionnaire assessed respondents past interactions with Purdue. These six items were measured on a 3-point nominal rating scale (i.e., “I have done so,” “Family member has done so,” or “No, to the best of my knowledge”). Respondents were asked “First, have you or an immediate member of your family interacted with Purdue University in any of the following ways in 2017?” Items in this section were as follows: Contacted Purdue University for

information, visited a Purdue University website for news or information, attended an event, meeting or class on a Purdue campus, enrolled in an online class offered by a Purdue campus, interacted with a Purdue University Extension professional and attended a Purdue University Extension meeting or event. For the purpose of this study, the researchers only utilized the questions pertaining to the individual respondent's past interactions, including the questions "I have done so" and "No, the best of my knowledge."

Item analysis was used to assess reliability of the six items. Results are reported in Table 3.5. The six items were used to form a composite measure of past interactions with Purdue University. A response of one for any of the six items resulted in a scale score of one. In cases where all item responses were zero, the resulting scale score was zero. The dichotomous scale measure was used in regression modeling.

3.9.5 Perceptions of Purdue University

Perceptions of Purdue University was also adapted from university-community engagement studies (Abrams, Meyers, Irani, & Baker, 2010; Boone et al., 2007; Bruning, McGrew, & Cooper, 2006; Christenson, Dillman, Warner, & Salant, 1995; Kelsey & Mariger, 2003; Meyers & Irani, 2011; Warner, Christenson, Dillman, & Salant, 1996; Weerts, 2005a; Weerts, 2005b). The questionnaire assessed respondents' perceptions of Purdue University. There were 11 items in this section measured on a summated 5-point rating scale (i.e., strongly agree = 5, somewhat agree = 4, neither agree or disagree = 3, somewhat disagree = 2, and strongly disagree = 1). Respondents were asked, "We would now like to ask you specifically about your perceptions of Purdue University and its contributions to the state of Indiana. Please let us know the degree to which you agree or disagree with the following statements." Items in this section were as follows: Conducts research that benefits the state economy, offers quality

educational programs, offers outreach programs available to all Indiana residents, conducts applied research that addresses Indiana's major needs, offers quality youth educational programs open to all Indiana families, serves as a source of unbiased information for Indiana residents, conducts research that improves quality of life, works with local residents to help improve Indiana communities, is in touch with the needs of Indiana families and residents, serves as a source of positive social change in Indiana and offers opportunities for Indiana residents to learn more about current research.

Item analysis was used to assess reliability of the 11 items. Results are reported in Table 3.5. The 11 items were combined to form a scale measure of perceptions of Purdue University. The scale measure was used in regression modeling.

3.9.6 Demographic Information

A series of demographic items were developed to obtain characteristics of respondents. The demographic items included questions about sex, age, highest grade or year of school completed, race and ethnicity and gross household income.

Table 3.2 describes the research questions, measures, variables and data analyses of the study. Research Question 1 addressed the major study variables, which were also the independent variables (i.e., level of concern, level of anomie, past interactions with Purdue, and perceptions of Purdue). The data was analyzed by population estimates, unweighted means, standard deviations, mean population estimates and standard errors. Research Question 2 addressed respondents' engagement interests with Purdue University. The data was analyzed by population estimates, unweighted means, standard deviations, mean population estimates and standard errors. Research Question 3 addressed the relationship between the dependent variable, level of interest in engagement with Purdue, and the independent variables, level of concern,

level of anomie, past interactions with Purdue, and perceptions of Purdue. Logistic regression analysis was used to test the model developed for this study.

Table 3.2: Research Questions, Measures, Variables, and Data Analyses Procedures

Research Questions	Variables	Data Analyses
RQ 1: What were respondents' characteristics for the major study variables (i.e., level of concern, level of anomie, past interaction with Purdue and perceptions of Purdue)?	1. Level of Concern 2. Level of Anomie 3. Past Interaction with Purdue 4. Perceptions of Purdue University	Population Estimates, Unweighted Means, Standard Deviations, Mean Population Estimates, Standard Errors
RQ 2: What were respondents' level of interest in engaging with Purdue University?	Level of Interest in Engagement with Purdue University	Population Estimates, Unweighted Means, Standard Deviations, Mean Population Estimates, Standard Errors
RQ 3: To what extent can respondents' level of interest in engagement be explained by level of concern, level of anomie, past interactions with Purdue and perceptions of Purdue?	1. Level of Interest in Engagement 2. Past Interactions 3. Perceptions 4. Level of Concern 5. Level of Anomie 6. Demographic Variables (i.e., sex, age, education level & gross household income)	Cronbach's Alpha, Principal Component Analysis, Pearson & Spearman Correlation Matrices, Logistic Regression Analysis, Hierarchical Logistic Regression Analysis

3.10 Field Test

This research utilized a field test, which is recommended to help assure validity (Ary et al., 2014, p. 421). A draft of the study instrument was developed in the spring of 2018 and examined by the researchers for face and content validity. As a further test of validity, the researchers administered the instrument to approximately 25 adults who were not included in the sampling frame. Field test respondents were asked not only to complete the questionnaire, but also to write any questions about items they found confusing or unclear. The researchers

examined and discussed the completed field test questionnaires. A number of minor editorial and format changes were made to the questionnaire as a result of the field test.

The researchers addressed reliability of scale items on the questionnaire when possible by modeling the measurement of study variables after variables for which known reliabilities were reported in the literature. A final version of the instrument was approved for use by the research team in June and shared with the project's NORC consultant for review and additional feedback.

3.11 Data Collection

Data was collected using a modified Tailored Design Method for mail survey research. Utilizing addressed-based sampling, the mailing address information for the sample of 4,500 households was purchased from a prominent private market list vendor. This methodology utilizes lists updated by the United States Postal Service (USPS) Computerized Delivery Sequence (CDS) file (Harter et al., 2016).

After obtaining the mailing list from the list vendor, the researchers shared the list with Purdue Print Services. Purdue Print Services first "cleansed" the list, by replacing names with incorrect or incomplete addresses with a new name from the list. As a part of the cleansing process, Printing Services verified names and addresses through National Change of Address, until the list of 4,500 Indiana households was established. Printing Services also numbered all 4,500 surveys and corresponding mailings for tracking purposes. All address mailings and stationary were personally addressed to the household (e.g., Smith Household), as recommended by Dillman et al. (2014, p. 366). Lastly, Purdue Printing Services printed, and assembled all items (i.e., questionnaire, cover letter, \$2 bill and business reply return envelope) in the mailing envelopes in a particular order of importance, as recommended by Dillman et al., (2014, p. 383).

Throughout the duration of the data collection, the mailing list was maintained using Microsoft Excel. As completed surveys were returned in the mail, the researchers processed the survey by first checking the unique identifier number on the survey, and then removing it from the master list. The researchers then sent the master list to Purdue Print Services for follow-up mailings to nonrespondents. All returned mailings were logged in, secured in a locked filing cabinet in the researchers' office, and organized by respondent number from highest to lowest.

3.11.1 First Mailing

In total, there were four potential contacts with the public through this study. All mailings were sent in first-class mail. During the first contact, a survey package was mailed on July 23, 2018, containing a cover letter from the researchers, a questionnaire and a postage paid business reply return envelope. The cover letter, including research information, can be found in Appendix C. In addition, a \$2 bill was included with the survey package. Research has shown that prepaid monetary incentives increase survey response rates, by creating a feeling of obligation (Ary, Jacobs, Sorenson, & Walker, 2014, p. 132; Dillman et al., 2014, p. 31). Monetary incentives have also been shown to decrease nonresponse bias, by attracting respondents who may otherwise choose not to complete the questionnaire, for various reasons (Dillman et al., 2014, p. 368). Upon receiving returned mailings, the researchers opened all envelopes and noted the unique identifier number on each survey. The researchers then looked up each identifier number in the master list and removed all addresses of undeliverable packages, individuals who asked to be removed from the mailing list, and those who completed questionnaires. The updated master list was then sent to Purdue Print Services, in preparation for the second mailing.

3.11.2 Second Mailing

Two weeks after the initial survey package was sent out, on August 6, 2018, a follow-up, in the form of a postcard, was sent to non-respondents, to remind them of the survey project and encourage participation. The postcard can be found in Appendix D. Upon receiving returned mailings, the researchers noted the unique identifier number and removed addresses of undeliverable postcards. The updated master list was then sent to Purdue Print Services, in preparation for the third mailing.

The first two mailings yielded 816 completed and returned surveys, 323 undeliverable survey packages and 265 undeliverable postcards. Reasons the mail was undeliverable included incorrect addresses, deceased addresses, vacancies and stated resident not living at the given address. In addition, 37 individuals contacted the researchers via phone, email or mail, requesting to be removed from the study. Reasons individuals asked to be removed included things such as their age, poor health, time constraints, lack of interest, or belief that they did not meet the qualifications to complete the survey. Lastly, five surveys were returned blank.

3.11.3 Third Mailing

Six weeks after the initial survey package was sent out, a third and final mailing was sent to nonrespondents on September 4, 2018. This mailing consisted of a survey package, containing a follow-up cover letter, questionnaire and business reply envelope. The follow-up cover letter can be found in Appendix E, and the research participant information can be found in Appendix C. Upon receiving returned mailings, the researchers opened all envelopes and noted the unique identifier number on each survey. The researchers then looked up each identifier number in the master list and removed all addresses of the undeliverable packages, individuals who asked to be removed from the study and completed questionnaires.

This follow-up method of mailing a survey questionnaire ensures the maximum number of respondents, thus decreasing nonresponse (Ary et al., 2014, p. 433; Dillman et al., 2014, p. 372). In addition, varying the look and appeal of the different mailings, as well as strategically timing all contacts, has been shown to increase response rate (Dillman et al, 2014, pp. 372-382).

The researchers decided to forgo the fourth mailing, a postcard, partly because of the high volumes of calls and messages from those who had received the three mailings, and wanted their name removed from the mailing list. Some individuals stated their age and health as barriers to participation in the study. In addition, the completed and returned mailings received by the researchers had declined considerably.

3.11.4 Response Rate

Survey packages were mailed to 4,500 Indiana households during the data collection period, which lasted from July 23, 2018 through January 16, 2019. Throughout the data collection period, the research team received undeliverable returned mail, including 418 survey packages and 276 postcards, yielding 694 returns. Three households returned two packages, and the second responses were deemed unusable by the research team. One survey response was completed by an individual under the age of 18, which was also removed. In addition, the researchers received 43 responses, either through mail, email or phone calls, asking to be excluded from the study. Lastly, 11 surveys were returned blank, and therefore were unusable.

In total, 1,003 usable responses were received, yielding a 26% response rate. Of the 1,003 responses, 645 were from urban residents (64.3%) while 358 were from rural residents (35.5%). Responses were received from 87 out of 92 counties in Indiana. Figure 3.1 shows the survey response by county.

were not a part of the mailed questionnaire. The area of residency (i.e., rural or urban) and nine-digit zip codes were obtained from the original master list purchased from the list vendor, by looking up the respondent number from each completed and returned survey. The Indiana county of residency was then added for each respondent, which was obtained by looking up each respondent's zip code in an online zip code-county residency data base.

3.12.1 Data Cleaning

Several procedures were conducted to clean the data prior to statistical weighting and analysis. The researchers first checked the respondent numbers in SPSS for uniqueness and accuracy. The researchers found they had received two returned survey packages from three different households, so the second returned survey was removed from the dataset for each household. Next, basic frequency analyses were run in SPSS, to check that all entered data was within the specific range of possibility for each variable. Key punch errors outside of the possibilities established by the coding booklet were fixed by pulling the specified questionnaire, checking the responses and correcting the entries in SPSS. When verifying the ages entered in SPSS, the research team found they had received one survey from an individual under the age of eighteen, which was verified from the returned questionnaire, and ultimately removed from the dataset. Lastly, the researchers created a new variable in SPSS to more accurately capture the responses to the income variable. For the gross household income variable, respondents' either provided a range, or a single income. Ultimately, per the advice of the survey methodologist, the researchers took the median of the ranges, and the single income levels, and put these in the new income variable in SPSS.

3.13 Data Weighting and Imputation

After data was thoroughly cleaned, it was then securely uploaded and sent password protected through Filelocker to an account executive for the private list vendor. The vendor was contracted to perform the weighting of two demographic variables, age and area of residency (i.e., rural or urban), and to impute the income variable. The sample size of this study (n=1,003) met the requirements to allow for generalizability to the population of the state of Indiana. In order to generalize to the population of Indiana, the data must be weighted to reflect the frequencies of ages and areas of residency across the entire state. Weighting also attempts to compensate for limitations of survey research, such as nonresponse and undercoverage.

The vendor performed a specific multistep procedure to weight the data. According to the vendor's documentation, the first step computed the base weights to reflect selection probabilities of households. The second step calibrated the base weights resulting in final weights that would aggregate to reported totals for the target population. The base weight was computed separately for each stratum (i.e., rural and urban) (Bareham, 2019). In order to calibrate, weights had to be adjusted by raking, an iterative proportional fitting method that ensures the final weights correspond to the actual population totals. For calibration to be successful, missing values had to be imputed in two steps. Age and education were imputed by forming classes based on gender and urban or rural status. The second step imputed incomes by forming classes using age and education. A weighted sequential hot deck procedure was performed, which is a method for handling missing data to ensure the overall weighted distributions of the imputed data match those of the original data. All of the above weighting and imputation procedures were completed in Statistical Software for Analyzing Correlated Data (SUDAAN). The 2018 Current Population Survey March Supplement was utilized to obtain

requisite population totals. Census classification provided the distribution for urban or rural status (Bareham, 2019).

3.14 Data Analysis

After receiving the reweighted data from the list vendor, the researchers performed all data analysis in SPSS 25. A summary of data analyses performed can be found in Table 3.2 and Table 3.3. Descriptive statistical analysis included weighted population estimates, mean population estimates and standard errors, and unweighted means and standard deviations, for the dependent variable (i.e., level of interest in engagement), independent variables (i.e., level of concern, level of anomie, past interactions with Purdue, and perceptions of Purdue, and demographic variables (i.e., sex, age, education, and income), as well as area of residency (i.e., rural or urban) and race/ethnicity. The full unweighted data analyses tables can be found in Appendix F. The researchers inspected descriptive statistics for all items comprising scale measures for missing data or possible key-punch errors. Item analysis was performed on all scale measures to assess internal consistency. Variables that were included in the multivariate analysis were inspected for normality and intercorrelation. A Pearson correlation matrix and a Spearman correlation matrix were generated for all variables in the study to check for multicollinearity and significance between each independent variable and the dependent variable. Both a Pearson and Spearman correlation matrix were generated in SPSS, due to the different types of variables that were measured, and specifically due to the fact that the dependent variable was categorical but ordered. See Table 3.4 for Pearson and Spearman matrices results. Principal Component Analysis with orthogonal rotation was performed to explore the underlying correlational structure of items comprising scale measures.

Because of the stratified random sampling design and statistical weighting methods employed, the researchers performed most data analysis using a specialized software module, SPSS 25 Complex Samples. This module had some limitations, with one being that it did not allow for logistic regression with hierarchical entry of predictor variables. Due to this fact, the researchers opted to run the logistic regression model in both conventional SPSS, with the unweighted data, and in the Complex Samples Module, with the weighted data. The unweighted data allowed the model to be completed hierarchically, while the weighted data was a more representative sample of the state of Indiana with lower standard errors. The weighted logistic analysis will be presented in Chapter 4 and the hierarchical logistic analysis can be found in Appendix F.

Table 3.3: Variables, Level of Measurement, Central Tendencies, and Variance

Variables	Level of Measurement	Central Tendencies	Variance
Level of Concern	Item: Ordinal Scale: Interval	Population Estimates, Unweighted Means & Mean Population Estimates	Standard Deviations & Standard Errors
Level of Anomie	Item: Ordinal Scale: Interval	Population Estimates, Unweighted Means & Mean Population Estimates	Standard Deviations & Standard Errors
Past Interactions with Purdue	Item: Ordinal Scale: Ordinal	Population Estimates, Unweighted Means & Mean Population Estimates	Standard Deviations & Standard Errors
Perceptions of Purdue	Item: Ordinal Scale: Interval	Population Estimates, Unweighted Means & Mean Population Estimates	Standard Deviations & Standard Errors
Level of Interest in Engaging with Purdue	Item: Ordinal Scale: Ordinal	Population Estimates, Unweighted Means & Mean Population Estimates	Standard Deviations & Standard Errors

Table 3.4: Summary of Independent Variable Correlations with Dependent Variable (Level of Interest in Engaging with Purdue University)

Variable	Pearson	Spearman
Past Interaction	0.216**	0.216**
Perception of Purdue	0.131**	0.126**
Level of Anomie	-0.081*	-0.081*
Level of Concern	0.077*	0.066
Highest Level of Education	0.183**	0.182**
Age	-0.075*	-0.076*
Gross Household Income	0.039	0.032
Sex	0.028	0.028

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

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

3.14.1 Binary Logistic Regression Analysis

Binary logistic regression was used to assess the theoretical model developed in this study. Goodness of fit statistics and standard errors were among the statistics reported for the model. For the purposes of this research, a Cronbach alpha coefficient of 0.60 or higher was considered adequate for all scale measures. The dependent variable assessed respondents' level of interest in engaging with Purdue on certain topic areas. There were 9 items in this section measured categorically (i.e., "yes" = 1; "no" = 0). The list of items can be found in section 3.9.1. The dependent variable was coded either 1, for a respondent who had interest in engaging with Purdue on a topic, or 0, for no interest in engaging with Purdue. This type of coding required binary logistic regression to run the model.

Variance in the dependent variable was regressed against the independent variables (i.e., level of concern, level of anomie, past interaction with Purdue, and perception of Purdue). The reference category of the dependent variable was selected to be the lowest value (i.e., zero). Due to the limitations of SPSS Complex Samples, the demographic variables (i.e., sex, age, education and gross household income) could not be entered in a hierarchical fashion as control variables.

Therefore, these variables were entered into the model with the independent variables. The regression analysis provided the log odds ratio that the independent variables correctly predicted whether respondents had interest in engaging with Purdue. Logistic regression requires that data meet certain assumptions. The dependent variable did not need to have equal numbers of zeroes and ones, but there needed to be an adequate number in each cell. The independent variables needed to be normally distributed and not have excessive missing data or outliers. The researchers inspected the descriptive data to ensure this assumption was met. Some level of intercorrelation among independent variables was also noted, but not an excessive amount that can lead to multicollinearity, which can bias the results.

3.15 Threats to Validity and Reliability

Internal validity, as described here by construct, criterion-related, and face validity, addresses the performance of the survey questionnaire itself. Construct validity determines whether survey questions are appropriate for measuring what they are supposed to measure. Construct validity can be assessed by having knowledgeable colleagues, or experts, provide feedback as to whether the items on the survey are appropriate for the study population and objectives (Ary et al., p. 435). Criterion-related validity is the relationship between survey responses, and respondents' actual behavior. In the case of this study, if respondents say they would like to engage with Purdue, whether they end up engaging is related to the criterion-related validity. Face validity is whether the survey questions are relevant in the given context (Ary 2016, p. 435). If survey respondents believe the survey questions not only pertain to them, but also flow in a logical manner, they are more likely to complete and return the questionnaire.

Establishing internal validity begins with the literature. By conducting a thorough review of the literature to learn how other researchers measured study constructs and operationalized

variables, internal validity can be assured. Accordingly, the research team conducted a thorough review of literature and modeled instrumentation, as well as operationalized variables, similar to previous studies. Reliability for all scale measures used in the instrument was assessed through an item analysis conducted in SPSS immediately following data collection. For the purposes of this research, a Cronbach's alpha coefficient of 0.60 or higher was considered adequate for all scale measures. See Table 3.5 for the Cronbach's alpha levels obtained for this study. In a final effort, the research team also engaged the services of a research methodologist from the National Opinion Research Center at University of Chicago, who assisted with design of the final survey instrument. The research methodologist also reviewed the questionnaire for conversational norms and total survey error.

Table 3.5: Cronbach's Alphas for Study Variables

Survey Items	Number of Items	Cronbach's α
Level of Concern	10	0.813
Level of Anomie	4	0.774
Past Interaction with Purdue	6	0.733
Perception of Purdue	11	0.928
Level of Interest in Engaging with Purdue (DV)	9	0.902

Public opinion research, including this study, measure abstract constructs. Intangible constructs cannot be directly observed and must be inferred from indirect measures. The value of a study greatly depends on validity—the extent to which the instrument used accurately measures the constructs of interest. Many questions in education have been difficult for researchers to answer, due to the difficulty of measuring, defining and operationalizing the intangible constructs in question (Ary et al., 2014, p. 401). Internal and external validity can pose threats to the soundness of the research study, and the research team must be aware, and do everything they can, to mitigate these threats.

3.16 Limitations of the Study

1. The questionnaire may not have accurately captured all the opinions or beliefs Indiana residents have about Purdue University.
2. The Hawthorne effect may have taken place, with respondents responding a certain way due to the awareness of being studied (Grimshaw, Campbell, Eccles, & Steen, 2000).
3. This study examined Indiana residents' opinions only about Purdue University. Therefore, external validity may be limited because findings may not be generalizable to other states or institutions.
4. Self-reporting was used; therefore, the accuracy of the data is dependent upon the honesty of respondents. Voluntary self-reporting is also a threat to internal validity.
5. Cross-sectional data, such as that reported in this study, provide only a snapshot in time of the views of the broad public (Middendorf & Busch, 1997).
6. IBM SPSS Complex Samples 25 was necessary to use given the type of sample (i.e., stratified random sample) and the statistical weighting of the data in this study. SPSS Complex Samples has limitations, including no capabilities to run correlation matrices, and no ability to run logistic regression hierarchically. Therefore, some statistical procedures were completed in standard SPSS with the unweighted dataset. The unweighted data have higher standard errors.

CHAPTER 4. RESULTS

4.1 Introduction

The findings of the study are presented in this chapter. First the purpose of the study, research questions and hypotheses are reviewed. Then, an overview of the demographic characteristics of the respondents are presented, followed by the results of Research Questions 1 and 2. Lastly, Research Question 3, the results of logistic regression analysis and hierarchical binary regression analysis are presented.

4.2 Purpose of the Study

The purpose of this study was to explain and predict Indiana residents' level of interest in engaging with Purdue University based on level of concern for social and community issues, level of anomie, past interactions with Purdue, and perceptions of Purdue.

4.3 Research Questions

1. What were respondents' characteristics for the major study variables (i.e., level of concern for social and community issues, level of anomie, past interactions with Purdue, and perceptions of Purdue)?
2. What were respondents' level of interest in engaging with Purdue University?
3. To what extent can respondents' level of interest in engagement be explained by level of concern for social and community issues, level of anomie, past interactions with Purdue, and perceptions of Purdue?

4.4 Hypotheses

1. Increased concern social and community issues is associated with increased interest in engaging with Purdue on selected topics.
2. Increased anomie towards society and way of life is associated with decreased interest in engaging with Purdue on selected topics.
3. Past interaction with Purdue University is associated with increased interest in engaging with Purdue on selected topics.
4. A more positive perception of Purdue University is associated with increased interest in engaging with Purdue on selected topics.

4.5 Respondents' Characteristics

In total, 1,003 respondents participated in this study. All of the respondents maintained a household in the state of Indiana and were at least 18 years old. The weighted respondent characteristics for sex, age, area of residence and race and ethnicity can be found in Table 4.1. The sample was just over half (53.7%) female. Respondents were between the ages of 18 and 99 years old, with a mean population estimate age of 48.72 years old. Regarding residency, just over three-fourths (77.8%) of respondents resided in an urban area while 22.2% of respondents resided in a rural area within Indiana. Regarding race and ethnicity, respondents were predominately White (88.7%), with a much smaller proportion of respondents identifying as Black or African American (5.2%), Hispanic or Latino (3.2%), Asian (1.9%), American Indian or Alaska Native (1.2%), Native Hawaiian or other Pacific Islander (0%), or Other (2.0%).

Table 4.1: Respondents' Characteristics

Respondents' characteristics, weighted population estimates presented in percentages, number of respondents, unweighted median, unweighted mean, and mean population estimate provided for age variable (n=1,003).

Category	Response	%	N	Median¹	Mean² (SD)	Mean Pop. Estimate³ (SE)
Sex			954			
	Male	46.3				
	Female	53.7				
Age			934	60.00	58.26 (15.49)	48.72 (0.78)
	18-34	8.7				
	35-44	12.2				
	45-54	17.3				
	55-64	23.8				
	65+	38.0				
Area of Residence			993			
	Urban	77.8				
	Rural	22.2				
Race and Ethnicity	White	88.7	939			
	Black or African American	5.2	939			
	Hispanic or Latino	3.2	939			
	Asian	1.9	939			
	American Indian or Alaska Native	1.2	939			
	Native Hawaiian or other Pacific Islander	0.0	938			
	Other	2.0	931			

¹ Unweighted median.

² Unweighted mean (standard deviation).

³ Mean population estimate (standard error).

Respondent's gross household income varied from less than \$15,000 per year to more than \$150,000 per year. The mean gross household income was \$77,842.32 (SD= 2,645.18). Gross household income data can be found in Table 4.2. Nearly one-fourth of respondents (23.3%) reported their income falling within the range of \$50,000 to \$74,999 per year, followed by 19.0% of respondents reporting their income falling within the range of \$100,000 to \$149,999 per year.

Table 4.2: Respondents' Gross Household Income

Respondents' gross household income, weighted population estimates presented in percentages, number of respondents, unweighted mean, and mean population estimate (n=1,003).

Gross Household Income	%	N	Median¹	Mean² (SD)	Mean Pop. Estimate³ (SE)
		731	\$60,000.00	\$72,341.38 (49,945.48)	\$77,842.32 (2,645.18)
Under \$15,000	7.3				
\$15,000 to \$24,999	5.4				
\$25,000 to \$34,999	10.1				
\$35,000 to \$49,999	15.7				
\$50,000 to \$74,999	23.3				
\$75,000 to \$99,000	12.7				
\$100,000 to \$149,999	19.0				
\$150,000+	6.6				

¹ Unweighted median.

² Unweighted mean (standard deviation).

³ Mean population estimate (standard error).

Respondents' highest grade or year of school completed varied from eighth grade or less to doctorate (i.e., PhD or EdD) or professional degree (MD, DDS, DVM or JD). Full data regarding the highest grade or year of school can be found in Table 4.3. Nearly a third of

respondents' (30.0%) highest reported level of education was a bachelor's degree (i.e., BA, BS or AB), followed by 17.9% of respondents completing "some college credit, but no degree." The third highest grade or year of school completed was "high school graduate or GED" (16.3%). The grade levels completed by the fewest number of respondents was eighth grade or less (0.3%) and ninth through twelfth grade, no diploma (2.7%).

Table 4.3: Highest Grade or Year of School Completed

Respondents' highest grade or year of school completed, weighted population estimates presented in percentages, number of respondents (n=1,003).

Highest Grade or Year of School Completed	Education Level (%)	N
		957
8 th grade or less	0.3	
9 th -12 th grade, no diploma	2.7	
High school graduate or GED completed	16.3	
Completed a vocational, trade or business school program	7.1	
Some college credit, but no degree	17.9	
Associate Degree (AA, AS)	9.0	
Bachelor's Degree (BA, BS, AB)	30.0	
Master's Degree (MA, MS, MSW, MBA)	12.5	
Doctorate (PhD, EdD) or Professional Degree (MD, DDS, DVM, JD)	4.1	

4.6 Results for Research Question 1

The results for Research Question 1, “What were respondents’ characteristics for the major study variables (i.e., level of concern for social and community issues, level of anomie, past interactions with Purdue, and perceptions of Purdue)?” are presented in this section.

4.6.1 Level of Concern for Social and Community Issues

The weighted population estimates, number of respondents, unweighted means, and mean population estimates are presented in Table 4.4. The mean population estimates ranged from 3.25 for terrorist attack and 4.42 for affordable health care. Overall, respondents indicated some to moderate concern for each item. Affordable health care (4.42), violent crime (4.02) and pollution (3.80) were the items reported of most concern, while restrictions on free speech (3.53), genetic modification of food (3.31) and terrorist attack (3.25) were rated as of least concern among all items assessed. For three items in particular, climate change, restrictions on free speech and genetic modification of food, a relatively high number of respondents indicated these issues were either a major concern or of no concern. The distribution of responses for these three items thus indicated relative polarization.

Table 4.4: Respondents' Level of Concern

Respondents' level of concern that social and community issues pose a threat to well-being or way of life, weighted population estimates presented in percentages, number of respondents, unweighted mean, and mean population estimate (n=1,003).

Issue	----- Level of Concern (%) -----					N	Mean ¹ (SD)	Mean Pop. Estimate ² (SE)
	Major	Moderate	Some	Slight	None			
Affordable health care	62.9	23.3	8.1	4.1	1.7	991	4.49 (0.87)	4.42 (0.04)
Violent crime	44.9	26.3	17.4	8.6	2.8	989	4.13 (1.05)	4.02 (0.05)
Pollution	32.2	32.7	22.2	8.6	4.2	989	3.80 (1.06)	3.80 (0.05)
Prescription drug abuse	37.2	25.5	20.0	12.1	5.2	993	3.89 (1.16)	3.78 (0.05)
Making ends meet	38.0	20.6	19.3	13.1	9.0	992	3.66 (1.31)	3.65 (0.06)
Lack of jobs	28.7	27.3	24.2	12.2	4.6	980	3.65 (1.22)	3.57 (0.05)
Climate change	30.0	27.6	20.5	12.0	10.3	987	3.51 (1.31)	3.55 (0.05)
Restrictions on free speech	32.8	23.6	19.3	11.7	12.6	982	3.59 (1.34)	3.53 (0.06)
Genetic modification of food	26.6	23.1	18.6	17.8	13.9	991	3.39 (1.33)	3.31 (0.06)
Terrorist attack	20.0	24.3	26.6	19.3	9.8	988	3.40 (1.21)	3.25 (0.06)

¹ Unweighted mean (standard deviation). Items scaled 5 to 1, major concern to no concern.

² Mean population estimate (standard error).

4.6.2 Level of Anomie

The weighted population estimates, number of respondents, unweighted means, and mean population estimates for the four items measuring level of anomie on the part of the respondents can be found in Table 4.5. The item with the highest mean population estimate (3.65) and the lowest standard error (0.05) was “These days a person does not really know whom he or she can count on, and nearly two-third (64.6%), of respondents somewhat or strongly agreed with the statement. The item, “You sometimes cannot help wondering whether anything is worthwhile anymore” had the lowest mean population estimate (2.33) and only about one-fifth (22.3%) of respondents somewhat or strongly agreed with the statement. Overall, more than 30% of respondents somewhat or strongly agreed with three out of four anomie items, indicating relatively low to moderate levels of anomie.

Table 4.5: Respondents' Level of Anomie

Respondents' level of anomie, weighted population estimates presented in percentages, number of respondents, unweighted mean, and mean population estimate (n=1,003).

Items	----- Level of Anomie (%) -----					N	Mean ¹ (SD)	Mean Pop. Estimate ² (SE)
	Strongly Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Strongly Disagree			
These days a person does not really know whom he or she can count on	21.5	43.1	17.9	14.1	3.3	964	3.72 (1.07)	3.65 (0.05)
Nowadays, a person has to live pretty much for today and let tomorrow take care of itself	9.7	22.9	16.4	29.6	21.3	962	2.69 (1.30)	2.70 (0.06)
It is hardly fair to bring a child into the world with the way things look for the future	12.1	19.9	18.3	22.8	26.9	965	2.64 (1.34)	2.68 (0.06)
You sometimes cannot help wondering whether anything is worthwhile anymore	6.7	15.5	19.1	21.1	37.5	958	2.35 (1.29)	2.33 (0.06)

¹ Unweighted mean (standard deviation). Items scaled 5 to 1, strongly agree to strongly disagree.

² Mean population estimate (standard error).

4.6.3 Past Interaction with Purdue University

The weighted population estimates and number of respondents for these items can be found in Table 4.6. The highest number of respondents, 18.8%, visited a Purdue University website for news or information, followed by 12.3% who indicated interacting with a Purdue University Extension professional and 11.4% indicated they attended an event, meeting or class on a Purdue campus in 2017. The lowest number of respondents, 9.2%, contacted Purdue University for information, followed by 5.9% who attended a Purdue University Extension meeting or event. Lastly, 1.8% enrolled in an online class offered by a Purdue campus.

Table 4.6: Respondents' Past Interaction with Purdue University

Respondents' interaction with Purdue University in 2017, weighted population estimates presented in percentages and number of respondents (n=1,003).

Items	--- Past Interaction (%) ---		N
	Yes, I have done so before	No, to the best of my knowledge	
Visited a Purdue University website for news or information	18.8	81.2	971
Interacted with a Purdue University Extension professional	12.3	87.7	969
Attended an event, meeting or class on a Purdue campus	11.4	88.6	968
Contacted Purdue University for information	9.2	90.8	971
Attended a Purdue University Extension meeting or event	5.9	94.1	967
Enrolled in an online class offered by a Purdue campus	1.8	98.2	955

4.6.4 Perceptions of Purdue University

Weighted population estimates, number of respondents, unweighted means, and mean population estimates for these items can be found in Table 4.7. Overall, the mean population estimates for these items ranged from 3.58 to 4.46, indicating most respondents believed Purdue makes a positive contribution to the state of Indiana for the items assessed. In addition, for eight out of the 11 items assessed, the majority of respondents selected “neither agree nor disagree,” indicating respondents did not voice a positive or negative sentiment towards Purdue University. The largest number of respondents, 60.7%, strongly agreed with the statement, “Purdue University offers quality educational programs,” with a mean population estimate of 4.46. More than one-third (35.6%) of the respondents strongly agreed with the statement, “Purdue University conducts research that benefits the state economy,” with a mean population estimate of 4.07. The lowest items on the scale were “Offers quality youth educational programs open to all Indiana families and “Is in touch with the needs of Indiana families and residents,” with mean population estimates of 3.65 and 3.58, respectively.

Table 4.7: Respondents' Perceptions of Purdue University

Respondents' perceptions of Purdue University and its' contributions to the state of Indiana, weighted population estimates presented in percentages, number of respondents, unweighted mean, and mean population estimate (n=1,003).

Items	----- Perception of Purdue (%) -----					N	Mean ¹ (SD)	Mean Pop. Estimate ² (SE)
	Strongly Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Strongly Disagree			
Offers quality educational programs	60.7	26.0	12.5	0.4	0.4	966	4.47 (0.74)	4.46 (0.03)
Conducts research that benefits the state economy	35.6	37.4	25.8	0.6	0.5	963	4.08 (0.82)	4.07 (0.04)
Conducts research that improves quality of life	31.3	38.6	28.4	1.4	0.3	957	3.77 (0.88)	3.99 (0.04)
Offers outreach programs available to all Indiana residents	2.5	25.9	42.0	2.9	0.7	962	3.84 (0.90)	3.79 (0.04)
Conducts applied research that addresses Indiana's major needs	3.7	32.2	42.0	1.7	0.4	961	3.80 (0.83)	3.77 (0.04)
Works with local residents to help improve Indiana communities	24.8	30.3	42.8	1.3	0.7	956	3.79 (0.86)	3.77 (0.04)

Table 4.7 continued

Serves as a source of unbiased information for Indiana residents	21.8	35.6	39.0	2.5	1.0	958	3.77 (0.88)	3.75 (0.04)
Offers opportunities for Indiana residents to learn more about current research	22.7	33.3	39.6	3.4	1.1	957	3.75 (0.87)	3.73 (0.04)
Serves as a source of positive social change in Indiana	21.0	30.8	42.9	4.2	1.0	956	3.65 (0.89)	3.67 (0.04)
Offers quality youth educational programs open to all Indiana families	22.3	24.8	49.4	2.6	0.8	957	3.72 (0.90)	3.65 (0.04)
Is in touch with the needs of Indiana families and residents	17.9	28.4	48.7	3.5	1.4	954	3.61 (0.87)	3.58 (0.04)

¹ Unweighted mean (standard deviation). Items scaled 5 to 1, strongly agree to strongly disagree.

² Mean population estimate (standard error).

4.7 Results for Research Question 2

The results for Research Question 2, “What were respondents’ level of interest in engaging with Purdue University?” are presented in this section.

4.7.1 Level of Interest in Engaging with Purdue University

The weighted population estimates presented in percentages and number of respondents for these items can be found in Table 4.8. The majority of respondents were interested in learning about or engaging with Purdue on the following topics: free Extension programs in their area (47.9%), science and technology (45.5%), health and well-being (43.9%), gardening (42.9%), food and nutrition (42.2%), environmental topics (39.5%), home and money (37.5%), agriculture (28.4%), and youth programs (24.9%). Overall, about one-fourth to one-half of the respondents were interested in learning about or engaging with Purdue University on the various topics assessed.

Table 4.8: Respondents’ Level of Interest in Engaging with Purdue University on Topics

Respondents’ level of interest in learning about or engaging with Purdue University on selected topics, weighted population estimates presented in percentages and number of respondents (n=1,003).

Items	Interest in		N
	--- Engaging (%) ---		
	Yes	No	
Free Extension programs in your area	47.9	52.1	911
Science and technology	45.5	54.5	906
Health and well-being	43.9	49.9	926
Gardening	42.9	57.1	909
Food and nutrition	42.2	57.8	906
Environmental topics	39.5	60.5	914
Home and money	37.5	62.5	919
Agriculture	28.4	71.6	896
Youth programs	24.9	75.1	890

4.8 Results for Research Question 3

The results for Research Question 3, “To what extent can respondents’ level of interest in engagement be explained by level of concern for social and community issues, level of anomie, past interactions with Purdue, and perceptions of Purdue?” are presented in this section.

Research Question 3 also provided the results for the Hypotheses in this study, which are discussed in section 5.5.3.

4.8.1 Logistic Regression Analysis (Weighted Data)

The sampling design used in this study was stratified random sampling. Because of this sampling method, the data required weighting to be representative of known population

characteristics of Indiana adult residents. Accordingly, data were analyzed using SPSS Complex Samples 25. Logistic regression was used to examine the predictive effects of level of concern, level of anomie, past interaction with Purdue and perception of Purdue on level of interest in engaging with Purdue University. As discussed in Chapter 3, SPSS Complex Samples lacks the capability to enter predictor variables in hierarchical levels. This resulted in control variables, highest level of education, age, sex and gross household income to be entered into the regression analysis alongside independent variables. Table 4.9 displays the results of the logistic regression analysis. Results showed that the model was of modest success in predicting respondents' level of interest in engaging with Purdue University. Four independent variables and four demographic variables explained between approximately 12% to approximately 16% of the variance in the dependent variable, level of interest in engaging with Purdue. Examination of classification results revealed that the weighted model correctly classified about two-thirds (66.7%) of the cases in this study.

Results indicated that past interactions with Purdue University and level of concern were both significant at the 0.05 level and also were positively associated with interest in engaging with Purdue. Therefore, respondents who had previously interacted with Purdue or had higher levels of concern were more likely to have interest in engaging with Purdue University. The remaining two independent variables hypothesized to influence level of interest in engaging with Purdue University (i.e., perception of Purdue and level of anomie) were not significant predictors in the model. Only one demographic variable, highest level of education, was significantly and positively associated with interest in engaging with Purdue. Respondents with higher levels of education were more likely to have interest in engaging with Purdue. Age and gross household income were not significant predictors in the model.

Table 4.9: Summary of Logistic Regression Analysis for Variables Influencing Level of Interest in Engaging with Purdue University

Explanatory Variable	B	SE	Exp(B)	p
Past Interaction with Purdue	1.486	0.272	4.420	0.000*
Level of Concern	0.051	0.020	1.052	0.013*
Highest Level of Education	0.135	0.064	1.145	0.034*
Level of Anomie	-0.056	0.034	0.945	0.101
Age	-0.116	0.081	0.890	0.152
Gross Household Income	-0.081	0.061	0.922	0.186
Perception of Purdue	0.011	0.016	1.011	0.500
Sex	0.101	0.239	1.106	0.673
Cox & Snell R ²	0.117			
Nagelkerke R ²	0.161			

*Coefficient is significant at the 0.05 level.

4.8.2 Hierarchical Binary Logistic Regression Analysis (Unweighted Data)

The regression model was replicated in conventional SPSS with the unweighted data. As previously discussed, the unweighted data will produce higher standard errors, but conventional SPSS offers the option to enter control variables in a separate level of analysis, thereby separating interpretation of their effects from those of the hypothesized independent variables. Thus, Hierarchical Logistic Regression Analysis (HLRA) available through conventional SPSS allowed the researchers to control for the demographic variables in the model and enter the independent variables step-by-step in the model. The resulting regression results are reported in Appendix F (Table F.9). Goodness of fit tests, including classification, -2 log likelihood and Hosmer and Lemeshow can be found in Appendix F (Table F.10). Results showed that Block One, the control variables (i.e., highest level of education, sex, age and gross household income), had one significant variable at the 0.05 level, highest level of education. In Block Two, the four independent variables were entered into the model. Results showed that all independent variables were significant, including past interaction with Purdue, level of anomie, level of concern, and perception of Purdue. The four independent variables and four demographic variables explained

between approximately 11% to approximately 15% of the variance in the dependent variable, level of interest in engaging with Purdue. Examination of the classification table results revealed that the weighted model correctly classified about two-thirds (64.9%) of the cases in this study.

4.9 Summary of Findings

This section provided a summary of the findings presented in this chapter. The conclusions, implications and recommendations from the findings and study will be presented in Chapter 5.

The first research question asked about respondents' characteristics for the major study variables. It was found that respondents were most concerned about affordable health care, violent crime, pollution and prescription drug abuse. Regarding level of anomie, it was found that most strongly agreed with the statement, "These days a person does not really know whom he or she can count on." Respondents previously interacted with Purdue by visiting a Purdue website for news or information and interacting with a Purdue Extension professional. There was relative agreement that Purdue makes a positive contribution to the state of Indiana, with the majority of respondents strongly agreeing, somewhat agreeing, or neither agreeing nor disagreeing. The second research question asked about respondents' level of interest in engaging with Purdue University. Respondents were most interested in engaging with Purdue free Extension programs in their area, and for the topics of science and technology, and health and well-being. The third research question addressed the extent to which the study's independent variables explained respondents' level of interest in engaging with Purdue University. It was found that level of social and community concern and past interactions with Purdue were significant predictors of interest in engaging with Purdue University on selected topics.

CHAPTER 5. CONCLUSIONS

5.1 Introduction

The present study was guided by the question: What are Indiana residents' current levels of interest in engaging with Purdue University? Through the lens of Public Sphere Theory and guided by the writings of Jurgen Habermas and Alexis de Tocqueville, this study addressed three research questions and four hypotheses. This chapter provides a discussion of findings as well as implications for theory, research and practice. This chapter closes with recommendations for future research.

5.2 Purpose of the Study

The purpose of this study was to explain and predict Indiana residents' level of interest in engaging with Purdue University based on level of concern for social and community issues, level of anomie, past interactions with Purdue, and perceptions of Purdue.

5.3 Research Questions

1. What were respondents' characteristics for the major study variables (i.e., level of concern for social and community issues, level of anomie, past interactions with Purdue, and perceptions of Purdue)?
2. What were respondents' level of interest in engaging with Purdue University?
3. To what extent can respondents' level of interest in engagement be explained by level of concern for social and community issues, level of anomie, past interactions with Purdue, and perceptions of Purdue?

5.4 Hypotheses

1. Increased concern for social and community issues is associated with increased interest in engaging with Purdue on selected topics.
2. Increased anomie towards society and way of life is associated with decreased interest in engaging with Purdue on selected topics.
3. Previous interaction with Purdue University is associated with increased interest in engaging with Purdue on selected topics.
4. A more positive perception of Purdue University is associated with increased interest in engaging with Purdue on selected topics.

5.5 Summary of Major Findings

5.5.1 Research Question 1

Research Question 1 asked, “What were respondents’ characteristics for the major study variables (i.e., level of concern, level of anomie, past interactions with Purdue, and perceptions of Purdue)?”

5.5.1.1 Level of Concern

The top five concerns expressed by study respondents were affordable health care, violent crime, pollution, prescription drug abuse and making ends meet. Public concerns about healthcare cost and accessibility in the United States are not new. Healthcare reform discussions date back to at least the early 1900s (Patel & Rushefsky, 2014). In the 1960s, Medicare and Medicaid programs were implemented, due to concerns about medical access for special segments of the population, primarily the poor and elderly. Schoen, Osborn, Squires and Doty (2013) found that U.S. adults were significantly more likely than individuals in 10 other

countries to forgo medical care because of cost, to have difficulty paying for care even when insured, and to experience time-consuming complexity with insurance. Among uninsured U.S. adults, problems surrounding access and affordability were much more severe. In addition, insured U.S. adults were still more likely to go without care because of costs or face high out-of-pocket spending than their counterparts in other countries (Schoen et al., 2013).

The most polarized concerns in the current study were climate change, restrictions on free speech and genetic modification of food. Drummond and Fischhoff (2017) found that beliefs about climate change were associated with political, but not religious identity. In general, on controversial science topics with religious or political polarizations, individuals with greater science literacy and education were found to have more polarized beliefs. However, Drummond and Fischhoff (2017) found no political or religious polarization as an explanation for beliefs about genetic modification of foods. Also, regarding genetic modification of food, the results are somewhat contrary to those found by Ballmer. In *Determining the Effects of Evidence-Based Messaging on Millennial Agriculturalists' Attitudes Towards Genetically Modified (GM) foods*, Ballmer (2018) found that the majority of respondents disagreed or strongly disagreed with the items related to risk concerning the consumption of genetically modified foods.

5.5.1.2 Level of Anomie

Respondents' level of anomie was highest for the statement, "These days, a person does not really know whom he or she can count on." Nearly one-fourth (22.2%) of respondents strongly or somewhat agreed with all the anomic statements. Achterberg et al., (2014) found that anomic people have more trust in scientific methods, but less trust in scientific institutions. The science confidence gap is also more pronounced among individuals who display higher levels of anomie. Anomie is a condition that involves feelings of hopelessness on the part of individuals

and society. Such feelings may become extreme. Researchers found that hopelessness was predictive of suicidal behaviors, including completed suicide, suicide attempts, or suicide ideation (Kuo, Gallo, & Eaton, 2004). Hopelessness was also found to be a stronger predictor for suicidal behaviors than the diagnosis of either depressive disorders or substance abuse. In its milder forms, anomie may lead to deviance or disillusionment. Many factors may contribute to individuals' sense of hopelessness, such as financial struggles, a widening income gap and divisive politics (Stobbe, 2018). Other significant societal events such as war, crime, recession, and the rapid advance of technology may also contribute to anomic feelings or hopelessness.

5.5.1.3 Past Interactions with Purdue University

Respondents' level of past interaction with Purdue University varied from "Visited a Purdue University website for news or information" (18.8%) to "Enrolled in an online class offered by a Purdue campus" (1.8%). In addition, 12.3% of respondents reporting interacting with a Purdue University Extension professional.

Meyers and Irani (2011) found that almost three-quarters of respondents (i.e., agricultural producers and community leaders) had used the University of Florida's Institute of Food, Agriculture and Science programs or services. In a survey of Ohio residents, researchers found that respondents were most likely to interact with Extension by reading a publication, followed by listening to a report on the radio, visiting one of the websites, having direct contact with an educator, participating in meetings, or serving on a planning or advisory committee (Loible, Diekmann, & Batte, 2010). In a study of Ohio Cooperative Extension Service clientele who had previously participated in Extension programs, five factors emerged from the analysis of responses related to participation. These factors were low anticipated difficulties with arrangements, high commitment to the Extension organization, anticipated positive social

involvement, anticipated high quality of the information, and possession of high internal motivation to learn (Norland, 1992). Christenson and Warner (1985) found that adults who grew up in rural areas were almost twice as likely to be current users of Extension, than those who were raised in cities with a population of 50,000 or more residents.

Given the previous research and the results of this study, many factors may affect adult's decisions to interact with Purdue University, or Purdue Extension professionals. Understanding the factors that may affect interaction, may help decrease barriers, and increase public participation.

5.5.1.4 Perceptions of Purdue University

Overall, the results of this study indicated there was relative agreement that Purdue makes a positive contribution to the state of Indiana. Over 60% of respondents strongly agreed with the statement, "Purdue University offers quality educational programs." However, for eight of the 11 statements about Purdue University's teaching, research and outreach programs, at least 39% of respondents neither agreed nor disagreed with the statement. The lowest-ranked item, "Is in touch with the needs of Indiana families and residents," was strongly agreed with by 17.9% of respondents. The overall positive responses suggest there are clear strengths on which the institution can build. At the same time, the high number of neutral responses may indicate there are many opportunities to continue to improve the perception surrounding Purdue, by improving the education, research, outreach, community engagement and services provided to Indiana residents.

Researchers from the University of Kentucky also found overall relative satisfaction with Kentucky Cooperative Extension Service. From 14 public meetings held across the state of Kentucky in 1999, Rennekamp, Warner, Nall, Jacobs and Maurer (2001) found that 91.7% of

study participants were either very satisfied or satisfied with the institution's programs and services. Regarding perceived relevance, 44.6% of participants strongly agreed that Extension seeks citizen input, 43.1% strongly agreed that Extension addresses community needs, and 42.1% strongly agreed that Extension meets individual needs. Regarding perceived quality, 60.4% of participants strongly agreed that Extension provides unbiased information, 58.9% strongly agreed that Extension provides knowledgeable presenters, 56.4% strongly agreed that the information provided is understandable, and 56.4% also strongly agreed that Extension materials are high quality. Regarding perceived usefulness, 72.7% of participants strongly agreed that Extension is worth the money, 69.3% strongly agreed that the community is better off because of Extension, 59.2% of participants strongly agreed that they themselves were better off because of Extension, and 54.3% of participants strongly agreed that Extension allowed them to learn new things (Rennekamp et al., 2001).

The results from this 1999 Kentucky study, and the results from this study about Purdue, indicate that the public has expressed a relatively positive perception of Extension over almost the last 20 years. Nonetheless, there is always room for improvement, and Extension should seek to continue to adapt and evolve to the changing demographics and needs of the public whom it serves.

5.5.2 Research Question 2

Research Question 2 asked, "What were respondents' level of interest in engaging with Purdue University?" The level of interest in learning about or engaging with Purdue ranged from 24.9% for youth programs, to 47.9% for free Extension programs in your area followed by 45.5% indicating interest in science and technology. Overall, respondents were generally interested in learning about or engaging with Purdue University. This means that there is great

potential for more learning and engagement opportunities between Purdue University campuses and Extension professionals, and the public residing in Indiana.

In a nationwide survey, Christenson, Dillman, Warner, and Salant, (1995) found that one-third of respondents were very interested in getting additional education or training offered by universities. Loible, Diekmann and Batte (2010) found that the majority of respondents had participated in programs provided by the Agriculture and Natural Resources program area of Ohio State University Extension, followed by 4-H Youth Development programs, Family and Consumer Sciences programs and Community Development programs. In 2003, a survey was conducted by Penn State Cooperative Extension to find out more about consumer gardening interests and what sources they use to find information (Kelly & Wehry, 2006). Out of 13 potential sources of information, 17.1% or less of respondents used county Cooperative Extension offices, university websites or Extension Master Gardener programs.

5.5.3 Research Question 3

Research Question 3 asked, “To what extent can respondents’ level of interest in engagement be explained by level of concern for social and community issues, level of anomie, past interactions with Purdue, and perceptions of Purdue?” This research question was answered through the development of a theoretical model that was tested through logistic regression analysis.

The hypotheses of this study were developed based on application of the literature and the theoretical perspective to this population. The logistic regression model was a test of the study’s theoretical perspective. The logistic regression model was the most stringent test of whether the hypothesized independent variables were correlated with the dependent variable at the 0.05 level of significance while holding other independent variables constant. Hypotheses

were upheld for predictor variables that entered the model and rejected for those that did not enter the model.

Hypothesis 1 was, “Increased concern for economic and social issues is associated with increased interest in engaging with Purdue on selected topics.” Hypothesis 1 was supported by the results of this study, as level of concern had a positive association with interest in engaging with Purdue and was also statistically significant. Therefore, individuals who were more concerned about social and community issues were more likely to express interest in engaging with Purdue. These results were similar to those found in information-seeking behavior research (Case, 2007).

Hypothesis 2 was, “Increased anomie towards society and way of life is associated with decreased interest in engaging with Purdue on selected topics.” Level of anomie was negatively associated with level of interest in engaging with Purdue but was not statistically significant. Therefore, this hypothesis was rejected, and it was concluded that level of anomie does not explain significant additional variance in the dependent variable after taking into consideration the influence of other independent variables in the model. Although, it is important to note that zero-order correlations between level of anomie and level of interest in engaging with Purdue were negative and statistically significant. The negative association means that increased levels of anomie were associated with decreased interest in engaging. This negative correlation and association result were similar to those found in previous research (Achterberg, de Koster, & van der Waal, 2017; Henry & Basile, 1994). However, the level of correlation was slight and did not stand up in the more rigorous regression test.

Hypothesis 3 was, “Past interaction with Purdue University is associated with increased interest in engaging with Purdue on selected topics.” Hypothesis 3 was supported by this study,

as past interaction with Purdue was positively associated with interest in engaging and was also statistically significant. Therefore, individuals who previously interacted with Purdue were more likely to express interest in engaging with Purdue. These results were similar to those reported in previous research (Bruning, McGrew, & Cooper, 2005; Loible, Diekmann & Batte, 2010; Meyers & Irani, 2011).

Hypothesis 4 was, “A more positive perception of Purdue University is associated with increased interest in engaging with Purdue on selected topics.” Hypothesis 4 was rejected, as perception of Purdue was not significantly associated with level of interest in engaging with Purdue. Therefore, perception of Purdue does not explain any additional variance in the dependent variable after taking into consideration the variance explained by other independent variables in the model. The zero-order correlations between perception of Purdue and level of interest in engaging with Purdue were positive and statistically significant, consistent with previous research (Boone et al., 2007; Warner, Christenson, & Salant, 1995). However, the correlation in the current research was slight and did not withstand the more rigorous regression test.

In summary, two of the four independent variables in this research were supported by the test of the theoretical model—level of concern for social and community issues and past interaction with Purdue University. These variables accounted for the highest level of variance in the model.

5.6 Discussion

The theoretical model developed in this study was shown to be of modest utility, explaining between 12% and 16% of variance in the dependent variable, level of interest in engaging with Purdue University. It is clear that additional variables outside of the model

express an interest with Purdue University. It seems likely that these factors are highly situational to individuals and their particular life circumstances. Should this be the case, new theoretical concepts will be needed to help conceptualize these factors.

Evaluation of the theoretical perspective used to guide the current research must take into consideration the relatively low level of explained variance. Nonetheless, the researchers accomplished some key goals through this research. First, the effort was the first known of its kind to develop empirical metrics surrounding Indiana residents' level of interest in engaging with Purdue University. Public Sphere Theory and the writings of Tocqueville and Habermas provided a helpful historical context in which to view and study Purdue University as a land-grant institution. Theoretical constructs from the current research, as well as some of its quantitative measures, may provide useful information in future efforts to improve the engagement capacity of Purdue or other land-grant institutions.

Finally, results from this work raised additional questions not foreseen by the researchers at the outset of the project. For example, what is the optimum level of engagement with Purdue University that should be sought by Indiana residents? Do lower levels of interest in engaging signal less support for or confidence in the university and its outreach programs? The researchers believe that lower levels of interest in engaging with Purdue University do not mean that respondents do not value Purdue or do not value learning. In addition, lack of interest in engaging with Purdue does not mean respondents do not already use Purdue services, including seeking information. Given the results, the researchers conclude that engaging with Purdue is highly situational and dependent on individual-level reasons not necessarily connected to Purdue University. Barriers to engaging may include time constraints, inconvenience, lack of interest, and lack of resources, such as transportation or broadband connection.

5.7 Implications for Theory and Research

This research adds to the interdisciplinary and multifaceted body of theory and research knowledge for land-grant institutions across the United States. This research study was framed within the theoretical context of the beginning of land-grant institutions in the U.S. This allowed the research problem to be studied within a larger societal-context. The few previous empirical studies conducted on land-grant university publics focused primarily on key stakeholder groups, specific community organizations, or those who were already users of the services provided by the university or Extension. This current research was a statewide effort, and as a result of the sampling strategy, involved individuals who may have never interacted with Purdue University before and may not have known about the university or Extension resources available to them.

In addition, much was learned through this research effort about new techniques in mail survey research and data analysis. The researchers also gained insights into measurement of engagement constructs that may inform future work.

5.8 Implications for Practice

University faculty and Extension professionals are often encouraged to undertake outreach efforts and engagement opportunities with the public. Results from the current research showed that Indiana residents are concerned about various social and community issues, and these concerns are predictive of individuals' interest in engaging with Purdue. This finding is significant in that it confirms that Extension's programmatic areas are addressing perceived needs in the state and that individuals are interested in their programmatic areas. County Extension offices play a central role in the land-grant university's outreach efforts and allow for closer access to communities and residents who may have limited opportunities to engage with the university in person. The university should continue to explore and implement alternative

engagement efforts to reach residents who may not have ready access to transportation or broadband internet access.

The following studies provide recommendations for Extension's role in public issues engagement and partnerships. Patton and Blaine (2001) provided a conceptual framework that identified potential roles for public officials, the general public, and Extension professionals in addressing public issues. In public issues education, Extension professionals may find themselves in *content* expert roles, which focus on research and teaching, or in *process* expert roles, which focus on facilitating resolution of the public issue. While there are routinely multiple sides to an issue, Extension professionals must strive to provide public information and services that benefit a wide range of stakeholder groups (Patton & Blaine, 2001).

University of Minnesota Extension worked to build relationships and expand outreach with Native Americans residing in Indian Country in Minnesota (Martenson, Newman, & Zak, 2011). First, data was gathered by listening to Native American community members about their interests, areas of expertise, and about resources already within their communities. Next, professional development opportunities were provided for Extension educators, in order to increase cultural competency. Lastly, Extension responded by building trusting community-university partnerships in Indian Country and increasing the presence of Native American professionals in Extension.

A few implications and recommendations can be taken from this research for Purdue University. Building relationships and extending outreach is an important component of Extension work. Indiana has seen an increase in immigrant and migrant populations in the last several years. This may be an opportunity for Extension professionals to have a conversation with and listen to the interests and needs of these populations and communities. In addition,

professional development opportunities may be needed for Extension professionals to increase cultural awareness. Lastly, building partnerships and relationships with organizations and individuals in these communities will help to create a professional network of resources.

5.9 Recommendations for Future Research

Several recommendations for future research can be made based upon insights gained from the current project. First, the researchers recommend that land-grant universities conduct periodic empirical research focused on random samples of state residents. Collection of such data would allow for benchmarking and long-term tracking of levels of public engagement, interest in topic areas, and general perceptions and concerns of the public residing within each state, among other things. The researchers further recommend that the design of the public research studies take on different forms, in order to gain the most insight and information possible from various data-collection modes. For example, research designs might include focus groups, phone interviews, in-depth interviews, online surveys and mail surveys. In general, there is great need for more empirical studies in the areas of sociology, public opinion, engagement, and the role of publicly funded organizations, such as the land-grant university, within the U.S. democratic society. Employing both qualitative and quantitative methods in future data collections will allow for triangulation of study findings and ultimately development a deeper knowledge base on which to make strategic decisions and guide future efforts.

5.10 Summary

This chapter provided an overview of the key findings and conclusions for each of the research questions and hypotheses. This chapter also presented implications for theory, research and practice and provided recommendations for future research.

This study served as a first step in understanding the Indiana public's needs and concerns as well as their perceptions, past interactions and interest in engaging with Purdue University. The variables measured through this effort will help establish a baseline of public engagement data for Purdue. Results showed that individuals were concerned about many social and community issues affecting everyday life. This study also showed that individuals held an overall positive perception of Purdue, and to some degree had previously interacted with Purdue and had some interest in engaging in different topic areas with Purdue. Specifically, three variables, highest level of education, level of concern for social and community issues, and past interaction with Purdue, were statistically significant predictors for interest in engaging with Purdue. It is important to acknowledge that there are generally no accepted levels of average or normal engagement. Therefore, the researchers conclude that any level of public interest in engaging with the university should be viewed as a positive opportunity. At the same time, relatively low levels of engagement should not be equated with lack of support for university programs.

Guided by the Public Sphere Theory and utilizing the literature of Alexis de Tocqueville and Jurgen Habermas, the researchers were able to examine and ask questions about the role of land-grant universities within the U.S. democratic society throughout history. The historical perspective provided a unique point from which to view these venerable institutions that have endured for 150 years. These institutions were created to help common people acquire practical skills and knowledge to improve their everyday life. Ultimately, the land-grant system became a model of education that has been emulated throughout the world. At the time, the idea of education being brought to the people was truly novel and extraordinary. The next 150 years of Purdue University, and all land-grant universities, will without a doubt look different than the first 150 years. As the world becomes increasingly diverse and technologized, the needs of the

public will continue to change, which will in turn put pressure on the land-grant university system to adapt, evolve and serve the public. Just as they have done throughout their history, land-grant universities can continue to rise to the challenge and deliver state-of-the art education, research, and resources for all people, as long as they listen to the public and address critical social, community and stakeholder issues.

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APPENDIX A: IRB APPROVAL



HUMAN RESEARCH PROTECTION PROGRAM
INSTITUTIONAL REVIEW BOARDS

To:	TUCKER, MARK A
From:	DICLEMENTI, JEANNIE D, Chair Social Science IRB
Date:	02/05/2018
Committee Action:(2)	Determined Exempt, Category (2)
IRB Action Date:	02 / 05 / 2018
IRB Protocol #:	1712020022
Study Title:	Best Practices to Engage the Indiana Public on Emergent Science and Technology

The Institutional Review Board (IRB) has reviewed the above-referenced study application and has determined that it meets the criteria for exemption under 45 CFR 46.101(b).

Before making changes to the study procedures, please submit an Amendment to ensure that the regulatory status of the study has not changed. Changes in key research personnel should also be submitted to the IRB through an amendment.

General

- To recruit from Purdue University classrooms, the instructor and all others associated with conduct of the course (e.g., teaching assistants) must not be present during announcement of the research opportunity or any recruitment activity. This may be accomplished by announcing, in advance, that class will either start later than usual or end earlier than usual so this activity may occur. It should be emphasized that attendance at the announcement and recruitment are voluntary and the student's attendance and enrollment decision will not be shared with those administering the course.
- If students earn extra credit towards their course grade through participation in a research project conducted by someone other than the course instructor(s), such as in the example above, the students participation should only be shared with the course instructor(s) at the end of the semester. Additionally, instructors who allow extra credit to be earned through participation in research must also provide an opportunity for students to earn comparable extra credit through a non-research activity requiring an amount of time and effort comparable to the research option.
- When conducting human subjects research at a non-Purdue college/university, investigators are urged to contact that institution's IRB to determine requirements for conducting research at that institution.
- When human subjects research will be conducted in schools or places of business, investigators must obtain written permission from an appropriate authority within the organization. If the written permission was not submitted with the study application at the time of IRB review (e.g., the school would not issue the letter without proof of IRB approval, etc.), the investigator must submit the written permission to the IRB prior to engaging in the research activities (e.g., recruitment, study procedures, etc.). Submit this documentation as an FYI through Coeus. This is an institutional requirement.

Categories 2 and 3

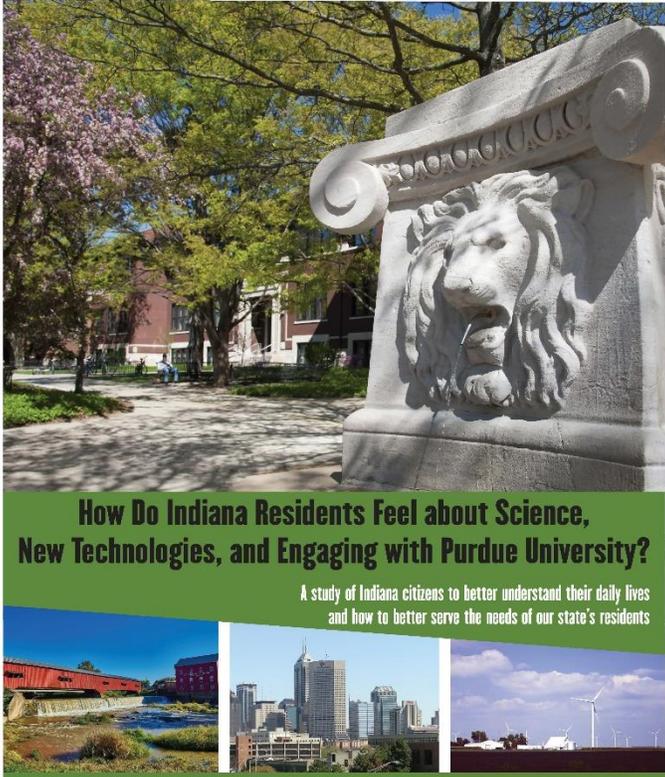
- Surveys and questionnaires should indicate
 - only participants 18 years of age and over are eligible to participate in the research; and
 - that participation is voluntary; and
 - that any questions may be skipped; and
 - include the investigator's name and contact information.
- Investigators should explain to participants the amount of time required to participate. Additionally, they should explain to participants how confidentiality will be maintained or if it will not be maintained.
- When conducting focus group research, investigators cannot guarantee that all participants in the focus group will maintain the confidentiality of other group participants. The investigator should make participants aware of this potential for breach of confidentiality.

Category 6

- Surveys and data collection instruments should note that participation is voluntary.
- Surveys and data collection instruments should note that participants may skip any questions.
- When taste testing foods which are highly allergenic (e.g., peanuts, milk, etc.) investigators should disclose the possibility of a reaction to potential subjects.

You are required to retain a copy of this letter for your records. We appreciate your commitment towards ensuring the ethical conduct of human subjects research and wish you luck with your study.

APPENDIX B: INSTRUMENT



How Do Indiana Residents Feel about Science, New Technologies, and Engaging with Purdue University?

A study of Indiana citizens to better understand their daily lives and how to better serve the needs of our state's residents

PURDUE UNIVERSITY

Participation in this survey is voluntary and there are no penalties for refusing to answer questions. If you have any questions about this study, please contact Dr. Mark Tucker at matucker@purdue.edu or call us at 765-494-8429.

4. People may have concerns about issues they feel pose a threat to their well-being or way of life. What is your level of concern about the items listed below?

	Major Concern	Moderate Concern	Some Concern	Slight Concern	No Concern
Lack of good jobs.....	<input type="checkbox"/>				
Affordable health care.....	<input type="checkbox"/>				
Violent crime.....	<input type="checkbox"/>				
Prescription drug abuse.....	<input type="checkbox"/>				
Pollution.....	<input type="checkbox"/>				
Making ends meet.....	<input type="checkbox"/>				
Restrictions on free speech.....	<input type="checkbox"/>				
Climate change.....	<input type="checkbox"/>				
Terrorist attack.....	<input type="checkbox"/>				
Genetic modification of foods.....	<input type="checkbox"/>				



We would like to now ask you specifically about your perceptions of Purdue University and its contributions to the state of Indiana.

15. First, have you or an immediate member of your family interacted with Purdue University in any of the following ways in 2017? (Please check all responses that apply.)

	I have done so	Family member has done so	No, to the best of my knowledge
Contacted Purdue University for information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Visited a Purdue University website for news or information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attended an event, meeting or class on a Purdue campus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enrolled in an online class offered by a Purdue campus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interacted with a Purdue University Extension professional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attended a Purdue University Extension meeting or event	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. Now, we'd like to know if you are interested in learning about or engaging with Purdue University on any of the following topics. (Please check all responses that apply.)

	Yes	No	I have done so before
Food and nutrition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Youth programs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Agriculture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Health and well-being	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Science and technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Free extension programs in your area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental topics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Home and money	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gardening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please list): _____			

17. We would now like to ask you specifically about your perceptions of Purdue University and its contributions to the state of Indiana. Please let us know the degree to which you agree or disagree with the following statements.

Purdue University...	Strongly Agree	Somewhat Agree	Neither Agree or Disagree	Somewhat Disagree	Strongly Disagree
Conducts research that benefits the state economy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Offers quality educational programs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Offers outreach programs available to all Indiana residents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conducts applied research that addresses Indiana's major needs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Offers quality youth educational programs open to all Indiana families	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Serves as a source of unbiased information for Indiana residents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conducts research that improves quality of life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Works with local residents to help improve Indiana communities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is in touch with the needs of Indiana families and residents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Serves as a source of positive social change in Indiana	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Offers opportunities for Indiana residents to learn more about current research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



In order to best understand the citizens of our state, we have included a few questions on your opinions about society, life, and religion. There are no right or wrong responses to any of the statements.

19. Please let us know the degree to which you agree or disagree with the following statements.

	Strongly Agree	Somewhat Agree	Neither Agree or Disagree	Somewhat Disagree	Strongly Disagree
Life in the U.S. today is better than it was 50					
These days a person does not really know whom he or she can count on.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nowadays, a person has to live pretty much for today and let tomorrow take care of itself.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It is hardly fair to bring a child into the world with the way things look for the future.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
You sometimes cannot help wondering whether anything is worthwhile any more.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Lastly, we have some basic questions about you that are used only for statistical purposes.

21. How long have you lived in Indiana? _____ (in years)

22. What sex were you assigned at birth, on your original birth certificate?

- Male
 Female

22a. How do you describe yourself? (Check one)

- Male Female Transgender Do not identify as female, male or transgender

23. What is your age? _____ (in years)

24. What is the highest grade or year of school you have completed? (Check one response)

- 8th grade or less
 9th-12th grade; No diploma
 High School Graduate or GED Completed
 Completed a vocational, trade, or business school program
 Some College Credit, but No Degree
 Associate Degree (AA, AS)
 Bachelor's Degree (BA, BS, AB)
 Master's Degree (MA, MS, MSW, MBA)
 Doctorate (PhD, EdD) or Professional Degree (MD, DDS, DVM, JD)

25. How would you describe your race and ethnicity? (Check all that apply.)

- White
 Black or African American
 Hispanic or Latino
 Asian
 Native Hawaiian or other Pacific Islander
 American Indian or Alaska Native
 Other _____ (Please specify)

26. Gross household income (That is, your income before taxes)

You may provide a range such as between \$10,000 and \$12,000 a year if you prefer.

\$ _____

APPENDIX C: COVER LETTER



Agricultural Sciences Education and Communication
COLLEGE OF AGRICULTURE

July 21, 2018

<Address 1>

<Address 2>

<Address 3>

Dear <last name> Household,

I am writing to you to ask for your help with an important study. This survey, **How Do Indiana Residents Feel about Science, New Technologies and Engaging with Purdue University?**, seeks to increase our understanding of the ways science and technology are changing how Indiana residents and families live today. While technologies have the potential to improve our standard of living, people sometimes have questions or concerns about them. Purdue University is interested in your thoughts about new science and technology, and how we might engage with you on these and other topics. This request is being sent to a random sample of people from Indiana communities. Therefore, it is critical that people like you help inform us about what matters to you, your family, and Indiana residents in general by completing this survey.

Information you provide will help Purdue University better serve Indiana residents through more effective educational programs. The questionnaire should take no more than 20 minutes to complete. We have included a code number on your questionnaire so we can track response and avoid sending follow-up mail to those who have already completed the questionnaire. However, you can be assured all of your responses are confidential and will not be connected to your name in any way.

Please complete the enclosed questionnaire and return it in the self-addressed, postage-paid envelope. We are enclosing a \$2 bill as a small token of appreciation for your response. Your participation is completely voluntary and you need not answer any questions you do not wish to answer. You also may end your participation at any time. More information about our survey procedures is on the reverse side, including information on how to reach us with any questions.

We realize you are busy and sincerely appreciate your help with this research. The results will be used to help improve Purdue University's responsiveness to the informational needs of Indiana residents. It is very important to us to receive your response. If you have any questions about this study, please contact us at matucker@purdue.edu or call us at 765-494-8429.

Thank you and best wishes.

Sincerely,

Dr. Mark Tucker
Professor
Purdue University

RESEARCH PARTICIPANT INFORMATION

How do Indiana Residents Feel about Science, New Technologies and Working with Purdue University?

Dr. Mark Tucker

Department of Agricultural Sciences Education and Communication
Purdue University

What is the purpose of this study?

The goal of this research is to measure your (Indiana residents) perceptions of new science and technologies and to determine whether you wish to interact more closely with Purdue University about these or other topics. We are also interested in your views on some other issues in the news and what communication sources you use to stay informed. There are about 4,500 Indiana residents in this study. Your participation is important to ensure our findings are valid.

What will I do if I choose to be in this study?

You will complete the enclosed questionnaire and return it to us in the envelope we provide to you. Please accept the enclosed \$2 bill as a small token of our appreciation. Your response will help us better understand the interests and needs of Indiana residents. We may send up to three mail follow-ups to request your participation. However, you will not be contacted again after you return your completed questionnaire unless you request more information.

What are the possible risks or discomforts?

You may feel uncomfortable thinking about your personal attitudes. You may skip questions that make you uncomfortable. There is also a risk of breach of confidentiality, but we have taken steps to avoid such a breach. If you do not wish to answer a question, you may skip it and go to the next question or you may stop.

Are there any potential benefits?

It is our goal to help improve Purdue University's public outreach about science and technology. Your response may help us understand more about the informational needs of Indiana residents. You may also find it interesting to complete this survey.

Will I receive payment or other incentive?

You will receive a \$2 bill as a small token of appreciation for participating in this research.

Will information about me and my participation be kept confidential?

The project's research records may be reviewed by departments at Purdue University responsible for regulatory and research oversight. Please be assured your data is confidential. Your completed questionnaire will never be linked to your name. We keep track of names for about three months to ensure that names are crossed off our mailing list after individuals complete the questionnaire. During this time, all data and names are stored in the researchers' locked cabinet. The list of names will be destroyed after data are collected. Research results will contain no names and it will be impossible to connect anyone's identity with our published research findings.

What are my rights if I take part in this study?

Your participation in this study is voluntary. You may choose not to participate or, if you agree to participate, you can withdraw at any time without penalty or loss of benefits to which you are otherwise entitled.

Who can I contact if I have questions about the study?

If you have questions, comments or concerns about this research project, please contact Mark Tucker at 765-494-8429 or you may email matucker@purdue.edu.

If you have questions about your rights while taking part in the study or have concerns about the treatment of research participants, please call the Human Research Protection Program at (765) 494-5942, email (irb@purdue.edu) or write to:

Human Research Protection Program - Purdue University
Ernest C. Young Hall, Room 1032
155 S. Grant St.
West Lafayette, IN 47907-2114

APPENDIX D: POSTCARD

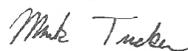
PURDUE UNIVERSITY	Department of Agricultural Sciences Education and Communication	First Class Presort Mail U.S. Postage PAID Lafayette, IN Permit No. 221
Lilly Hall of Life Science, Room 3-230 915 W. State Street West Lafayette, IN 47907		

Dear <last name> Household,

We recently requested your help with an important study. The survey, **How Do Indiana Residents Feel about Science, New Technologies and Engaging with Purdue University?**, seeks to increase our understanding of the ways science and technology are changing how Indiana residents and families live today. Thank you if you have already completed and returned the questionnaire. If you have not yet done so, we hope you will complete the questionnaire and return it in the postage-paid envelope we provided to you.

The questionnaire should take no more than 20 minutes to complete, and your responses are completely confidential. Survey results will be used to improve Purdue University's responsiveness to the informational needs of Indiana residents. While your participation is strictly voluntary, it is very important to us to receive your response. Thank you for your consideration.

Sincerely,



Mark Tucker, Professor
Purdue University

APPENDIX E: FOLLOW-UP COVER LETTER



Agricultural Sciences Education and Communication
COLLEGE OF AGRICULTURE

August 21, 2018

<Address 1>

<Address 2>

<Address 3>

Dear <last name> Household,

Last month, we requested your help with an important study. The survey, **How Do Indiana Residents Feel about Science, New Technologies and Engaging with Purdue University?** seeks to increase our understanding of the ways science and technology are changing how Indiana residents and families live today. Thank you if you have already completed and returned the questionnaire. If you have not yet done so, we hope you will complete the enclosed questionnaire and return it in the attached postage-paid envelope.

While technologies have the potential to improve our standard of living, people sometimes have questions or concerns about them. Purdue University is interested in your thoughts about new science and technology, and how we might engage with you on these and other topics. This request is being sent to a random sample of people from Indiana communities. It is critical that people like you help inform us about what matters to you, your family, and Indiana residents in general by completing this survey.

The questionnaire should take no more than 20 minutes to complete. We have included a code number on your questionnaire so we can track response and avoid sending follow-up mail to those who have already completed the questionnaire. However, you can be assured all of your responses are confidential and will not be connected to your name in any way.

Your participation is completely voluntary and you need not answer any questions you do not wish to answer. You also may end your participation at any time. More information about our survey procedures is on the reverse side, including information on how to reach us with any questions.

We realize you are busy and sincerely appreciate your help with this research. The results will be used to help improve Purdue University's responsiveness to the informational needs of Indiana residents. It is very important to us to receive your response. If you have any questions about this study, please contact us at matucker@purdue.edu or call us at 765-494-8429.

Thank you and best wishes.

Sincerely,

Dr. Mark Tucker
Professor
Purdue University

APPENDIX F: UNWEIGHTED DATA ANALYSES

Table F.1: Unweighted Basic Demographics of Respondents (N= 1,003)

Category	Response	<i>f</i>	(%)	Missing Data <i>f</i> (%)	Median	Mean (SD)
Sex	Male	487	48.6%	49 (4.9%)		
	Female	467	46.6%			
Age				69 (6.9%)	60.00	58.26 (15.49)
	18-34	80	8.6%			
	35-44	114	12.2%			
	45-54	160	17.1%			
	55-64	224	24.0%			
	65+	356	38.1%			
Area of Residence				10 (1.0%)		
	Urban	639	63.7%			
Race and Ethnicity	Rural	354	35.3%	64 (6.4%)		
	White	856	85.3%			
	Black or African American	41	4.1%			
	Hispanic or Latino	19	1.9%			
	Other	17	1.7%			
	American Indian or Alaska Native	14	1.4%			
	Asian	13	1.3%			
	Native Hawaiian or other Pacific Islander	0	0.0%			

Table F.2: Unweighted frequencies and percentages of respondents' gross household income
(N= 1,003)

Gross Household Income	<i>f</i>	%	Missing Data <i>f</i> (%)	Median	Mean (SD)
			272 (27.2%)	\$60,000.00	\$72,341.38 (49945.48)
Under \$15,000	50	6.8%			
\$15,000 to \$24,999	40	5.5%			
\$25,000 to \$34,999	70	9.6%			
\$35,000 to \$49,999	107	14.6%			
\$50,000 to \$74,999	169	23.1%			
\$75,000 to \$99,000	95	13.0%			
\$100,000 to \$149,999	143	19.6%			
\$150,000+	57	7.8%			

Table F.3: Unweighted frequencies and percentages of the highest education level completed by respondents (N= 1,003)

Highest Education Level	<i>f</i> (%)	Missing Data <i>f</i> (%)	Mean (SD)
8 th grade or less	4 (0.4%)	46 (4.6%)	5.53 (1.94)
9 th -12 grade; no diploma	31 (3.1%)		
High School graduate or GED completed	180 (17.9%)		
Completed a vocational, trade or business school program	87 (8.7%)		
Some college credit, but no degree	179 (17.8%)		
Associate Degree (AA, AS)	89 (8.9%)		
Bachelor's Degree (BA, BS, AB)	227 (22.6%)		
Master's Degree (MA, MS, MSW, MBA)	122 (12.2%)		
Doctorate (PhD, EdD) or Professional Degree (MD, DDS, DVM, JD)	38 (3.8%)		

Table F.4: Unweighted frequencies, percentages, means and standard deviations for level of concern for social and community issues (N= 1,003)

Items	Major Concern <i>f</i>(%)	Moderate Concern <i>f</i>(%)	Some Concern <i>f</i>(%)	Slight Concern <i>f</i>(%)	No Concern <i>f</i>(%)	Missing Data <i>f</i>(%)	Mean (SD)¹
Affordable health care	666 (66.4%)	205 (20.4%)	76 (7.6%)	31 (3.1%)	13 (1.3%)	12 (1.2%)	4.49 (0.87)
Violent crime	483 (48.2%)	259 (25.8%)	154 (15.4%)	75 (7.5%)	18 (1.8%)	14 (1.4%)	4.13 (1.05)
Prescription drug abuse	396 (39.5%)	270 (26.9%)	184 (18.3%)	106 (10.6%)	37 (3.7%)	10 (1.0%)	3.89 (1.16)
Pollution	302 (30.1%)	337 (33.6%)	233 (23.2%)	86 (8.6%)	31 (3.1%)	14 (1.4%)	3.80 (1.06)
Making ends meet	364 (36.3%)	220 (21.9%)	201 (20.0%)	122 (12.2%)	85 (8.5%)	11 (1.1%)	3.66 (1.31)
Lack of good jobs	295 (29.4%)	291 (29.0%)	220 (21.9%)	103 (10.3%)	71 (7.1%)	23 (2.3%)	3.65 (1.22)
Restrictions on free speech	335 (33.4%)	239 (23.8%)	186 (18.5%)	119 (11.9%)	103 (10.3%)	21 (2.1%)	3.59 (1.34)
Climate change	285 (28.4%)	273 (27.2%)	197 (19.6%)	127 (12.7%)	105 (10.5%)	16 (1.6%)	3.51 (1.31)
Terrorist attack	223 (22.2%)	260 (25.9%)	257 (25.6%)	182 (18.1%)	66 (6.6%)	15 (1.5%)	3.40 (1.21)
Genetic modification of food	266 (26.5%)	239 (23.8%)	209 (20.8%)	170 (16.9%)	107 (10.7%)	12 (1.2%)	3.39 (1.33)

¹Unweighted mean (standard deviation). Items scaled 5 to 1, strongly agree to strongly disagree.

Table F.5: Unweighted frequencies, percentages, means and standard deviations for level of anomie (N= 1,003)

Items	Strongly Agree <i>f (%)</i>	Somewhat Agree <i>f (%)</i>	Neither Agree nor Disagree <i>f (%)</i>	Somewhat Disagree <i>f (%)</i>	Strongly Disagree <i>f (%)</i>	Missing Data <i>f (%)</i>	Mean (SD)¹
These days a person does not really know whom he or she can count on	232 (23.1%)	421 (42.0%)	150 (15.0%)	133 (13.3%)	28 (2.8%)	39 (3.9%)	3.72 (1.07)
Nowadays, a person has to live pretty much for today and let tomorrow take care of itself	99 (9.9%)	208 (20.7%)	162 (16.2%)	284 (28.3%)	209 (20.8%)	41 (4.1%)	2.69 (1.30)
It is hardly fair to bring a child into the world with the way things look for the future	104 (10.4%)	178 (17.7%)	205 (20.4%)	219 (21.8%)	259 (25.8%)	38 (3.8%)	2.64 (1.34)
You sometimes cannot help wondering whether anything is worthwhile anymore	61 (6.1%)	155 (15.5%)	188 (18.7%)	207 (20.6%)	347 (34.6%)	45 (4.5%)	2.35 (1.29)

¹Unweighted mean (standard deviation). Items scaled 5 to 1, strongly agree to strongly disagree.

Table F.6: Unweighted frequencies and percentages of respondents' interaction with Purdue in 2017 (N= 1,003)

Items	I have done so before <i>f</i> (%)	No, to the best of my knowledge <i>f</i> (%)	Missing Data <i>f</i> (%)
Visited a Purdue University website for news or information	163 (16.3%)	808 (80.6%)	32 (3.2%)
Interacted with a Purdue University Extension professional	130 (13.0%)	839 (83.6%)	34 (3.4%)
Attended an event, meeting or class on a Purdue campus	97 (9.7%)	871 (86.8%)	35 (3.5%)
Contacted Purdue University for information	78 (7.8%)	893 (89.0%)	32 (3.2%)
Attended a Purdue University Extension meeting or event	65 (6.5%)	902 (89.9%)	36 (3.6%)
Enrolled in an online class offered by a Purdue campus	12 (1.2%)	955 (95.2%)	36 (3.6%)

Table F.7: Unweighted frequencies, percentages, means and standard deviations for respondents' perceptions of Purdue University and its contributions to the state of Indiana (N= 1,003)

Items	Strongly Agree <i>f</i> (%)	Somewhat Agree <i>f</i> (%)	Neither Agree nor Disagree <i>f</i> (%)	Somewhat Disagree <i>f</i> (%)	Strongly Disagree <i>f</i> (%)	Missing Data <i>f</i> (%)	Mean¹ (SD)
Purdue University...							
Offers quality educational programs	585 (58.3%)	259 (25.8%)	116 (11.6%)	3 (0.3%)	3 (0.3%)	37 (3.7%)	4.47 (0.74)
Conducts research that benefits the state economy	341 (34.0%)	373 (37.2%)	238 (23.7%)	6 (0.6%)	5 (0.5%)	40 (4.0%)	4.08 (0.82)
Offers outreach programs available to all Indiana residents	285 (28.4%)	272 (27.1%)	376 (37.5%)	23 (2.3%)	6 (0.6%)	41 (4.1%)	3.84 (0.90)
Conducts applied research that addresses Indiana's major needs	230 (22.9%)	330 (32.9%)	384 (38.3%)	13 (1.3%)	4 (0.4%)	42 (4.2%)	3.80 (0.83)
Works with local residents to help improve Indiana communities	235 (23.4%)	313 (31.2%)	385 (38.4%)	16 (1.6%)	7 (0.7%)	47 (4.7%)	3.79 (0.86)

Table F.7 continued

Conducts research that improves quality of life	291 (29.0%)	390 (38.9%)	259 (25.8%)	14 (1.4%)	3 (0.3%)	46 (4.6%)	3.77 (0.88)
Serves as a source of unbiased information for Indiana residents	221 (22.0%)	342 (34.1%)	357 (35.6%)	27 (2.7%)	11(1.1%)	45 (4.5%)	3.77 (0.88)
Offers opportunities for Indiana residents to learn more about current research	219 (21.8%)	328 (32.7%)	373 (37.2%)	28 (2.8%)	9 (0.9%)	46 (4.6%)	3.75 (0.87)
Offers quality youth educational programs open to all Indiana families	239 (23.8%)	253 (25.2%)	433 (43.2%)	24 (2.4%)	8 (0.8%)	46 (4.6%)	3.72 (0.90)
Serves as a source of positive social change in Indiana	199 (19.8%)	288 (28.7%)	418 (41.7%)	41 (4.1%)	10 (1.0%)	47 (4.7%)	3.65 (0.89)
Is in touch with the needs of Indiana families and residents	173 (17.2%)	293 (29.2%)	444 (44.3%)	31 (3.1%)	13 (1.3%)	49 (4.9%)	3.61 (0.87)

¹ Unweighted mean (standard deviation). Items scaled 5 to 1, strongly agree to strongly disagree.

Table F.8: Frequencies and percentages of respondents' level of interest in learning about or engaging with Purdue University on selected topics (N= 1,003)

Items	Yes <i>f (%)</i>	No <i>f (%)</i>	Missing Data <i>f (%)</i>
Health and well-being	428 (42.7%)	498 (49.7%)	77 (7.7%)
Free Extension programs in your area	421(42.0%)	490 (48.9%)	92 (9.2)
Gardening	398 (39.7%)	511 (50.9%)	94 (9.4%)
Science and technology	385 (38.4%)	521 (51.9%)	97 (9.7%)
Food and nutrition	365 (36.4%)	541 (53.9%)	97 (9.7%)
Environmental topics	342 (34.1%)	572 (57.0%)	89 (8.9%)
Home and money	323 (32.2%)	596 (59.4%)	84 (8.4%)
Agriculture	248 (24.7%)	648 (64.6%)	107 (10.7%)
Youth programs	180 (17.9%)	710 (70.8%)	113 (11.3%)

Table F.9: Summary of logistic regression analysis for variables influencing level of interest in engagement with Purdue University (N= 1,003)

Variables	Block 1				Block 2			
	B	SE	Exp(B)	<i>p</i>	B	SE	Exp(B)	<i>p</i>
Highest Level of Education	0.201	0.045	1.222	0.000*	0.194	0.050	1.214	0.000*
Age	-0.084	0.064	0.919	0.191	-0.125	0.068	0.882	0.067
Gross Household Income	-0.060	0.047	0.942	0.202	-0.073	0.051	0.929	0.151
Sex	-0.109	0.162	0.896	0.498	0.126	0.175	1.135	0.470
Past Interaction with Purdue					1.002	0.221	2.725	0.000*
Level of Concern					0.055	0.013	1.057	0.000*
Perception of Purdue					0.029	0.012	1.029	0.016*
Level of Anomie					-0.057	0.025	0.944	0.021*
Cox & Snell R ²	0.034				0.107			
Nagelkerke R ²	0.046				0.146			

*Coefficient is significant at the 0.05 level.

Table F.10: Classification, -2 Log Likelihood, and Hosmer and Lemeshow tests

	Classification	-2 Log Likelihood	Hosmer & Lemeshow: Chi-square (sig)
Block 1	63.5%	901.87	6.19 (0.63)
Block 2	64.9%	846.63	11.40 (0.18)