Examining Two-Year College Choice Among Recent High School Graduates in Montana

By

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Abstract

The purpose of this quantitative study was two-fold. The first purpose was to describe the college choice behavior of traditional-age Montana students who decide to enroll at a Montana two-year college the fall semester following their high school graduation. The second purpose was to ascertain if these students' college choice behavior was impacted by Montana's varied system of two-year college governance. Sociological contexts (student/family, school/community, and higher education) provided an organizing framework for the study and the reporting of the findings.

The significance of the study centered on the interest of Montana higher education leadership to understand and address the State's two-year system under-subscription challenge. Examining college choice behavior among Montana's two-year college students was one avenue of exploration for gaining insight into this issue. Results of the study indicated that Montana two-year college students were most influenced in their two-year college decision by cost, programming, location, and parents. With respect to the impact of varied two-year college governance models on college choice, the primary finding was that students implicitly understand Montana's two-year colleges do not comprise a uniform system. Consequently, students make their two-year college decision appreciating that the different governance models result in different college experiences. This finding suggests that as Montana's higher education leadership looks to improve Montana's two-year college participation rates, examining the issue by governance model subset might prove constructive.

Keywords: college choice, two-year colleges, postsecondary governance, social context

Examining Two-Year College Choice Among Recent High School Graduates in Montana

National data indicate that Montana's system of public two-year higher education is under-subscribed. For students entering college the fall after high school completion, nationally 34% start at a public two-year campus. In Montana this number is only 19% (National Center for Higher Education Management Systems [NCHEMS], 2017). For 20 to 39-year-olds entering college for the first time, nationally 62% start at a public two-year campus, yet in Montana this number is only 37% (NCHEMS, 2017). For students who graduate with a bachelor's degree from a public university, nationally 49% of these newly minted graduates started their higher education careers at a public two-year campus. In Montana, this number is only 31% (National Student Clearinghouse Research Center, 2017).

While data indicate that Montana's public two-year colleges are under-utilized, data conversely indicate a relative over-utilization of Montana's public four-year institutions. Specifically, Montana exhibits rates higher than the national average of students attending public research universities. For students entering college directly from high school, nationally 24% begin at a public research university while in Montana the number is 54%. For students ages 20 to 39 first beginning college, nationally 3% start at a research university while in Montana the number is 41% (NCHEMS, 2017). These numbers suggest a different culture of college enrollment in Montana than is the case more generally across the United States (Burke, Davis, & Stephan, 2015; Perna, 2006a).

The under-utilization of a state's system of two-year higher education has several possible negative impacts. States develop and support two-year higher education systems in consideration of public policy goals (Gilbert & Heller, 2013; Wellman, 2006). Generally, the explicit policy goal of public two-year postsecondary systems is to expand educational

opportunity for the socioeconomic benefit of the state and its residents. Two-year colleges are the primary gateway to higher education for minority, low-income, and first-generation college students (Community College Research Center, n.d.). Two-year colleges are foremost about access, allowing those with limited resources, limited previous exposure to higher education, and marginal prior academic performance the opportunity for social and economic upward mobility as well as overall quality of life gains via postsecondary degree completion (Cohen, Brawer, & Kisker, 2013; Harbour, 2015; Rosenbaum, Ahearn, & Rosenbaum, 2016). In advancing individuals, two-year higher education institutions also prove a proactive tool for furthering the public good. Comprehensive community colleges provide career and technical training for sustaining and strengthening state and local economies (Cohen et al., 2013). In fact, increasing college completion across America with community colleges leading the charge has become a national goal, understood as strategically essential in the effort to maintain America's global economic dominance (American Association of Community Colleges, 2012). Positively associated with the economic benefits of a robust two-year postsecondary system are gains in a society's quality of life (Economic Modeling Specialists Intl., 2014). Lower poverty and crime rates, improved public health, and a more engaged citizenry are all societal outcomes attributed to increased higher education access (Belfield & Bailey, 2011; Cohen et al., 2013; Harbour, 2015).

In addition to states' explicit interest in expanding access to postsecondary education, states are also implicitly concerned with fiscal responsibility (Wellman, 2006). Notably, two-year higher education systems are not only meant to be affordable to students, they are also meant to be affordable to the taxpayers who support them (Cohen et al., 2013; Economic Modeling Specialists Intl., 2014). While two-year colleges can have considerable capital outlay

for specialized training equipment and facilities, overall two-year administrative, instructional, and operational costs are lower than those of four-year institutions (Baum & Johnson, 2015; Cohen et al., 2013; Johnson, 2014; Rouse, 1998). Taxpayer savings may come in the form of a lower state allocation per two-year student and/or lower tuition per two-year student which results in less state or federally subsidized financial aid per student (Baime & Baum, 2016; Snyder & Dillow, 2015).

Given the two-year higher education public policy goals of increasing postsecondary access and lowering postsecondary costs, Montana's under-subscribed two-year higher education system is likely impacting Montana's success on these fronts. Nationally, Montana ranks 46th in numbers of 18- to 24-year-olds who are enrolled in a degree-granting postsecondary institution (National Center for Education Statistics, 2018a). While the national percentage for 18- to 24-year-olds enrolled in college is 40%, Montana's percentage is 34% (National Center for Education Statistics, 2018a). In terms of the immediate college enrollment rate for high school completers, nationally 70% of high school graduates enter a degree-granting institution the fall following high school graduation, however in Montana this percentage is 62% (Kendrick & Cresswell, 2017; National Center for Education Statistics, 2018b). While correlation does not equal causation, Montana's lower than average higher education participation rates may be, in part at least, an effect of the State's under-subscribed two-year higher education system.

Turning to the two-year higher education policy goal of lowering state higher education costs, Montana's under-subscribed two-year system may also be driving up state postsecondary education costs, although the State's singular higher education governance structure complicates the drawing of this conclusion. The complexity stems from Montana's blended postsecondary education system in which four of the state's six four-year institutions also administer

"embedded" two-year units. While Montana does report state-support-per-student dollar figures for each of its institutions, for these four two-year campuses state support for four-year and two-year students is commingled (Montana University System, 2017b). Consequently, four-year versus two-year student state expenditures cannot be separated for comparative purposes with respect to these four campuses. However, excluding these four campuses, Montana's average state expenditure per two-year student in fiscal year 2016 was $6,735, while the average state expenditure per four-year student was $9,241 (Montana University System, 2017c). Accordingly, Montana on average spent 37% more on students at four-year institutions than on students at two-year institutions. While the data are incomplete, these numbers suggest that the under-subscription of Montana's two-year postsecondary system coupled with the State's relative over-subscription of its four-year system, as presented earlier, is costing the Montana taxpayer.

In summary, the data indicate Montana's two-year higher education system enrolls students at lower rates than the national average, and Montana's postsecondary students favor public research university enrollment over two-year college enrollment—a pattern contradictory to the national postsecondary enrollment picture. Furthermore, fewer Montanans access college opportunities than the national average. As a primary focus of two-year higher education systems is to expand postsecondary access for socioeconomic gain (Cohen et al., 2013; Harbour, 2015), the under-utilization of Montana's two-year system likely negatively impacts both Montana's economy as well as Montanans' quality of life. Montana also spends less educating two-year college students than four-year college students; yet, more Montanan's start at four-year units than at two-year units. Montana's taxpayers are paying extra to support this non-normative enrollment pattern. Finally, it is added that the under-utilization of Montana's two-year system combined with the over-utilization of Montana's research universities may also be negatively

impacting college matriculation, retention, and completion rates, as students may be avoiding college or starting their college careers in institutional environments that are not conducive to their success or aligned with their goals. Academic match, social/cultural/financial fit, and goal alignment are all critical factors in college matriculation, retention, and completion. If Montana higher education is overmatching students while discounting the importance of fit and goals, student outcomes will suffer (Belfield & Bailey, 2011; Howell, Pender, & Kumar, 2016; Rodriguez & Martell, 2016; Roksa, 2010; Rouse, 1998). The under-utilization of Montana's two-year postsecondary education system is an issue with broad implications. Gaining a greater understanding of this issue and exploring means to address this issue are the foci of this study.

Montana's Challenge

The under-utilization of Montana's two-year postsecondary system is not a new topic to Montana's public higher education community. It is generally understood among Montana's public higher education professionals that Montana's postsecondary system is 'four-year centric.' This situation is attributed to system organization and reorganization decisions made over the past five decades (Cech, 2014). By 1970 Montana's public units of postsecondary education comprised two flagship universities, four four-year colleges, three community colleges, and five locally controlled vocational-technical (vo-tech) centers. In 1972, to begin to bring order and oversight to these disparate units, the Montana University System (MUS) was established under the authority of the Montana Board of Regents (BoR) (Cech, 2014). Initially, the universities and four-year colleges were brought under the MUS umbrella, with the control, management, coordination, and supervision of these units transferred to the new Board. Then, in 1979, the three community colleges were incorporated into the MUS, however, while they relinquished coordination and supervision to the BoR, they retained local control and local

management. Finally, in 1987, the State Legislature transferred administrative and supervisory authority of the five vo-tech centers to the BoR. Notably, for the five vo-tech centers, local control and local management were not retained (Cech, 2014).

The MUS was now at a critical juncture. With fourteen institutions of variable purpose under its purview, the BoR entertained system restructuring options to improve and streamline its oversight function. While community college and vo-tech center advocates submitted a proposal "to create a 2-year education system" (Cech, 2014, p. 192), their plan did not prevail. Instead a "Two-University Model" was chosen, with the two flagship universities at the helm. Oversight of the four four-year colleges and the five vo-tech centers was divvied up between the two universities. The five vo-tech centers were rechristened as two-year colleges of technology. Three of the new colleges of technology were administratively and academically embedded in a parent four-year campus, while two of the new colleges of technology retained administrative and academic autonomy as they were located in communities without a parent four-year campus (Cech, 2014). Meanwhile the three community colleges, although still part of the MUS and under BoR coordination and supervision, maintained their local control status and avoided oversight affiliation with a flagship campus. In the end, under the Two-University Model adopted in 1994, the locus of MUS power was consolidated at the four-year level, with the two flagship institutions holding the lead reins. Given such a system of state higher education governance, it is perhaps not surprising that Montana's two-year units might struggle for recognition.

For the states' two-year colleges, the 1994 reorganization resulted in three distinct two-year college governance models operating in the state (Cech, 2014). First, there were the three locally controlled community colleges, complete with locally elected boards, local revenue, and

direct legislative appropriation. Second, there were the two independently accredited colleges of technology, each affiliated with a flagship university and awarded state funding through their flagship affiliation. Finally, there were the three embedded colleges of technology, two of which were administratively and academically embedded in a four-year college which in turn was an affiliate of one of the flagship campuses, and one of which was administratively and academically embedded directly in one of the flagship campuses (Cech, 2014). For these last three embedded two-year colleges, oversight and state funding were blended with their parent campus. Montana's variable arrangements for two-year higher education governance in combination with Montana's four-year and flagship-centric public higher education paradigm provide context, and perhaps cause, for the state's two-year college under-subscription reality.

It is not likely that lack of two-year institutions is a factor in two-year system under-utilization in Montana. In addition to the three community colleges and five colleges of technology dating to the 1994 reorganization, two new university-embedded two-year colleges were established in 2009 and 2010, respectively. Moreover, Montana has seven tribal colleges which were founded during the 1980s (Cech, 2014). All totaled, for a population of just over one million (U.S. Census Bureau, 2016), Montana has 17 local access points for two-year education. Notably, in a study conducted by Schaffer (2010) examining the under-enrollment of non-traditional-age students at Montana's two-year colleges, Montana "compared well in the percent of two-year colleges" (p. ii) with states with high rates of adult student two-year college participation. For a schematic illustrating the relationships among all units of the Montana University System see Figure 1. For a map showing the geographic distribution of two-year colleges across Montana see Figure 2.

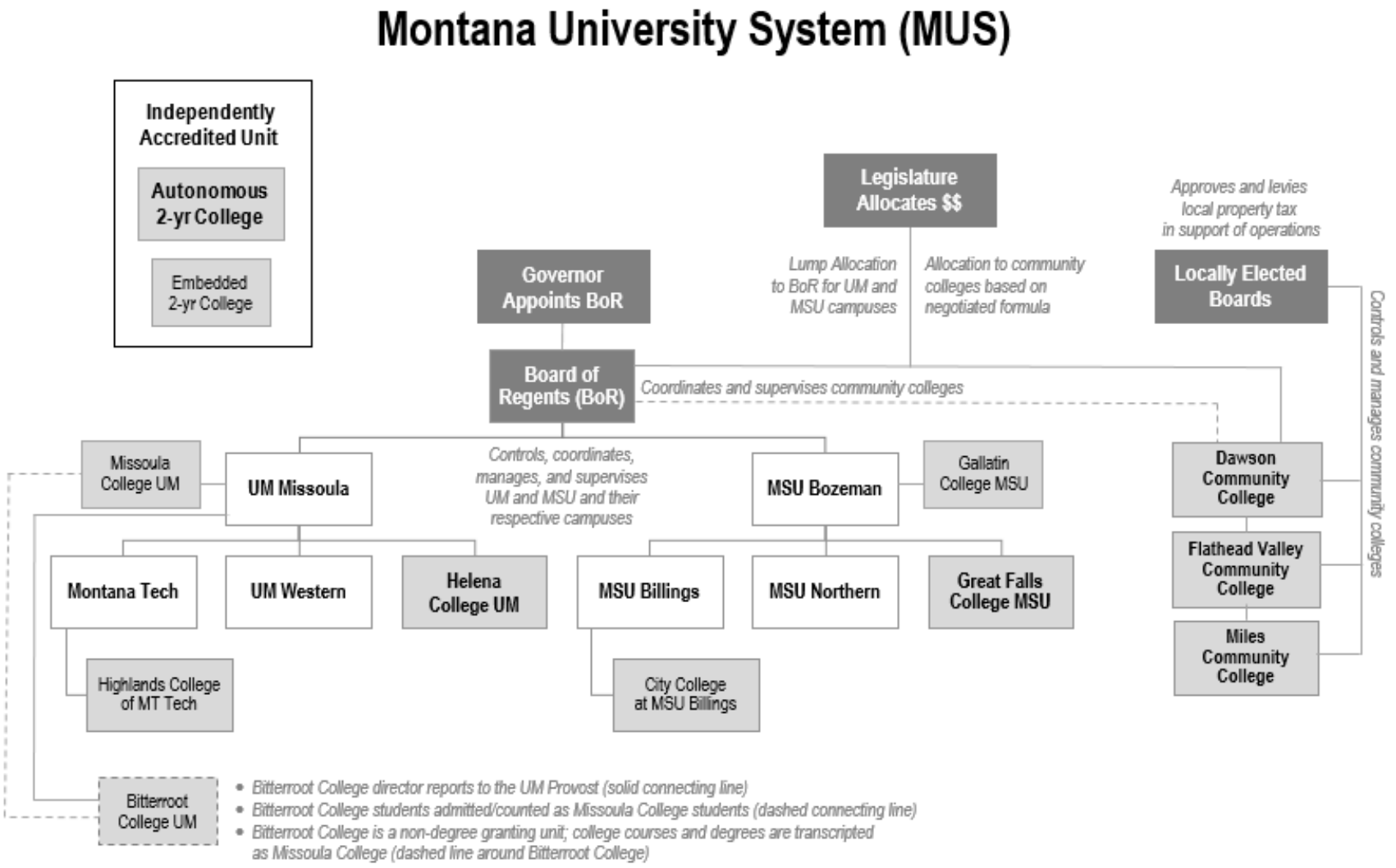

Figure 1. Schematic of Montana University System.

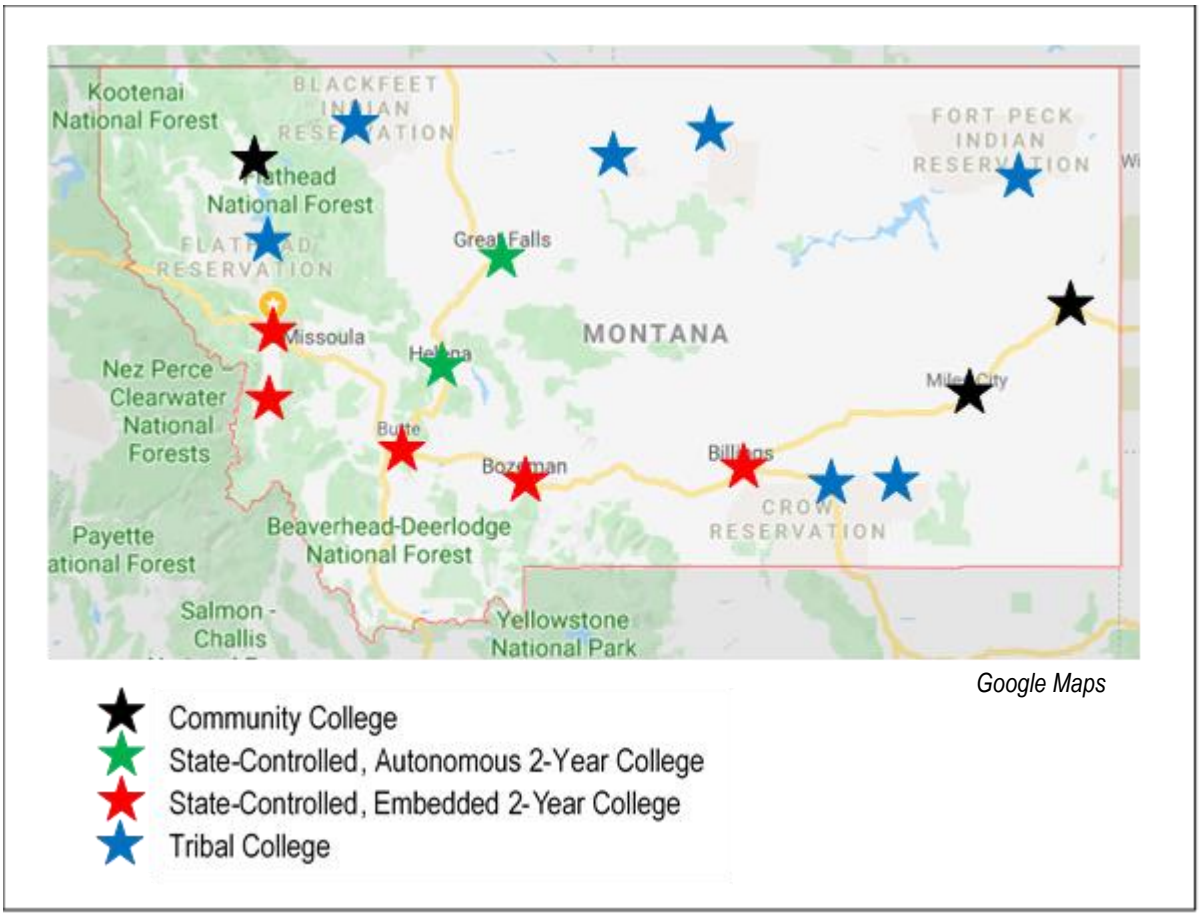

Figure 2. Map of geographic distribution of Montana two-year colleges.

The under-utilization of the state's two-year units has sparked concern in recent years among Montana higher education leadership. In 2008 Montana was awarded a Lumina Foundation grant to address significant under-subscription and under-productivity issues within its two-year sector (Cech, 2014). The grant initiative, named College! NOW, focused on "increasing educational access and attainment by making 2-year higher education more accessible, better coordinated, better understood, and better utilized statewide" (Cech, 2014, p. 195). An important component of the College NOW! initiative was rebranding the university-affiliated two-year colleges with names connecting them to their local communities. Along with the renaming, the missions of these units were expanded to embrace the comprehensive

community college model—namely, transfer education, workforce development, developmental and adult basic education, lifelong learning, and community development (Cech, 2014). Before the College! NOW efforts, 18.2% of public higher education enrollment (as measured in fulltime equivalent students [FTE]) in Montana was attributed to two-year colleges. Today, nearly a decade following the College! NOW $2 million investment, that number stands at 18.3% (Montana University System, 2017b). The impact of the College! NOW initiative on Montana's two-year unit enrollment appears negligible.

Montana higher education leadership continues to struggle with the issue of two-year system under-utilization. Now faced with a looming worker shortage as Montana's population ages (Wagner, Watson, Bradley, & Troyer, 2015), two-year colleges are again in the limelight. Montana's two-year college leaders have been asked to step up to the plate and provide new ideas for reaching out to students (J. Cech, personal communication, November 2015) as well as new and updated programs to attract students (Watson, Wagner, Lacy, & Rose, 2016). Even more recently, the Montana BoR has broached the topic of system restructuring with an eye to realigning institutions by mission rather than by flagship proximity as a means to address enrollment concerns (Montana University System, 2017a).

Problem Statement

Low participation rates at Montana's public two-year colleges have been a topic of concern for Montana higher education leaders for over a decade (Cech, 2014). Under-utilization of Montana's two-year system is possibly a factor in Montana's comparatively low higher education participation numbers. As postsecondary education participation is correlated to positive socioeconomic outcomes for both individuals and society at large, low postsecondary enrollment numbers are troubling to policymakers (American Association of Community

Colleges, 2012; Wellman, 2006). Moreover, as Montana faces a significant worker shorter in the coming decades, the necessity of a robust two-year career and technical system becomes ever more urgent (Cech, 2014; Wagner et al., 2015; Watson et al., 2016). Notably, some of Montana's slack in two-year college numbers is picked up by the State's two research universities, however this funneling of a student majority to flagship campuses appears to increase the taxpayer burden and likely compounds issues of matriculation, retention, and completion (Belfield & Bailey, 2011; Howell et al., 2016; Rodriguez & Martell, 2016; Roksa, 2010; Rouse, 1998).

While little published research has been written on this topic, Montana system leaders recognize that governance variability among Montana's two-year colleges combined with the historically four-year centric mindset of the State's higher education system are avenues for causal examination (Cech, 2014; Montana University System, 2017a). With leadership investigating the under-subscription issue from the system vantage point, this study examines the issue at the student level. Although the system is under-utilized from a national perspective, there are still hundreds of students who do choose a Montana two-year college. This study employs a survey that asks traditional-age students about their decision to attend a Montana two-year college. Analysis of the survey data focuses on describing the factors involved in two-year college choice. A college choice conceptual model which organizes such factors by contexts of influence guides the analysis (Perna, 2006a). Of particular interest is disaggregating data by institutional governance model, as this circumstance underlies the two-year college conversation in Montana. Adding new data from a new vantage point is one more step in the involved process of making progress on understanding and ameliorating Montana's two-year college participation woes.

Purpose Statement

The purpose of this study is two-fold. The first purpose is to describe the college choice factors influencing students who enroll at a Montana two-year college the fall semester following their high school graduation. The second purpose is to determine what differences exist, if any, among these factors when student data are disaggregated by two-year college governance model. In each part of the study, the factors influencing college choice are organized for analysis and discussion around three contextual areas of interest: a) student and family, b) school and community, and c) higher education (Perna, 2006a). In the second part of the study, a fourth area of context—the social, economic, and policy environment—provides the framework for data disaggregation by governance model.

Research Questions

Research questions guiding this study are:

1. Why do traditional-age students in Montana choose to enroll at a two-year college the fall semester after their high school graduation? Who are these students, and what college choice factors influence their decision? How can their college choice behavior be *described* within the contexts of a) student and family, b) school and community, and c) higher education?
2. Does a two-year college's governance model impact college choice behavior? Are there *differences* among students and the college choice factors influencing their decision when the studied population is disaggregated by two-year college governance model? If so, how are these *differences* understood within the contexts of a) student and family, b) school and community, and c) higher education?

Significance of Study

Utilization of state two-year higher education systems and two-year college choice are broad topics. Studies have examined state two-year system development, governance, and funding in an effort to gage relative system strengths and weaknesses (Katsinas, Johnson, & Snider, 1999; Lovell & Trouth, 2002; McGuinness, 2008; Tollefson, 2009). Studies have also investigated students' decisions to enroll in two-year colleges as well as the socioeconomic and academic characteristics which predominate among two-year college students (Barreno & Traut, 2012; Freeman, 2017; Goff, Patino, & Jackson, 2004; Hawk & Hill, 2016; Koricich, Chen, & Hughes, 2018; Morciglio, 2010; Swiger, 2014; Urbanski, 2000; Wang, Ye, & Pilarzyk, 2014). Notably, studies have found college choice contextual factors influence two-year college enrollment differently depending on a state's two-year college system structure (Rivers, 2010; Shaffer, 2010). Due to such variability, researchers have stressed the importance of examining college choice contexts within state specific settings (Burke et al., 2015, Perna 2006a). This study acknowledges this directive and examines two-year college choice within the confines of the Montana two-year college system. Consequently, this study adds to the bodies of research examining both two-year system structures and college choice.

Fundamentally, the significance of this study centers on the expressed desire of Montana higher education leadership to understand and address the State's two-year system under-utilization issue. While leadership can reference extant organizational studies for comparative purposes and Schaffer's (2010) study for non-traditional-age student participation predictors, this study adds college choice data gathered from Montana's traditional-age two-year college students—a new path of inquiry for examining Montana's two-year college system. As Montana faces a looming worker shortage, the under-utilization of its two-year system has received

increased attention among policy makers (Cech, 2014; Wagner et al., 2015; Watson et al., 2016). Research illuminating the specifics of the situation is nearly completely absent. This study takes a step to help fill that research void.

Delimitations and Limitations

To keep this study manageable and focused, I imposed several delimitations. First, I delimited the research population to two-year college students ages 18 to 25 who completed high school in the calendar year prior to their fall enrollment at their respective two-year college. High school completion included all students who graduated from high school or earned a high school equivalency credential. Keeping the study's focus on students who move directly from high school to college allows the analysis to concentrate on the college choice variables specific to this population. Research suggests that high school graduates who delay college entry by a year or more after high school graduation have different college choice parameters than immediate college enrollees (Barreno & Traut, 2012; Hossler, Braxton, & Coopersmith, 1989; Perna, 2006a). Consequently, to minimize the independent variables at play, this study was restricted to students who transitioned directly from high school to college.

Notably, this college matriculation subset is a standard statistical group tracked and reported on by the National Center for Education Statistics. The college participation rate of this subset is variably referred to as the Immediate College Enrollment Rate, the College-Going Rate of High School Graduates, and the College-Going Rate Directly from High School (National Center for Education Statistics, 2018b; National Center for Higher Education Management Systems, 2018). By employing a standardly defined and regularly tracked student category as the basic unit of study for this research, subsequent college choice and two-year system investigators have a dataset useful for comparative purposes.

This study is also bound to the Montana context. The research population is comprised of Montana two-year college students who graduated from a Montana high school or earned a high school equivalency credential in Montana. This delimitation is at the heart of the study as prior college choice research suggests that state-specific investigations are important in understanding state-level issues (Burke et al., 2015, Perna 2006a).

Finally, I excluded Montana's seven tribal colleges from this study as these colleges are outside the State's direct higher education authority and likely represent a distinct subpopulation which is worthy of separate inquiry. Moreover, whereas I had sufficient professional contacts within the state's higher education system to guarantee necessary two-year campus participation in my study, I did not have this level of connectedness to Montana's tribal colleges to assure similar survey participation.

It is also understood that this study comes at the beginning of a problem-solving process. With essentially no published research, current or otherwise (barring Schaffer's 2010 dissertation), on Montana's system of two-year postsecondary education on which to build or counter, this study opens an initial investigative window on an undoubtedly complex and multivariate problem. This research project did not look to provide answers, but rather to begin the process of understanding, raising awareness, and initiating meaningful dialog with respect to Montana's two-year college under-utilization puzzle.

Literature Review

As this study investigates the college choice decision of traditional-age Montana two-year college students, an appraisal of foundational and leading college choice research is merited. Specifically, this literature review synthesizes college choice research utilizing Perna's (2006a, 2008; Perna & Kurban, 2013) college choice conceptual model. The discussion first

explores the origins of Perna's model followed by an explanation of the model. The review then groups literature according to the model's four layers of context. First, the college choice context of student and family is explored. Second, the college choice context of school and community is explored. Next, the college choice context of higher education is explored. Finally, the college choice context encompassing the greater social, economic, and policy environment is explored. As the research interest driving this review is college choice as it may relate to the under-subscription of Montana two-year colleges, literature pertaining to community colleges, rural students, low socioeconomic status (SES) students, Montana students, and higher education governance and structure is emphasized.

College Choice: Conceptual Framework

The first conceptual frameworks for understanding high school student college choice behavior were grounded in human capital theory (Hossler et al., 1989; Hossler, Schmit, & Vesper, 1999; Paulsen, 1990; Perna, 2006a). The argument was made that high school students were intrinsically motivated to increase their own human capital. Attending and graduating from college were understood as one path towards this end. Students at a fundamental level weighed the costs versus the benefits of college attendance. The benefits were understood as lifetime socioeconomic gain while the costs were understood as upfront attendance expenditures and immediate lost wages. The human capital investment framework for college choice was rooted in an economic and rationalistic perspective.

Added to the human capital model was the sociological motivator of status attainment (Hossler et al., 1989, 1999; Paulsen, 1990; Perna, 2006a). Here the idea was that high school students were also motivated by status attainment as influenced by their social context. An interest in sustaining or increasing social position was considered a factor in individual college

choice. As sociological research expanded in the college choice arena, exploration began to include not just motivating influences but also inhibiting factors. The sociological perspective moved from a study of status attainment to investigations of SES, race/ethnicity, and gender. Ultimately, the college choice conceptual framework broadened to include the constructs of human capital, social capital, and cultural capital variably filtered through the lenses on SES, race/ethnicity, and gender (Hossler et al., 1989, 1999; Paulsen, 1990; Perna, 2006a).

Concurrent with the evolution of economic and sociological frameworks for understanding college choice was the development of a college choice process model. Hossler and Gallagher (1987) proposed a three-phase progression to college enrollment: a) predisposition, b) search, and c) choice. Each phase was dependent on particular individual and organizational factors. During predisposition, a student's characteristics, significant others, and educational activities as well as the student's high school's characteristics came into play. During the search phase, a student's nascent college values and search activities were combined with the search activities of postsecondary institutions. Finally, in the choice phase, a student's "choice set" (Hossler & Gallagher, 1987, p. 208) was courted (or not) by particular colleges and universities. Hossler and Gallagher's model was notably linear and rational and descriptive for high school students entering college the fall following high school graduation.

Pulling from the college choice research relating to economic and sociological constructs as well as Hossler and Gallagher's (1987) college choice three-phase model, Perna (2006a) proposed a "conceptual model of student college choice" inclusive of the multiplicity of influencing variables. Perna's framework experienced some evolution in terminology since its initial introduction (Perna, 2008; Perna & Kurban, 2013; Perna, Rowan-Kenyon, Bell, Thomas, & Li, 2008), however its original form, centered on the student surrounded by four nested layers

of context, remained intact. At the heart of Perna's model was the student initiating a college decision based on a cost/benefit analysis. The information that the student brought to this first step included his/her academic preparation and achievement and his/her access to family income and financial aid. This part of Perna's model was founded on human capital investment theory—the individual conducts a return on investment analysis based on knowledge of resources. However, the model did not end with this first step of information gathering. Perna added four layers of sociological context which further influenced the student's cost/benefit analysis.

The first layer of context surrounding the student Perna (2006a) alternatingly referred to as habitus or *student and family*. In this layer, the influences of the student's and his/her family's access to cultural and social capital as well as the student's and family's demographic characteristics came into play. The second layer out from the student and family context held the influences of the student's *community and school* (K-12). The third layer of context was *higher education* itself wherein institutions assumed both passive and active roles. The fourth and final layer of context comprised the current *social, economic, and policy* environment in which the student ultimately made his/her college choice decision. Figure 3 provides a summary graphic of Perna's model.

College choice: Student and family context (Layer 1). At the center of Perna's (2006a) college choice conceptual model was the student deciding whether or not to go to college and, if so, where to go to college. As mentioned above, the initial context for this decision-making was the student's own level of academic achievement and preparation coupled with the student's access to financial resources. At this point, the student context became interwoven with the greater family context from which the student inherited demographic characteristics, cultural capital, and social capital. Perna (2006a) included gender and race/ethnicity as salient

demographic characteristics; she included cultural knowledge and value of college attainment as salient cultural capital; and she included information about college and assistance with the college process as salient social capital.

The studies from which Perna (2006a) drew to inform her student and family context were compiled and synthesized in two prominent college choice literature reviews written by Hossler, Braxton, and Coopersmith (1989) and Paulson (1990), as well as a follow up literature review for the intervening years written by Perna (2006a) herself. From this overlap of decades of research, the center of Perna's (2006a) college choice conceptual model took shape. Ultimately, Perna and Kurban (2013) collapsed and consolidated the student-level variables at the center of the model to "reveal four categories of predictors that determine college enrollment and choice: 1. Financial resources; 2. Academic preparation and achievement; 3. Support from significant others; 4. Knowledge and information about college and financial aid" (p. 15).

College choice research since the publication of Perna's (2006a) conceptual model has continued to validate Perna's emphasis on the centrality of the student/family context, particularly with respect to the importance of cultural and social capital. A qualitative study by Rowan-Kenyon, Bell, and Perna (2008) which synthesized case studies conducted at 15 high schools in five different states found that while generally all parents encouraged their children to aspire to college, parents' ability to affect this outcome varied considerably by SES. Parents with low to middle SES—especially as SES related to financial resources and level of parental educational attainment—had less "information, money, and time" to offer their children with respect to their college search and choice (Rowan-Kenyon et al., 2008, p. 573). Notably, an information deficit is reflective of low cultural and social capital (Perna, 2006a). A second meta-synthesis of qualitative studies relating to the role of family and community in college choice

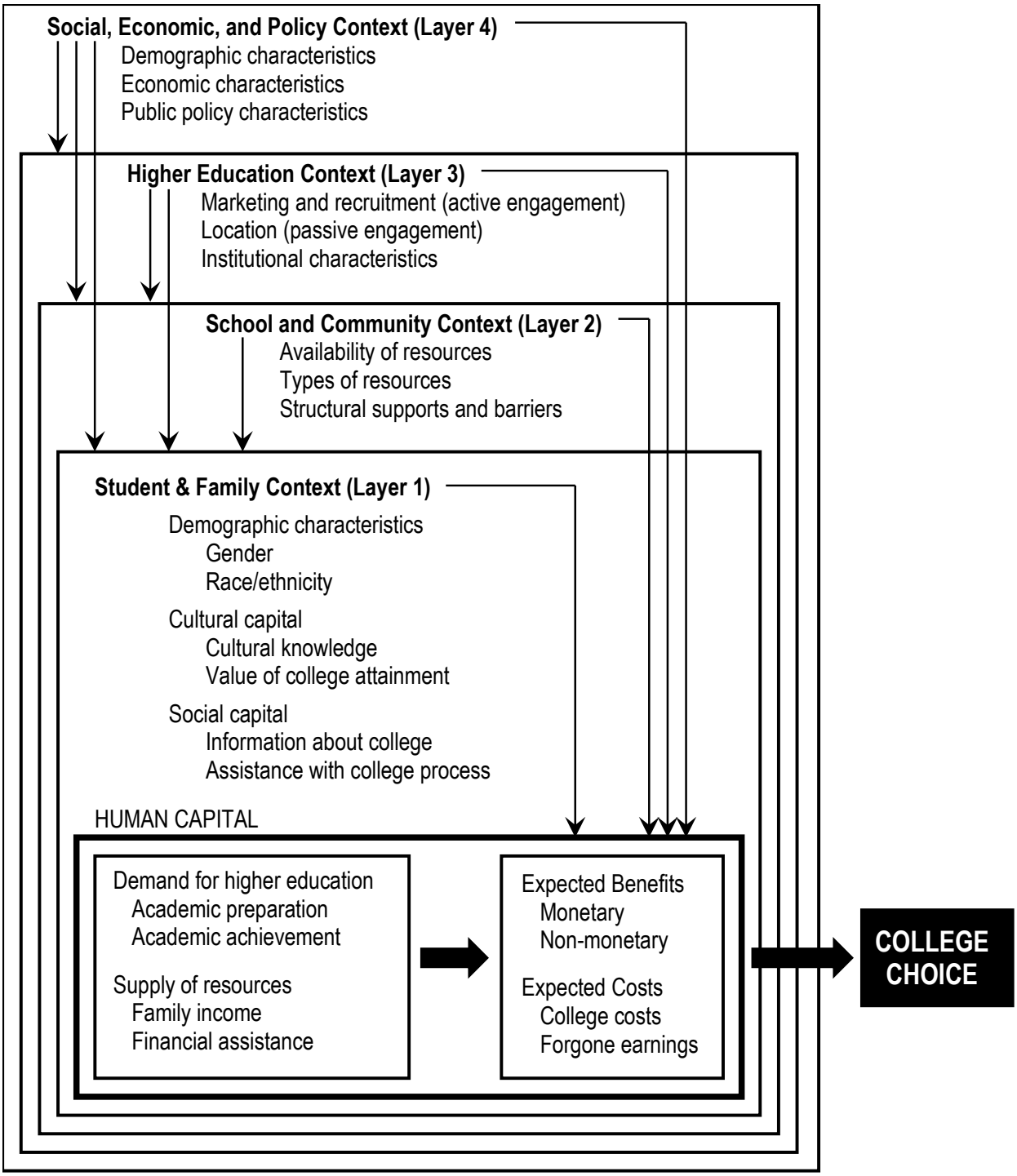

Figure 3. Summary graphic of college choice conceptual model (adapted from Perna 2006a).

(Mwangi, 2015) focused on the importance of familial social capital with respect to non-parent family and community members. Mwangi's research found students who received college-going assistance from siblings or close family friends who had attended college could moderate the college choice disadvantages of time-constrained and information-poor low SES parents. While a parent might not possess the immediate cultural and social capital to positively affect college choice, if there were college attendees within the student's greater familial network, access to critical college-bound cultural and social capital could still be secured.

Other areas of college choice research which intersected with cultural and social capital included studies of under-matching, college fit, and institutional choice (Handel, 2014; Joshi, Beck, & Nsiah, 2009) as well as studies inclusive of college information dissemination (Daun-Barnett & Das, 2013; Kim & Nuñez, 2013). As with the synthesis research mentioned above, these studies indicated a student's level of access to college-bound knowledge via cultural and social capital positively correlated with college enrollment generally and in some cases with institutional choice specifically. Level of access to critical cultural and social capital was likewise positively correlated to a student's SES.

College choice: School and community context (Layer 2). After the student and family context, Perna's (2006a) college choice conceptual model expanded to engage the school and community context. With this layer, Perna's interest was in highlighting the importance and criticality of school and community influence on college choice. Perna identified three areas in which schools and communities impacted college choice: a) availability of resources, b) types of resources, and c) structural supports and barriers.

School context. Referenced in early literature as the "organizational" variable, early school context research tended to focus on the role of high schools in college choice rather than

the full K12 spectrum (Hossler & Gallagher, 1987; McDonough, 1997; Perna, 2006a). Studies from the 1980s identified secondary peers, teachers, and counselors as well as high school status and academic rigor as the dominant college choice influences within the school context (Hossler et al., 1989; Paulsen, 1990). Not surprisingly, later research found college enrollment increased when high schools engaged in academic and career planning and employed staff who were "knowledgeable about curricular requirements and paths" (Perna, 2006a, p. 141). These studies also emphasized the negative impact on college choice when high schools' guidance offices were understaffed and when advisors "lacked college-related expertise . . . beyond their own experiences" (Perna, 2006a, p. 142).

Subsequent research on high school guidance counselors and college choice determined public high schools, no matter the socioeconomic context, were unable to meet the demand for college advising. Moreover, students who most needed expert college advice were least likely to receive it (Perna, Rowan-Kenyon, Thomas, et al., 2008). A disconnect between middle-income high school counselors and low-income parents with respect to college affordability and financial aid also impacted college choice. Low-income families favored community colleges based on loan fears which were unassuaged by middle-income high school counselors (McDonough & Calderone, 2006). Interestingly, an investigation of college-linking strategies (Hill, 2008) among high schools found the more college resources schools provided, the higher the four-year college enrollment rate. Notably, however, increased college resources markedly decreased two-year college enrollment in favor of four-year college enrollment—availability of college resources not only affected college-going rates, but also impacted institutional sector enrollment patterns (Hill, 2008).

More recent research on the high school context has focused on high school socioeconomic circumstance with respect to students and resources. In studies using both state-specific data and national data, low SES and low resource high schools negatively correlated with college enrollment (Engberg & Wolniak, 2014; Pike & Robbins, 2016). It was also observed that low resource high schools tended to over-emphasize career aspirations while under-presenting the reality of career-related postsecondary education rigor and duration. This gap left students underprepared and underinformed with respect to college choice and enrollment (Rowan-Kenyon, Perna, & Swan, 2011).

Community context. Perna (2006a) included the community context in her college choice conceptual model based on limited early research. Paulson's (1990) research synthesis cited a study indicating that the higher the socioeconomic status of the student's neighborhood, the more likely it was that the student would attend college. Hossler et al. (1989) maintained that community context research was inconclusive. While some studies found urban students and students living within 20 miles of a postsecondary educational institution were more likely to attend college than rural students and those living further than 20 miles from a postsecondary educational institution other studies indicated that once key demographic variables were considered the urban/rural/distance divide lessened (Hossler et al., 1989).

More recently college choice researchers have found significance in the community context (Burke et al., 2015; Means, Clayton, Conzelmann, Baynes, & Umbach, 2016; Scott, Miller, & Morris, 2015). A study focused on rural Indiana high school graduates concluded even though urban and rural students were equally prepared for college, rural students more frequently chose to attend two-year colleges or less selective four-year colleges than urban students (Burke et al., 2015). Moreover, this academic under-matching tendency correlated with distance,

"Distance may have been a factor: the farther rural graduates' high schools were from colleges, the more likely rural graduates were to enroll in a two-year college or to undermatch with a college" (Burke et al., 2015, p. i).

Another recent college choice study including the community context surveyed rural community college students on their perceptions of barriers to college enrollment (Scott et al., 2015). While these students perceived the same sorts of barriers as those identified by all college-bound students, they also appeared to struggle with a "comfort level" factor:

> In rural settings, students may find migration to college towns and immersive four-year college experiences beyond their personal comfort as well as beyond their personal financial capacity. Also, the size of many public four-year institutions may factor in the decision making process since many attended small rural high schools. The suggestion seems to be that rural community college attendance is not just a question of first-choice, but perhaps also only-choice. (Scott et al., 2015, p. 9)

This suggestion of personal comfort level affecting rural students' two-year college choice could also help to explain the under-matching findings in the rural Indiana high school graduate college choice study (Burke et al., 2015).

Finally, along a similar vein, research on the college aspirations of rural African American high school students concluded rural students' perspective on college choice was constrained by their rural background (Means et al., 2016). For rural students, leaving one's community created internal personal conflict. Rural students' "deep-rooted connection" (Means et al., 2016, p. 563) to their community added a unique "tension" (p. 565) in their college choice process. Ultimately, few rural students had the requisite cultural and social capital to overcome

these tensions and consider a college more than several hours distant. In summary, the community context in college choice appears particularly salient for rural students.

College choice: Higher education context (Layer 3). The third layer of Perna's (2006a) college choice conceptual model held the higher education context. Perna posited higher education itself influenced college choice through marketing and recruitment efforts, location, and institutional characteristics. Marketing and recruitment were understood as active institutional engagement, while location, or more specifically, geographic proximity to the student, was seen as passive institutional engagement. Institutional characteristics referred to attributes which students were looking for in institutions and which institutions were looking for in students. Perna also commented institutional preference and enrollment likely varied by region due to regional postsecondary access and partiality. Specifically, Perna (2006a) stated, "The composition of a state's higher education system (e.g., availability of different types of colleges and universities) contributes to the distribution of students at different types of colleges and universities in a state" (p. 143).

Research on the higher education context continues to draw interest, with several studies focused on the two-year postsecondary context (Barreno & Traut, 2012; Hawk & Hill, 2016; Wang et al., 2014). A survey of two-year college students examining college choice factors found the top six factors of influence were "transferability of courses, available academic programs and quality, campus location, cost, available educational facilities and technology, and advice from family and friends" (Barreno & Traut, 2012, p. 863). Notably, all these factors fall under the higher education context as location or institutional characteristics except for "advice from family and friends." This factor brings the student and family context into play. Another two-year college study examined the effect of institutional reputation on students' decision to

enroll (Hawk & Hill, 2016). Noting that media stereotypes about two-year colleges were generally negative, two-year college students were asked to respond to this negative messaging. Students expressed surprise at the negative messaging and stated their appreciation of the opportunity the two-year college provided them. While it was concluded two-year college media stereotypes had not impacted enrolled two-year students, it remained unknown whether such stereotypes had affected prospective students who did not enroll.

Finally, a study by Wang, Ye, and Pilarzyk (2014) provided another perspective on messaging and information dissemination within the two-year higher education context. Wang et al. investigated the characteristics of college-bound high school graduates who applied early to a two-year college versus the characteristics of those who applied late. Those who applied early: a) had a clear career choice, b) had family influence, c) had academic preparedness, and d) were identified by college recruiters as early applicants. Those who applied late: a) had family members who had attended college, b) were expecting to earn a degree beyond the two-year college, c) were local high school graduates, and d) did not have a clear curriculum path. Notably, these characteristics reflect the influence of all three of Perna's (2006a) first three college choice contextual layers. Given the study's results, Wang et al. (2014) advised two-year colleges to align recruitment efforts with career decision efforts and to start the career exploration process in conjunction with high schools early in a student's secondary journey.

College choice: Social, economic, and policy context (Layer 4). The final layer of Perna's (2006a) college choice conceptual model encompassed the overarching social, economic, and policy context in which students experienced college choice. In this layer, population-wide demographic, economic, and public policy characteristics were understood to affect college choice. Social and economic realities and interests were understood as the catalyst behind public

policy debate and result. Perna (2006a) summarized states' policy impact on college enrollment as most closely linked to state policy on "direct appropriations to higher education institutions, tuition, financial aid to students, and elementary and secondary education" (p. 119).

College choice research on the social, economic, and policy context was extensive, with financial aid and college readiness policy studies particularly prevalent lately (Daun-Barnett, 2013; Hauptman, 2011; McDonough, Calderone, & Purdy, 2007; Perna, 2006b, 2010; Perna & Steele, 2011; St. John, Daun-Barnett, & Moronski-Chapman, 2013; Tierney & Venegas, 2009; Tierney et al., 2006; Toutkoushian, Hossler, DesJardins, McCall, & Canche, 2015). Despite the plethora of aid and readiness programs and research on such programs, the jury remained out on which types of programs had the greatest impact and under which types of conditions (Conley, 2013; Perna & Kurban, 2013; St. John et al., 2013). Criticisms of aid and readiness programs included "lack of philosophical coherence, systematic and intentional policy development, and program clarity and distinctiveness" (Perna, Rowan-Kenyon, Bell, et al., 2008, p. 263). To investigate these concerns, an organizing typology of state and federal college-enrollment programs was proposed. The typology included three categories: a) what, how, and when policy was imparted, b) intent of program, and c) characteristics particular to policy type (Perna, Rowan-Kenyon, Bell, et al., 2008). In the end, it was acknowledged that state and federal policy approaches meant to increase college enrollment were difficult to categorize. The college choice policy context as it related to aid and readiness proved untethered and disconnected.

With respect to the social, economic, and policy context influencing two-year college choice, a study by Schaffer (2010) found four sociopolitical factors correlated with relatively high state-level two-year college attendance among adults. These four factors, in order of degree of influence (most influential first), included a) number of two-year colleges as compared to

number of four-year colleges in a state, b) two-year college affordability, c) the availability of need-based aid, and d) the prevalence of distance learning among the state's two-year colleges (Shaffer, 2010). Shaffer's study highlighted the importance not only of the state policy context in college choice, but also of the higher education context, with both the state's system of higher education as well as individual units' distance education decisions coming into play. Notably, when Shaffer evaluated Montana's two-year college system using these predictive markers, the only factor on which Montana compared favorably to high two-year college participation states was number of two-year colleges. Paradoxically, despite Montana's high marks on number of two-year units in the state, this predictive factor did not prevail in the Montana case as Montana was among the lowest two-year college participation states in the nation (Shaffer, 2010).

Literature Deficiencies

The literature on college choice is broad and deep, representing over 50 years of scholarship. Despite this plethora of research, Perna and Kurban (2013) suggested two areas for outstanding scholarship—one a relatively uninvestigated trajectory, the other a trajectory for context-specific refinement. With respect to the uninvestigated, Perna and Kurban recognized a deficiency in understanding the college choice process for nontraditional students. They suggested scholarship focused on both nontraditional-student institutional choice as well as on nontraditional-student attendance/credit load choice (i.e., part-time versus full-time).

The second path recommended for research involved examining college choice within defined contexts (Perna & Kurban, 2013). Specifically, Perna and Kurban noted that data collection efforts and capabilities continued to expand allowing for more contextualized studies. While Perna and Kurban expressed a need to isolate student and institutional subgroups for more discerning consideration, I propose this refinement include examining college choice at the state

level. Although a study by Perna and Titus (2004) using national data found that college enrollment generally reflected the distribution of units in a state, there were no studies reaffirming this conclusion at the individual state level. Moreover, Burke et al. (2015), in their analysis of college-bound rural Indiana secondary students, highlighted the importance of disaggregating state data from national data. With Indiana college-enrollment data revealing different patterns than national data, it was critical to use state data rather than national data "in making educational policy decisions" (p. i). Consequently, I understand a second deficiency in college choice research to include the examination of college choice from a state context. With only a single dissertation representing college choice scholarship from Montana (Schaffer, 2010), opportunities for college choice research specific to Montana remain open.

Methods

A quantitative research approach was used to describe and differentiate among college choice behaviors associated with immediate-college-going students at Montana two-year colleges. A survey was employed to collect data from the research population. The succeeding sections provide the research design, participants and setting, instrumentation, data collection procedures, data analysis methods, and researcher background guiding the study.

Research Design

The research design comprised a non-experimental quantitative method using descriptive and inferential statistics. A survey was designed to collect contextually categorized college choice data from a sample of Montana two-year college students. Descriptive statistics were produced to provide an in-depth picture of the contextualized college choice characteristics distinguishing the studied population. Inferential analysis was conducted to evaluate possible differences among the college choice variables when disaggregated by two-year college

governance model. The analysis goal was to offer a description of the entire population and identify any significant differences among the population when disaggregated by two-year college governance model subset. Notably, as this was a non-experimental study, no cause-and-effect determinations were possible (Ary, Jacobs, Razavieh, & Sorensen, 2006; Field, 2013; Loeb et al., 2017).

A quantitative research method focused on producing descriptive and inferential statistics was selected for this study as this project represents an initial investigation of college choice among traditional-age two-year college students in Montana. This research provides baseline descriptive and inferential analysis from which subsequent studies can build in pursuit of casual explanation or in-depth narrative exploration (Loeb et al., 2017). This research was characterized as a starting point rather than an ending point.

Participants and Setting

As explained in the prior Limitations and Delimitations section, study participants were restricted to currently enrolled Montana two-year college students ages 18 to 25 who matriculated at a Montana two-year college the fall after graduating from a Montana high school or earning a high school equivalency credential in Montana. This high school to college admissions category is currently referred to as Immediate College Enrollment by the National Center for Education Statistics (National Center for Education Statistics, 2018b).

Study participants completed an online survey with nominal, ordinal, and scale questions referencing secondary/postsecondary experiences and demographic characteristics, and ordinal/scale questions rating degree of influence of college choice factors (as identified from previous research). The survey was made available to all students meeting the survey participant criteria at all 10 Montana University System two-year colleges: Bitterroot College UM, City

College of MSU-Billings, Dawson Community College, Flathead Valley Community College, Gallatin College MSU, Great Falls College MSU, Helena College UM, Highlands College of Montana Tech, Miles Community College, and Missoula College UM. By including all of the state system's two-year units in the study and targeting a minimum of 10 respondents per college, descriptions and inferences from the data analysis had more power and less error (Field, 2013).

Instrumentation

The survey instrument used for this study was based on a survey instrument designed by Urbanski (2000) with revisions and additions influenced by later college choice survey research conducted by Barreno and Traut (2012) and Wang et al. (2014) and later college choice studies published by Engberg and Wolniak (2014), Hill (2008), Kim and Nunez (2013), Mwangi (2015), Rowan-Kenyon et al. (2011), and Shaffer (2010).

Urbanski's survey instrument was originally developed, tested for content validity, and implemented by Urbanski in her doctoral study *Factors Influencing Student College Choice at a Northeastern Minnesota Tribal College*. Urbanski's survey instrument was named "Factors Influencing Student College Choice." A decade later, Urbanski's survey instrument was revived with updates by Barreno and Traut (2012) for their study on college-choice decisions made by public community college students in Texas. Like Urbanski, Barreno and Traut tested their revised survey instrument for content validity before distributing. While Barreno and Traut (2012) did not specify a name for their updated survey instrument, their research question summarized its purpose: "Why do students attend a two-year community college?" (p. 866). Barreno and Traut's revisions to Urbanski's survey comprised consolidating several of

Urbanski's independent variables while adding questions pertaining to college goal, enrollment status, and importance of course transferability.

An area which my survey queried in greater depth than the Urbanski (2000) and Barreno and Traut (2014) surveys were the college choice contexts associated with the value of college and the college enrollment process—namely, the cultural and social capital components of Perna's (2006a) student and family context. Urbanski's survey included a single question on college value—a 5-point Likert scale question "I always knew I would attend college" (p. 147). My survey expanded on this direction to ask questions on types of colleges considered and the timing of students' enrollment decisions. Adding these questions allowed my survey to capture more robust and detailed information with respect to the student and family context and its association with traditional-age Montana two-year college students. Notably, my question additions tracking college interest and application progress were influenced by Wang et al.'s (2014) survey of community college students and their college enrollment and application experiences.

Another area in which my survey probed in greater depth than previous instruments was access to financial resources—a dimension of the human capital component of the student/family context (Perna 2006a). Specifically, my question addition regarding place of residence while at college was asked as a proxy to gauge the level of student/family resources available for the student's college experience (Cohen et al., 2013; Rodriguez & Martell, 2016).

Finally, in addition to the influences of Urbanski (2000), Barreno and Traut (2012), and Wang et al. (2014), my survey instrument included questions on type of high school completion experience (Engberg & Wolniak, 2014; Hill, 2008; Rowan-Kenyon, Perna, & Swan, 2011), influence of non-parent family member (Mwangi, 2015), influence of high school teacher (Kim

& Nunez, 2013), and importance of availability of online courses (Shaffer, 2010). These questions were added due to additions to college choice research since the publication of Urbanski's original survey instrument.

My survey instrument was called "Two-Year College Choice Among Recent High School Graduates in Montana." As my survey instrument involved the rewording, reordering, and addition of several new college choice factors and characteristics, I presented my survey to professionals with two-year student services experience for an evaluation of content validity prior to distribution (Ary et al., 2006). For a list of professionals who reviewed my survey instrument, see Appendix A

In terms of the format of my survey instrument, it was comprised of five sections. The initial section provided information about the questionnaire as well as included acceptance of consent to participate in the study. The remaining four survey sections were dedicated to college choice data collection and are labeled, in order of occurrence: a) High School Experience, b) College Experience, c) College Choice, and d) Demographic Information. While the experience and information sections asked questions across the measurement spectrum, the College Choice section focused on Likert scale questions and questions allowing for participant comment. The sequence of survey sections and questions was designed for logical flow from the perspective of the survey respondent, albeit not of the researcher. Although each survey question corresponded to a specific contextually categorized college choice factor, per the study's research questions, the survey questions themselves were not arranged by college choice context. Appendix B provides the survey instrument. Appendix C provides a breakdown of how each survey question connects to a college choice context (per the study's research questions) and to a prior survey instrument or a specific college choice study.

Data Collection Procedures

Following University of Wyoming Institutional Review Board approval for the study (see Appendix D), and as mentioned in the Participants and Setting section, the survey was made available at all 10 Montana two-year colleges to all students meeting the survey criteria—namely, students who matriculated at their Montana two-year college the fall after graduating from high school. Participating colleges were asked to query their electronic student records to generate a list of first-time freshmen ages 18 to 25 who matriculated in the autumn semester of the calendar year in which they completed high school. From these lists of survey eligible students, a query of student records asking for corresponding student email addresses was performed. Once the lists of email addresses of survey eligible students were compiled, students were emailed a brief message explaining the survey opportunity, asking for student participation, and containing a hyperlink to the online survey. Appendix E provides the text of the email sent to survey eligible students. Google Forms was the online application used for survey data collection. An external incentive (chance to win a $25 Amazon gift card) was provided to students to encourage survey participation. The survey sampling methodology was characterized as a non-probability, voluntary, convenience sample (Ary et al., 2006).

Data Analysis Methods

The purposes of this study's data analysis were to describe a sampled student population (Research Question 1) and to explore two-year governance model subsets of the sampled population for differences (Research Question 2). Descriptive statistics and inferential statistics were employed to this end. Descriptive analysis including measures of central tendency (mean, median, and mode), variability (standard deviation), and frequency were calculated and graphed for independent variables as appropriate (Ary et al., 2006; Loeb et al., 2017). Of particular

interest were disaggregating data by survey participants' college of attendance with respect to college's governance model (community college model; state-controlled, autonomous [independently-accredited] two-year college model; and state-controlled, embedded two-year college model). Inferential statistics were conducted to determine if any observed differences in disaggregated data were statistically significant (Ary et al. 2006; Field, 2013). Inferential analysis included comparing frequencies (chi-square test: Likelihood Ratio and Fisher's Exact) and comparing means (Kruskal-Wallis test and Friedman's ANOVA). All statistical calculations were generated using IBM's Statistical Package for the Social Sciences (SPSS) software.

Researcher Background

Finally, I disclose that my interest in designing and conducting this study stemmed from my 13 years of involvement in advocating for local access to higher education opportunity in Ravalli County, Montana. From 2006 through 2009, I participated in an initiative to establish a community college in Ravalli County—an initiative ultimately defeated by the Montana State Legislature under pressure from the Montana University System. Following this setback, I was hired to launch a state-controlled, embedded two-year unit in Ravalli County under the auspices of the University of Montana (UM). My experience with the failed community college effort and the subsequent launching of a state-controlled, embedded two-year campus positioned me to reflect on the effectiveness of the two-year college system in Montana. These reflections were the genesis of this study. My interest was directed, generally, at the continuous improvement of the State's two-year system of higher education in the service of the people of Montana, and, specifically, in the ability of the Bitterroot College UM (Ravalli County's embedded, two-year campus) to meet the needs of its community and its students.

Results

This section summarizes the results of the statistical analysis of the survey data. The first part of this section concerns Research Question 1 and presents the descriptive statistics regarding the traditional-age students who chose a two-year college and the college choice factors which influenced their decision. The second part of this section concerns Research Question 2 and provides the inferential statistics exploring whether differences exist among the described population and associated college choice factors when the population is disaggregated by two-year college governance model. The presentation of the descriptive statistics is organized around three contextual areas of interest: a) student and family, b) school and community, and c) higher education. The presentation of the inferential statistics is based on the disaggregation of the survey data along a fourth context—the policy environment (in this case, specifically governance models)—and then, in turn, is organized around the same student/family, school/community, and higher education contexts framing the descriptive analysis.

Descriptive Results (Research Question 1)

Student and family context. Understanding the student/family context of college choice begins with describing a student's baseline demographic characteristics, specifically, gender, age, and race/ethnicity (Perna, 2006a). Of the 147 students who took the *Montana Two-Year College Choic*e *Survey,* 98 met the study criteria (attended college the fall following their high school graduation). Of these 98 participants, 68% identified as female, 31% identified as male, and 1% preferred not to answer the gender question. Participants ranged in age from 18 to 25, with the bulk being between the ages of 18 and 20 (89%). With respect to race/ethnicity, most participants described themselves as White, with 82% selecting only White and another 9% selecting White with one or more additional descriptors. Four percent preferred not to answer.

Three percent choose only Hispanic, Latino, or Spanish origin, and 2% chose only American Indian or Alaskan Native.

Given the above baseline demographic characteristics, the college choice analysis moves to the human capital dimension of the student/family context. The human capital dimension is the foundation of Perna's (2006a) college choice conceptual framework, examining students' demand for higher education and their supply of resources for higher education as well as discerning students' understanding of the costs and benefits of higher education. Questions 4 through 6 of the survey provided information on the participants' demand for higher education as understood through the academic and extracurricular effort they put into high school. Ninety percent of students reported a high school grade point average (GPA) in the A (60%) or B (30%) range. In terms of high school college preparation coursework, 27% of participants reported that they had not taken any *Honors or Advanced Placement* (AP) *Courses* or *Dual Enrollment Courses* and had not taken *Four Years of Math*, while 12% reported that they participated in all three options. Forty-seven percent reported that they had participated in one of the options and 14% reported that they had participated in two of the options. Of the coursework options selected, *Four Years of Math* was the most frequently chosen (46%), closely followed by *One or more Honors or AP courses* (43%). The option *Dual Enrollment Courses* was the least frequently chosen (23%).

Looking at extracurricular activities, nearly all survey respondents reported participating in at least one extracurricular activity during high school (97%), with 51% participating in at least three extracurricular activities. The most common combinations of extracurricular activities chosen were *Athletics* and *Work* (13%) and *Performing Arts* and *Work* (7%). The most frequently selected responses were *Work* (70%), *Athletics* (67%), and *Volunteer* (52%), followed

by the less frequently selected responses of *School or Community Club* (41%), *Performing Arts* (37%), *Academic Competitions* (20%), and *Student Government* (20%).

Another aspect of the human capital dimension of college choice is the student's supply of resources. While no question on the survey directly asked about student or family income, several questions provided insight into participants' access to financial resources. Question 8 asked how far the student's college was from their hometown. Forty-three percent responded 100+ miles, 40% responded 1 to 24 miles, 11% responded 25 to 49 miles, and 6% responded 50 to 99 miles. Notably, the distribution of responses peaked at the low and high ends of the distance-from-hometown spectrum. Question 9 asked about students' place of residence while attending college. Students' responses were somewhat equally distributed among the three options: a) 38% live off campus with parents, b) 33% live off campus but not with parents, b) 30% live on campus. However, three of the colleges included in the survey do not actually have on-campus housing. When the 23 responses from these colleges were excluded from the residential analysis, there was a reverse of the percentages: a) 40% live on campus, b) 32% live off campus but not with parents, and c) 29% live off campus with parents. Question 11 asked students about their current enrollment status. Eighty-four percent responded as full-time enrollees; 16% responded as part-time enrollees. Question 12 asked whether students were eligible for a Pell Grant. Forty-four percent were not sure if they were eligible, while 36% responded that they were eligible and 21% that they were not eligible.

The human capital dimension of the student/family context also includes the student's understanding of the costs and benefits of choosing college. Considering the benefits of choosing college, Question 13 asked students about their college goal. Students were nearly evenly split between a bachelor's degree goal (46%) and an applied associate's degree goal (47%), with the

remaining 3% selecting a one-semester or one-year college goal (Certificate program) and 4% making no goal selection. Considering the cost of choosing college as opposed to not enrolling in college, Question 16 asked students about after-high-school options they considered besides attending college. Twenty-eight percent of the participants selected that they had only considered attending college. Of the remaining 72%, 39% considered one other option, 32% considered two other options, and 2% considered three other options. Of the other after-high-school options selected, 35% selected only *Working*, 23% selected *Working* and *Traveling*, 14% selected *Working* and the *Enlisting in the Military*, 11% selected only *Traveling*, and 6% selected only *Enlisting in the Military*. The remaining 11% selected various combinations of the options presented. In terms of the response percentages for each specific after-high-school option, the most frequently selected response was *Working* (57%), followed by *Traveling* (29%), *Enlisting in the military* (18%) and *Other workforce training* (4%).

Moving from the human capital dimension, the final aspects of the student/family context of college choice are the cultural capital and social capital components. Questions 14, 15, and 17 provided information on participants' access to cultural capital in terms of their knowledge and value of college attainment. Question 14 asked students about their parents' college attendance. Seventy-one percent answered that at least one of their parents attends or attended college; 24% answered that neither of their parents ever attended college; and 3% answered that they were not sure about their parents' college attendance. One respondent did not answer the question. Question 15 asked students about their siblings' college attendance. Twenty-seven percent responded that either they did not have any siblings or that their siblings were not of college age. Of the remaining 73% of students, 53% responded that at least one sibling attends or attended college, 18% responded that none of their siblings had attended college, and 1% responded that

they were unsure about their siblings' college attendance. If the participants who either had no siblings or had no siblings of college age were excluded, 73% of the respondents had at least one sibling who attends or attended college. Finally, Question 17 asked students when they had decided they wanted to attend college. Fifty-nine percent responded that they had always planned to attend college; 5% responded that they made their decision during middle school; 29% responded that they had made their decision during high school; and 7% responded that they had made their decision the summer after graduating from high school.

Social capital is the final component of the student/family context explored by the survey. The social capital component of college choice considers the information students have about college and the assistance they receive with the college process (Perna, 2006a). Questions 18 through 21 of the survey reference the social capital aspects of college choice. Question 18 asked students about the types of colleges they considered attending. Twelve percent of the participants responded that they only considered attending the college at which they were currently enrolled. Of the remaining 88%, 34% had considered at least one other college, 40% had considered at least two other colleges, and 14% had considered at least three other colleges. In terms of responses per college-types-considered option, 64% of participants reported that they had also considered a four-year college in Montana, 50% reported they had also considered a different two-year college in Montana, 33% that they had also considered a four-year outside of Montana, and 15% that they had also considered a two-year college outside of Montana.

Question 19 asked participants about whether they submitted applications to colleges other than the college they attended. Forty-six percent responded that they had only submitted a college application to the college they attended. Of the remaining 54%, 40% had submitted an application to at least one other college, 10% had submitted an application to at least two other

colleges, and 4% had submitted an application to at least three other colleges. In terms of types of colleges to which students submitted applications, 41% had also applied to a four-year college in Montana, 13% had also applied to a four-year college outside of Montana, 12% had also applied to another two-year college in Montana, and, finally, 9% had also applied to two-year college outside of Montana.

The social capital dimension of the student/family context was likewise captured in Questions 20 and 21 of the survey, where students were asked about the timing of their college decision and the timing of their college application submission. With respect to being certain about their decision to attend the college they were currently attending, 21% were certain of their decision before their senior year of high school, 23% during the fall of senior year, 35% during the spring of senior year, and 20% during the summer after completing high school. With respect to submitting their application to the college at which they were now enrolled, 42% submitted their application during fall of their senior year of high school, 37% submitted during spring of senior year, and 21% during the summer after completing high school. When the before-senior-year and during-fall-of-senior-year responses are combined, frequency distributions of the responses to Questions 20 and 21 become similar. Figure 4 provides a line graph showing the similar trajectories of students deciding upon a college and submitting an application to attend their chosen college.

Finally, two questions in the survey, Questions 22 and 23, were multiple response questions which captured information across several college choice contexts, including the student and family context. Descriptive statistics from these two questions are provided in a mixed context subsection found later in the Results section.

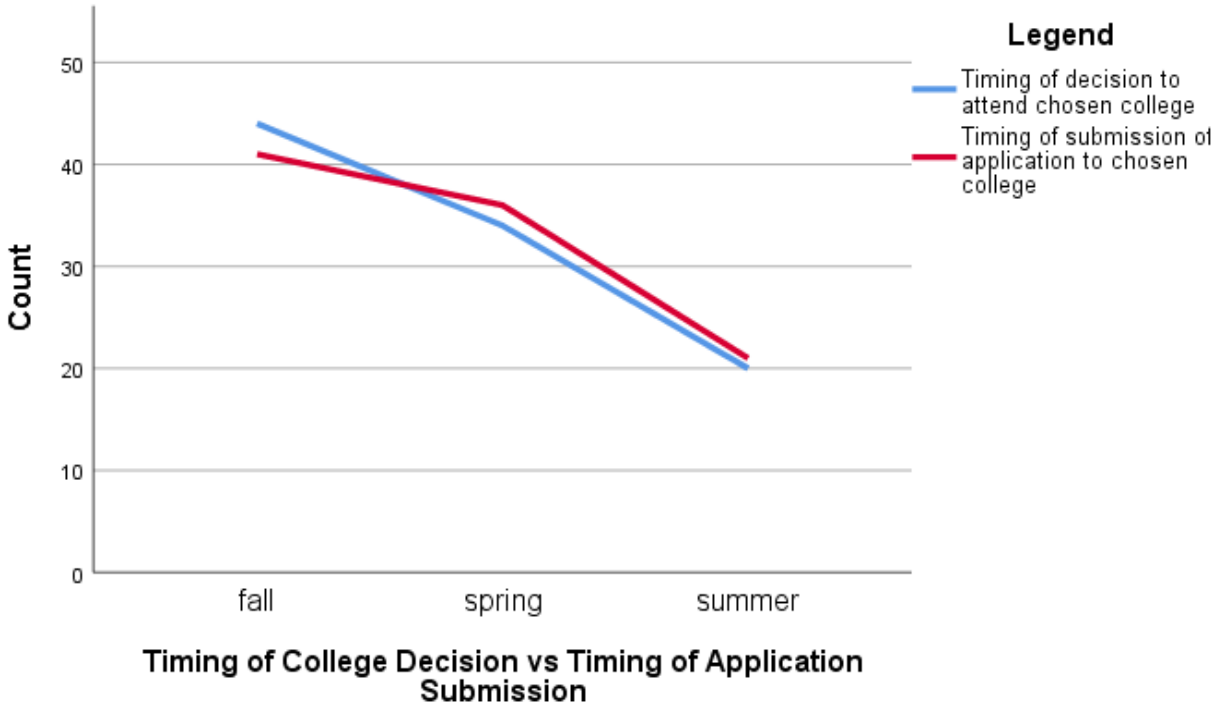

Figure 4. Line graphs comparing timing of decision to attend chosen college with timing of submission of application to chosen college (Survey Questions 20 and 21).

To summarize the student/family context data thus far, the surveyed demographic was primarily White, between the ages of 18 and 20, and two-thirds female. Human capital in terms of demand for college was understood as moderate with respect to academic readiness although more robust with respect to extracurricular activities. Human capital in terms of supply of resources was also understood as moderate to robust with only a third of the surveyed population living at home with parents and knowingly Pell Grant eligible, and nearly all survey participants attending college full-time. Lastly with respect to human capital, survey participants appeared to have done their cost/benefit homework, with over 95% on a degree path and three-quarters

understanding that their alternative to college was entering the workforce. The cultural capital of the survey participants was likewise strong, with three quarters of respondents having parents and/or siblings in college or having attended college and over half having always planned on attending college. Finally, in terms of social capital, survey data again suggested robustness: a) nearly ninety percent of respondents considered more than one college, b) over half actually applied to more than one college, and c) nearly half submitted their college application during the first semester of their senior year. In short, the student/family context for the surveyed population appeared to have depth and breadth.

School and community context. The school and community context of college choice concerns the availability, depth, and breadth of college information in students' school systems as well as the structural supports and barriers to college enrollment encountered by students in their local school and community environments (Perna, 2006a). Questions 1 and 2 provide background data on the survey participants' high schools with respect to type and size. In terms of high school type, 90% of students reported that they had graduated from a public high school in Montana, 5% that they had graduated from a private high school in Montana, and 4% that they had attended home school and then taken the High School Equivalency Test (HiSET). One percent of survey participants did not select a high school type option. No student selected the option *Withdrew from high school and earned a HiSET credential*. With regard to high school size, 33% attended a high school with a graduating class of 195 students of more (Montana Class AA for sports), 22% with a graduating class of between 75 and 194 (Montana Class A for sports), 18% with a graduating class of between 25 and 74 (Montana Class B for sports), and 19% with a graduating class of between 1 and 24 (Montana Class C for sports). Seven percent

responded that either they were unsure of the size of their high school graduation class or the question did not apply to them as they had attended home school.

Finally, as mentioned previously, two questions in the survey, Questions 22 and 23, were multiple response questions which captured information across several college choice contexts, including the school and community context. Descriptive results from these two questions are provided in a mixed context subsection found later in the Results section.

Higher education context. The higher education context of college choice involves three postsecondary dimensions which influence students' decision-making: a) passive engagement from institutions (college location), b) active engagement from institutions (marketing and recruitment), and c) institutional characteristics (i.e., program offerings and reputation) (Perna, 2006a). The Likert scale items in Question 25 focused on the higher education context. For Question 25, students were asked to rate the level of influence 16 college factors had on their decision to attend the college at which they were currently enrolled. The scale ran from one to five, with one being *Not at all influential* and five being *Extremely influential*. The 16 factors included the passive engagement factor of location, the active engagement factors of marketing and recruitment, and 13 institutional characteristic factors. Table 1 presents central tendency statistics and the standard deviation for the 16 factors, sorted from highest mean to lowest mean. Figure 5 presents histograms of the Likert scale responses for the 16 factors. Notably, the distributions of all but two of the factors (*Program offerings* and *College advertising*) were bimodal or trimodal. To assess whether the means from the factors differed significantly from the midpoint mean of 3.00 (*Somewhat influential*)—the expected mean if a normal distribution is assumed—one sample t-tests were conducted. Table 2 presents the results of the one-sample t-tests. The *Cost*, *Program offerings*, *Program quality*, and *Campus location* factors all had means

Table 1

Central Tendency Statistics and Standard Deviations for Likert Scale Responses to College Choice Factors (Survey Question 25)

College Factor	M	Median	Mode	SD
Cost	4.15	5	5	1.26
Program offerings	3.47	4	5	1.37
Program quality	3.42	4	4	1.31
Campus location	3.35	4	5	1.51
Financial aid availability	3.29	4	5	1.53
Educational facilities	3.15	3	3,5	1.30
Transferability of courses	3.12	3	5	1.48
College atmosphere	3.11	3	3	1.38
Campus size	3.00	3	1	1.44
College reputation	3.00	3	3	1.38
Campus safety	2.76	3	3	1.41
College website	2.24	2	1	1.26
College advertising	2.20	2	1	1.20
Availability of online courses	2.20	2	1	1.39
Campus activities	2.16	2	1	1.25
Campus athletics	1.88	1	1	1.44

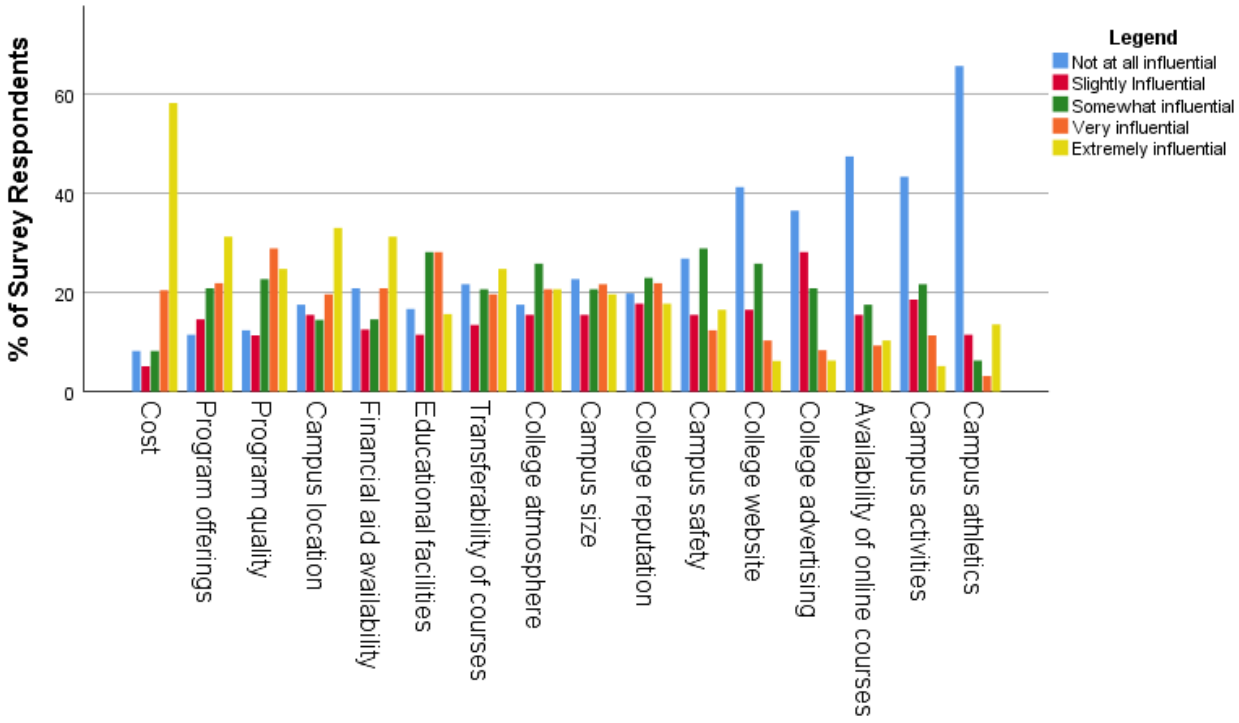

Figure 5. Histograms of Likert scale responses to college choice factors (Survey Question 25).

Table 2

One Sample T-Test Results for Means of Likert Scale Responses to College Choice Factors (Survey Question 25)

	Test Value = 3.00					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Cost	8.893	90	0.000	1.165	0.90	1.43
Program quality	3.359	90	0.001	0.462	0.19	0.73
Program offerings	3.312	90	0.001	0.473	0.19	0.76
Campus location	2.521	90	0.013	0.396	0.08	0.71
Financial aid availability	1.683	90	0.096	0.275	-0.05	0.60
Educational facilities	1.137	90	0.258	0.154	-0.11	0.42
Transferability of courses	0.698	90	0.487	0.110	-0.20	0.42
College atmosphere	0.682	90	0.497	0.099	-0.19	0.39
Campus size	0.073	90	0.942	0.011	-0.29	0.31
College reputation	-0.152	90	0.880	-0.022	-0.31	0.27
Campus safety	-1.781	90	0.078	-0.264	-0.56	0.03
Availability of online courses	-5.497	90	0.000	-0.802	-1.09	-0.51
Campus activities	-5.934	90	0.000	-0.780	-1.04	-0.52
College advertising	-6.056	90	0.000	-0.769	-1.02	-0.52
College website	-6.224	90	0.000	-0.813	-1.07	-0.55
Campus athletics	-8.040	90	0.000	-1.176	-1.47	-0.89

significantly higher than expected, while the *College website*, *College advertising*, *Availability of online courses*, *Campus activities*, and *Campus athletics* had means significantly lower than expected. Notably, the mean of the passive engagement factor *Campus location* was on the high end, while the means of the active engagement factors *Campus website* and *Campus advertising* were on the low end.

Mixed context questions. The student and family context, the school and community context, and the higher education context were all included in the responses to Questions 22 and 23.

Question 22 was a multiple response question, asking participants who helped them fill out the college application for the college which they now attended. Response options included four relating to the student/family context (*No one*, *Parent*, *Non-parent family member*, and *Friend*), two relating to the school/community context (*Guidance counselor from my high school* and *Teacher from my high school*), and one relating to the higher education context (*College representative*). Thirty percent of the respondents indicated that no one had helped them, that they had filled out the application on their own. Of the remaining 70%, 49% selected one individual as assisting them, 17% selected two individuals as assisting them, and the remaining 4% selected three individuals as assisting them. In terms of who assisted the students, help from parents predominated, with 51% responding that they had received assistance from a parent. The next highest category of college application assistance was high school guidance counselors with 18%, followed by *College representative* (10%), *Teacher from high school* (7%), *Non-parent family member* (5%), and, finally, *Friend* (4%). Summarizing Question 22 in terms of college choice context, 90% of respondents chose an individual from the student/family context, 25% chose an individual from the school/community context, and 10% chose an individual from the higher education context.

For Question 23, students were asked to rate the level of influence six types of individuals had on their decision to attend the college at which they were now enrolled. Response options included three individuals from the student/family context (*Parent*, *Non-parent family member*, and *Friend*), two from the school/community context (*Guidance counselor from my high school* and *Teacher from my high school*), and one from the higher education context (*College representative*). The Likert scale ran from one to five, with one being *Not at all*

influential and five being *Extremely influential*. Table 3 presents central tendency statistics and standard deviations on the six types of individuals of influence, sorted from highest mean to lowest mean. Figure 6 provides histograms for each of the response options. Notably, all of the frequency distributions are bimodal. To assess whether the means from the individuals of influence variable differed significantly from the midpoint mean of 3.00 (*Somewhat influential*) —the expected mean if a normal distribution is assumed—one sample t-tests were conducted. Table 4 presents the results of the one-sample t-tests. *Parents* was the only individual group with a mean significantly higher than expected, while all the other individual groups had means significantly lower than expected. Summarizing Question 23 in terms of college choice context, the three highest means came from the student/family context (*Parent, Friend,* and *Non-parent family member*); the second mean grouping included both the higher education and school/community context (*College Representative* and *High School Teacher*); and the lowest mean came from the school/community context (*High School Guidance Counselor*).

Exploration of Differences Results (Research Question 2)

The exploration of differences results builds on the descriptive results by investigating whether any differences exist among the described population and associated college choice factors when the population is disaggregated by two-year college governance model. As with the descriptive results, these results are organized by three college choice contexts: a) student and family, b) school and community, and c) higher education (Perna, 2006a). The disaggregation itself—that of governance model—belongs to Perna's final college choice context: the social, economic, and policy environment. Specifically, the exploration of differences revolves around public policy with respect to Montana's multivariate system of two-year higher education governance.

Table 3

Central Tendency Statistics and Standard Deviations for Likert Scale Responses to Influence of Individuals on College Decision (Survey Question 23)

Individual of Influence	M	Median	Mode	SD
Parent	3.52	4	5	1.49
Friend	2.66	2	1	1.53
Non-parent family member	2.60	3	1	1.48
College representative	2.28	2	1	1.34
High school teacher	2.26	2	1	1.33
High school guidance counselor	1.92	1	1	1.24

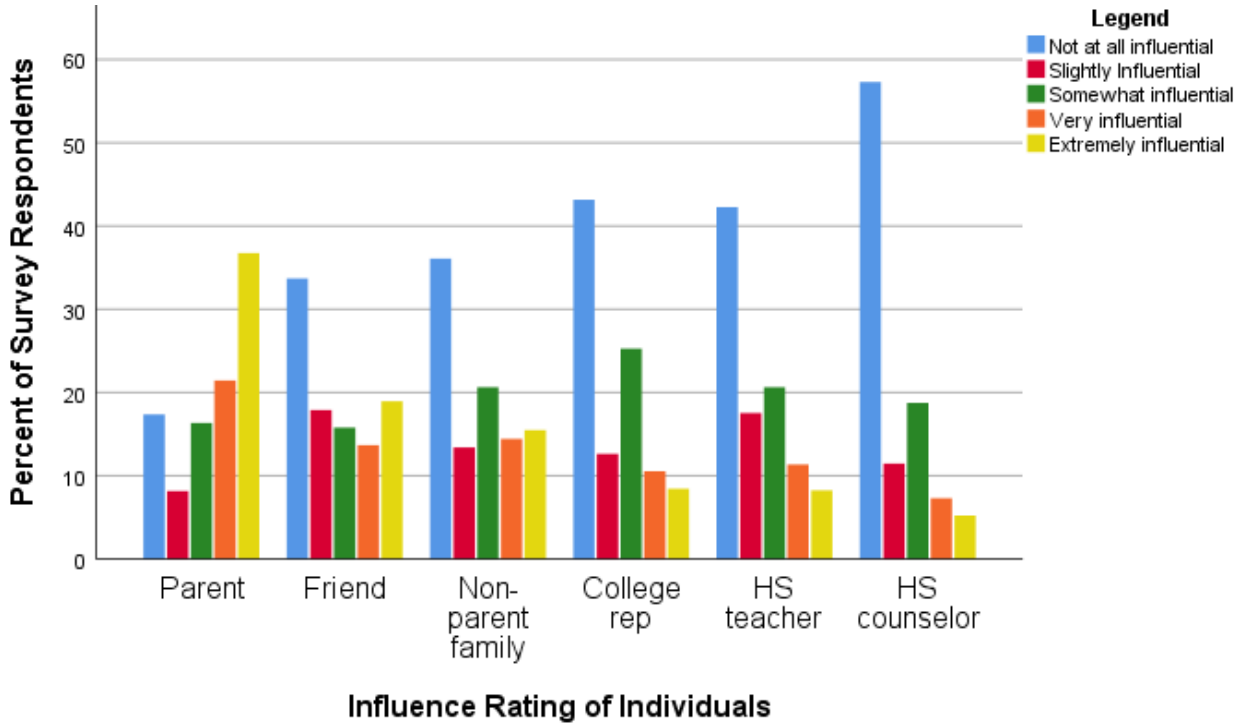

Figure 6. Histograms of Likert scale responses to influence of individuals on college decision (Survey Question 23).

Table 4

One Sample T-Test Results for Means of Likert Scale Responses to Influence of Individual Variable (Survey Question 23)

	Test Value = 3.00					
					95% Confid. Interval of the Difference	
Individual of Influence	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Parent	3.946	91	0.000	0.598	0.30	0.90
Friend	-2.415	91	0.018	-0.380	-0.69	-0.07
Non-parent family member	-2.684	91	0.009	-0.413	-0.72	-0.11
College representative	-5.138	91	0.000	-0.728	-1.01	-0.45
High school teacher	-5.385	91	0.000	-0.739	-1.01	-0.47
High school guidance counselor	-8.547	91	0.000	-1.098	-1.35	-0.84

Differences are explored among the three two-year governance models found in Montana: a) locally controlled community colleges, b) state-controlled, autonomous two-year colleges, and c) state-controlled, embedded two-year colleges. Of the 98 survey respondents who met the study criteria, 96 indicated which Montana two-year college they attended. Of these 96, 32 (33%) attended a locally controlled community college, 21 (22%) attended a state-controlled, autonomous two-year college, and 44 (45%) attended a state-controlled, embedded two-year college.

Student and family context differences. Understanding the student and family context of college choice begins with reporting basic demographic characteristics. In terms of gender, age, and race/ethnicity, while there were observable differences when data were disaggregated by governance model, there was only one finding of statistical significance. Observable differences included a) females favoring state-controlled, autonomous college, b) age trending younger at community colleges, and c) race/ethnicity most diverse at community colleges. The

only significant association, however, was between governance and gender, χ^2 (2) = 6.687, p = .038 (Likelihood Ratio and Exact Significance). The category and direction of association were determined by examining standardized residuals and comparing proportional differences between gender subgroups and governance types. The significant finding concluded that fewer male students than expected attended state-controlled, autonomous colleges than attended the two other types of colleges. The strength of the association was moderately low, Cramér's V = .246, p = .060.

For age, as tests of normality came back non-normal (Kolmogorov-Smirnov [K-S] and Shapiro-Wilk [S-W], p < .000), the Kruskal-Wallis Test for nonparametric data was used. However, as already mentioned, the test statistic for age was insignificant, H (2) = 3.344, p =.188. Race/ethnicity was captured via a multiple response question; consequently, disaggregated data were examined at the option level (count of responses per option) as a nominal variable and at the case level (count of options per response) as an interval variable. At the option level, none of the options met Pearson's Chi-square accuracy guideline that no more than 20% of the expected counts should be less than five (Field, 2013). To remedy this situation, Fisher's Exact Test was used for the option level data. Regardless, as already stated, there was no finding of significance between governance and race/ethnicity among any of the race/ethnicity options. At the case level, tests of normality came back non-normal (K-S and S-W, p < .000), so the Kruskal-Wallis Test for nonparametric data was used to examine association. Again, as previously noted, the test statistic for race/ethnicity at the case level was insignificant, H (2) = .591, p = .744.

From demographics, the student/family context of college choice turns to the human capital dimension and the student's demand for higher education. High school grade point

average (GPA), rigor of high school coursework, and participation in high school extracurricular activities are considered indicative of a student's demand for postsecondary education (Engberg & Wolniak, 2014; Wang et al., 2014). When survey data for these three variables were disaggregated by governance model, graphs showed observable differences, however statistical tests for association all resulted in no findings of significance. Observable differences included a) GPA is highest for students attending state-controlled, embedded two-year colleges, b) four years of math is most common among community college students while honors and dual enrollment courses are most common among state-controlled, autonomous college students, c) state-controlled, autonomous college students attempt the most rigorous high school schedules, and d) state-controlled, autonomous college students are the least involved in extracurricular activities during high school. Statistical tests conducted included Kruskal-Wallis for high school GPA (examined as an ordinal variable) and Likelihood Ratio (Chi-square family of tests) and Kruskal-Wallis for both high school coursework and extracurricular activities (nominal data when count of response per option and interval data when count of options per response). Also, K-S and S-W tests for normality were run on all disaggregated interval variable data; all had $p < .000$ values, indicating non-normal distributions and thus the decision to use the Kruskal-Wallis Test for nonparametric data.

Another aspect of the human capital dimension of the student/family context of college choice is the student's access to financial resources. Survey questions which explored student finances included variables pertaining to distance between student's college and hometown, student's living arrangements while at college, student's enrollment status, and student's Pell Grant eligibility. Bar graphs of the relevant survey data disaggregated by governance model showed observable differences with respect to college distance from hometown and residence

while at college; observable differences for enrollment status and Pell Grant eligibility were less convincing. Statistical tests for association proved non-significant for all variables except for residence while at college. Notably, for the residence while at college variable, cases from students who attended the three colleges which do not provide on-campus housing were excluded from statistical testing (these colleges included the two state-controlled, autonomous colleges and one state-controlled, embedded college). The Chi-square test statistic measuring the association between governance and college residence was χ^2 (2) = 12.788, p = .002 (Likelihood Ratio and Exact Significance). The category and direction of association were determined by examining standardized residuals and comparing proportional differences between residence subgroups and governance models. The significant finding concluded that fewer community college students than expected *lived off campus but not with parents* than *lived on campus*, while at state-controlled, embedded colleges, fewer students than expected *lived on campus* than *lived off campus but not with parents*. The strength of the association was moderate, Cramér's V = .407, p = .002. For the remaining access to financial resources variables, the statistical tests conducted were the Kruskal-Wallis Test for distance between college and hometown (an ordinal variable which failed K-S and S-W tests for normality) and the Likelihood Ratio Chi-square Test for enrollment status and Pell Grant eligibility (both nominal variables).

The final component of the human capital dimension of the college choice context of student/family concerns the student's understanding of the costs versus the benefits of college attendance. The survey question asking students about other after-high-school options they considered besides attending college was meant to gauge students' understanding of the cost of college (figuratively, speaking). Alternatively, the survey question asking students about their college goal was meant to assess students' understanding of the benefits of a college degree.

Graphs of student responses to these two cost/benefit questions, disaggregated by governance model, indicated some response variance among governance models. Community college students considered more after-high-school options than students from the state-controlled colleges. Community college students were more aligned with a four-year college goal than their counterparts at the state-controlled colleges. However, statistical tests of significance did not bear out these observations. For the multiple response question on after-high-school options, disaggregated data were examined at the option level (count of responses per option) as a nominal variable and at the case level (count of options per response) as an interval variable. At the option level, the Likelihood Ratio Chi-square Test was conducted on all variables, except for the option *Other Workforce Training*. As this option did not meet the Chi-square accuracy guideline that no more than 20% of the expected counts should be less than five, Fisher's Exact Test, a remedy for this situation, was conducted instead. At the case level, tests of normality came back non-normal (K-S and S-W, all $p < .011$), so the Kruskal-Wallis Test for nonparametric data was used to examine association. Regarding students' college goal, this was a nominal variable. As data from this variable also failed to meet the Chi-square accuracy guidelines, Fisher's Exact Test was conducted, with the result, as mentioned above, non-significant.

Another dimension of the student/family context of college choice is cultural capital. A family's access to cultural capital is thought to influence a child's overall interest in college attainment. Survey questions on when a student decided to attend college and whether a student's parent or sibling attended college were meant to help appraise a student's access to cultural capital. Bar graphs for these survey questions, disaggregated by governance model, showed some observational differences among governance model and student cultural capital.

Parents of state-controlled, autonomous college students appeared more likely to have attended college than parents of college students from the other governance models. Community college students appeared more likely to either always have been interested in college or to have decided at the last minute to attend college than college students from the other governance models. With respect to siblings, once the data was further disaggregated by students who either have college-age siblings or do not, observational differences were minimized. Regardless, statistical tests for association, no matter the observations, resulted in non-significance for all cultural capital variables disaggregated by college governance model. Table 5 provides Chi-square test statistic data for all these nominal variables.

The final component of the student/family context of college choice is social capital. A family's access to social capital is understood to influence a student's access to information about college and assistance with the college process (Perna, 2006a). Four questions on the survey gathered social capital data: a) what types of colleges did students consider attending,

Table 5

Test Statistics and Significance Values for Governance Model Comparisons among Cultural Capital Variables

Cultural Capital Variables	Total N	Likelihood Ratio Value	Fisher's Exact Value	df	Asymp-totic Sig.(2-sided test)	Exact Sig. (2-sided)
When Made Attend College Decision	96		8.406			0.170
Parent Attends/Attended College	96		5.712			0.167
Sibling Attends/Attended College	69	0.850		2	0.654	0.670

b) to what types of colleges did students submit applications, c) when were students certain about their decision to attend the college at which they matriculated, and d) when did students submit their application to the college at which they matriculated. Bar graphs for these survey questions, disaggregated by governance model, showed some observable differences among governance model and student social capital: a) students from state-controlled, autonomous colleges gave more thought to other types of colleges, especially other two-year and four-colleges in Montana, than students attending community colleges and state-controlled, embedded colleges, b) students from community colleges submitted fewer college applications overall and tended to submit an application only to their community college in comparison to more overall college application submission behavior from students matriculating at the state-controlled colleges, c) students matriculating at community colleges finalized their college decision and submitted their college applications later than students attending the state-controlled colleges.

Despite the observable differences, statistical tests for association were non-significant save for two incidences. With respect to colleges students considered attending, there was a finding of significance for the option *2-year colleges in Montana*, χ^2 (2) = 11.905, p = .003 (Likelihood Ratio and Exact Significance). The strength of this association was moderately low, Cramer's V = .346, p = .003. The category and direction of association was determined by examining standardized residuals and comparing proportional differences between college consideration subgroups and governance models. The significant finding concluded that more community college students than expected considered attending a two-year college in Montana other than the two-year college at which they ultimately matriculated.

With respect to submission of college applications, there was a finding of significance for the option *No, I only applied to the college I'm currently attending*, χ^2 (2) = 6.850, p = .036

(Likelihood Ratio and Exact Significance). The strength of this association was low, Cramer's V = .266, p = .034. The category and direction of the association was, again, determined by examining standardized residuals and comparing proportional differences between application submission subgroups and governance models. The significant finding concluded that more community college students than expected only submitted a college application to the college at which they matriculated. For Chi-square and Kruskal-Wallis test statistics on the remaining social capital variables see Table 6 (as mentioned above, all of these associations were found to be non-significant).

Lastly, two questions in the survey, Questions 22 and 23, were multiple response questions which captured information across several college choice contexts, including the student/family context. Exploration of differences results from these two questions are provided in a mixed context differences subsection found later in the Results section

To summarize the exploration of differences results within the student/family context thus far, the primary finding was that despite observed differences when data were graphed, differences of statistical significance were few. In terms of demographics, male students were less likely to attend the state-controlled, autonomous two-year colleges than the other two types of two-year colleges. In terms of the human capital component of the student/family context, the only difference of statistical significance involved a question meant to gauge access to resources. Namely, community college students were more likely to live *on campus* than *off campus but not with parents*, while state-controlled, embedded two-year college students were more likely to live *off campus but not with parents* than to live *on campus.* There were no findings of significance in the disaggregation of survey data relating cultural capital. Finally, with respect to social capital, the only findings of significance involved community college students.

Table 6

Test Statistics and Significance Values for Governance Model Comparisons among Social Capital Variables

Social Capital Variables	Kruskal-Wallis Test Statistic	Likeli-hood Ratio Value	Fisher's Exact Value	df	Asymp-totic Sig.(2-sided test)	Exact Sig. (2-sided)
Other Colleges Considered Options						
Only considered college at which now enrolled			2.488			0.318
Also considered 2-yr colleges outside MT		0.349		2	0.840	0.878
Also considered 4-yr colleges in MT		1.692		2	0.429	0.457
Also considered 4-yr colleges outside MT		0.282		2	0.868	0.885
No. of other colleges-considered options chosen	4.989[a]			2	0.083	
Other Applications Submitted Options						
Also applied to other 2-yr colleges in MT			1.731			0.462
Also applied to other 2-yr colleges outside MT			2.795			0.233
Also applied to 4-yr colleges in MT		5.048		2	0.080	0.096
Also applied to 4-yr colleges outside MT			0.524			0.800
No. of other application-submission options chosen	4.512[a]			2	0.105	
Certain about decision to attend college at which now enrolled			8.258			0.215
Submitted application to college at which now enrolled		8.142		4	0.087	0.098

a. The test statistic is adjusted for ties.

Community college students were more likely to have considered attending another two-year college and were more likely to have only submitted a college application to the school at which they ultimately matriculated than students from the state-controlled two-year colleges.

School and community context differences. The school and community context of college choice comprises two dimensions: a) the depth and breadth of college-going resources available to students via their K-12 system and b) the college-going barriers and supports encountered by students from their communities. Survey questions about the type and size of students' high schools aimed to provide insight on the school and community context that affected the surveyed students. When disaggregated by governance model, observable differences were minimal with respect to high school type but noteworthy with respect to high school size. Bar graphs comparing high school size suggested that students attending state-controlled colleges, especially the autonomous colleges, were more likely to have attended larger high schools and that students attending community colleges were more likely to have attended a balanced mix of high school sizes. Despite these observed differences for high school size, test statistics for both high school type and high school size were non-significant: high school type, $\chi^2 = 2.317$, $p = .784$; high school size, $\chi^2 = 8.655$, $p = .188$ (Fisher's Exact Test and Exact Significance).

As mentioned previously, two questions in the survey, Questions 22 and 23, were multiple response questions which captured information across several college choice contexts, including the school/community context. Exploration of differences results from these two questions are provided in a mixed context differences subsection found later in the Results section.

Higher education context differences. The higher education context of college choice

focuses on the active and passive engagement of postsecondary institutions in attracting students combined with students' preferences for institutional characteristics. Active engagement is understood as recruiting and marketing while passive engagement is understood as location. Survey data on the higher education context comes primarily from a series of 16 Likert scale items asking students to rate the level of influence (scale of 1 to 5, with 1 low and 5 high) different institutional factors had on their college decision. When Likert scale item means are disaggregated by governance model, some similarities and differences were observed (Table 7): a) students from all governance types reported *Cost* as the factor having the greatest influence on their college decision, b) students from all governance types reported *College Activities* and *College Website* as having little influence on their college decision, c) variance from the Total Mean appeared greatest among *Availability of Online Courses, Campus Athletics, Campus Size,* and *Transferability of Courses*. After checking for normality (no factor exhibited normality across all three governance models using the K-S and S-W tests), the Kruskal-Wallis test was run on all the disaggregated data to assess whether the governance groups represented different populations. The test statistics were significant for four of the factors and non-significant for the remaining 12 factors (Table 8). As suggested from observations of the means, significance was found among *Availability of Online Courses, Campus Athletics, Campus Size,* and *Transferability of Courses*. Students from state-controlled, autonomous colleges ranked *Availability of Online Courses* as significantly more influential in their college decision than did students from the two other college types. Students from community colleges ranked *Campus Athletics* as significantly more influential in their college decision than did students from state-controlled, autonomous colleges. Students from state-controlled, autonomous colleges ranked *Campus Size* as significantly more influential in their college decision than did students from

Table 7

Means, Medians, Modes, and Standard Deviations for Institutional Factors of Influence When Disaggregated by Governance Model, Sorted by Descending Total Mean

Institutional Factors of Influence	Governance Model: Community College				State-Controlled, Autonomous College				State-Controlled, Embedded College				Total			
	M	Mdn	Mode	SD	M	Mdn	Mode	SD	M	Mdn	Mode	SD	M	Mdn	Mode	SD
Cost	4.41	5	5	0.98	4.48	5	5	1.03	3.86	4	5	1.42	4.18	5	5	1.23
Program offerings	3.39	4	4	1.26	3.29	3	5	1.49	3.67	4	5	1.37	3.49	4	5	1.36
Program quality	3.84	4	4	1.10	3.33	3	3	1.06	3.21	3	5	1.49	3.44	4	4	1.30
Campus location	3.29	3	5	1.55	3.81	4	5	1.50	3.23	3	5	1.46	3.38	4	5	1.50
Fin aid availability	3.48	4	5	1.46	3.48	4	5	1.40	3.07	3	5,1	1.63	3.30	4	5	1.52
Transfer of courses	3.45	4	4	1.23	4.00	4	5	1.05	2.56	2	1	1.55	3.17	3	5	1.46
Ed facilities	3.42	3	3	1.29	3.10	3	3	1.04	3.00	3	4	1.40	3.16	3	3	1.29
Coll atmosphere	3.35	4	4	1.33	3.00	3	2,4	1.45	3.02	3	3	1.41	3.13	3	3	1.39
Campus size	3.19	3	5	1.51	3.52	4	3,5	1.29	2.60	3	1	1.40	3.00	3	1	1.45
College reputation	3.07	3	4	1.31	2.90	3	1	1.48	3.00	3	3	1.43	3.00	3	3	1.39
Campus safety	2.81	3	3	1.38	3.00	3	2,5	1.48	2.60	3	1,3	1.42	2.76	3	3	1.41
College website	2.42	2	1	1.31	2.57	3	3	1.40	1.98	2	1	1.14	2.25	2	1	1.27
Avail online crses	1.91	1	1	1.35	3.10	3	3	1.45	2.00	1	1	1.25	2.21	2	1	1.40
Coll advertising	2.39	2	2	1.33	2.15	2	1	1.14	2.09	2	1	1.15	2.20	2	1	1.21
Campus activities	2.23	2	1	1.28	1.81	1	1	1.03	2.28	2	1	1.33	2.16	2	1	1.26
Campus athletics	2.55	1	1	1.80	1.19	1	1	0.60	1.74	1	1	1.27	1.88	1	1	1.45

Table 8

Results of Hypothesis Testing Using Kruskal-Wallis Test on Institutional Factors of Influence When Disaggregated by Governance Model

Institutional Factors of Influence	N	Kruskal-Wallis Test Statistic	df	Asymptotic Sig.(2-sided test)
Availability of online courses	**95**	**11.048**	**2**	**0.004**
Campus activities	95	1.915	2	0.384
Campus athletics	**94**	**10.012**	**2**	**0.007**
Campus location	95	2.521	2	0.284
Campus safety	95	1.08	2	0.583
Campus size	**95**	**6.412**	**2**	**0.041**
College advertising	94	0.803	2	0.669
College atmosphere	95	1.265	2	0.531
College reputation	94	0.167	2	0.920
College website	95	3.488	2	0.175
Cost	96	5.375	2	0.068
Educational facilities	94	1.69	2	0.430
Financial aid availability	94	1.392	2	0.499
Program offerings	94	1.539	2	0.463
Program quality	95	4.165	2	0.125
Transferability of courses	**95**	**14.457**	**2**	**0.001**

All test statistics adjusted for ties; null hypothesis rejected for factors in bold text.

state-controlled, embedded colleges. Finally, students from state-controlled, embedded colleges ranked *Transferability of Courses* as significantly less influential in their college decision than did students from the two other college types. Table 9 provides the pairwise comparison test statistics for interpretation of difference among the governance groups.

As a way of examining the college factor data as a whole for each governance type, the factor data were sorted by descending mean within each college group. Then the factors were assigned a rank from highest mean to lowest mean for each college group. The highest mean was assigned 1, while the lowest mean was assigned 16. Table 10 presents the raw data for the three

Table 9

Pairwise Comparison Test Statistics for Availability of Online Courses, Campus Athletics, Campus Size, and Transferability of Courses When Disaggregated by Governance Model

Sample 1—Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.[a]
Availability of online courses					
Community College—State-Controlled, Embedded College	-2.743	6.078	-0.451	0.652	1.000
Community College—State-Controlled, Autonomous College	-22.647	7.275	-3.113	**0.002**	**0.006**
State-Controlled, Embedded College—State-Controlled, Autonomous College	19.905	6.923	2.875	**0.004**	**0.012**
Campus athletics					
State-Controlled, Autonomous College—State-Controlled, Embedded College	-11.298	6.139	-1.840	0.066	0.197
State-Controlled, Autonomous College—Community College	20.503	6.492	3.158	**0.002**	**0.005**
State-Controlled, Embedded College—Community College	9.205	5.439	1.693	0.091	0.272
Campus size					
State-Controlled, Embedded College—Community College	11.015	6.357	1.733	0.083	0.249
State-Controlled, Embedded College—State-Controlled, Autonomous College	16.932	7.183	2.357	**0.018**	0.055
Community College—State-Controlled, Autonomous College	-5.918	7.625	-0.776	0.438	1.000
Transferability of courses					
State-Controlled, Embedded College—Community College	15.560	6.351	2.450	**0.014**	**0.043**
State-Controlled, Embedded College—State-Controlled, Autonomous College	25.898	7.176	3.609	**0.000**	**0.001**
Community College—State-Controlled, Autonomous College	-10.337	7.618	-1.357	0.175	0.524

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is .05. Bold text indicates null hypothesis is rejected.

a. Significance values have been adjusted by the Bonferroni correction for multiple tests.

Table 10

Raw Data for Ranked Means of Institutional Factors of Influence When Disaggregated by Governance Model

Community College		State-Controlled, Autonomous College		State-Controlled, Embedded College	
Instit. Factors of Influence	Mean	Instit. Factors of Influence	Mean	Instit..Factors of Influence	Mean
Cost	4.41	Cost	4.48	Cost	3.86
Program quality	3.84	Transferability of courses	4.00	Program offerings	3.67
Financial aid availability	3.48	Campus location	3.81	Campus location	3.23
Transferability of courses	3.45	Campus size	3.52	Program quality	3.21
Educational facilities	3.42	Financial aid availability	3.48	Financial aid availability	3.07
Program offerings	3.39	Program quality	3.33	College atmosphere	3.02
College atmosphere	3.35	Program offerings	3.29	Educational facilities	3.00
Campus location	3.29	Educational facilities	3.10	College reputation	3.00
Campus size	3.19	Avail. of online courses	3.10	Campus safety	2.60
College reputation	3.07	Campus safety	3.00	Campus size	2.60
Campus safety	2.81	College atmosphere	3.00	Transferability of courses	2.56
Campus athletics	2.55	College reputation	2.90	Campus activities	2.28
College website	2.42	College website	2.57	College advertising	2.09
College advertising	2.39	College advertising	2.15	Avail. of online courses	2.00
Campus activities	2.23	Campus activities	1.81	College website	1.98
Avail. of online courses	1.91	Campus athletics	1.19	Campus athletics	1.74

ranked sets. Friedman's ANOVA was then used to test for differences among the three groups. The test statistic was significant, χ^2 (15) = 36.235, p = .002 (Friedman's ANOVA and Asymptotic Significance), indicating that the three sets of ranked college factors were from separate populations.

Mixed context differences. This final results section disaggregates survey data which came from two survey questions that spanned multiple college choice contexts. Both questions asked students about individuals who had been involved in their college choice process. One question focused on who had helped students with their college application while the other question focused on who had influenced students in their college decision. Individuals represented in both questions included a) parents, non-parent family members, and friends from the student/family context, b) high school teachers and high school guidance counselors from the school and community context, and c) college representatives from the higher education context. The college application question was a multiple response question while the college influence question had Likert scale responses (scale of 1 to 5, with 1 no influence and 5 high influence). Observations from bar graphs of the college application question suggested that little difference existed among the three groups with respect to either who assisted students with their applications (analysis of responses per option) or how many individuals assisted students with applications (analysis of responses per case). Test statistics bear out these observations. Chi-square tests were conducted on the responses per option variables, and a Kruskal-Wallis test was conducted on the responses per case aggregated variable (normality tests indicated non-normal distributions, K-S and S-W tests; all $p \leq .034$). No test statistic was significant in any of the incidences.

With respect to the means from the Likert scale items of individuals who influenced students' college decisions, all groups ranked *Parents* as most influential. The influence of *Friends* and *College Representatives* appeared the most varied among the groups. Table 11 presents comparative central tendency data for influence of individual variables. After checking for normality (no individual option exhibited normality using the K-S and S-W tests; all $p \leq .014$), a Kruskal-Wallis test was run on each individual option to assess whether the governance groups represented different populations (Table 12). The test statistic was only significant for *College Representative*. A pairwise comparison of the *College Representative* option indicated that students from the state-controlled, embedded colleges reported being significantly less influenced in their college decision by college representatives than students from community colleges (Table 13).

Finally, as with the Likert scale data concerning institutional factors of influence, the means from the individual of influence question were ranked within each governance group (Table 14), and then a Friedman's ANOVA was used to test for differences among the ranked groups. The test statistic was significant, χ^2 (5) = 12.333, p = .030 (Friedman's ANOVA and Asymptotic Significance), indicating that the three sets of ranked individuals of influence means were from separate populations. In terms of college choice contexts, the help and influence of individuals from the student/family context consistently outperformed the help and influence of individuals from the school/community and higher education contexts across all three governance models. The help and influence of individuals from the higher education context varied across governance models, showing the least influence among students from state-controlled, embedded colleges. Differences in the ranking of individual influence across

Table 11

Means, Medians, Modes, and Standard Deviations for Individuals of Influence When Disaggregated by Governance Model, Sorted by Descending Total Mean

Individuals of Influence	Governance Model: Community College				State-Controlled, Autonomous College				State-Controlled, Embedded College				Total			
	M	Mdn	Mode	SD	M	Mdn	Mode	SD	M	Mdn	Mode	SD	M	Mdn	Mode	SD
Parent	3.84	4	5	1.37	3.52	4	5	1.54	3.30	4	5	1.50	3.52	4	5	1.49
Non-parent family member	2.84	3	1	1.63	2.57	3	1	1.50	2.40	2	1	1.37	2.66	2	1	1.53
Friend	3.06	3	5	1.57	2.14	1	1	1.42	2.66	2	1	1.53	2.60	3	1	1.48
HS counselor	2.03	1	1	1.38	1.62	1	1	0.97	2.02	1	1	1.26	2.28	2	1	1.34
HS teacher	2.48	2	1	1.34	2.05	1	1	1.32	2.14	2	1	1.34	2.26	2	1	1.33
College rep.	2.71	3	1	1.49	2.38	2	1	1.36	1.88	1	1	1.14	1.92	1	1	1.24

Table 12

Results of Hypothesis Testing using Kruskal-Wallis Test on Individuals of Influence When Disaggregated by Governance Model

Individuals of Influence	Total N	Kruskal-Wallis Test Statistic	df	Asymptotic Sig. (2-sided test)
Parent	96	2.704	2	0.259
Non-parent family member	96	1.476	2	0.478
Friend	93	4.817	2	0.090
HS guidance counselor	94	1.516	2	0.469
HS teacher	95	2.229	2	0.328
College representative	**93**	**6.269**	**2**	**0.044**

All test statistics adjusted for ties; null hypothesis rejected for individual in bold text.

Table 13

Pairwise Comparison Test Statistic for College Representative When Disaggregated by Governance Model

Sample 1—Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.[a]
College Representative					
State-Controlled, Embedded College—State-Controlled, Autonomous College	9.539	6.860	1.390	0.164	0.493
State-Controlled, Embedded College—Community College	14.941	6.085	2.455	**0.014**	**0.042**
State-Controlled, Autonomous College—Community College	5.402	7.225	0.748	0.455	1.000

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is .05. Bold text indicates null hypothesis is rejected.

a. Significance values have been adjusted by the Bonferroni correction for multiple tests.

Table 14

Raw Data for Ranked Means of Individuals of Influence When Disaggregated by Governance Model

Community College		State-Controlled, Autonomous College		State-Controlled, Embedded College	
Individuals of Influence	M	Individuals of Influence	M	Individuals of Influence	M
Parent	3.84	Parent	3.52	Parent	3.30
Friend	3.06	Non-par. fam. mem.	2.57	Friend	2.66
Non-par. fam. mem.	2.84	College rep.	2.38	Non-par. fam. mem.	2.40
College rep.	2.71	Friend	2.14	HS teacher	2.14
HS teacher	2.48	HS teacher	2.05	HS counselor	2.02
HS counselor	2.03	HS counselor	1.62	College rep.	1.88

governance models was deemed significant, indicating that the overall influence of individuals in college choice varied by governance model.

Discussion

This section provides commentary on the descriptive results and exploration of differences results in terms of the study's two research questions. First, the descriptive results are discussed and summarized in reference to Research Question 1: why do traditional-age students in Montana choose to enroll at a two-year college the fall semester after their high school graduation? Second, the exploration of differences results are discussed and summarized in reference to Research Question 2: does a two-year college's governance model impact college choice behavior? Both questions are posed with Montana as the backdrop. Both questions are considered in terms of the college choice contexts of a) student and family, b) school and community, and c) higher education (Perna, 2006a).

Research Question 1

The descriptive results from the survey provide a complex picture of the college choice dynamics influencing students who enroll at Montana two-year colleges the fall semester after their high school graduation. The following discussion considers and synthesizes the college choice behavior of these students, organized around the first three layers of Perna's (2006a) college choice conceptual framework: a) student and family context, b) high school and community context, and c) higher education context.

Student and family context: Demographics. In terms of the demographic aspect of the student/family context of college choice, the students themselves are likely to be female, White, and between the ages of 18 and 20. Montana University System (MUS) data for two-year colleges for 18 to 24 year-olds[1] reports a student population of 57% female and 81% White (Montana University System, 2018). The survey demographics generally agree with the MUS demographics, with the survey somewhat skewed in favor of female participants.

Student and family context: Human capital. Demand for higher education as indicated by high school grade point average (GPA), high school coursework, and high school extracurricular activities is somewhat mixed among the studied population. Nearly all students have a GPA in the A or B range, however, less than half complete four years of high school math or take an Advanced Placement (AP) or honors course. Less than a quarter take a dual enrollment course. A full 25% engage in none of these college-going coursework markers. Involvement in at least one extracurricular activity is the norm, with more than half of the students involved in at least three extracurricular activities. Two thirds of students work during high school and two thirds participate in athletics; just over half the students indicate

[1] MUS data is not further disaggregated by age.

involvement in a volunteer activity. Students' level of extracurricular activity participation is more robust than their engagement in college-preparation coursework. While relatively high grade-point averages and extracurricular activity levels are indicative of college demand, the more limited participation levels in college preparatory coursework suggests weaker college demand (Engberg & Wolniak, 2014; Joshi et al., 2009; Kim & Nuñez, 2013; Perna & Kurban, 2013). It may be that with nearly 40% of the students attending smaller high schools (less than 75 students per graduating class), the availability of college preparatory coursework is inadequate to the interest.

The students' supply of resources for higher education is also somewhat mixed, with indicators suggesting a varied population. Almost half of the students attend a Montana two-year college 100 or more miles from their hometown. As distance between college and hometown is generally understood to increase with access to resources (Rodriguez & Martell, 2016; Scott et al., 2015; Swiger, 2014), this statistic is surprising, although perhaps less so given the reality of Montana's vast geography. Nearly two-thirds of the student population are not living at home with parents while attending college. As living with parents during college is again considered a way to conserve resources (Rodriguez & Martell, 2016; Swiger, 2014), this is also an unexpected finding for two-year college students. Though, when paired with the distance statistic, this finding, too, is less surprising; a distance of 100 or more miles between college and hometown precludes living at home with parents. Over three-quarters of the students attend college full-time; another marker of access to resources (Cohen et al., 2013). Finally, just over one third of the students are sure they are eligible for a Federal Pell Grant, leaving nearly two-thirds of the students either ineligible or unsure of their eligibility. While the one third number for Pell Grant eligibility may seem lower than what would be anticipated for a student population of presumed

limited resources, this number actually aligns with national two-year college data. Despite the prevalence of low-income students at two-year colleges, only 34% of two-year college students received Pell Grants in 2015-2016—a percentage which was lower than the Pell Grant percentage for both public and non-profit private four-year colleges (Community College Research Center, n.d.). This anomaly is generally attributed to the complexity and confusion of the Pell Grant income verification paperwork which results in a disproportionate number of two-year college students simply giving up on the documentation process and forgoing grant aid (Smith, 2018).

The last facet of the human capital dimension of college choice is the students' benefit versus cost understanding of college attendance. Over 95% of Montana's immediate-college-going two-year cohort is attending college with an educational goal. Students' goals are nearly evenly divided between earning a four-year bachelor's degree and earning an applied (career and technical) two-year degree. Students appear clear on why they are at college, suggesting they understand the benefits of college attendance and completion. In terms of students' understanding of what they have forgone by attending college, nearly three-quarters report they considered other options. Moreover, nearly two-thirds of those who considered other options considered working or enlisting in the military. As a primary cost of college is lost wages, the majority of students appears to also understand the 'cost' calculation of college attendance (Perna, 2006a; Perna & Kurban, 2013).

Student and family context: Cultural capital and social capital. Montana's immediate-college-going two-year students possess a high level of college choice cultural capital. Nearly three-quarters of the students report parents who attend or attended college. This number exceeds the general college attainment rate in Montana for the population 25 years of

age and older, of which 64% have at least some college (U.S. Census Bureau, 2017). Of the students who have college-age siblings, again, nearly three-quarters of these siblings attend or attended college. In terms of when students decide about attending college, over half report that they have always planned on attending college, and by the start of high school this number is over two-thirds. Finally, students unequivocally rate parents as the most influential individuals in their college decision process. Notably, even the individuals who rank a distant second to the influence of parents—namely friends and non-parent family members—are also from the student/family context. The home environment appears rich with college exposure and validation for the majority of Montana's immediate-college-going two-year students. While the importance of parents in the college choice process is well documented across institutional types, the robustness of cultural capital among Montana's traditional-age two-year college students was unexpected (Bers, 2005; Bers & Galowich, 2003; Engberg & Wolniak, 2014; Kim & Nuñez, 2013; Mwangi, 2015; Rowan-Kenyon et al., 2008; Scott et al., 2015).

Social capital is also robust among Montana's immediate-college-going two-year cohort. Nearly 90% of the students consider more than one college option, with nearly two-thirds considering a four-year college option and half considering another two-year college option. In terms of actual college application submissions, over half apply to a second college in addition to the two-year college at which they ultimately matriculate. Of this half, the majority submit a second application to a four-year college rather than to another two-year. In terms of the timing of their specific college decision and of the timing of their specific college application, over two-fifths are committed by the fall of their senior year, with only one-fifth waiting to commit until the summer after graduating from high school. Finally, when it comes to help with their college application, over half the students report receiving assistance from a parent while a third report

managing the application process without any outside assistance. This rate of student/family context assistance is two to four times higher than the level of assistance received outside the student/family context. Again, the home environment for Montana's immediate-college-going two-year students appears rich in college information and assistance and in the development of college-informed behaviors. This finding of strong social capital, like the finding of strong cultural capital, is surprising among a two-year college population (Bers, 2005; Bers & Galowich, 2003; Engberg & Wolniak, 2014; Kim & Nuñez, 2013; Mwangi, 2015; Rowan-Kenyon et al., 2008; Scott et al., 2015).

School and community context. The influence of the school and community context of college choice on immediate-college-going two-year students in Montana appears to be limited. Students report little to minimal assistance with college applications and influence on college decisions from high school teachers and guidance counselors, especially when compared to the assistance and influence from parents. Students do credit high school guidance counselors as being more available than high school teachers and college representatives in terms of assistance with college applications; however, students rate high school guidance counselors as the least influential of any individual in terms of their college decision-making process. Nearly 60% of students rate high school guidance counselors as *Not at All Influential* in their college decision-making process. While this statistic is unfortunate, it is not unexpected with respect two-year college students (Engberg & Wolniak, 2014; Hill, 2008; Perna, 2006a; Perna, Rowan-Kenyon, Thomas, et al., 2008; Pike & Robbins, 2016; Rowan-Kenyon et al., 2011).

High school type and size also seem to lack impact on student's college choice behavior. Regarding high school type, Montana's immediate-college-going two-year cohort generally reflects the statewide high school experience. Observed high school-type percentages vary

minimally between the two-year cohort and the general population of Montana high school students (Table 15). With respect to high school size, a difference between immediate-college-going two-year students and the general high school population is observed for students who attend high schools with graduating classes larger than 195 students (Table 16). However, a Chi-square goodness of fit test does not result in a finding of significance, $\chi^2(3) = 7.116$, $p = 0.067$ (Exact Significance). Despite observed data suggesting that two-year college matriculation is less likely when a student attends a large high school, statistical testing does not support this conclusion. Notably, in Montana the larger high schools tend to be located in wealthier, more urban settings than the smaller high schools (Montana High School Association, 2019; Montana University System, 2018; U.S. Census Bureau, 2010). Previous research indicates that high school socioeconomic context moderates college choice, with four-year college choice increasing as high school SES increases (Engberg & Wolniak, 2014; Hill, 2008; Pike & Robbins, 2016). Moreover, previous research also indicates a preference for two-year colleges among rural high school students (Burke et al., 2015; Scott et al., 2015). The findings from this study, however, suggest that in Montana the urban/rural divide and high school SES are less salient in college choice than found elsewhere in the United States.

Higher education context. The influence of the higher education context on college choice for immediate-college-going two-year students in Montana focuses on several expected and unexpected factors. Turning first to the active engagement aspect of the higher education context—namely, an institution's recruitment and marketing effort—students report limited influence. Only one in ten students identified a college representative as assisting them with the college application process. Students' median rating for the influence of college representatives

Table 15

High School-type Comparison between Surveyed Population and Montana High School Population At Large (National Center for Education Statistics, 2016, 2017)

High School Type	Surveyed Population	Montana
Public High School	91%	93%
Private High School	5%	4%
Homeschool	4%	3%

Table 16

High School Size Comparison between Surveyed Population and Montana High School Population At Large (Montana High School Association, 2019)

High School (HS) Size	Surveyed Population	Montana
Class AA HS (195 or more students in graduating class)	35%	48%
Class A HS (75 to 194 students in graduating class)	24%	21%
Class B HS (25 to 74 students in graduating class)	20%	17%
Class C HS (1 to 24 students in graduating class)	21%	14%

on their college decision is *Slightly Influential*, with the mode (over 40%) *Not at All Influential*. In terms of marketing, students' median rating for the influence of a college's website and college advertising on their decision mirrored that of college representatives—*Slightly Influential*—with the mode for both factors also *Not at All Influential* (over 40% and over 35%, respectively). The means of all these ratings are significantly less than the expected mean of 3.00. It appears that Montana's system of two-year colleges as a whole does not engage prospective high school students at a level that is memorable.

Passive engagement of institutions is the second aspect of the college choice higher education context. A college's location is an institution's passive engagement factor. Montana's

immediate-college-going two-year students give college location a median rating of *Very Influential*, with a mode of *Extremely Influential* (over 30%). Moreover, the college location rating mean of 3.35 differs significantly from the expected mean of 3.00. Interestingly, while location is generally considered a primary attraction of two-year colleges, the reason tends to be because the college students themselves already live in the college community. Students are attracted to their local college because it is convenient to their work and home, commuting costs are minimized, and the expense, upheaval, and anxiety of relocation are avoided (Rodriguez & Martell, 2016; Scott et al., 2015; Swiger, 2014). However, of the surveyed population, over 40% of the students are attending a two-year college that is 100 or more miles from their hometown. Given Montana's geography, it is possible that for some (or even many) of these students the nearest two-year college to their hometown is actually 100 or more miles distant. However, this apparent disconnect between the importance of location but the lack of proximity warrants further investigation as it is counter to prior research on two-year college choice.

Finally, in assessing the influence of the higher education context on college choice, there are institutional characteristics. Of the 13 institutional characteristics which students rated for this study, there was a standout at both ends of the spectrum, with the remaining factors clustering into a high influence group, expected influence group, and low influence group. Characteristics at the high end and low end of the influence spectrum were *Cost* and *Campus Athletics*, respectively. As public two-year colleges have a national reputation as the least expensive higher education option (Cohen et al., 2013; Swiger, 2014), it is not surprising that the *Cost* characteristic was influential in students' college choice process. Notably, the mean rating of *Cost* surpassed that of its nearest neighbor by 20%, with the factor's median and mode (over 55% of respondents) both *Extremely Influential*. On the opposite end of the spectrum was

Campus Athletics. As collegiate sports are available at only two of Montana's two-year colleges, it was expected that this factor would not prove influential for the majority of students. When data from the two colleges offering campus athletics are analyzed apart from the whole, *Campus Athletics* for the schools with athletic programs moves to an expected position of influence, with a median of *Very Influential* and mode (45%) of *Extremely Influential*.

In terms of high, middle, and low influence factor groups, *Program Offerings* and *Program Quality* fall into the high influence group with their means significantly higher than the expected mean of 3.00. The middle influence group comprises the bulk of factors, with their means not varying significantly from the expected mean of 3.00. The middle influence group includes: *Financial Aid Availability, Educational Facilities, Transferability of Courses, College Atmosphere, Campus Size, Campus Reputation*, and *Campus Safety*. All of these institutional characteristics had medians of *Somewhat Influential,* excepting *Financial Aid Availability* which had a median of *Very Influential*. Finally, the low influence group had means significantly lower than the expected mean of 3.00. This group comprised *Availability of Online Courses* and *Campus Activities,* with each factor having a median of *Somewhat Influential* and a mode of *Not at All Influential.*

From the institutional characteristic data, Montana two-year colleges are attracting high school students based on cost and programming. These students are not focused on access to online courses or an active campus culture. Montana's immediate-college-going two-year students emerge as practical in their approach to college selection. This result is in general agreement with previous two-year college studies on college choice (Barreno & Traut, 2012; Scott et al., 2015; Swiger, 2014). Adding active and passive institutional engagement into the mix, current recruitment and marketing strategies are unremarkable while college location

matters, although perhaps not for the proximal reason commonly associated with two-year colleges.

Research Question 1 Summary

Montana high school students who enroll in Montana two-year colleges the fall after graduating from high school or earning their high school equivalency diploma have both expected and unexpected characteristics. Their college decision-making behavior aligns with some norms while challenging others. As would be expected from two-year college students, cost, programming, and location top their list of influential considerations (Barreno & Traut, 2012; Scott et al., 2015; Swiger, 2014). Moreover, less rigorous academic preparation during high school combined with an emphasis on working during high school as well as considering work as an option over attending college are behaviors which align with two-year college choice (Engberg & Wolniak, 2014; Joshi et al., 2009; Kim & Nuñez, 2013; Pike & Robbins, 2016). Finally, the marked influence of parents in college decision-making also is a finding from other two-year college choice studies (Bers, 2005; Bers & Galowich, 2003; Engberg & Wolniak, 2014; Kim & Nuñez, 2013; Rowan-Kenyon et al., 2008; Scott et al., 2015).

Despite the above parallels, however, there were some unanticipated results. Montana's two-year-college-bound high school seniors had strong high school GPAs; they were busy with extracurricular activities during high school; their parents and siblings attended college; their homes were instilling college-going values, providing college guidance, and supplying college resources; finally, students were leaving home and moving for college. All told, the student and family context of college choice for these students was more robust than expected from prior studies.

In contrast, the school and community context of college choice for the group was weak. High school guidance counselors and teachers had little influence on college decision-making for Montana's two-year students—a result which, unfortunately, was not surprising as two-year colleges are not ubiquitously understood and promoted by high school staff (Hill, 2008; Rosenbaum et al., 2016). Additionally, small, rural communities, as represented by small high schools, were no more aligned with two-year colleges than large, urban communities, as represented by large high schools—a finding at odds with the college enrollment behavior of rural students from other states (Burke et al., 2015; Scott et al., 2015).

Finally, as mentioned earlier, the importance of the cost, programming, and location factors of the higher education context of college choice does correspond with prior research (Barreno & Traut, 2012; Scott et al., 2015; Swiger, 2014). However, while in previous studies the location factor is important because the two-year college is proximal to the student's existing home, such is not entirely the case in Montana. Although location ranked high in college decision-making, over 40% of the surveyed participants reported that the two-year college they attend is 100 or more miles from their hometown. Location may be influential, however perhaps not for the usual reason of proximity to home. Also, as found with high school staff, college representatives along with college marketing had little influence on college choice among Montana's traditional two-year students. This finding is cause for pause. Are Montana two-year college recruitment and marketing efforts simply missing the mark or are outreach resources and presence lacking?

In the end, Montana high school students who choose a Montana two-year college the fall after high school graduation are primarily influenced by the student/family context of college choice and the higher education institutional characteristics of cost, programming, and location.

Notably, the majority of these students appear to have been aware of the college option and even set on the college path before entering high school. The question becomes: where are those high school students who are the least informed about college, who come from the lowest income backgrounds, who have the lowest high school GPAs, whose student/family context is the weakest? If nationally, two-year colleges attract and serve traditional-age students who come from the most socioeconomically challenged backgrounds and have the weakest academic backgrounds (Joshi et al., 2009; Kim & Nuñez, 2013), where are those students in Montana? Are they delaying college entry or overlooking college altogether?

Finally, it is mentioned that only three percent of survey respondents had a college goal of a one-semester or one-year career and technical certificate. The dearth of students on this shorter, more immediate path to skilled and semi-skilled workforce placement is another pause for consideration given Montana leadership's workforce shortage concerns. Are students unaware of these fast-track training pathways? Are these pathways available at Montana's two-year colleges? Who *is* enrolling in these pathways—non-traditional-age students and/or delayed-entry traditional-age students? Could low human, social, and/or cultural capital students be clustering in these pathways? The absence of the immediate-college-going cohort from workforce certificate pathways is of interest and import.

Research Question 2

While significant statistical findings from the exploration of differences among governance models were few, those which did occur highlight several points of college choice impact. In terms of the student/family context of college choice, demographic differences among governance models indicated that fewer male students than expected attend state-controlled, autonomous two-year colleges than is the case at the two other college types. While the

difference is not as prominent, MUS data validates this finding (Table 17). With respect to the human capital dimension of the student/family context, the only significant finding of difference involved college residence behavior between community college and state-controlled, embedded college students. While community colleges had fewer students living *off campus but not with parents* than students living *on campus* than expected, state-controlled, embedded colleges had fewer students living *on campus* than students living *off campus but not with parents* than expected. Although this finding of difference does not address the intended human capital aspect of supply of college resources, it does suggest some differences in student perceptions and campus realities. Are some students choosing a community college because these colleges, in Montana, are located in rural communities where off-campus housing is limited, dorms are available, and on-campus residence provides for more campus connection? Are other students

Table 17

Count and Percent of 18 to 24-Year-Old Montana Resident Students by Gender and Two-Year College Governance Model from Montana University System Data for Fall 2018 (Montana University System, 2018)

	18 to 24-Year-Old Students (Montana Residents, Fall 2018)							
	Community Colleges		State-Controlled, Autonomous Two-Year Colleges		State-Controlled, Embedded Two-Year Colleges		Total	
Gender	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Unknown	0	0.0%	0	0.0%	3	0.2%	3	0.1%
Males	547	41.5%	445	38.9%	851	45.5%	1843	42.5%
Females	772	58.5%	699	61.1%	1016	54.3%	2487	57.4%
Total	1319	100.0%	1144	100.0%	1870	100.0%	4333	100.0%

choosing state-controlled, embedded colleges because these colleges, in Montana, are located in relatively urban areas were off-campus housing is available, dorms shared with the parent four-year campus may be limited, and a close campus connection is not of interest? Alternatively, do two-year students at the embedded campuses feel uncomfortable in on-campus housing that is meant foremost for their four-year peers, and consequently, tend to avoid this option? While the meaning behind the difference in college residence behavior is unclear, the implications are of interest.

With respect to the cultural capital dimension of the student/family context of college choice, no exploration of differences results among governance models were statistically significant. For the social capital dimension of the student/family context, there were two findings of significance. First, more community college students than expected thought about attending a second two-year college in Montana compared to students attending state-controlled two-year colleges. Second, more community college students than expected only submitted a college application to the college at which they ultimately matriculated compared to students attending state-controlled two-year colleges. These findings suggest that students who attend Montana's community colleges may be more attuned to the broader two-year college landscape in Montana than students who attend the state-controlled two-year colleges. Likewise, Montana's community college-bound students appear more resolved in their enrollment decision than do students attending the state-controlled two-year colleges. The college choice social capital of Montana's community college students seems to be more developed around two-year colleges and community colleges in particular than the college choice social capital of students attending Montana's state-controlled two-year colleges.

Turning from the student/family context to the school/community context of college choice, there were no findings of significance regarding high school type, size, assistance with application, or influence from counselors or teachers when survey data were disaggregated by governance model. When it comes to Montana's high schools, it appears that they equally exercise limited influence upon a student's decision to choose a two-year college, regardless of the two-year college governance model.

Lastly, and in contrast to the school/community context, there were several findings of significance within the higher education context of college choice when data were disaggregated by governance model. Among institutional characteristics, the findings included: a) *Availability of Online Courses* is more influential in college decision-making for students attending state-controlled, autonomous two-year colleges than for students attending community colleges and state-controlled, embedded colleges; b) *Campus Athletics* is more influential in college decision-making for students attending community colleges than for students attending state-controlled, autonomous two-year colleges; c) *Campus Size* is less influential in college decision-making for students attending state-controlled, embedded two-year colleges than students attending state-controlled, autonomous two-year colleges, and d) *Transferability of Courses* is less influential in college decision-making for students attending state-controlled, embedded two-year colleges than for students attending community colleges and state-controlled, autonomous two-year colleges. Additionally, while the influence of each institutional characteristic may not have significantly varied across the governance models, when all 13 characteristics along with active and passive institutional engagement factors are compared as three separately ranked sets (one set for each governance model), the sets are shown to be from three statistically distinct populations. Institutional factors in toto influence students by different degrees depending on the

institutional governance model. Finally, in terms of the influence of individuals, college representatives are less influential in college decision-making for students attending state-controlled, embedded two-year colleges than for students attending community colleges.

In summary, the influence of the higher education context of college choice on students' college decision-making does exhibit some variance across the three governance models. Community college students are influenced by *Campus Athletics*. State-controlled, autonomous two-year college students are influenced by *Availability of Online Courses*. State-controlled, embedded two-year college students are not focused on *Campus Size* and *Transferability of Courses* nor are they especially influenced by college representatives. In light of the realities of Montana's three types of two-year colleges, these distinctions are not surprising. The only two-year colleges offering campus athletics are two of the three community colleges. The only two-year colleges without on-campus housing are the state-controlled, autonomous two-year campuses; this absence of on-campus housing may be influencing the demand for the convenience of online courses, even among traditional-age students. The state-controlled, embedded two-year colleges are part of considerably larger parent campuses, likely downplaying interest in the stereotypical small two-year college campus. Moreover, as students at state-controlled, embedded two-year colleges are enrolled in courses transcripted by their parent campus, interest in course transferability is irrelevant. Finally, while college representatives for the community colleges and state-controlled, autonomous two-year colleges need only focus on their sole campuses, college representatives from the state-controlled, embedded two-year colleges may be juggling multiple recruitment efforts, with the embedded two-year campus only one facet of the parent campuses' outreach activities.

Research Question 2 Summary

The differences found in college choice behavior when survey participant data were disaggregated by two-year college governance model reflect real differences in campuses and campus opportunities that students appear to understand. Community colleges offer a rural setting with an on-campus focus and include, in two of three instances, collegiate athletics. State-controlled, embedded two-year colleges offer an urban setting with an off-campus focus. State-controlled, autonomous two-year colleges attract students interested in convenience. In terms of the student/family context of college choice, community college students appear to have the most developed social capital. In terms of the higher education context of college choice, college outreach appears least developed among the state-controlled, embedded two-year colleges. Among none of the governance types is the school/community context of college choice appreciably developed. Notably, considering the prevalence of high school athletic participation among the surveyed population, it seems likely that if collegiate athletics were available at more of Montana's two-year colleges, they would be well-received. Perhaps most importantly, disaggregating the survey data by governance model highlighted the reality that Montana's three two-year campus types are indeed three distinct types of institutions and that students implicitly understand this. It may be that understanding and addressing Montana's two-year college under-subscription challenge starts with appreciating and confronting the differences among the two-year college campus types.

Conclusion

The purpose of this study was twofold. First, the study sought to understand why traditional-age students choose to enroll at Montana two-year colleges the fall semester after their high school graduation. Second, the study considered whether two-year college governance

models impact two-year college choice behavior. Both questions were asked given the reality of Montana's relatively low two-year college participation rates. Both questions were approached using the college choice contextual framework proposed by Perna (2006a).

With respect to the first research question, the study concluded that immediate-two-year-college-going students in Montana are, in aggregate, most influenced in their college decision-making by cost, programming, location, and parents. These same students are least influenced in their college decision-making by athletics, availability of online courses, campus activities, high school guidance counselors, high school teachers, and college representatives. These findings were in general agreement with past research on college choice among traditional-age, two-year college students (Barreno & Traut, 2012; Scott et al., 2015; Swiger, 2014). In terms of Perna's (2006a) college choice contexts, the influence of the student/family context predominated with the school/community context exhibiting little influence and the higher education context exhibiting little influence from active engagement factors (advertising, marketing, and recruitment). These findings suggest that Montana two-year college participation rates might be positively impacted by high schools and two-year colleges investing resources in promoting two-year colleges' relatively low costs, program offerings and quality, and locations (both as locally convenient and as destinations). Moreover, it is recommended that two-year college outreach activities actively engage and appeal to parents, as the criticality of the student/family context in college choice is undeniable. Finally, from a policy perspective, it is recommended that Montana higher education leadership focus on keeping two-year college costs down, promoting responsive two-year college program offerings, funding two-year college program quality, and developing a greater understanding of the relationship between students and campus locations.

With respect to the second research question, the study concluded some college choice behavior was variable among two-year college governance models. Students attending community colleges had the most developed social capital in terms of college-going information and process (student/family context). Students attending state-controlled, autonomous two-year colleges were more influenced by convenience (higher education context). Students attending state-controlled, embedded two-year colleges were less concerned about campus size and course transferability as well as less influenced by college representatives (higher education context). Moreover, when factors and individuals of influence were disaggregated by governance model and then combined into ranked sets, statistical testing showed the sets to be from three distinct populations. This finding indicates students implicitly understand Montana's two-year colleges do not comprise a uniformed system, but rather each type of governance model results in a different type of college experience. This finding suggests that as Montana's higher education leadership looks to improve Montana's two-year college participation rates, examining issues by governance model subset might prove constructive. In particular, with program offerings and quality so critical to two-year college students coupled with workforce development so critical to State leaders, understanding the two-year college programming landscape and examining program development, implementation, and promotion by governance model subset could provide insights into two-year college enrollment challenges. Essentially, does Montana's multivariate approach to two-year college governance impact programming breadth, depth, and quality in ways that affect two-year college participation?

In terms of the survey instrument which was developed for this study, a few comments are provided. First, all in all, the survey instrument proved valid and reliable as the data collected paralleled findings from other two-year college choice studies and performed similarly across

Montana's two-year college system. Second, although the survey generally succeeded as designed, several questions could be reworked to improve the quality and usefulness of the information captured. Within the human capital component of the student/family context, it is suggested that the extracurricular activity option *Service Clubs* (Question 6) be reworded as *Clubs (e.g., Spanish Club, Science Club, Key Club, Boy Scouts, 4-H)*. Changing the *Service Clubs* option to be more inclusive should decrease the use of the *Other* option within this question. Also within the human capital component of the student/family context, it is suggested that the question on Pell Grant eligibility (Question 12) be modified to better ascertain student/family income levels. With 44% of respondents unsure about their Pell Grant eligibility data from this question as it stands is of limited utility. Lastly with respect to the student/family context, it is recommended that for the cultural capital question on parents' college attendance (Question 14) the response options be more granular with respect to educational attainment—perhaps more in-line with the U.S. Census Bureau's American Community Survey, with options including less than high school, high school, some college or associate's degree, and Bachelor's degree or higher (U.S. Census Bureau, 2017). Capturing more detail from this question would, again, increase the utility of the data collected. Three final suggested improvements to the survey include: a) adding a question to capture information characterizing students' hometown (e.g., small town versus city) (school/community context), b) adding a question to ascertain if students are choosing the two-year college closest to their hometown (human capital component of student/family context and school/community context) and c) adding *Social Media/Email* as an institutional active engagement option (higher education context). The first two of these recommended additions would allow for a more nuanced understanding of the role of community in Montana two-year college choice. The last of these recommended additions would provide

colleges with data on the effectiveness of internet campaigns and electronic communications. Finally, while the survey tool focuses on capturing college choice contextual data, adding a question pertaining to students' current satisfaction with their actual college choice could be of interest to some researchers.

From this study also come recommendations for further research. First, there is a recommendation for further research using the data collected in this project. It is suggested that associations among the variables *distance between college and hometown*, *high school size*, and the multiple Likert scale items be explored using non-parametric, rank-order correlational analysis (Spearman's rho). Such an exploration might include data in aggregate and data disaggregated by governance model. In terms of complementary and follow-up research to this study, ideas include: a) comparative research after administering a similar college choice survey to Montana's immediate-four-year-college-going students, b) examine retention, completion, and transfer rates for this study's population in aggregate and disaggregated by governance model, c) examine Montana's immediate-college-going students in terms of academic match, social/cultural/financial fit, and goal alignment with respect to two-year colleges (in aggregate and disaggregated by governance model) and four-year colleges, d) examine two-year college program offerings and quality by governance model, and e) examine the two-year college choice contexts of traditional-age students who delay college matriculation after high school graduation.

Understanding two-year college choice in Montana is one avenue for exploring low two-year college participation rates in Montana. Exploring whether differences in two-year college governance associate with college choice is another avenue for exploring low two-year college participation rates in Montana. This study aimed to jointly examine these two constructs—two-year college choice and two-year college governance. This study found that the two do, in fact,

intersect. Ultimately, if two-year college governance is impacting college choice, then two-year college governance is impacting two-year college participation. Continuing to evaluate and appreciate the impact of two-year college governance in Montana, both as a multivariate system and as a system anchored and piloted by two flagship research universities, remains central to unravelling the under-subscription challenge of Montana's two-year colleges.

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Appendix A

List of Professionals Who Evaluated Survey Instrument for Validity

- Suela Cela, MPA; Director of Enrollment Management, Dawson Community College, Glendive, MT
- Joe Daysen, Director of Admissions, Great Falls College MSU, Great Falls, MT
- Janet Heiss Arms, PhD in Educational Leadership and Policy Analysis; Director of General Education, Gallatin College MSU, Bozeman, MT
- Kathleen O'Leary, MS Advising; Director of Academic & Student Services, Bitterroot College UM, Hamilton, MT

Appendix B

Survey Instrument

Two-year College Choice in Montana

Exploring the college choice contexts affecting Montana high school graduates who matriculate at Montana two-year colleges the fall after graduating from high school.

INFORMED CONSENT

This survey will provide data for a research project conducted by Victoria Clark as a doctoral candidate in higher education administration at the University of Wyoming. You are invited to participate in this survey because you are currently enrolled in a Montana two-year college, and you began your enrollment at a Montana two-year college the fall semester following your high school graduation.

Your participation in this survey is completely voluntary. If you choose not to participate in the survey or wish to end your survey participation at any time after starting the survey, simply exit the survey window. Survey responses will remain confidential. Survey results will only be used for scholarly purposes. If you have any questions or concerns about this survey, please contact Victoria Clark at vclark@uwyo.edu.

This study has been approved for research on human subjects by the Institutional Review Board (IRB) at the University of Wyoming (UW) under a proposal submitted by Victoria Clark. This study has been approved for dissemination at your Montana two-year college by the appropriate campus office under a proposal submitted by Victoria Clark.

Thank you in advance for your participation in this study!

Consent

Note: If you change your mind about participating in this survey after consenting to participation, simply close the survey window or close the internet browser. Your survey participation will end, and your responses will not be recorded.

Mark only one oval.
○ I consent to participate in this survey and wish to begin the survey now. *(proceed to Q1)*
○ I choose NOT to participate in this survey and wish to exit the survey now. *(survey closes)*

High School Experience

1. High school completion.
Mark only one oval
○ Graduated from a public high school in Montana
○ Graduated from a private high school in Montana
○ Withdrew from high school and earned a HiSET credential
○ Attended home school and earned a HiSET credential

2. Size of your high school graduating class?
Mark only one oval
○ About 195 or more (Class AA for sports)
○ Between 75 and 194 (Class A for sports)
○ Between 25 and 74 (Class B for sports)
○ Between 1 and 24 (Class C for sports)
○ Not sure
○ Does not apply, earned HiSET

3. The year you graduated from high school or earned your HiSET credential?
○ 2018
○ 2017
○ 2016
○ 2015
○ 2014 or earlier

4. Your high school GPA? (approximate)
Mark only one oval.
○ 3.5 to 4.0 (A range)
○ 2.5 to 3.4 (B range)
○ 1.5 to 2.4 (C range)
○ 1.4 or lower (D range)
○ Not sure
○ Does not apply – attended home school/earned HiSET

5. Your high school/home school coursework?
Check all boxes that apply.
☐ I took one or more Honors or Advanced Placement (AP) courses.
☐ I took one or more Dual Enrollment courses (courses for which you earned college credit).
☐ I took four years of high school level math (not including repeating a course).
☐ None of the above.

6. Extracurricular activities you participated in during high school/home school?
Check all boxes that apply.
☐ Academic Competitions (e.g., Science Olympiad)
☐ Athletics
☐ Community Volunteer
☐ Performing Arts - Dance, Music, Theater, and Speech & Debate
☐ Service Clubs
☐ Student Government
☐ Work
☐ None of the above
☐ Other: _____

College Experience

7. College you attend?
Mark only one oval.
○ Bitterroot College UM
○ City College MSU-B
○ Dawson Community College
○ Flathead Valley Community College
○ Gallatin College MSU
○ Great Falls College MSU
○ Helena College UM
○ Highlands College of Montana Tech
○ Miles Community College
○ Missoula College UM

8. Distance from your college to your home town (community from which you graduated high school or earned your HiSET)?
Mark only one oval.
○ 0 to 24 miles
○ 25 to 49 miles
○ 50 to 99 miles
○ 100+ miles

9. Place of residence while attending your college?
Mark only one oval.
○ Live off campus with parent(s)
○ Live off campus but not with parent(s)
○ Live on campus

10. Fall semester you started at your college?
Mark only one oval.
○ 2018
○ 2017
○ 2016
○ 2015
○ 2014 or earlier

11. Your current enrollment status?
Mark only one oval.
○ Full-time student (12 or more credits)
○ Part-time student (less than 12 credits)

12. Are you eligible for a Pell Grant?
Mark only one oval.
○ Yes
○ No
○ Not sure

13. Your college goal?
Mark only one oval.
○ Complete a one-semester or one-year program (Certificate of Technical Science or Certificate of Applied Science)
○ Complete a two-year program (Associate of Applied Science or Applied Arts Degree)
○ Transfer to a four-year institution for a Bachelor's Degree
○ Other: _____

14. Did (or does) one or more of your parents attend college?
Mark only one oval.
○ Yes
○ No
○ Not sure

15. Did (or does) one or more of your siblings attend college?
Mark only one oval.
○ Yes
○ No
○ Does not apply - I do not have any siblings
○ Does not apply - None of my siblings are of college age
○ Not sure

College Choice

16. What other "after high school" options did you consider besides attending college?
Check all boxes that apply.
☐ None. I only considered attending college.
☐ Enlisting in the military
☐ Traveling
☐ Working
☐ Other: _____

17. When did you decide that you wanted to attend college?
Mark only one oval.
○ I always planned to attend college
○ When I was in middle school *(ages 11 to 14)*
○ When I was in high school *(ages 15 to 18)*
○ The summer after graduating from high school *(or summer after completing the HiSET)*

18. What types of colleges did you consider attending?
Check all boxes that apply.
☐ I only considered attending the college at which I am currently enrolled
☐ Two-year colleges in Montana
☐ Two-year colleges in states other than Montana
☐ Four-year colleges in Montana
☐ Four-year colleges in states other than Montana

19. Did you submit college applications to any colleges other than the college you are currently attending?
Check all boxes that apply.
☐ No, I only applied to the college I'm currently attending
☐ Yes, to other two-year colleges in Montana
☐ Yes, to other two-year colleges in states other than Montana
☐ Yes, also to four-year colleges in Montana
☐ Yes, also to four-year colleges in states other than Montana

20. When were you certain about your decision to attend the college at which you are now enrolled?
Mark only one oval.
○ Before my senior year of high school *(year before earning my HiSET)*
○ During the fall of my senior year of high school *(fall before earning my HiSET)*
○ During the spring of my senior year of high school *(spring before/while earning my HiSET)*
○ During the summer after graduating from high school *(summer while/after earning my HiSET)*

21. When did you submit your application to attend the college at which you are now enrolled?
Mark only one oval.
○ Fall semester of my senior year in high school *(fall before earning my HiSET)*
○ Spring semester of my senior year in high school *(spring before/while earning my HiSET)*
○ The summer after graduating from high school *(summer while/after earning my HiSET)*

22. Who helped you fill out your college application for the college at which you are now enrolled?
Check all boxes that apply.
☐ No one. I filled out the application on my own.
☐ Parent
☐ Non-parent family member
☐ Friend
☐ Guidance counselor from my high school
☐ Teacher from my high school
☐ College representative
☐ Other: _____

23. Rate the degree of influence the following individuals had on your decision to attend the college at which you are now enrolled?
Mark only one oval per row.

Individual	**Not at all influential 1**	**Slightly influential 2**	**Somewhat influential 3**	**Very influential 4**	**Extremely influence 5**
Parent	○	○	○	○	○
Non-parent family member	○	○	○	○	○
Friend	○	○	○	○	○
High school guidance counselor	○	○	○	○	○
High school teacher	○	○	○	○	○
College representative	○	○	○	○	○

24. Other individuals who influenced your decision to attend the college at which you are now enrolled?
Were there other individuals who influenced your decision to attend your college who were not listed in the previous question?
Mark only one oval.
○ No
○ Other: _____

25. Rate the degree of influence the following college factors had on your decision to attend the college at which you are now enrolled?
Mark only one oval per row.

College Factor	Not at all influential 1	Slightly influential 2	Somewhat influential 3	Very influential 4	Extremely influence 5
Availability of online courses	○	○	○	○	○
Campus activities	○	○	○	○	○
Campus athletics	○	○	○	○	○
Campus location	○	○	○	○	○
Campus safety	○	○	○	○	○
Campus size	○	○	○	○	○
College advertising	○	○	○	○	○
College atmosphere	○	○	○	○	○
College reputation	○	○	○	○	○
College website	○	○	○	○	○
Cost	○	○	○	○	○
Educational facilities	○	○	○	○	○
Financial aid availability	○	○	○	○	○
Program offerings	○	○	○	○	○
Program quality	○	○	○	○	○
Transferability of courses	○	○	○	○	○

26. Other college factors that influenced your decision to attend the college at which you are now enrolled?
Were there other college factors that influenced your decision to attend your college which were not listed in the previous section?
Mark only one oval.
○ No
○ Other: _____

Demographic Information

27. Your age. _____

28. Your gender.
Mark only one oval.
○ Female
○ Male
○ Prefer not to answer

29. How would you describe yourself?
Check all boxes that apply -- you may check more than one group.
☐ American Indian or Alaskan Native
☐ Asian
☐ Black or African American
☐ Hispanic, Latino, or Spanish origin
☐ Native Hawaiian or Pacific Islander
☐ White
☐ Prefer not to answer
☐ Other: _____

Your survey responses have been submitted.

For a chance to win one of four $25 Amazon gift cards for participating in this survey, send an email to Victoria Clark at vclark@uwyo.edu and type "Two-year College Choice in Montana" in the subject line. Include your name and a return email address in the email message.

Thank you for assisting me with my research! Victoria Clark

Appendix C

Survey Question Connections to College Choice Contexts (per Study's Research Questions)

and to Prior Survey Instruments and/or a Specific College Choice Study

Question No.	*Survey Question*	*College Choice Context(s)*	*Connection to Prior College Choice Survey Instrument and/or College Choice Research*	*Comments*
Section 2: High School Experience				
1.	High school completion type?	School & Community	Engberg & Wolniak (2014); Hill (2008); Rowan-Kenyon, Perna, & Swan (2011)	
2.	Size of your high school graduating class?	School & Community	Urbanski (2000); Wang, Ye, & Pilarzyk (2014)	
3.	The year you graduated from high school or earned your HiSET credential?			Allows for check on participant eligibility when analyzed with Q10
4.	Your high school GPA?	Student & Family - Human Capital	Urbanski (2000); Wang, Ye, & Pilarzyk (2014)	
5.	Your high school/home school coursework?	Student & Family - Human Capital	Urbanski (2000); Wang, Ye, & Pilarzyk (2014)	
6.	Extracurricular activities you participated in during high school/home school?	Student & Family - Human Capital	Urbanski (2000); Wang, Ye, & Pilarzyk (2014)	
Section 3: College Experience				
7.	College you attend?	Policy Universe		
8.	Distance from your college to your hometown?	Student & Family – Human Capital; School & Community	Urbanski (2000)	

Question No.	*Survey Question*	*College Choice Context(s)*	*Connection to Prior College Choice Survey Instrument and/or College Choice Research*	*Comments*
9.	Place of residence while attending your college?	Student & Family – Human Capital	Rodriguez & Martell (2016)	Added to provide data gauging a participant's access to financial resources
10.	Fall semester you started at your college?			Allows for check on participant eligibility when analyzed with Q3
11.	Your current enrollment status?	Student & Family - Human Capital	Barreno & Traut (2012)	
12.	Are you eligible for a Pell Grant?	Student & Family - Human Capital	Urbanski (2000); Wang, Ye, & Pilarzyk (2014)	
13.	Your college goal?	Student & Family - Human Capital	Barreno & Traut (2012); Wang, Ye, & Pilarzyk (2014)	
14.	Did (or does) one or more of your parents attend college?	Student & Family - Cultural & Social Capital	Urbanski (2000); Wang, Ye, & Pilarzyk (2014)	
15.	Did (or does) one or more of your siblings attend college?	Student & Family - Cultural & Social Capital	Wang, Ye, & Pilarzyk (2014)	
Section 4: College Choice				
16.	What other "after high school" options did you consider besides attending college?	Student & Family - Human Capital		Question suggested by survey reviewer Joe Daysen, Director of Admissions, Great Falls College MSU
17.	When did you decide that you wanted to attend college?	Student & Family - Cultural & Social Capital	Urbanski (2000)	

Question No.	*Survey Question*	*College Choice Context(s)*	*Connection to Prior College Choice Survey Instrument and/or College Choice Research*	*Comments*
18.	What types of colleges did you consider attending?	Student & Family - Social Capital	Wang, Ye, & Pilarzyk (2014)	
19.	Did you submit college applications to any colleges other than the college you are currently attending?	Student & Family - Social Capital	Wang, Ye, & Pilarzyk (2014)	
20.	When were you certain about your decision to attend the college you are now enrolled at?	Student & Family - Cultural Capital	Wang, Ye, & Pilarzyk (2014)	
21.	When did you submit your application to attend the college you are now enrolled at?	Student & Family - Social Capital	Wang, Ye, & Pilarzyk (2014)	
22.	Who helped you fill out your college application to the college you are now enrolled at?		Wang, Ye, & Pilarzyk (2014)	
a.	No one. I filled out the application on my own.	Student & Family - Social Capital		Added as an option to capture this possibility
b.	Parent	Student & Family - Social Capital	Wang, Ye, & Pilarzyk (2014)	
c.	Non-parent family member	Student & Family - Social Capital	Mwangi (2015); Wang, Ye, & Pilarzyk (2014)	
d.	Friend	School & Community	Wang, Ye, & Pilarzyk (2014)	
e.	Guidance counselor from my high school	School & Community	Wang, Ye, & Pilarzyk (2014)	
f.	Teacher from my high school	School & Community	Wang, Ye, & Pilarzyk (2014)	

Question No.	*Survey Question*	*College Choice Context(s)*	*Connection to Prior College Choice Survey Instrument and/or College Choice Research*	*Comments*
g.	College representative	Higher Education - Active Institutional Engagement	Wang, Ye, & Pilarzyk (2014)	
h.	Other	Context depends on participant's response		Added as an option to capture possibilities not anticipated
23.	Rate the degree of influence the following individuals had on your decision to attend your college?		Barreno & Traut (2012); Urbanski (2000); Wang, Ye, & Pilarzyk (2014)	
a.	Parent	Student & Family - Cultural & Social Capital	Barreno & Traut (2012); Urbanski (2000); Wang, Ye, & Pilarzyk (2014)	
b.	Non-parent family member	Student & Family - Cultural & Social Capital	Barreno & Traut (2012); Mwangi (2015); Urbanski (2000); Wang, Ye, & Pilarzyk (2014)	
b.	Friend	School & Community	Barreno & Traut (2012); Urbanski (2000); Wang, Ye, & Pilarzyk (2014)	
c.	High school guidance counselor	School & Community	Barreno & Traut (2012); Urbanski (2000); Wang, Ye, & Pilarzyk (2014)	
d.	High school teacher	School & Community	Kim & Nunez (2013); Urbanski (2000)	
e.	College representative	Higher Education - Active Institutional Engagement	Urbanski (2000); Wang, Ye, & Pilarzyk (2014)	
24.	Other individuals who influenced your decision to attend your college?	Context depends on participant's response	Urbanski (2000)	

Question No.		*Survey Question*	*College Choice Context(s)*	*Connection to Prior College Choice Survey Instrument and/or College Choice Research*	*Comments*
25.		Rate the degree of influence the following college factors had on your decision to attend your college?		Barreno & Traut (2012); Urbanski (2000); Wang, Ye, & Pilarzyk (2014)	
	a.	Availability of online courses	Higher Education - Institutional Characteristic	Shaffer (2010)	
	b.	Campus activities	Higher Education - Institutional Characteristic	Barreno & Traut (2012); Urbanski (2000)	
	c.	Campus athletics	Higher Education - Institutional Characteristic		Factor suggested by community college colleagues from Miles Community College
	d.	Campus location	Higher Education - Passive Institutional Engagement	Barreno & Traut (2012); Urbanski (2000); Wang, Ye, & Pilarzyk (2014)	
	e.	Campus safety	Higher Education - Institutional Characteristic	Barreno & Traut (2012); Urbanski (2000)	
	f.	Campus size	Higher Education - Institutional Characteristic	Urbanski (2000)	
	g.	College advertising	Higher Education - Active Institutional Engagement	Urbanski (2000)	
	h.	College atmosphere	Higher Education - Institutional Characteristic	Urbanski (2000)	

Question No.	*Survey Question*	*College Choice Context(s)*	*Connection to Prior College Choice Survey Instrument and/or College Choice Research*	*Comments*
i.	College reputation	Higher Education - Institutional Characteristic	Barreno & Traut (2012); Urbanski (2000)	
j.	College website	Higher Education - Active Institutional Engagement	Barreno & Traut (2012); Urbanski (2000)	
k.	Cost	Higher Education - Institutional Characteristic	Barreno & Traut (2012); Urbanski (2000); Wang, Ye, & Pilarzyk (2014)	
l.	Educational facilities	Higher Education - Institutional Characteristic	Barreno & Traut (2012); Urbanski (2000)	
m.	Financial aid availability	Higher Education - Institutional Characteristic	Barreno & Traut (2012); Urbanski (2000)	
n.	Program offerings	Higher Education - Institutional Characteristic	Barreno & Traut (2012); Urbanski (2000); Wang, Ye, & Pilarzyk (2014)	
o.	Program quality	Higher Education - Institutional Characteristic	Barreno & Traut (2012); Urbanski (2000)	
p.	Transferability of courses	Higher Education - Institutional Characteristic	Barreno & Traut (2012); Wang, Ye, & Pilarzyk (2014)	
26.	Other college factors that influenced your decision to attend your college?	Higher Education	Urbanski (2000)	
Section 5: Demographic Information				
27.	Your age.	Student & Family - Demographic Characteristic	Barreno & Traut (2012); Urbanski (2000); Wang, Ye, & Pilarzyk (2014)	

Question No.	*Survey Question*	*College Choice Context(s)*	*Connection to Prior College Choice Survey Instrument and/or College Choice Research*	*Comments*
28.	Your gender.	Student & Family - Demographic Characteristic	Barreno & Traut (2012); Urbanski (2000); Wang, Ye, & Pilarzyk (2014)	
29.	How would you describe yourself?	Student & Family - Demographic Characteristic	Barreno & Traut (2012); Urbanski (2000); Wang, Ye, & Pilarzyk (2014)	Combined race & ethnicity question approach chosen (Jones, 2015)

Appendix D

Study Approval from University of Wyoming Institutional Review Board

UNIVERSITY OF WYOMING

Vice President for Research & Economic Development
1000 E. University Avenue, Department 3355 • Room 305/308, Old Main • Laramie, WY 82071
(307) 766-5353 • (307) 766-5320 • fax (307) 766-2608 • www.uwyo.edu/research

March 19, 2019

Victoria Clark
EdD Candidate
Higher Education Administration
University of Wyoming

Courtney McKim
Associate Professor
Professional Studies
University of Wyoming

Protocol #20190319VC02329

Re: IRB Proposal *"Two-Year College Choice Among Recent High School Graduates in Montana"*

Dear Victoria and Courtney:

The proposal referenced above qualifies for exempt review and is approved as one that would not involve more than minimal risk to participants. Our exempt review and approval will be reported to the IRB at their next convened meeting on April 18, 2019.

Any significant change(s) in the research/project protocol(s) from what was approved should be submitted to the IRB (Protocol Update Form) for review and approval prior to initiating any change. Further information and the forms referenced above may be accessed at the "Human Subjects" link on the Office of Research and Economic Development website: http://www.uwyo.edu/research/human-subjects/index.html. Please note that exempt protocols are approved for a maximum of three years. If your study extends beyond three years, or beyond the duration that is approved in your protocol form, please be sure to submit an update before expiration to extend the duration. If you are not able to submit the update in time, you will need to submit a new exemption request for the project.

You may proceed with the project/research and we wish you luck in the endeavor. Please feel free to call me if you have any questions.

Sincerely,

Nichole Person

Nichole Person
Staff Assistant, Research Office
On behalf of the Chairman,
Institutional Review Board

Appendix E

Text of Email Sent to Survey Eligible Students

Dear [name of Montana Two-Year College] Student –

You have been selected to participate in a survey on two-year college choice. The survey is being conducted as part of a research study on why some Montana students choose to begin their college careers at a Montana two-year college. The study is the doctoral project of University of Wyoming doctoral candidate Victoria Clark.

The survey is comprised of 29 questions and takes about five minutes to complete. Your participation in this survey will provide data meant to assess and improve Montana two-year colleges. Participating in this survey is completely voluntary; you may exit the survey at any time.

To express gratitude for your survey participation, upon completion of the survey you may enter a drawing to win a $25 Amazon gift card.

Click on the following Google Forms link to begin the survey now: [Google Forms Survey Link]

The survey closes on [date]. Don’t delay, participate now!

Thank you in advance for your willingness to be part of my study,
Victoria Clark, EdD Candidate, University of Wyoming

This is email is sent on behalf of Victoria Clark by [name of Montana two-year college contact]
The distribution of this survey has been approved by [Montana two-year college CEO]