

Student engagement with an academic
support center during Covid-19

by

Daniel William Aucutt

B.A., University of Toledo, 1993
M.A.T., University of Iowa, 1996

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF EDUCATION

Department of Educational Leadership
College of Education

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2021

Abstract

The challenge to improve academic achievement for community college students has generated concern for decades, with renewed emphasis during the Coronavirus Pandemic of 2020-2021, known as Covid-19 (Roueche, 1968; West & Fabre, 2021). National and local initiatives for student success have been launched with mixed results from a broad coalition of champions (Smith, Baldwin, & Schmidt, 2015). The challenge of succeeding in higher education for many students suggests that a corresponding demand for academic support services would exist, but that has not been the universal student response at every institution (Friedlander, 1980; Hendriksen, Yang, Love, & Hall, 2005). Research has demonstrated the efficacy of academic support services for students when used, dispelling most doubts about their utility (Center for Community College Student Engagement, CCCSE, 2012; Kostecki & Bers, 2008). This quantitative study is about factors that relate to student engagement with an academic support center during Covid-19. That support center is the Tutoring and Academic Skills Center (TASC) at College of the Desert (COD) in Palm Desert, California.

Keywords: academic achievement, support services, student success, engagement

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Acknowledgements

I want to thank the faculty and support staff of the John E. Roueche Center for Community College Leadership at Kansas State University for providing the intellectual environment to design and conduct this study. That gratitude extends to the executive leadership at College of the Desert for sponsoring my doctoral cohort with abundant financial and professional support. The achievement of a doctoral degree is often regarded as the apex of formal education. This process involved a deep immersion in the triumphs and tribulations of leaders facing challenges to serve students effectively. Since most of my post-secondary education was steeped in the humanities, I elected to conduct a quantitative dissertation study. That decision involved challenges, but I made euphoric discoveries and took long detours. Throughout this journey, I had the wise guidance of a dedicated advisor in Dr. Mathis, a first-class supervisor in Dr. Ellis, and a stellar team of committee members to steer me safely to port. Their collective patience and advice were without equal. I also want to thank the scholars at Dissertation Editor in Cambridge, Massachusetts, for their guidance with the deeper mysteries of statistics. I would not have come this far without the grace of God in Christ Jesus, the love of my wife, Elizabeth, and the encouragement of family, friends, and colleagues.

Dedication

I dedicate this dissertation to my wife for enduring my struggles gracefully, and for providing wise and effective counsel when I needed it most.

Chapter 1 - Introduction

This study is about factors that relate to student engagement with an academic support center during the Coronavirus Pandemic of 2020-2021, known as Covid-19. That support center is the Tutoring and Academic Skills Center (TASC) at College of the Desert (COD) in Palm Desert, California. Key factors were identified for study, involving the following: knowledge about TASC, intrinsic and extrinsic incentives for engagement with TASC, membership in college (defined as student involvement with college clubs and/or governance,) and course completion. Covid-19 contributed significantly to the ongoing and global challenges for student achievement in higher education (West & Fabre, 2021). Whole institutions were moved into virtual, digital environments where possible. This migration of instruction led to student support services moving in tandem, relocating from brick and mortar facilities to learning management systems (LMS) with a steep learning curve for everyone (Juszkiewicz, 2020). Advocates for student success have raised awareness about the importance of academic support centers to aid achievement for decades (Bailey, Jaggars, & Jenkins, 2015; O'Banion, 2019; Roueche, 1968). While the literature had demonstrated the efficacy of academic support services when used by students, there was a quantitative gap in understanding why students chose to either engage or not engage those services voluntarily (Kostecki & Bers, 2008; Smith et al., 2015). Student engagement with TASC in a virtual environment presented both challenges and opportunities, and a global pandemic provided a unique opportunity to study this phenomenon.

Statement of the Problem

The problem addressed by the study involved understanding the interaction between factors and variables that affect student engagement with academic support services (TASC) and the course completion rates of participating students, defined as achieving a Pass, or a grade of C

or better that term (COD, 2021). The challenge of succeeding in higher education for many students suggests that a corresponding demand for academic support services would exist, but that is not the universal student response at every institution (Hendriksen et al., 2005).

Friedlander (1980) observed that students who need academic support services the most are the least likely to use it, while those who need it least are usually the first to request services such as tutors or supplemental instructors.

The Center for Community College Student Engagement, (CCCSE, 2012) hereafter referred to as The Center, responded to the growing momentum of the college completion agenda with a series of reports about effective educational practices. The first report was focused on studying the elements of community colleges that promoted student success. The Center found that more than 75% of community college students surveyed did not use the academic support services at their respective institutions, such as tutoring and supplemental instruction (CCCSE, 2012). Support services were generally not required by either instructors or the institution, and consequently, the authors of the report recommended compulsory student attendance at those services. It was not clear why students surveyed chose not to use academic support services if they knew about them. The reasons why students chose to either use or avoid academic support revealed a gap in this report and the literature in general. The Center was managed by then Director, Kay McClenney (Hanover Research, 2014), who has been frequently quoted for her refrain, “Students don’t do optional” (p. 9).

Patton, Morelon, Whitehead, and Hossler, (2006) cited the lack of quantitative research supporting specific academic support services that link them with universally accepted measures of student success in community colleges. Patton et al. (2006) elaborated and wrote, “one of the most important findings of this investigation is the dearth of evidence to support the claims

proffered on the efficacy of a wide range of campus-based retention initiatives” (p. 10). Wurtz (2015) affirmed those findings with conclusions drawn from a case study about academic support services and a subsequent literature review, “there is not enough research in the area of program effectiveness [of academic support] at community colleges” (p. 2). The current Coronavirus pandemic presents fresh challenges for understanding immediate student engagement with TASC at COD since the entire institution has moved online. Juskiewicz (2020) wrote on behalf of the American Association of Community Colleges (AACC) and noted, “Although data at the time of the pandemic are not yet available, anecdotally we know that many students withdrew” (para 1).

Background of the Problem

The context for this study was based on exceedingly low achievement rates that have vexed most community colleges for decades. Academic support centers in general, and TASC in particular, were designed to address student needs for success. O’Banion (2019) observed, “In spite of ten years of interventions and student support initiatives, the nation’s most disadvantaged adults and young people are not gaining traction toward degrees” (p. 284). In 2015, three scholars from Teacher’s College, Columbia University, published a book that evaluated the state of community colleges across the nation. At a critical juncture in the text, Bailey et al. (2015) made the assertion, “There is little evidence that the nation is moving toward a widespread and significant improvement in the outcomes of community college students” (p. vii).

Those remarks were supported by the National Center for Education Statistics (NCES, 2020) of the U.S. Department of Education. Measures in the NCES (2020) database devoted to persistence and completion metrics indicated that among full-time undergraduate students who began seeking a certificate or associate degree at two-year degree-granting institutions in fall

2015, just 27% graduated in three years (2018) or 150% of the normal time required for the completion of a program—please see Appendix A for chart reference. The percentage of students who remained enrolled or persisted to the following fall in their first institution was 13% at public, two-year institutions. To put these numbers in perspective, the six-year graduation rate for first-time, full-time undergraduate students who began seeking a bachelor's degree in fall 2012 was 62%. Persistence to the next fall during the same period was 63% at the least selective public institutions (i.e., those with an open admissions policy), and 97% at the most selective public institutions (i.e., those with acceptance rates of less than 25%) (NCES, 2020).

Enrollment at COD has increased over the past five years; however, course completion with a C grade or better has not increased at the same rate (COD, 2020a). According to internal institutional data, only 6.5% of the 16,560 COD students enrolled in 2019 completed a certificate or degree. COD's completion rate is still higher than the California average (4.9%, NCES, 2020). Completion rates are an essential metric for student success, defined as the successful passage of all courses and units required for the degree identified as the student's academic goal (Horowitz, 2017). Research shows that identifying and studying leading or actionable indicators, such as academic unit completion, positively affects lagging indicators that include certificate and degree completion (Horowitz, 2017).

Tinto (1993) reflected on the comprehensive challenge of persistence and completion for community college and university students in higher education with these observations:

Among community college entrants, only 12% of regularly admitted students and but three percent of open admission students completed their degree programs on time (p. 26). Our failure to make significant improvements in learning and retention over the past

several decades reflects the regrettable fact that student experience has not led students to become actively involved in learning. (p. 211)

The literature resonates with Tinto's remarks about student persistence. Tinto (1993) did not frequently delineate community college from other higher education students in this work unless there was a specific reason to make the distinction. Students who struggle with the fundamental operations required of a student in community college are more apt to despair about continuing with their course of study and achieving desired goals rather than seeking academic support services to avert failure (CCCSE, 2012; O'Banion, 2019).

Researchers have made explicit connections between the amount of time a college student spends with academic support services, such as tutors and supplemental instructors, and positive, measurable outcomes that indicate success (Cooper, 2010; Hendriksen et al., 2005; Kostecki & Bers, 2008). Many of those studies have addressed the qualitative aspect of that support, such as the perspectives and impressions derived from the interactions between students and their tutors or supplemental instructors (Hendriksen et al., 2005). Other studies have shown that students do not use the academic support services at their disposal, even if it was shown through surveys that they knew about them (CCCSE, 2012). It was not clear from the literature what variables fostered student engagement or non-engagement at community colleges in general or specific institutions. This pervasive absence revealed a gap in the literature that warrants study.

Purpose of the Study

The purpose of this study was to analyze factors that relate to student engagement with TASC, the academic support service at COD. Factors were comprised of variables that measured knowledge about TASC, intrinsic and extrinsic incentives for engagement with TASC,

membership in college (defined as student involvement in college clubs and/or governance). The interaction of those factors was studied for relationships between student engagement with TASC and course completion.

Research Questions

Research questions for this study addressed a gap in the literature review and the desire to understand student engagement with TASC at COD during a global pandemic. The overarching question: What is the relation between factors and variables involving student engagement with TASC at COD during Covid-19? The research questions are:

RQ1: What is the strength and direction of the association between knowledge of the academic success center, intrinsic and extrinsic incentives, and membership in college events, activities or clubs, relative to student engagement or non-engagement with TASC?

RQ2: What is the strength and direction of the association between student engagement with TASC and course completion?

The complete survey instrument used for RQ1 is provided in Appendix B. The survey was disseminated in summer 2021 with an invitation to all currently enrolled students at COD to participate. Data derived from the Office of Institutional Research (OIR) at COD was instrumental in providing completion data and first-generation status for RQ2 analysis.

Theoretical Framework

The theoretical framework for this study is the model of student departure known as Student Integration Theory (Tinto, 1975). This theory evolved over nearly two decades and was inclusive of all institutions of higher education, including community colleges (Tinto, 1993). The distinction between the latter and four-year liberal arts colleges or universities was not delineated in this theory unless explicitly necessary. Tinto (1993) provided data that showed college

students need to have interactions with the institution outside of the classroom to personally identify with the institution and its mission to empower them for personal and academic success. Tinto (1993) elaborated that the “commitment to the institution” involved the student engaging with services, clubs, organizations and/or informal social activities extraneous to the classroom experience. These affiliations aid in mitigating adverse events affecting individual students and provided a support mechanism for personal and academic success that translated into “competent membership” in the college. Tutoring and academic supports such as TASC provide essential options for the extra-curricular engagement that Tinto identified.

A basic premise of Tinto’s theory is that adult students are independent agents (Syracuse, 2019). They bring not only their prior education, abilities, and skills to college but a series of expectations (vague or specific) about what they will encounter at the institution and gain from the whole experience. Tinto (1993) asserted, “The commitment of individuals to the institution appears to be directly linked to the quality of one's education broadly conceived” (p. 177).

The institution has an obligation to clearly and regularly articulate expectations for progress, charting a clear path for student achievement and success with appropriate supports. Tinto (1993) acknowledged the baseline necessity of services such as tutoring and supplemental instruction as a prelude to additional interventions that span the duration of student attendance: “In addition to meeting the continuing need for academic support services, some institutions have also turned to the development of educational programs that extend the logic of active involvement in learning during the first year to subsequent years of college” (p. 177).

Tinto’s (1993) theory of integration stipulates that institutions consciously provide formal and informal social interaction opportunities. Student interaction with faculty, staff, and peers outside of the formal classroom environment can affect individual perception about being a part

of the institution and sharing the mission to learn and make meaningful contributions in return. Tinto asserts that when the formal, intellectual, and classroom interaction is combined with the informal social elements of the institution, the student begins to personally identify with the institution and the purpose of being there to achieve measurable learning. Tinto (1993) made this observation about students who remain in college to completion, “Persistence arises from the social and intellectual rewards accruing to competent membership in the communities of the college and from the impact that membership has upon individual goals and commitments, especially commitment to the institution” (p. 208). Tinto (1993) added to this observation that students must achieve a sense of “membership” in college, “Individuals who perceive themselves as having established competent membership, both socially and intellectually, and having grown in the process, are more likely to express a strong commitment to the institution which houses those individuals and communities” (p. 208).

This commitment results from a progressive, successful integration of student conception about personal goals and aspirations being fulfilled by remaining in college until the course of study is completed and facilitates graduation—a powerful rite of passage in Western civilization. Kuh et al. (2006) observed:

Although there is some disagreement about how to best operationalize various components of the Tinto model, most agree that for students to succeed in college, they must learn to negotiate foreign environments and interact effectively with strangers.

Thus, interpersonal relationships both on and off campus play a role in mediating student success in college. (p. 12)

Tinto (1993) and Kuh et al. (2006) agree that students’ worldview, values, and cultural background must be considered and respected in the process of integrating students into the

norms and culture of higher education. The institution should not pose an either/or proposition for integration that negates personal convictions. However, it should foster a mature synthesis of values wherein students can retain personal values and still acclimate to a perspective about participating in a process that enhances their self-interest.

Methodology

This study employed a quantitative correlational design. Data was collected with a student survey and institutional files, while analysis was conducted using logistic regression and a chi-square. The student survey was developed by the researcher using field tested sample questions provided by a current Community College Survey of Student Engagement (CCSSE, 2021) and feedback from a Cognitive Lab. Course completion data and parent education status for participating students were drawn from the Office of Institutional Research (OIR) at COD.

Phase one of data collection was focused on the first research question: What is the strength and the direction of the association between knowledge of the academic success center, intrinsic and extrinsic incentives, and membership in college events such as activities or clubs relative to student engagement with TASC? The survey was deployed on the platform, SurveyMonkey.com, and made available to all COD students with an announcement on Canvas, the institutional LMS. Demographic data was collected for the purpose of sample description. The researcher endeavored to investigate how student engagement or non-engagement was influenced by the independent variables associated with the factors.

Prior to distribution, the student survey instrument was pre-tested with student volunteers, (both TASC and non-TASC student employees,) professional staff, (both TASC and non-TASC employees,) to gauge clarity of questions and ease of navigation. Additionally, the researcher conducted this pre-test analysis with a Cognitive Lab setting, requesting that six of

those respondents would be willing to take the survey while the researcher record verbal remarks to evaluate the mental processes of the respondents, especially with regard to individual perception about the clarity and/or difficulty of the survey instrument questions. Feedback revolved around the ease of navigating the survey, grasping the meaning of questions, and discussing the kinds of issues raised by the subject matter. That feedback was collected and analyzed, prompting the researcher to make changes to four specific questions to enhance clarity of purpose and to expand selection of responses. This revised survey was opened for access with SurveyMonkey on June 17, 2021 and made available to all COD students with active enrollment and current access to Canvas, the institutional LMS. The Canvas announcement was posted indicating that the survey was accessible for two weeks, between June 17, 2021 and July 1, 2021. There were 25 total questions on the survey, including requests for demographic data and three open ended response questions.

Based on participation, the researcher offered respondents the opportunity to enter a raffle to win a \$20 Starbucks gift card. The survey concluded with two winners being contacted about their raffle winnings and a follow-up announcement declaring the conclusion of the survey, accompanied with gratitude expressed for participation.

Phase two of data collection was focused on the second research question: What is the strength and direction of the association between student engagement with TASC and course completion? This data was collected by using the college identification numbers volunteered by students on the survey instrument and then using a crosswalk document provided by OIR to match those identifiers with another set of numbers assigned by the institution for database identification. The latter numbers were deployed on a series of Management Information System (MIS) files that met criteria established by the California Chancellor's Office (CCCC, 2021) for

storing student data. Once those numbers were matched using Excel software, the researcher isolated and extracted data about course completion and parent education (or first-generation status) for each of the student survey respondents. Student course completion rates were compared with engagement or non-engagement with TASC using a chi-square.

There were six steps to this research process. The first step involved a deep immersion in the literature to determine what had been discovered and learned from previous studies to isolate a gap in knowledge worthy of investigation. The second step revolved around the development of the student survey for RQ1, consistent with the history of survey questions in the CCSSE (2021) and Cognitive Lab feedback. The third step entailed publishing the survey on SurveyMonkey.com and announcing this fact in Canvas to provide student access with an embedded hyperlink. That message was accompanied by a note explaining the purpose and scope of the survey instrument, with an invitation for all COD students to participate. The researcher collected the survey responses for the fourth step and prepared the results for analysis with logistic regression using statistical software. During the fifth step, specific MIS files were requested by the institutional OIR, and data for RQ2 was extracted and organized for analysis with previous data drawn from the student survey, using a chi-square. Parent education status was used for survey sample description and course completion rates were compared with TASC engagement. The research process concluded with the sixth step, wherein the researcher assembled all of the data points into a coherent, logical display of findings that included charts, tables, and explanation of the analysis. This step was meant to address the overarching question of the study and the two research questions.

Lochmiller and Lester (2017) noted that scholars often attribute the basis of quantitative research to the philosophical perspective of positivism, emphasizing the implied reliability of

data derived from phenomena that can be measured or observed using standardized criteria. The opportunity to add quantitative data to the extensive body of qualitative reflections about academic support could add significant insights to the field. Hendriksen et al. (2005) observed, “Identifying why students self-select to come to the LC [Learning Center for academic support] is a challenge. Are our assessment findings therefore based on student traits such as motivation and perseverance rather than any LC practices?” (p. 63). That gap was reinforced by Patton et al. (2006) regarding academic support services when the authors made the assertion that “one of the most important findings of this investigation is the dearth of evidence to support the claims proffered on the efficacy of a wide range of campus-based retention initiatives” (p. 10). Review of the literature affirmed thus far that significant qualitative research has been conducted about academic support services, eliciting perspectives and feelings about these interactions, but few quantitative studies have been conducted in the same vectors of study.

Scope, Bias, and Delimitations

The scope and delimitations of this study were:

- The setting for this study was the Tutoring and Academic Skills Center (TASC) at a single community college in California, College of the Desert (COD).
- The study was conducted in summer 2021.
- The study was confined to studying student responses during the Covid-19 pandemic period (spring 2020, summer 2020, fall 2020, spring 2021, and summer 2021)
- The student survey was conducted after the committee and IRB approved the study.

Due to the exclusive venue designated for this study—the academic support services center at a single community college in Southern California—the analysis results may not be generalizable to peer institutions across the state or throughout the nation. Furthermore, the researcher is

currently employed as the department director of the research site and has a direct interest in the positive portrayal of those services. This employment provides a useful context and expertise for the study; however, it also provides an opportunity for bias to permeate the research design elements and final analysis. Minimizing bias was a top priority, and the researcher used clearly defined protocols and standard data collection and analysis processes as defined by experienced scholars with field experience (Roberts & Hyatt, 2019). OIR contributed to this effort by providing coded data in formats that mask student identity.

Assumptions

The initial assumptions of this study were:

- Students would answer the survey questions candidly and honestly.
- Students would answer the survey in a way that reflects their own thinking and beliefs about the content of each question.
- Students would attest to the value of higher education and the utility for academic support services but may not be willing to act on those values by engaging in support services.

Significance of the Study

The sum of collected data from this research could be useful to faculty, administrators, and legislators alike for designing more effective academic support services and promoting legislative advocacy for that support at the College of the Desert in particular, and community colleges in general. This study may benefit the leadership and staff directly employed by academic support services at TASC to review the variables involved and why they are significant. The findings may provide insights into the relationships between the variables, the participants, and the site used for the study. This discovery could be used to elicit renewed interest, and active engagement from students at this institution.

Summary of Chapter 1

The organization of Chapter 1 for this dissertation includes an introductory statement and a statement of the problem regarding student engagement or non-engagement with academic support services. The background of the problem follows with a purpose statement, closely followed by two research questions. The theoretical framework of this study is discussed to show how it supports the study, followed by a discussion of methodology. Delimitations and assumptions are discussed and terms defined. An organization of the study concludes Chapter 1.

Organization of the Study

The remainder of this study was organized into four chapters, including bibliography and appendixes in the order described. Chapter 2 presents a review of the related literature dealing with students accessing academic support services at a community college. Chapter 3 delineates the research design and methodology of the study. The instrument used to gather the data, the procedures followed, and the determination of the sample selected for study are described in detail. Analysis of the data and discussion of the findings are presented in Chapter 4. Summary, conclusions, and recommendations of the study are found in Chapter 5. The study concludes with references and appendices.

Chapter 2 - Literature Review

Introduction to Literature Review

This literature review focused on the evolution and efficacy of academic support as a service with its own, unique culture that emerged in higher education during the late twentieth century. Special attention was given to student engagement patterns with these services and the variables that affected them. The researcher combed six decades of literature for insightful data using scholarly sources derived from peer-reviewed journals, anthologies of relevant essays, and published works. Vincent Tinto provided the theoretical framework for this study. He is renowned as a Distinguished University Professor Emeritus at Syracuse University and the former Chair of the Higher Education Program (Syracuse, 2019). Tinto conducted research about the elements associated with student struggles and success in higher education. His writings are quoted extensively, and included at key passages throughout this study. Many of the scholars cited in this review attribute significant influence to Tinto's work.

The role of providing a quality education to regional, adult learners is a core mission for community colleges; therefore, it follows that a substantial quantity of literature was devoted to that function. Much of the research was produced by graduate students, but a roster of public and private enterprises financed or conducted similar studies, such as the Center for Community College Student Engagement, the Commission on the Future of Higher Education, the Lumina Foundation, and the Bill & Melinda Gates Foundation, to name a few (CCCSE, 2012).

Organization of the Literature Review

The organization of this literature review is based on thematic elements directly relevant to the purpose and framework of the study, including, but not limited to the intersection of

community college and academic support, post-modern paradigm shift, highlights of educational research, the evolution of academic support services, the efficacy of academic support services, theoretical framework, gaps in the literature and summative analysis. Most of the literature reviewed focused on the aforementioned categories and other works beyond the general scope. A gap emerged in the literature that is a key focus of this study.

Intersection of Community College and Academic Support

During the intervening hundred and twenty years since first appearing in 1901, junior colleges have flourished into the widely distributed institutions recognized today as the community colleges; however, academic support services were not part of the institution until fifty years ago (Arendale, 2004; Christ, 1971). Drury (2003) observed that the president of the University of Chicago who helped launch Joliet Junior College, William Rainey Harper, never imagined the size or diversity of support services offered at contemporary community colleges since faculty were expected to bear tutoring responsibilities as ancillary activities to teaching (Christ, 1971; Luskin, 2011). In ancient and medieval times, tutors were professors engaged in highly selective classroom instruction or hired out by royalty or the wealthy to instruct a privileged protégé. That perception of tutors lasted through half the twentieth century before peer tutors and academic support services emerged as partners with community college faculty, promoting student achievement and success (Arendale, 2004).

Sources of literature corroborated that there were key events that led to the development of academic support services in community colleges because most students need these services if they are to succeed academically (Arendale, 2004; Christ, 1971). In 1920, the American Association of Junior Colleges (AAJC) was founded to provide a national platform for corralling junior colleges around common goals and collaborative initiatives to foster legislative

advocacy. The AAJC would be renamed to the current American Association of Community Colleges (AACC, 2020) in 1992, reflecting the institutional emphasis on serving the local community. The Great Depression of the 1930s plunged millions of Americans out of work and into poverty (AACC, 2020; Bailey et al., 2015). Drury (2003) noted that national enrollment at community colleges nearly tripled during the Great Depression from 56,000 to 150,000 as youth sought new skills and new job opportunities. Despite that enrollment, faculty still bore the burden of tutoring students outside of the classroom (Christ, 1971). The next great wave of enrollment was driven by the enormous fallout of World War II. Congress passed the Serviceman's Readjustment Act of 1944 (known informally as the G.I. Bill), providing financial assistance for veterans of the conflict (Luskin, 2011). The law was a landmark piece of legislation for eliminating social and economic barriers to participating in higher education, resulting in 2.2 million veterans attending college (AACC, 2020).

Post-Modern Paradigm Shift

The Western world pivoted from the modern age to the post-modern era that arrived after the Second World War in 1945 (Shermer, 2017). After that transition, Roueche (1968) identified a great service shift in community college populations that nurtured the corresponding emergence of academic support services, "Since the mid-1950's, there has been evidence of a growing concern with the low achiever in community junior colleges...No semantical niceties will cover or hide the issue" (p. 15). Remediation was the immediate, natural process identified for resolving academic deficiencies, and Roueche (1968) discussed the obligation of community colleges to serve these students, proceeding as an inevitable consequence of the open-door policy and the democratic impulse to provide learning opportunities for all citizens. Remedial programs and courses proliferated for decades until recent legislative initiatives emerged that prohibited

assigning students to remediation, such as California Assembly Bill 705 passed in 2018. Tinto (1993) observed that urban community colleges placed over 60% of their students in one form of remediation or another. Roueche (1968) foresaw the challenge of addressing academic deficits on a mass scale as community college enrollment surged with each successive decade. Nothing less than an extraordinary reformation was needed in the American public school system, with support from the public to demand rigorous outcomes for those institutions. Roueche (1968) warned that unless community colleges found creative ways to enable those students to succeed, the “open door” of the community college would become a “revolving door” (p. 15) for failing students.

During that same time, the Civil Rights Movement emerged in the United States, and the movement became significant for addressing barriers that prevented access to higher education for people of color (Roueche, 1968). Frady (2001) documented the events that resulted in a series of legislative acts that attempted to eliminate those barriers with resources and incentives for those affected. The comprehensive effort to help all students with barriers to achieving measurable success in higher education resulted in the emergence of academic support services in the late 1960s, early 1970s (Arendale, 2004; Roueche, 1968). The sense that community college students needed additional support was not a recent discovery in the 1960s, but the groundswell of support from educators and administrators alike facilitated the possibility of those services emerging (Roueche, 1968).

Highlights of Educational Research

The literature about emerging academic support in the late 1960s, early 1970s surfaced simultaneously as a larger body of work devoted to comprehensive research about the state of student achievement in higher education. The former was often treated by the latter as a subset

or a closing recommendation since student success encompasses many topics that appeal to a broad audience (Bailey et al., 2015). That research was critical for validating the place of academic support services (Arendale, 2004). Since 1980, five studies were frequently referenced in the literature for exploring the general and specific elements of higher education that contribute to student success. Three of those studies are reviewed in this section (Bailey et al., 2015; CFHE, 2006; NCEE, 1983). The CCCSE (2012) study and its findings are discussed in the Efficacy section, and Tinto (1993) is explored in the Theoretical section that follows later.

In 1981, Secretary of Education, T. H. Bell, created the National Commission on Excellence in Education (NCEE, 1983) and charged it with the mission to examine the comprehensive quality of education in the nation arising from concerns about "the widespread public perception that something is seriously remiss in our educational system" (p. 7). Those concerns were justified by the findings of the report, *A Nation at Risk*, (NCEE, 1983), wherein the commission declared, "the educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a Nation and a people" (p. 9).

NCEE (1983) made another insightful observation relevant to community college enrollment,

One-fifth of all 4-year public colleges in the United States must accept every high school graduate within the State regardless of program followed or grades, thereby serving notice to high school students that they can expect to attend college even if they do not follow a demanding course of study in high school or perform well. (p. 19)

The same sentiment can be applied to high school students attending open enrollment, public community colleges. There is virtually no incentive to prepare academically for entry into a community college, and a study to be discussed at length later (CCCSE, 2012) demonstrated how ill-prepared most community college students are for the most basic academic tasks. The net

result of poor completion rates can be directly correlated with these findings. The NCEE (1983) study of American education was comprehensive and virtually unprecedented for its depth and scope. It would influence many subsequent studies, and especially another government study conducted by Margaret Spellings, Secretary of Education (CFHE, 2006).

The literature refers to another highlight in educational research that was equally monumental in scope with the report, *A Test of Leadership: Charting the Future of U.S. Higher Education*. This report was authored by the Commission on the Future of Higher Education (CFHE, 2006), led by then-Secretary of Education Margaret Spellings. Consequently, the report became informally known as the *Spellings Commission Report* (AACU, 2006) and was applauded for advocating for student access issues, such as affordability, equity, and navigability. CFHE (2006) noted, “Between 1992 and 2003, average prose literacy (the ability to understand narrative texts such as newspaper articles) decreased for all levels of educational attainment, and document literacy decreased among those with at least some college...or a bachelor’s degree or higher” (p. 19). Some educators derided the report for lack of specifics about how to accomplish any of those objectives with any singular strategy, and the emphasis on student employment was seen as ignoring the less tangible benefits of higher education (AACU, 2006.) Nevertheless, the report found comparable points of concern with *A Nation at Risk*, noting that first-year college students were woefully underprepared for the academic rigor expected of them. Even those who graduated often lacked acceptable skills for literacy, computation, and critical thinking (CFHE, 2006). Both of these reports provided comprehensive assessments about the state of American student preparedness for higher education, and the Spellings report evaluated the quality of student capacity after graduating from universities and colleges with troubling clarity.

Improving student achievement measures in community colleges gained traction during the latter half of the twentieth century (Christ, 1971; Roueche, 1968; Tinto, 1993). Achieving the Dream (ATD) launched the college completion movement on a national scale in 2004, re-focusing public attention on local colleges and the need to radically improve student achievement outcomes, especially for low-income and students of color (Smith et al., 2015). ATD built a support system for community colleges that included coaching, professional development, and the adoption of effective practices and policies leading to improved outcomes for all students. Participating institutions in ATD were required to collect and assess data on student performance to aid in developing intervention strategies that addressed critical barriers to student success specific to each institution. Community colleges measured the impact of their strategies by compiling relevant data to determine whether students were achieving at higher levels than before the new strategies were implemented (Achieving the Dream, 2020).

Odessa College (Texas) joined the ATD cohort network in 2009 and achieved measurable improvement with student success. This momentum was based on institutional collaborations and the application of new data collection software, coupled with a firm commitment to analyze metrics and act on them (Kistner & Henderson, n.d.). This process and the results earned the college top ten finalist recognition for the Aspen Prize in 2017, 2018, and 2019. The founder, Vice President, and Executive Director of the College Excellence Program at the Aspen Institute, Joshua Wyner (Kistner & Henderson, n.d.), said, “Odessa College has made dramatic improvements in student success over the past several years...increased enrollment, graduation rates, and financial aid awards” (2021, para 3). Wyner attributed this success to innovations such as flexible eight-week semesters that accommodated students' schedules as working adults. Odessa College (OC) has served communities of the Permian

Basin of West Texas, including the city of Odessa, since 1946. Approximately 5,000 students enrolled at OC, and the majority of those students were under 24, female, Hispanic, and attending part-time (Kistner & Henderson, n.d.). Nearly 30% of these students were Pell Grant recipients. Dr. Gregory Williams, President of OC, recognized that the college was falling short with student completion goals, and he challenged the entire institution to raise the bar for student success (Kistner & Henderson, n.d.).

Leadership at OC combed the metrics compiled from an enhanced study and discovered that course drop rates differed significantly among instructors, and this was true regardless of subject, course, time of day, rigor, or significantly, student level of preparedness for any given course (Kistner & Henderson, n.d.). Administration wondered why course withdrawal rates differed by the instructor and what could be done to shore up specific instances and collective exodus. Key officers conducted a series of classroom observations and faculty interviews. It was determined that drop rates were not the result of instructional pedagogy but the quality of engagement between instructor and students. The findings suggested that instructors with the lowest drop rates had frequent and sustained interaction with students that fostered student commitment to the instructor and the course despite adversity setbacks (Kistner & Henderson, n.d.).

As a result of this research, Odessa College developed the Drop Rate Improvement Program (DRIP) to enhance the connection between course instructors and their respective students (Kistner & Henderson, n.d.). Instructors provided a bridge between students and academic support services, such as tutoring and relevant resources that facilitated a better understanding of course material, comprehension, and retention for assessments. That successful formula extended beyond the main campus to include all satellite locations served by the district.

The OC Leadership had to cultivate a firm commitment from faculty to make the DRIP program sustainable and successful for more than a season (Kistner & Henderson, n.d.). In the fall of 2011, course retention rates increased from 83% to 95%. This change was comprehensive for the whole institution, regardless of gender, age, race/ethnicity, or Pell status (Kistner & Henderson, n.d.). These results were universally applicable to those findings, regardless of the student's gender, age, race, ethnicity, or Pell status. In the first semester of the program, drop rates for "high-drop" instructors, ranging from 18% to 28% on average, declined to between six percent and 15%. In some cases, drop rates declined by as much as twenty percentage points. The leadership decisions that led to making data-informed decisions produced the initiative and the institution-wide drive to develop the Drop Rate Improvement Program that led to unprecedented levels of success at the college. This process also formed the basis for other interventions and academic support strategies to be used at Odessa College (Kistner & Henderson, n.d.).

Student Success Centers provided specialized, intrusive academic support services for students that mirrored the values and goals of ATD. Nevertheless, Smith et al. (2015) noted, "Few colleges have significantly improved overall outcomes. And attainment gaps between low-income and higher-income students remain unacceptably wide" (p. 31). The literature, in this case, provided a brief history of the Completion Agenda, coupled with chronological elements that reflect the evolution of student assistance, such as academic support services that could be designed and built to promote student achievement with measurable success. This research establishes a firm bridge between the history of national success initiatives that preceded and followed the completion agenda and the ongoing drive to engage students with academic support services (Smith et al., 2015).

Two books frequently cited by the literature since 2015 provide a dual, comprehensive perspective on the state of community colleges in America up to 2019. The Bailey et al. (2015) collaboration provided research about the efficacy and deficiencies of community colleges, focusing on the mechanics of the institution that either impede or facilitate student success. O'Banion's (2019) book is a compilation of writings by nationally recognized leaders and educators advocating nothing less than the transformation of community colleges.

Throughout the literature, the emphasis on "community" for local, public colleges typically focuses on regional constituencies (Drury, 2003; Luskin, 2011), but scholars from Teachers College, Columbia University, broadened that scope of consideration to encompass the national constituency and the challenges facing community colleges as an American institution. Bailey et al. (2015) conducted extensive research, primarily through the Community College Research Center (CCRC) and dispensed with the suggestion that a few administrative or structural changes were needed, but called for a universal, nation-wide overhaul, a fundamental redesign of the community college from the ground up (Bailey et al., 2015). The researchers culled findings from previous studies of community colleges over the course of eight years, including a lengthy reflection on the significance of the Great Recession of 2008 and the fact that community college budgets never fully recovered. Recommendations were provided for research-based design principles and strategies such as Guided Pathways and learning communities to help colleges achieve the call for transformation and chart a path to achieve greater success for community college students across the nation. Learning communities were regarded as a tool for corralling students with common goals around each other for inspiration and mutual encouragement. Nevertheless, interdisciplinary pedagogy made this problematic.

Bailey et al. (2015) made this observation about academic support services, “Even students who obviously need tutoring may not avail themselves of it. In one study of students on academic probation, an intervention program strongly encouraged these students to visit the college’s learning center, but still only 57% did so” (p. 91). Baily et al. (2015) speculated about the cause of this phenomenon with a key phrase, “may not recognize” in a poignant statement that is close to the heart of this study, “Many students, particularly those who struggle academically, *may not recognize* [researcher italics] that they need help—or may be embarrassed to expose their weaknesses—and thus avoid tutoring unless they are required to use it” (p. 92). Those findings seem problematic in light of previous information in the text since most of the students encouraged to use tutoring were on academic probation and were assigned to intervention or early-alert programs, having been flagged by mid-terms or final course grades as needing assistance. It was written that the students “may not recognize” their need, or perhaps they recognized their status and chose not to pursue academic support services.

The spirit of reformation and innovation informed most of the literature researched for this study, including *13 Ideas That Are Transforming the Community College World*, a compilation of writings collected by O’Banion (2019). This work revolves around three macro concepts: national initiatives, internal functions, and enabling ideas. O’Banion captured the essence and urgency of reformation for an institution facing mounting pressure to deliver acceptable rates of return on the great American investment. While academic support services make only periodic appearances in the text, it is clear that every part of the community college needs to collaborate for measurable change. The text about Guided Pathways as an instrument to achieve student equity and measurable change is significant since this design is being implemented at multiple community colleges in California. According to Kay McClenney,

Guided Pathways involves comprehensive structural changes that ensure alignment between counseling and a curriculum that is reconfigured to focus students on taking courses that contribute to actual program completion and help students avoid superfluous or unnecessary deviations that prolong their stay at community colleges and drain their financial resources (O'Banion, 2019). The specter of budget cuts and diminished resources in a post Coronavirus world adds urgency to every initiative or academic support service that facilitates student course persistence and completion in a timely manner (Juszkiewicz, 2020). This grim reality was addressed decades ago, when Tinto (1993) noted, "At some point institutions must address the complex question of what forms of departure they will define as dropout and therefore deserving of institutional action and what they will consider to be the perhaps unavoidable outcome of institutional life." (p. 176).

Evolution of Academic Support Services

Student support services, such as counseling or financial aid, were commonplace on community college campuses in 2020, but the enhanced presence of those services evolved over decades. Formal, academic support services did not emerge as a distinct offering in American higher education until the early 1970s (Christ, 1971). Arendale (2004) attributed the earliest manifestation of recognizable academic support services to a state university in Southern California. "In the early 1970s, the Learning Assistance Center emerged as a new model of academic access. Most recognize Professor Frank Christ at California State University-Long Beach as the first to use the term in the professional literature" (p. 5). That first reference (Christ, 1971) was published in a paper Christ presented for the Western College Reading Association, which later evolved into the College Reading and Learning Association (CRLA,

2020), a national leader in tutor training curriculum development and certification of tutor training programs. The institution selected for this study is affiliated with CRLA.

Arendale (2004) made an essential distinction between this new Learning Assistance Center (LAC) or academic support service and previous university support services such as reading or study labs that were remedial or compulsory in nature, and as such, admitted only designated students. The new service worked as a campus-wide support system in a centralized office that functioned with theoretical frameworks about tutoring and knowledge acquisition. The Learning Center was governed by systematic objectives to serve all students in the institution at all levels of academic support. Staff and faculty would evaluate the success of the service with ongoing self-assessment processes. Well-informed academic support service professionals recognized the foundational contributions of Frank Christ to the field and its development, and some recognize this article by David Arendale (2004) as the definitive document about the origins and design of the earliest learning centers. The scope and depth of the research are fundamental to understanding the core mission of those services and the subsequent migration from state universities to community colleges, with the flagship charter still largely intact.

Academic support services grew in scope and diversity depending on the institution and student population served. It was inevitable that additional innovations in academic support would be developed and absorbed by those services. In 1973, Dr. Deanna Martin of the University of Missouri, Kansas City (UMKC, 2020) devised a novel method of reinforcing weekly lessons and concepts in a single, hour-long classroom session, usually held at the end of the week. These sessions were appropriately called Supplemental Instruction (SI), and they were usually facilitated by an advanced student (junior or senior) who had taken the course, aced the

material, and was specially trained to reinforce key concepts, much like a peer tutor, but different in the sense that the SI instructor attended every class in an ongoing journey with the students. SI was designed for gateway and “bottleneck” courses flagged as especially difficult, with significant numbers of students receiving less than satisfactory grades. Research conducted on SI performance has mostly been favorable for advancing student achievement and completing key gateway courses. Some SI programs were managed directly by faculty and the departments they served, whereas other SI programs were housed in academic support services. Tinto (1993) observed, “Unlike the broader reach of general developmental education programs, these [SI] programs are tied to specific courses and as a result are more dependent on the cooperation of faculty and program staff to organize course and group work to the students' benefit” (p. 170).

Tinto’s (1993) observation that the “cooperation of faculty and program staff” (p. 170) is not only a vital prerequisite for deploying a successful Supplemental Instruction program (UMKC, 2020) at any community college but equally essential for encouraging students to visit academic support services and utilize tutors and other supports in the center (CCCSE, 2012; Hendriksen et al., 2005; Kostecki & Bers, 2008). The literature suggests that faculty attitudes about peripheral offices or services in the whole institution can significantly affect students and the decisions they make about accessing non-essential services (CCCSE, 2012), unlike counseling and financial aid. However, no distinct survey or metric has been found to support that supposition. How exactly faculty allegedly do this, or whether those attitudes are communicated implicitly or explicitly in the classroom or through course materials has yet to be determined with any precision based on quantitative data. The paradigm of academic freedom is broad and diverse in application, especially with community colleges, and a multitude of faculty opinions expressed in the classroom are protected from scrutiny or sanction (Shermer, 2017).

Nevertheless, the power of persuasion that college faculty have with students is universally renowned, and the data points or hard evidence that large numbers of faculty are disparaging services at their institution have not been disclosed in the literature, although the power of positive faculty persuasion is revealed in several studies (Cooper, 2010; O'Banion, 2019).

Since the 1990s, many institutions have chosen to integrate academic support services with other specialized, non-academic services, such as disability support and/or Trio programs that foster team building and socialization skills. The strategy in some cases was to package those services more holistically to reach a wider audience of students, and perhaps by chance, attract some students to academic support who might otherwise avoid it. Program acquisitions and departmental mergers have made academic support services (or learning assistance in some institutions) into a global enterprise with multiple professional organizations and representation at every level of higher education, including Oxford and Harvard universities (Cooper, 2010).

Efficacy of Academic Support Services

The assessment was addressed extensively in the literature as it measured student performance points and institutional effectiveness (CFHE, 2006; NCEE, 1983; O'Banion, 2019). The assessment of academic support services was focused on addressing student usage trends and the correlation between student engagement with tutors (or supplemental instructors as appropriate) and the resulting benefits associated with those contacts (CCCSE, 2012; Hendriksen et al., 2005; KostECKI & Bers, 2008). Tinto (1993) wrote, "The ability of institutions to retain students lies less in the formal programs they devise than it does in the underlying orientation toward students which directs their activities." (p. 205). The outcomes provided persuasive metrics from multiple institutions that tutor services were statistically more effective for student achievement (e.g., Grade Point Averages) when students habitually engaged tutors and

supplemental instructors (Cooper, 2010; Smith et al., 2015). Tinto (1993) remarked, “When academic difficulties are experienced, it may be more difficult for older students to readily admit that they are having problems. They may be less willing to ask for assistance in making the transition to college” (p. 187). This is true of many community college populations.

Hendriksen et al. (2005) parsed the distinction between a reasonable perception about providing efficacious services to students and measurements that supported those assertions: “The goal of our study was to determine if the Learning Center was doing what it said it was doing and what it could do to improve its services” (p. 56). That article focused on a single tutoring program in a California community college. This Learning Center was typical of many academic support services in that it measured student traffic as the primary barometer of success (Smith et al., 2015). Following this study and the subsequent recommendations, the managing staff realigned their assessments for student learning outcomes as indicative of success (Hendriksen et al., 2005). and the results confirmed that the center was meeting its student learning outcomes. Recommendations were made to make the tutor-to-student appointment process easier and more accessible. Tinto (1993) observed, “Institutions should recognize that the first year, in particular, represents a strategic leverage point where the investment of scarce resources can yield substantial future benefits in both learning and persistence” (P. 152).

Kostecki and Bers (2008) conducted a quantitative study of academic support services three years later at a suburban, open enrollment community college outside a “major metropolitan area” (p. 8). Tutoring was the central variable of interest, as the researchers collected the number of visits each student had with a tutor and the total time engaged per student per semester. Student demographics (such as gender, age, ethnicity) and academic preparedness variables were designated as the control variables. The research team identified

three outcome measures for student success: fall term GPA, percent of fall courses successfully completed (grades of A, B, C, or Pass for remedial courses), and persistence to spring semester. After deploying two quantitative tools; analysis of variance and logistic regression, Kostecki and Bers (2008) found that tutoring was directly tied to student success, controlling for other variables. The findings provided empirical support for the initial hypothesis that tutoring was an essential element in student support services. It was noted that the literature about student success is extensive. Much of it is based on four-year colleges and universities. Kostecki and Bers (2008) wrote, “Studies of support services and institutional practices intended to improve success tend to be more descriptive than analytical, so that the actual effectiveness of these measures continues to be largely unknown” (p. 7). The researchers acknowledged several limitations of the study, the most significant being, “several important potential contributors to student success—such as motivation, hours of employment, and family obligations—are not included in the models because data were not available” (p. 11). Tinto (1993) observed, “Though the variants are numerous, the principle is the same, namely that the institution has to find a way of making it possible for students to obtain the services they need while on campus” (P. 196). The Kostecki and Bers (2008) study was insightful for the methodologies deployed and the results derived from the analysis.

The CCCSE (2012) embarked on an intensive, multi-year study to discover “promising practices” (p. 22-24) that could be adapted and deployed at appropriate community colleges with flexible accommodations to fit each institution. The center had an overarching philosophy that respected the organic and inherently original features developed from the complex *mélange* of demographics and composition that made each campus unique. As such, solutions could not be duplicated as a universal template for all colleges. The CCCSE (2012) study opened with a plea

to refrain from a series of potential judgments rendered on the institutions studied to avoid negating the vulnerability expressed by each college. Readers were appealed to avoid unilateral judgments on community colleges as a singular entity without understanding the parts and the public airing of specific faults when the institutions showed the willingness to be transparent for the purpose of self-improvement. A plea of that nature is remarkable in any professional context, particularly for institutions wherein self-assessment is a fundamental aspect of operations. Nevertheless, it could be argued that CCCSE (2012) sought to embrace the spirit of collegiality for transformational changes rather than harsh and unyielding metrics.

The methodology involved using focus groups to collect student and faculty statements over three years and combine assessment of that material with the CCCSE collection of data points and wealth of previous analyses. The CCCSE (2012) final report arrived at five promising practices for reviving student success at community colleges. Emphasis was placed on student engagement, persistence, and completion, focusing on academic support services and student usage patterns. This aspect of the report was the most relevant to the purpose of this study since specific reasons and/or incentives for either engaging or not engaging in academic support services were not divulged, leaving a gap in understanding.

The CCCSE (2012) findings revealed that 73% of the respondents (N=403,333) indicated that tutoring was somewhat or very important, and 80% of CCFSSSE (faculty) respondents (N=35,299) reported sometimes or often referring students to tutoring, only about one-quarter of students (N=130,147) reported ever participating in tutoring. The concluding recommendation was to make student participation compulsory. Hanover Research (2014) summarized the findings of the CCCSE report this way,

CCCSE's recent studies have yielded mixed results regarding the efficacy of supplemental instruction and tutoring. The 2013 study of student engagement found that supplemental instruction was positively related to all five CCSSE benchmarks, with tutoring related to all but one. However, while students who participated in one of these practices were slightly more likely to complete a developmental English course, no relationship emerged for students' performance in gatekeeper courses or their likelihood of persisting to a second semester or second year. (p. 11)

The CCCSE (2012) final report featured a section derived from the extensive findings across the nation about developing and designing practices that proved to be effective, producing measurable achievement for promoting student success. The example that was most relevant to this study showcased an academic support service in the state of Kentucky that appeared to be exclusively devoted to tutoring until administration and staff retooled or upgraded the tutoring services to be more comprehensive, adding the element of study space to facilitate engagement opportunities between students and resources.

The West Kentucky Community and Technical College (WKCTC) replaced its tutoring center with an Academic Support Center and placed it at a suitable location of the service area. The new center added SI and updated its training for tutors with consistent guidelines. The text of the report did not provide a reason other than geographic that could account for an improvement in services. The WKCTC registered a 10% increase in retention during a period of steady growth in its student population; the most remarkable fact is that the Academic Support Center is working with 1,000 of the college's nearly 4,000 credential-seeking students. In fall 2010, the college evaluated its tutoring services by comparing the performance of students tutored in the Academic Support Center with that of students in the same course sections, and the

results showed that 60% of the students who engaged a tutor completed their courses, compared with the 54% of students who did not receive tutoring.

Hanover Research (2014) summarized the CCCSE (2012) findings as previously noted, but in addition, synthesized it with additional research about academic support services drawn from a broad range of research on retention strategies. La Guardia Community College was also studied extensively. Hanover Research (2014) made these observations:

Although research has not identified multi-institutional evidence of effectiveness for these practices, some institutions report improved outcomes, including increased retention, because of these programs. For example, a recent article by the directors of the supplemental instruction (SI) program at LaGuardia Community College (NY) presents data linking the program to higher grades in targeted high-risk courses and increased retention. (p. 11)

The Hanover Research (2014) assessment was largely redundant regarding tutoring and supplement instruction since no apparent research was conducted by the organization itself. Nevertheless, it provides two contrasting perspectives that contribute to this study.

Perin (2004) conducted a qualitative case study with 15 community colleges across the country that examined academic support services, including specialized skills labs. The study concluded that these services provide a vital tool for increasing academic preparedness for collegiate study. Perin made a significant claim relevant to this study, “The majority of colleges have several learning centers and labs, and duplication of services may explain the lower than expected demand for assistance services seen in some of the sites” (p. 580). Perin recommended that future research delve deeper into the efficacy of academic support services to validate the expenditure and leverage resources to improve measurable student achievement. Wurtz (2015)

affirmed the positive impact of learning assistance center usage on student success. This study indicated that students using academic support services increased the probability of success and persistence more than prior skill levels and self-selection. These students were three times as likely to succeed in their course and almost twice as likely to persist to the following term. The study made recommendations for compulsory student usage of academic support services.

Cooper (2010) parsed the peer tutor encounter found in most academic support services to distinguish between one-on-one, individualized tutoring normally designated for special program accommodations and drop-in tutoring for most students. General tutoring had been demonstrated to improve student learning, but Cooper alleged that there was little published evidence demonstrating the efficacy of drop-in tutoring. This contention could not be ignored since most public institutions could not afford to provide every student with individualized tutoring in any practical context. The flow of students could otherwise be impeded. The drop-in model provides easy access to any number of potential tutors in a dynamic environment that allows a tutor to serve any number of students simultaneously while allowing another individual or group of students to work on previously discussed problems. This model also facilitates the cross-pollination of ideas among students and potential serendipitous learning experiences not otherwise available unless an independent study group discovers its own.

Cooper (2010) studied a single academic support service called the Tutoring Center (TC) at Western Washington University. Cooper found that, on average, minority students visited the TC more than Caucasian students, but there was no significant difference between the traffic of first-generation and non-first-generation students. Nevertheless, Cooper found that those same minority students still had lower grade point averages than their peers. The net findings showed that any student who visited the TC at least three or more times per semester was ten times more

likely to be enrolled in any subsequent quarter compared to their peers who did not utilize the TC for drop-in tutoring. Cooper acknowledged that his findings were limited to a single institution, but the persistence piece was statistically compelling to support the general efficacy of drop-in tutoring.

Academic support services must be integrated into an institutional culture, and Kuh et al. (2006) researched and discussed organizational perspectives, namely the institutional structures and processes that affect student performance and contribute to student retention. Congruence between institutional promises and what the academic support services actually deliver to students is a vital opportunity for a community college to establish credibility with students at the onset of the freshman year. Kuh et al. (2006) discussed the conscious, intentional actions of administration and services to establish coherence between policy and practice by asserting:

A student's beliefs are affected by experiences with the institution, which then evolve into attitudes about the institution, which ultimately determine a student's sense of belonging or "fit" with the institution. Thus, students' perceptions of the fairness of institutional policies and the responsiveness of faculty and staff presumably affect decisions to persist or leave the institution. (p.13)

Negative perceptions were attributed to controllable factors, such as unevenly applied policies and errors in judgment, but other elements included arbitrary institutional characteristics such as size, mission, and geographical location. Nevertheless, Kuh et al. (2006) concluded, "The links between these features of institutional functioning and student behavior are not well explicated and...lack explanatory power" (p. 13). Conversely, Kuh et al. (2006) observed that strategies that elicited student collaboration for achievement warranted additional research and consideration. Kuh et al. (2006) offered this caution: "It is obvious that institutions are too

complex to infer that what works in one setting need only be transported and adapted for a different context” (p. 13). This point will be considered in the final analysis of the findings.

When faculty are queried about integrating academic support services as part of classroom instruction, they invariably cite the competing and growing list of additional duties that crowd out actual class time for instruction. The custodial and housekeeping elements of education have grown exponentially. Nevertheless, (Dadgar et al., 2013) recommended a number of key ways to improve collaboration and alignment between instruction and academic support services tailored to specific content areas. Faculty could require students to receive academic tutoring and tack points on for incentives, especially with struggling students. Faculty could suggest that students meet with an advisor on a regular basis and provide students with reminders of deadlines for registration or significant events. Faculty members can also require students to attend study skills workshops to firm up the foundation for a successful tenure in higher education. Dadgar et al. (2013) also noted that whole institutions could support high levels of integration by promoting shared goals for student success across campus functions, in conjunction with faculty agreement on specific strategies for integrating key aspects of student supports and instruction. The importance of professional development that includes exposure to innovative pedagogical designs that integrate tutoring and/or supplemental instruction could prove highly productive, especially when coupled with a process that supports creative problem-solving strategies and dialogue between instructional and student support personnel. The latter is a vital element for creating a unified effort to engage students with these supports.

Dadgar et al. (2013) addressed a pervasive structural feature common to many community colleges across the nation, namely that academic support services are more frequently than not housed in the student support division of the institution when those services

might be better placed with academics. This subtle shift has a variety of advantages that include, but are not limited to these benefits: expand student access to support systems by making these systems an extension of the classroom; alert students about academic issues sufficiently early and get them assistance sooner than later; equip students to tap peer support and mentor resources; engage students actively with a plan to offer coordinated services; build a mechanism to provide student support beyond the first year; and dissipate the stigma associated with accessing support by demonstrating the superior benefits of collaboration demonstrated in the worlds of business and finance that rely on mutual learning, or rather, a matrix of communication that fosters community growth.

Chaffey College in California has successfully integrated the aforementioned points with high student engagement (Dadgar et al., 2013). The Dean of Instructional Support at Chaffey College noted that academic support centers could be especially effective when the general student population perceives them as a service that everyone uses, not just those with academic difficulties. Academic support at Chaffey is organized by topic rather than by developmental level, thereby extinguishing the stigma about seeking assistance. Dean Laura Hope noted, “We wanted to get across that this is not where the failing students go but where successful students go. Students don’t keep coming back because they have to... [but] it has to be a good product for students to come back” (Dadgar et al., 2013, p 5). Hope affirmed the success of this marketing approach by the results of student surveys, showing that 98% see a connection between classroom instruction and the activities of the success center (Dadgar et al., 2013).

One of the deeper challenges for developing widespread and sustained strategies to integrate academic support services and academic functions is achieving the whole-hearted collaboration and acceptance of the faculty and staff that would be potentially involved in the

process (Dadgar et al., 2013). It has been suggested that some faculty may think that integration would increase responsibilities without providing all of the adequate supports, recognition, compensation, or professional development. Academic support staff may be concerned that integration could diminish the need for professional advisors and other support staff. Dadgar et al. (2013) noted that interviewees in many colleges said that the existing channels of communication between academic and student support functions are limited, and this pervasive situation has led to an absence of understanding and/or respect for the contributions of the other party, making engagement efforts more challenging. Dadgar et al. (2013) suggested that creative solutions to administering these collaborations could produce meaningful change, so long as both parties do not lose prestige, nor should they feel an undue burden of additional workload imposed by the process. The additional mix of bargaining units and faculty senates would have to be involved in making persuasive appeals for flexibility and collaboration for the sake of measurable student success, culminating in the mutual satisfaction that agreed targets had been met, affirming the value of such an endeavor. The desired goal is the mutual improvement of both faculty and staff strategies for promoting student success in and out of the classroom.

Efficacy of TASC Services Prior to the Pandemic

The Office of Institutional Research (OIR) at COD conducts periodic assessments of student support services for institutional effectiveness reports and accreditation. The most recent test (Rahimic, 2020) studied students who utilized TASC for specific courses during the 2018-2019 academic year, prior to the pandemic transition to an exclusively virtual environment. The primary results of that assessment are included below for comparison and contrast.

Data on TASC services (Rahimic, 2020) was collected by OIR for the 2018-19 academic year and included information on where the student used TASC services, the course section for

which the service was utilized, and the date of service. Students who utilized TASC services are referred to as “TASC students” and the students who did not utilize TASC services are referred to as “Non-TASC students” for the rest of this report. TASC data was matched with the 2018-19 MIS enrollment data to compare the success rates between TASC students and Non-TASC students. Table 1 below shows the unique headcount of students who utilized TASC services during 2018-19 academic year and for each respective semester.

Table 1

TASC Success Rates Pre-Pandemic

Semester	TASC Students		Non-TASC Students		Total	
	N	%	N	%	N	%
2018 Summer	837	22.2%	2,938	77.8%	3,775	100.0%
2018 Fall	3,751	29.9%	8,787	70.1%	12,538	100.0%
2019 Winter	295	15.9%	1,564	84.1%	1,859	100.0%
2019 Spring	4,906	43.0%	6,515	57.0%	11,421	100.0%

According to fall 2018 data (Rahimic, 2020), TASC students were more successful than Non-TASC students overall, with a course success rate of 78.9% and 62.9%, respectively; including the following scores: $F=2943.215$, $df=23,758$, $p<.05$. There were measurable differences between the groups in certain courses. Students who used TASC services were more successful in three types of courses compared to Non-TASC students. Those included English 1A, statistics, and remedial mathematics.

According to spring 2019 data (Rahimic, 2020), TASC students were more successful than Non-TASC students overall, with a course success rate of 75.5% and 64.5%, respectively; including the following scores: $F=1314.590$, $df=22,130$, $p<.05$. In addition, there were measurable differences between the groups in certain courses. Students who used TASC services were more successful in key courses compared to Non-TASC students. Those courses

corresponded to a similar set in fall: English 1B, statistics, and remedial mathematics. This trend corresponds with the findings of this study that indicate a certain level of consistency for students who seek TASC at regular intervals for core support.

Theoretical Framework for Academic Support Services

The theoretical framework for this study is the model of student departure known as Student Integration Theory (Tinto, 1975). This theory evolved over nearly two decades and was inclusive of all institutions of higher education, including community colleges (Tinto, 1993). The distinction between the latter and four-year liberal arts colleges or universities was not delineated in this theory unless explicitly necessary. Tinto (1993) provided data that showed college students need to have interactions with the institution outside of the classroom to personally identify with the institution and its mission to empower them for personal and academic success. Tinto (1993) elaborated that the “commitment to the institution” involved the student engaging with services, clubs, organizations and/or informal social activities extraneous to the classroom experience. These affiliations aid in mitigating adverse events affecting individual students and provided a support mechanism for personal and academic success that translated into “competent membership” in the college. Tutoring and academic supports such as TASC provide essential options for the extra-curricular engagement that Tinto identified as vital student supports.

Tinto (1993) observed, “institutional rates of departure are necessarily a reflection of the particular attributes and circumstances of an institution. Only institution-specific studies of departure can provide insight into the circumstances which lead to a given rate of departure” (p. 22). That perception was weighed carefully when it was considered if and how much the data for this study was generalizable for other institutions or neighboring community colleges in California. Tinto (1993) added, “Since the roots of differing forms of departure are distinct in

nature, the preventive actions institutions take to treat those behaviors must also be distinct” (p. 140). The literature about academic support programs revealed that student incentive was a key indicator of persistence and completion.

The literature implicitly acknowledges a difficult truth: academic support is an inherently extra-curricular activity unless a faculty member or an institution explicitly requires that service as part of a course assessment (CCCSE, 2012; Cooper, 2010). A community college could conceivably function without academic support services and still be a legitimate institution of higher learning—providing courses and faculty-led instruction—although most accreditation agencies might beg to differ. Half a century of literature would also beg to differ, with studies generally demonstrating that these services have the efficacy to promote measurable student achievement for students who avail themselves of the resource (Hendriksen et al., 2005; Kostecki & Bers, 2008; Tinto, 1993). Nevertheless, many institutions struggle to attract more than a quarter of their respective student headcount to academic support services, and generally, only a quarter of their students complete a degree or certification (NCES, 2020). Tinto (1993) affirmed the vitality of extra-curricular initiatives such as academic support services and student retention to promote basic and academic skills acquisition. “Simply put, the more at-risk students come to develop mastery over previously difficult material, the more positive they become in their view of what is possible in the future. This, in turn, leads to heightened likelihood of future success.” (p. 183). Many institutions are reluctant to make tutor support compulsory since it is generally seen as a regression to high school study halls and invariably degrades the voluntary aspect that makes tutoring and supplemental instructions successful (Cooper, 2010).

Tinto (1993) discussed the power of extra-curricular engagement between students and a close constellation of faculty, staff, and services outside of the classroom to integrate a student

into the fabric of the institution. He demonstrated that it was vital to weave students into the culture of the college to assimilate the mission and purpose of that institution as their own. This would provide the opportunity for the student to see their personal success as a team effort with faculty and staff behind them. Neither Tinto nor this researcher has any illusions about the challenges of initiating or sustaining that organic union. Tinto (1993) advocated systematic strategies for providing the means and the methods for facilitating the possibility that students would be drawn to compelling student services that would contribute to their persistence, leading to their retention and ultimately the completion of their objectives. Tinto (1993) observed the undeniable fact that many students still prevail despite adversity or seasons of departure from college:

The intent of these observations...suggest that in thinking about the character and causes of student departure and the sorts of actions which might constitute effective institutional policy for student retention we should not underestimate the ability of people to eventually obtain their college degrees. Nor should we minimize the diversity of behaviors which lead individuals to leave and eventually to return to complete their college degree programs. (p. 27)

Institutions are called to embrace what Tinto (1993) called the paradox of institutional commitment: they are willing to let students go if their needs are not being met rather than keep them for body counts and status. The institution can then keep students in good conscience, provided that the college is dedicated to teaching them. Tinto (1993) elaborated on this concept:

The paradox of institutional commitment is quite easily resolved if it is understood that the object of retention is not merely that persons stay but that they be further educated. The proper beginning point of institutional retention efforts is not the design of such

programs but the posing and answering of the question, ‘What is the educational problem for which the institution is the proposed solution?’ (p. 208)

Bernard Weiner (1979) provided additional insights about student integration into higher education based on student perception about institutions with conceptualizations that involve “attributions.” Weiner (1979) postulated that students use situational cues from their personal history and campus social contexts to form associative perceptions called attributions and subsequently assign those attributions as causes for large and small outcomes (Demetriou & Schmitz-Sciborski, 2011).

Weiner (2010) built his Theory of Attribution on previous research by Fritz Heider (1958) involving his explorations of attribution behavior, and Julian Rotter’s (1966) locus of control, a theory that strives to locate the causes (internal or external) for student incentive. Weiner (1979) synthesized the theories of Heider and Rotter with findings derived from experiments conducted in the 1970s and 1980s (Demetriou & Schmitz-Sciborski, 2011). Weiner (1979) based his theory of Attributions on causes—either verifiable or perceptive—that are projected by a student to explain phenomena in their academic experience that has personal meaning, such as success or failure. Weiner (1979) provided the example of a student failing in mathematics because of perceived poor aptitude. This is considered an attribution or a causal antecedent, wherein the student has a set of preconceived notions about personal ability in mathematics. Weiner asserted that students create attributions for the outcomes derived from interacting with higher education, particularly for the results of academic assessment and performance. This theory resonates with Tinto (1993) and his research into student actions.

Tinto (1993) and Weiner’s (1979) research indicated that students are more likely to persist in their efforts at learning and seek support from tutors and supplemental instructors when

they feel that they are in control of making that decision. Students are likely to feel in control when the factors attributed to their positive outcomes are seen as internal, stable, and manageable. Weiner (2010) indicated that perceived causes about student behavior can vary depending on the situational context and conceptualization about the situation. For example, the perceived causes of success and failure at sports not only differ from academic subjects like math, but may stimulate very different reactions to resolving adverse performance in the latter. Weiner's (2010) motivational consequences of attributions supports Tinto's (1993) Theory of Student Integration when it comes to understanding attraction and avoidance behaviors that can be managed by the institution.

The Gap and Summative Analysis

The breadth and depth of the literature on academic support services collected and analyzed thus far is substantial but not exhaustive. The sheer volume of qualitative studies about student interactions with academic support services indicates sustained interest in all facets of that support, particularly tutors and SI. Learning professionals and educators in higher education are quoted in the literature as eager to understand the best ways to leverage those services for their students. The relatively few quantitative studies about academic support services demonstrate the efficacy of those services, but not why students either engage or do not engage in that support.

This literature review explored subject areas relevant to understanding the dynamic elements of the study for consideration and the subsequent relationships that may or may not have a bearing on the methodology and findings to be discussed and discovered later in the study. The pervasive conclusion drawn from nearly all of these studies was that more study, and specifically quantitative study (Hendriksen et al., 2005; Kostecki & Bers, 2008), was needed

before institutions committed to any radical innovation of academic support service policies to promote measurable student success and achievement.

As noted before, there is a specific gap in the literature, including the quantitative reasons why students either engage or not engage in academic support services. Therefore, this study intends to address this gap, at least partially, by providing relevant data to be collected and analyzed for presentation in Chapter Three. Research design and methodology will be discussed as each component is analyzed.

Chapter 3 - Methodology

Introduction to Methodology

This chapter provides a discussion about the elements of quantitative methodology and the design involved in conducting this study, including the reasoning for the collection process and the logic behind the analysis. Variables were differentiated according to the factors they represented. The research methods and subsequent applications were explored in the following sequence: an introduction, purpose of the study, research questions, research design and instrumentation, data analysis, study setting, study participants, theoretical framework, data quality, ethical considerations, limitations, and summary.

Purpose of the Study

The purpose of this study was to analyze factors that relate to student engagement with TASC, the academic support service at College of the Desert (COD). The factors were comprised of variables that measured knowledge about TASC, intrinsic and extrinsic incentives for engagement with TASC, and membership in college (defined as student involvement in college clubs and/or governance). How these factors interacted were studied for relationships between student engagement with TASC and course completion, defined as achieving a Pass, or a grade of C or better that term (COD, 2021).

Research Questions

Research questions for this study addressed a gap in the literature review and the desire to understand student engagement with TASC at COD during a global pandemic. The overarching question: What is the relation between factors and variables involving student engagement with TASC at COD during Covid-19? The research questions are:

RQ1: What is the strength and direction of the association between knowledge of the academic success center, intrinsic and extrinsic incentives, and membership in college events, activities or clubs, relative to student engagement or non-engagement with TASC?

RQ2: What is the strength and direction of the association between student engagement with TASC and course completion?

The complete survey instrument used for RQ1 is provided in Appendix B. The survey was disseminated in summer 2021 with an invitation to all currently enrolled students at COD to participate. Data derived from the Office of Institutional Research (OIR) at COD was instrumental in providing completion data and first-generation status for RQ2 analysis.

Research Design & Instrumentation

This study employed a quantitative correlational design. Data was collected with a student survey and institutional files, while analysis was conducted using logistic regression and a chi-square. The student survey was developed by the researcher using field tested sample questions provided by a current Community College Survey of Student Engagement (CCSSE, 2021) and feedback from a Cognitive Lab. Course completion data and parent education status for participating students were drawn from the Office of Institutional Research (OIR) at COD.

Phase one of data collection was focused on the first research question: What is the strength and the direction of the association between knowledge of the academic success center, intrinsic and extrinsic incentives, and membership in college events such as activities or clubs relative to student engagement with TASC? The survey was deployed on the platform, SurveyMonkey.com, and made available to all COD students with an announcement on Canvas, the institutional LMS. Demographic data was collected for the purpose of sample description.

The researcher endeavored to investigate how student engagement or non-engagement was influenced by the independent variables associated with the factors.

Prior to distribution, the student survey instrument was pre-tested with student volunteers, (both TASC and non-TASC student employees,) professional staff, (both TASC and non-TASC employees,) to gauge clarity of questions and ease of navigation. Additionally, the researcher conducted this pre-test analysis with a Cognitive Lab setting, requesting that six of those respondents would be willing to take the survey while the researcher record verbal remarks to evaluate the mental processes of the respondents, especially with regard to individual perception about the clarity and/or difficulty of the survey instrument questions. Feedback revolved around the ease of navigating the survey, grasping the meaning of questions, and discussing the kinds of issues raised by the subject matter. That feedback was collected and analyzed, prompting the researcher to make changes to four specific questions to enhance clarity of purpose and to expand selection of responses. This revised survey was opened for access with SurveyMonkey on June 17, 2021 and made available to all COD students with active enrollment and current access to Canvas, the institutional LMS. The Canvas announcement was posted indicating that the survey was accessible for two weeks, between June 17, 2021 and July 1, 2021. There were 25 total questions on the survey, including requests for demographic data and three open ended response questions.

Based on participation, the researcher offered respondents the opportunity to enter a raffle to win a \$20 Starbucks gift card. The survey concluded with two winners being contacted about their raffle winnings and a follow-up announcement declaring the conclusion of the survey, accompanied with gratitude expressed for participation.

Phase two of data collection was focused on the second research question: What is the strength and direction of the association between student engagement with TASC and course completion? This data was collected by using the college identification numbers volunteered by students on the survey instrument and then using a crosswalk document provided by OIR to match those identifiers with another set of numbers assigned by the institution for database identification. The latter numbers were deployed on a series of Management Information System (MIS) files that met criteria established by the California Chancellor's Office (CCCC, 2021) for storing student data. Once those numbers were matched using Excel software, the researcher isolated and extracted data about course completion and parent education (or first-generation status) for each of the student survey respondents. Student course completion rates were compared with engagement or non-engagement with TASC using a chi-square.

There were six steps to this research process. The first step involved a deep immersion in the literature to determine what had been discovered and learned from previous studies to isolate a gap in knowledge worthy of investigation. The second step revolved around the development of the student survey for RQ1, consistent with the history of survey questions in the CCSSE (2021) and Cognitive Lab feedback. The third step entailed publishing the survey on SurveyMonkey.com and announcing this fact in Canvas to provide student access with an embedded hyperlink. That message was accompanied by a note explaining the purpose and scope of the survey instrument, with an invitation for all COD students to participate. The researcher collected the survey responses for the fourth step and prepared the results for analysis with logistic regression using statistical software. During the fifth step, specific MIS files were requested by the institutional OIR, and data for RQ2 was extracted and organized for analysis with previous data drawn from the student survey, using a chi-square. Parent education status

was used for survey sample description and course completion rates were compared with TASC engagement. The research process concluded with the sixth step, wherein the researcher assembled all of the data points into a coherent, logical display of findings that included charts, tables, and explanation of the analysis. This step was meant to address the overarching question of the study and the two research questions.

Lochmiller and Lester (2017) noted that scholars often attribute the basis of quantitative research to the philosophical perspective of positivism, emphasizing the implied reliability of data derived from phenomena that can be measured or observed using standardized criteria. The opportunity to add quantitative data to the extensive body of qualitative reflections about academic support could add significant insights to the field. Hendriksen et al. (2005) observed, “Identifying why students self-select to come to the LC [Learning Center for academic support] is a challenge. Are our assessment findings therefore based on student traits such as motivation and perseverance rather than any LC practices?” (p. 63). This observation makes an important distinction in the reasons why students might avail themselves of academic support, and the implications that might have for administrators and/or staff making decisions about how to promote those services effectively. What can personnel do to attract students if they do not have hard, quantitative data about really attracts students willingly? This study included a diverse set of factors and variables that address both incentives (or motivation) as well as knowledge and faculty endorsement.

The absence of quantitative studies for student engagement was reinforced by Patton et al. (2006) regarding academic support services when the authors made the assertion that “one of the most important findings of this investigation is the dearth of evidence to support the claims proffered on the efficacy of a wide range of campus-based retention initiatives” (p. 10). Review

of the literature affirmed thus far that significant qualitative research has been conducted about academic support services, eliciting perspectives and feelings about these interactions, but few quantitative studies have been conducted in the same vectors of study. A comprehensive list of the variables used for this study are enclosed in Table 2.

Table 2

Study Variables

Study Variables	Variable Source	Measurement	MIS Variable Name
Student ID	Student Survey	Nominal	SB00-Student ID
Gender	Student Survey	Nominal	SB04-Gender
Race / Ethnicity	Student Survey	Nominal	SB29-Multi Ethnicity
Student Status Full time / Part time	Student Information System / Survey	Ordinal	SXD4-Total Hours / XF07 Hours
Parent Education Level First Generation Status	Student Information System	Ordinal	SB33-Student Parent / Guardian Education Level
Course completion Fall 2020	Student Information System	Ordinal	SXD3-Units Attempted SX03-Units Earned
Course completion Spring 2021	Student Information System	Ordinal	SXD3-Units Attempted SX03-Units Earned
Q5. I have used TASC services on campus, at a physical location	Student Survey	Likert	Student Survey
Q6. I have used TASC services online, through Canvas	Student Survey	Likert	Student Survey
Q7. I would like to use TASC, but my work/life schedule gets in the way	Student Survey	Likert	Student Survey

Study Variables	Variable Source	Measurement	MIS Variable Name
Q20. If TASC was open more hours, including late evenings and weekends, I could or would use more frequently	Student Survey	Nominal	Student Survey
Q12. I knew about the services TASC offered online during Covid-19, such as tutors, staff assistance, language lab support, and/or Smarthinking	Student Survey	Nominal	Student Survey
Q16. . I knew how to access the virtual TASC services during Covid-19 season	Student Survey	Likert	Student Survey
Q21. I know when virtual TASC services were available, such as days and hours of operation	Student Survey	Likert	Student Survey
Q23. Information about TASC is included on my course syllabi	Student Survey	Likert	Student Survey
Q9. I am motivated to seek out a tutor if I need one	Student Survey	Likert	Student Survey
Q14. Which TASC service(s) do you find most useful, such as: tutors, language lab, Smarthinking, or staff assistance?	Student Survey	Likert	Student Survey

Study Variables	Variable Source	Measurement	MIS Variable Name
Q18. I am responsible for my academic success	Student Survey	Likert	Student Survey
Q8. At least one of my college friends encourages me to use TASC	Student Survey	Likert	Student Survey
Q13. At least one of my professors gives extra credit for getting tutor help	Student Survey	Likert	Student Survey
Q19. My professors encourage students to use the library and/or TASC	Student Survey	Likert	Student Survey
Q22. At least one of my professors requires me to use TASC	Student Survey	Likert	Student Survey
Q10. I would like to participate in clubs and organizations at COD	Student Survey	Likert	Student Survey
Q11. I belong to this club or organization at COD (if not, leave blank)	Student Survey	Likert	Student Survey
Q17. COD encourages me to join extra-curricular activities at the college	Student Survey	Likert	Student Survey
Q24. I think it is important to be a member of a COD club or organization outside of class	Student Survey	Likert	Student Survey

Data Analysis

Once all of the data had been collected, the researcher analyzed and interpreted the results with established quantitative tools using appropriate software and support. The initial segment of the survey data was devoted to demographics. That portion was used for descriptive variables that measured variance between identifiers and the strength of association with key factors. To answer RQ1, the researcher used logistic regression to understand the binary correlation between TASC engagement or non-engagement with the variables that could be categorized into three factors: knowledge, incentives, and membership.

The chi-square method was deployed to analyze the data for RQ2 that was drawn from institutional data files. A chi-square can determine how likely it was that the observed distribution between engagement and course completion was due to chance. This method is also called the "goodness of fit" statistic, since it measures how well the observed distribution of data fits with the distribution that was expected if the variables were independent (Triola, 2018). The test is also designed to analyze categorical data that was counted and divided into categories. This method was only meant to test the probability of independence for the distribution of data between student engagement with TASC and successful course completion. Once all of the discrete, individual data sets were analyzed, the results were displayed in a logical, coherent format to show both the context and application of the results.

Study Setting

The setting for this study was the College of the Desert (COD), in Palm Desert, California. COD (2020a) enrolled 15,634 students in the fall 2020 cohort and served the Coachella Valley region of Southern California, west of greater Los Angeles, and north of metropolitan San Diego. The Sonoran Desert claims most of the residential cities in the valley,

such as Palm Springs and Indio, and the Mojave Desert covers Joshua Tree National Park and points north to the Nevada border. That geographical and environmental position puts the college in a confluence of cultures and commerce, creating a unique study environment.

COD operates multiple divisions consisting of Student Instruction and Student Services, with a cast of supporting divisions such as Administrative Services and Human Resources. The Tutoring and Academic Skills Center (TASC) is the primary academic support service for COD students, and it falls under the purview of Student Services (COD, 2020b). TASC features a full-service center on the main campus in Palm Desert and study labs with variable services at all of the campus sites of COD. Tracking systems detected that over 64% of all COD (2020a) students had visited a TASC lab over the last five years, as measured by at least one unique student user entry.

TASC supports independent study habits and sustainable learning for all currently enrolled students at College of the Desert. This is accomplished by providing the academic support and tools that empower individuals to take charge of their goals. TASC is responsible for providing academic support services such as peer tutors for general subjects, faculty and staff support for writing and math, computer lab space for coursework and research. TASC is affiliated with the professional tutor organization, the Association of Colleges for Tutoring and Learning Assistance (ACTLA, 2020).

Study Participants

Participants in this study were actively enrolled students at COD for the summer semester. The college has a headcount of approximately 4,067 for that term. Based on a faculty endorsed sample size calculator (Raosoft.com, 2021), the minimum recommended number of participants for this study was 254 students. They could be enrolled in any program of study and

could have full-time or part-time status. There was no exclusion of any group or class of students. The study's key descriptive data included gender, ethnicity, enrollment status (full or part time), and parent education status.

This study used two instruments for data collection: the student survey (Appendix B) and data drawn from the institutional database maintained by the OIR at COD. Permission to collect data was subject to the Institutional Review Board (IRB) approval at Kansas State University and the administration of COD. KSU designated a Committee on Research Involving Human Subjects to serve as the IRB for graduate-level projects. This process is mandated by federal law and regulations to oversee any activities involving research with human subjects by KSU graduate students (KSU, 2020). This study was conducted according to IRB and KSU directives.

Theoretical Framework

The theoretical framework for this study is the model of student departure known as Student Integration Theory (Tinto, 1975). This theory evolved over nearly two decades and was inclusive of all institutions of higher education, including community colleges (Tinto, 1993). The distinction between the latter and four-year liberal arts colleges or universities was not delineated in this theory unless explicitly necessary. Tinto (1993) provided data that showed college students need to have interactions with the institution outside of the classroom to personally identify with the institution and its mission to empower them for success to achieve personal progress. Tinto (1993) elaborated that the “commitment to the institution” involved the student engaging with services, clubs, organizations and/or informal social activities extraneous to the classroom experience. These affiliations aid in mitigating adverse events affecting individual students and provided a support mechanism for personal and academic success that translated

into “competent membership” in the college. Tutoring and academic supports such as TASC provide essential options for the extra-curricular engagement that Tinto identified.

A basic premise of Tinto’s theory is that adult students are active agents (Syracuse, 2019). They bring not only their prior education, abilities, and skills to college but a series of expectations (vague or specific) about what they will encounter at the institution and gain from the whole experience. Tinto (1993) asserted, “The commitment of individuals to the institution appears to be directly linked to the quality of one's education broadly conceived” (p. 177).

The institution has an obligation to clearly and regularly articulate expectations for progress, charting a clear path for student achievement and success with appropriate supports. Tinto (1993) acknowledged the baseline necessity of services such as tutoring and supplemental instruction as a prelude to additional interventions that span the duration of student attendance: “In addition to meeting the continuing need for academic support services, some institutions have also turned to the development of educational programs that extend the logic of active involvement in learning during the first year to subsequent years of college” (p. 177).

Tinto’s (1993) theory of integration stipulates that institutions consciously provide formal and informal social interaction opportunities. Student interaction with faculty, staff, and peers outside of the formal classroom environment can affect each individual’s perception about being a part of the institution and sharing the mission to learn and make meaningful contributions in return. Tinto asserts that when the formal, intellectual, and classroom interaction is combined with the informal social elements of the institution, the student begins to personally identify with the institution and the purpose of being there to achieve measurable learning. Tinto (1993) made this observation about students who remain in college to completion, “Persistence arises from the social and intellectual rewards accruing to competent membership in the communities of the

college and from the impact that membership has upon individual goals and commitments, especially commitment to the institution” (p. 208). Tinto (1993) added to this observation that students must achieve a sense of “membership” in college, “Individuals who perceive themselves as having established competent membership, both socially and intellectually, and having grown in the process, are more likely to express a strong commitment to the institution which houses those individuals and communities” (p. 208).

This commitment results from a progressive, successful integration of student conception about personal goals and aspirations being fulfilled by remaining in college until the course of study is completed and facilitates graduation—a powerful rite of passage in Western civilization. Kuh et al. (2006) observed:

Although there is some disagreement about how to best operationalize various components of the Tinto model, most agree that for students to succeed in college, they must learn to negotiate foreign environments and interact effectively with strangers.

Thus, interpersonal relationships both on and off campus play a role in mediating student success in college. (p. 12)

Tinto (1993) and Kuh et al. (2006) agree that students’ worldview, values, and cultural background must be considered and respected in the process of integrating students into the norms and culture of higher education. The institution should not pose an either/or proposition for integration that negates personal convictions. However, it should foster a mature synthesis of values wherein students can retain personal values and still acclimate to a perspective about participating in a process that enhances their self-interest.

Data Quality

Features that were important to assess the data quality of this quantitative study included reliability, validity, and objectivity. Reliability depends on the assurance that the relationships being tested are trustworthy, and that participants and variables are not influenced or compromised by mitigating factors. Validity defines the extent to which results from this study can be generalized or applied beyond the scope of this study. Roberts and Hyatt (2019) observed the importance of validating findings, “Validity in quantitative research or credibility in qualitative research indicates that a research process was used to establish the accuracy of your instrument(s). It’s the dependability factor that helps the reader trust your data analysis” (p. 154). The instrument in Appendix B for this study was pre-tested with student volunteers, (both TASC and non-TASC student employees,) and professional staff, (both TASC and non-TASC employees,) to gauge clarity of questions and ease of navigation. The researcher conducted this pre-test analysis within a Cognitive Lab, utilizing retrospective verbal reports to evaluate the mental processes of the respondents, especially with regard to individual perception about the clarity and/or difficulty of the survey instrument questions. This feedback was utilized to edit and/or adjust the instrument as needed.

The researcher pursued objectivity to ensure that the data points collected was assessed and analyzed according to established quantitative criteria to prevent subjective contamination of the methodology and findings. Counting and classifying items with models and charts was executed with care to show direct correlations between variables and findings. Each step was clearly described to demonstrate a sound process.

Ethical Considerations

Standards established by the American Psychological Association (APA, 2020) for ethical research were observed. The researcher engaged in a conscious, intentional commitment to entreat voluntary participation in the study and do no harm to participants while they are involved, in any way, shape, or form. The researcher assessed only relevant components of data to the study and discussed relevant intellectual property issues with participants. The researcher was conscious of the multiple roles performed as a professional and researcher. The researcher followed informed-consent rules as they pertain to subjects and will observe confidentiality and privacy of the subjects and study findings. Awareness of the distinctions between objectivity and subjectivity in research was always be a consideration at every point of the dissertation journey for the researcher. Personal biases and opinions did not cloud the process or production at any point for the researcher, and all sides of any conceivable differences was given fair consideration. The researcher informed participants that they may withdraw at any time.

The researcher kept the identity of participants anonymous. Data points and responses will not be taken out of context or distorted in any way by the researcher. The researcher applied for Institutional Review Board approval as directed to ensure that none of the aforementioned considerations was compromised in any way (KSU, 2020). This study was reviewed in an ongoing process for compliance with all appropriate ethical considerations.

In summary, the researcher observed the following ethical considerations for this study: voluntary participation of participants, did no harm, only assess relevant components, discuss intellectual property frankly, be conscious of multiple roles, follow informed-consent rules, and respect confidentiality and privacy.

Limitations

A key goal of this study was to collect a statistically valid number of responses that are legitimately representative of the students at COD. The researcher had no control over how many students responded to the survey or if they would complete all of the requisite parts of the survey. Moreover, the researcher could not compel respondents to answer in a timely manner other than to set a hard deadline.

The generalizability of the study is debatable since a single institution was studied. Additional insights may be drawn since the data have been analyzed, and the findings of the study were evaluated for applicability with the larger community of academic support services at other community colleges. There was no exclusion of any group or class of students. The study's key descriptive data include age, ethnicity, gender, active enrollment, and generation status (first or second). This study deployed a survey (Appendix B) and data drawn from the student information system as maintained by the OIR at COD. Permission to collect data was subject to the Institutional Review Board (IRB) approval at Kansas State University and the administration of COD.

Summary

The problem targeted by this study involved understanding variables that affect student engagement and non-engagement with academic support services (TASC) at the College of the Desert. The context for this study is that exceedingly low persistence and completion rates have vexed most community colleges for decades. In general, academic support centers and TASC were designed to address student needs for success. The purpose of this study was to analyze factors that correlate to student engagement with an academic support center. The reasons why some students avail themselves of this support and others do not was a subject of interest. COD

and TASC provided suitable environments conducive to this study based on the mission and purpose of this institution (COD, 2020b).

This study deployed a survey and statistics derived from the OIR and analyzed by the researcher. Data points for actively enrolled students were subject to research, with approval by the Institutional Review Board (IRB) at Kansas State University. Instrumentation included a survey produced on SurveyMonkey and distributed by an announcement on Canvas.

A review of the literature affirmed thus far that significant qualitative research had been conducted about academic support services, eliciting perceptions about these interactions, but few quantitative studies have been conducted with the same vectors of study. This study was grounded in the literature and compliant with all applicable directives for pursuing sound and ethical research.

Chapter 4 - Analysis

Chapter 4 examines the findings derived from the survey and institutional database. To facilitate understanding of the material enclosed, this chapter is organized in the following manner: introduction, description of the survey instrument, discussion of the study sample with demographics, first research question, factor analysis of knowledge, incentives, and membership, engagement summary analysis, second research question, and conclusion. As noted in Chapter 1, the purpose of this study involved analyzing factors and variables that relate to student engagement with TASC, the academic support service at COD. The researcher explored factors that could influence student engagement variables including knowledge about TASC, intrinsic and extrinsic incentives for engagement with TASC, and membership in college (defined as student involvement in college clubs and/or governance). The interaction of these factors was studied to explore the relationship between student engagement with TASC and course completion, defined as achieving a Pass, C grade, or better that term (COD, 2021). Research questions addressed a gap in the literature and were designed to understand student engagement with TASC at COD during a global pandemic. This study addressed the overarching question: What is the relation between factors and variables involving student engagement with TASC at COD during Covid-19? The research questions were:

RQ1: What is the strength and the direction of the association between knowledge of the academic success center, intrinsic and extrinsic incentives, and membership in college events, activities or clubs, relative to student engagement or non-engagement with TASC?

RQ2: What is the strength and direction of the association between student engagement with TASC and course completion?

Survey Instrument

One of the methods of collecting data involved disseminating a student survey developed by the researcher using SurveyMonkey.com (2021). The survey was made available for student access between June 17, 2021 and July 1, 2021 and was open to all COD students with active enrollment and current access to Canvas, the institutional LMS. A concurrent announcement was posted on the Canvas message board with explicit instructions about how to access the survey and the conditions for taking it, such as the purpose of the study and the option to decline answering questions or withdraw at any time. There were 25 total questions on the survey, including requests for demographic data and three open-ended response opportunities. Survey questions for this instrument were modeled from field-tested sample questions provided by a current CCSSE (2021) exam format and Cognitive Lab research.

Prior to disseminating the survey, the researcher conducted a live Cognitive Lab using Zoom Video Communications with six professional volunteers who work at COD (three faculty members of TASC and three non-TASC faculty). In addition, the researcher performed a simulated test run with six students to derive live and written comments volunteered while taking the survey. Participants were instructed to “think out loud” and “speak freely” while they took the survey. Feedback revolved around the ease of navigating the survey, grasping the meaning of questions, and discussing the kinds of issues raised by the subject matter. That feedback was collected and analyzed, prompting the researcher to make changes to four specific questions to enhance clarity of purpose and to expand selection of responses. This revised survey was opened for access with SurveyMonkey between June 17 and July 1, 2021.

Respondents were offered the opportunity to enter a raffle to win a \$20 Starbucks gift card in exchange for their participation. The survey concluded with two winners being contacted about their raffle winnings and a follow-up announcement declaring the conclusion of the survey, which expressed gratitude for participation.

Study Sample

All actively enrolled students at COD were invited to participate by completing the researcher's SurveyMonkey instrument. The college had enrolled a total of 15,634 students for the 2020 – 2021 academic year representing the time span of this study and 4,042 students were enrolled during the summer term when the survey instrument was deployed. The minimum number of participants recommended for this study based on the summer enrollment totals was 254 students, according to a faculty endorsed sample size calculator (Raosoft.com, 2021) with the following values: five percent margin of error for the total annual enrollment, 90% level of confidence, and 50% distribution. The total number of actual COD respondents was 263 students. Respondents enrolled in any program of study with either full-time or part-time status were eligible for the study. There was no exclusion of any group or class of students. The average completion time for the survey was less than five minutes, according to SurveyMonkey metrics (2021).

Significant demographic trends emerged with this sample population. Survey respondents identified predominantly as female (83%), Hispanic (62%), full-time students (64%). Survey demographics were consistent with COD institutional trends for ethnicity (i.e., 70% Hispanic) but diverged sharply with the proportion of female respondents outnumbering the institutional percentage of female students (60%) and with flipped proportions of full-time enrollment status respondents (37%) and part-time enrollment status respondents (63%; CCCCCO, 2021).

Institutional database files derived from OIR (2021) indicated that among 204 survey respondents, 174 (88.5%) were identified as first-generation students (FGS). The demographic characteristics of student respondents for this survey were illustrated in Table 3.

Table 3

Demographic Characteristics of Student Survey Respondents

Variable	N	%
Gender		
Female	220	83.3
Male	34	12.9
Other	6	2.3
Race/ethnicity		
African-American	8	3.0
Asian	8	3.0
Hispanic	164	62.1
Latinx	20	7.6
White	41	15.5
Other	21	8.0
Student status		
Full-time	168	63.6
Part-time	95	36.0
First Generation Status	174/204*	88.5*

Note. *Derived from institutional MIS files about students who participated in survey.

Research Question 1: Engagement Analysis

The present research investigated student engagement during the Covid-19 pandemic by examining how COD students engaged with the academic support services provided by TASC.

The first phase of data collection was focused on the first research question: What is the strength and direction of the association between knowledge of the academic success center, intrinsic and extrinsic incentives, and membership in college events, activities or clubs and student engagement or non-engagement with TASC? Student engagement with TASC was the dependent

variable in the first research question, the pivot for measuring each of the component factors in relational context. Each factor had at least five questions embedded at random in the survey to elicit data about the strength and direction of that independent variable relative to student engagement patterns.

The theoretical framework for this study is the model of student departure known as Student Integration Theory (Tinto, 1975). This theory evolved over nearly two decades and included all institutions of higher education, including community colleges (Tinto, 1993). The distinction between community colleges and four-year liberal arts colleges or universities was not delineated in this theory unless explicitly necessary. Tinto (1993) provided data indicating that college students need to have interactions with the institution outside of the classroom to personally identify with the institution and its mission and to empower them to successfully achieve personal progress. These affiliations aid in mitigating adverse events affecting individual students and provide a support mechanism for personal and academic success that translates into “competent membership” in the college. TASCs provide options for the extra-curricular support that Tinto identified. Survey findings that correlate with engagement are shown in Table 4.

Table 4

Student Engagement Versus Non-Engagement with TASC

Engagement or Non-Engagement	N	%
Used TASC online	147	55.7
Did not use TASC online	116	43.9

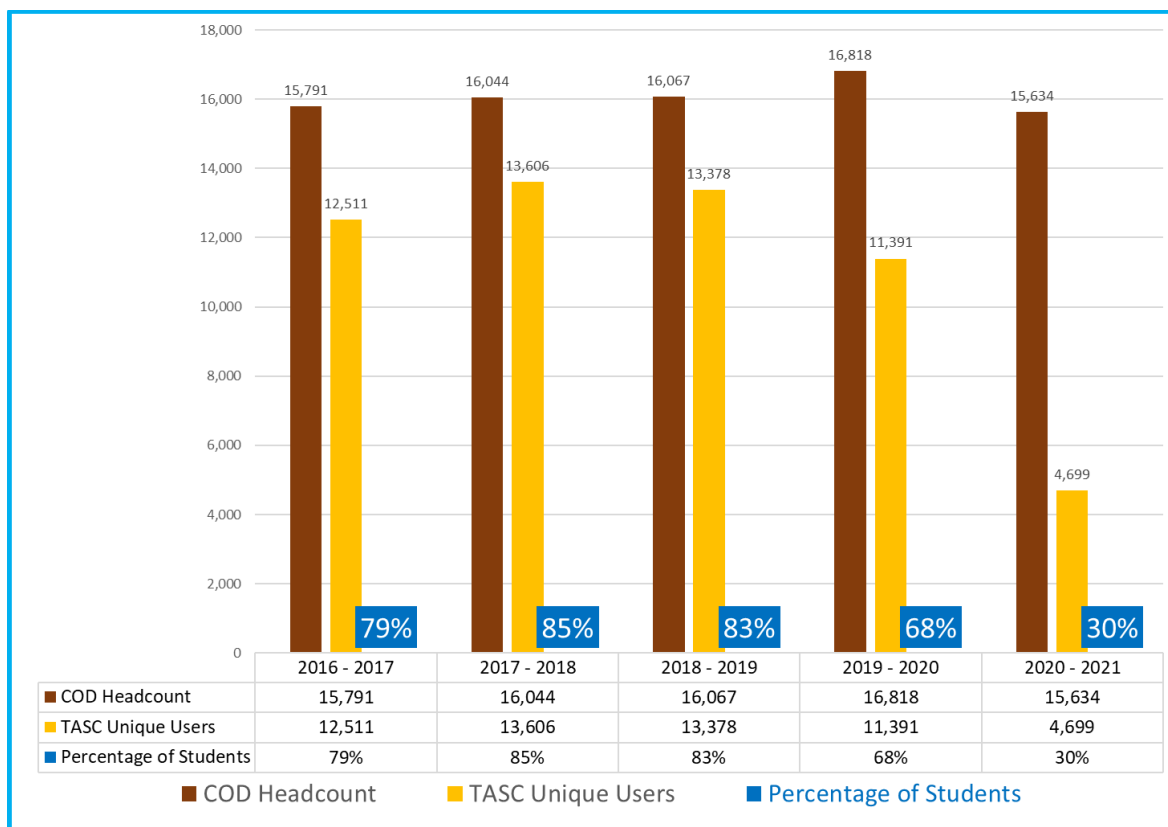
Slightly more than half of the survey respondents had one or more instances of virtual, online engagement with TASC. According to open ended question number 14 in the survey,

respondents disclosed the leading reasons for those visits were as follows: TASC tutors ($N = 222$), TASC staff ($N = 32$), Smarthinking virtual tutor services ($N = 21$), and TASC international language support ($N = 8$). A number of students surveyed utilized multiple services during visits.

Student usage statistics collected by TASC (2021) indicated that a substantial drop in unique student users occurred for the 2020-2021 academic year studied, the year of the Covid-19 pandemic, in contrast with previous years. TASC had just 4,699 unique student users, or 30% of the total 15,634 students enrolled for this year. That is almost a 40% drop from the previous year. Comparisons between engagement and COD and TASC headcounts are illustrated in Figure 1.

Figure 1

Student Headcounts COD and TASC: Last Five Years



Note: This figure is updated annually by TASC director/researcher for institutional assessment.

Knowledge Factor

In the present study, the knowledge factor reflected the extent to which students knew about TASC virtual services and had access to them. The Covid-19 pandemic necessitated the migration of instruction and student support services from brick and mortar facilities to learning management systems (Juszkiewicz, 2020) and TASC was no exception to that global shift. Nevertheless, the TASC schedule of operations remained consistent in the transition, providing the same hours and days of operation for student access. The survey questions that specifically assessed the knowledge factor are show in Table 5.

Table 5

Results from Survey: Factor of Student Knowledge/Access

Survey question	N	%
Access		
Q5. I have used TASC services on campus, at a physical location		
More than 10 times	35	13.31
5 – 9 times	24	9.13
1 – 4 times	64	24.33
Never	140	53.23
Q6. I have used TASC services online, through Canvas		
More than 10 times	18	6.84
5 – 9 times	20	7.60
1 – 4 times	109	41.44
Never	116	44.11
Q7. I would like to use TASC, but my work/life schedule gets in the way		
Strongly agree	43	16.35
Agree	130	49.43
Disagree	75	28.52
Strongly disagree	15	5.70
Q20. If TASC was open more hours, including late evenings and weekends, I could or would use those services		
Strongly agree	101	38.40
Agree	131	49.81
Disagree	26	9.89
Strongly disagree	5	1.90

Survey question	N	%
Knowledge		
Q12. I knew about the services TASC offered online during Covid-19, such as tutors, staff assistance, language lab support, and/or Smarthinking		
Strongly agree	119	45.42
Agree	117	43.51
Disagree	24	9.16
Strongly disagree	5	1.91
Q16. I knew how to access the virtual TASC services during Covid-19 season		
Strongly agree	73	27.86
Agree	132	50.38
Disagree	51	19.47
Strongly disagree	6	2.29
Q21. I know when virtual TASC services were available, such as days and hours of operation		
Strongly agree	71	27.10
Agree	138	52.67
Disagree	46	17.56
Strongly disagree	7	2.6
Q23. Information about TASC is included on my course syllabi		
Strongly agree	75	28.63
Agree	140	53.44
Disagree	39	17.89
Strongly disagree	8	3.05

Among COD students surveyed, 89% indicated that they knew about TASC services offered in a virtual context during the Covid-19 season, as illustrated in Table 6.

Table 6

Knowledge about TASC Services

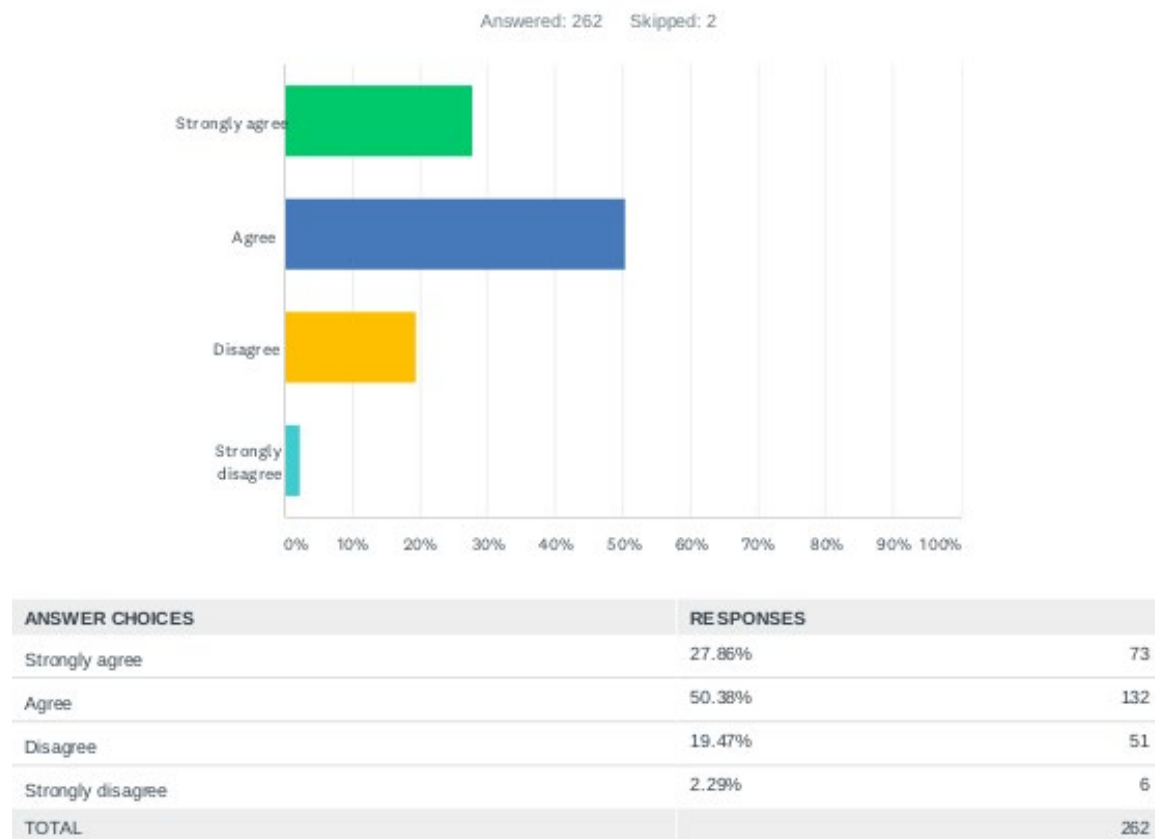
<i>Q12. I knew about the services TASC offered online during Covid-19, such as tutors, staff assistance, language lab support, and/or Smarthinking</i>		
Survey Option	N	%
Strongly agree	119	45.42
Agree	117	43.51
Disagree	24	9.16
Strongly disagree	5	1.91

Navigation was factored into the survey, since all TASC services had moved online. It is noteworthy that 78% of students surveyed knew how to access virtual TASC services online in

the Canvas LMS. The virtual schedule had not changed from the established schedule for physical facilities on campus. Those findings are illustrated in Figure 2.

Figure 2

Q16. I knew how to access the virtual TASC services during Covid-19 season



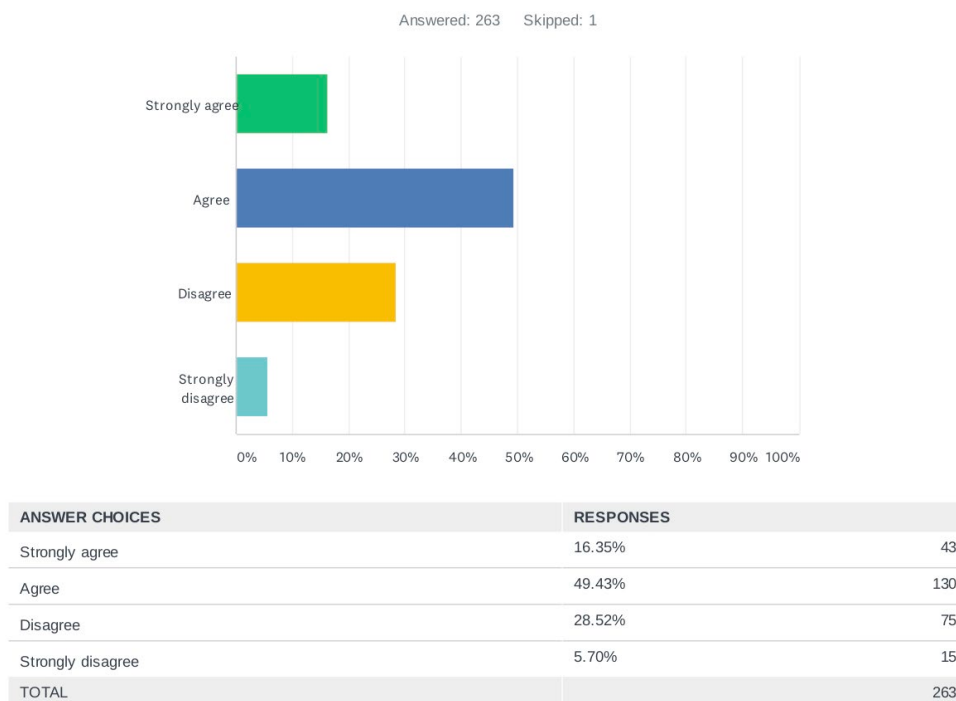
Students were surveyed with an open-ended question about the TASC services they utilized the most. Among students surveyed, 231 students answered and 51 students skipped the question. The top three selections with redundancies from multiple selections included the following: TASC tutors ($N = 222$), TASC staff ($N = 32$), Smarthinking virtual tutor services ($N = 21$), and TASC international language support ($N = 8$). A number of students surveyed utilized multiple services during their visit(s). Students were asked whether they would like to use TASC services, but their schedule gets in the way. At least 66% of students surveyed replied

affirmatively that personal schedules had some measurable effect on deterring virtual engagement. It is noteworthy that the responses for this question trended towards the middle of the Likert scale, with agreement at 49% and disagreement at 29% (see Figure 3).

Figure 3

Student Life Schedule and TASC Access

Q7. I would like to use TASC, but my work/life schedule gets in the way



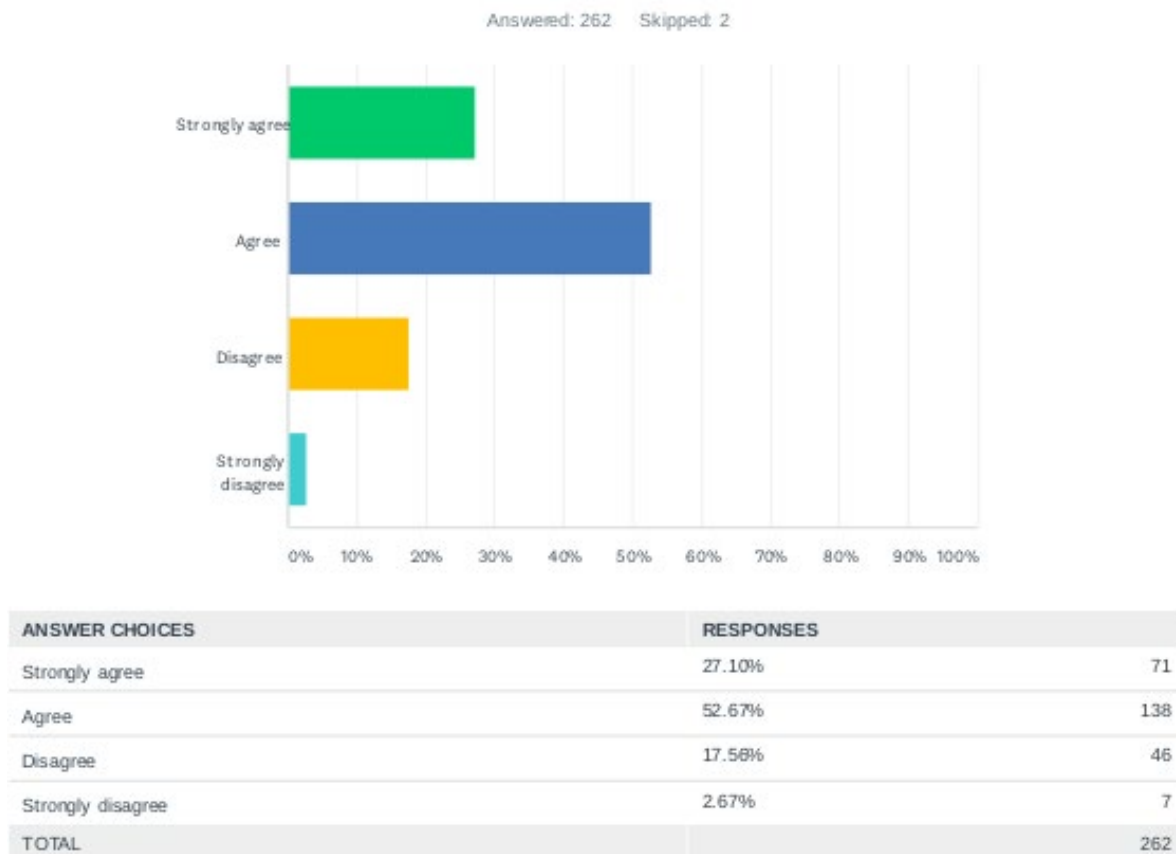
Likewise, Likewise, students were asked to indicate whether they would be more likely to use TASC services if it was open for more hours, including evenings and weekends. Among students surveyed, 88% replied affirmatively, that they would be willing to engage TASC services if more days and hours were made available. Since the TASC schedule of operations remained consistent in the transition, with the same hours and days of operation for student access, students were asked if they knew about the TASC virtual schedule during the Covid-19 pandemic. Eighty

percent replied that they still knew this schedule during this transition. See Figure 4 below for the results of that question.

Figure 4

Knowledge about TASC Schedule

Q21. I know when virtual TASC services were available, such as days and hours of operation



As noted in the Theoretical Framework section of Chapter 1, Tinto (1993) indicated that the institution has an obligation to articulate expectations for student progress, charting a clear path for achievement and success with appropriate supports. Tinto discussed the baseline necessity of providing support services that span the duration of student attendance. This expectation includes appropriately advertising and marketing student services during the initial orientation session and throughout the student's tenure at the institution. While access to those

supports is a critical aspect of the engagement piece, the significance of what a student knows or has read about support mechanisms can influence the degree to which they engage those supports, according to the data drawn from the survey.

It is evident from the survey findings thus far that a majority of respondents had sufficient knowledge and access to TASC services. Several sources in the Literature Review indicated that congruence between institutional promises and the actual support services delivered to students is a vital opportunity for a community college to establish credibility with students. Kuh et al. (2006) affirmed the importance of establishing a coherent and conscious support program that mirrored intentional claims about promoting student success.

Incentive Factor

Tinto (1993) observed, “The commitment of individuals to the institution appears to be directly linked to the quality of one's education broadly conceived” (p. 177). The researcher explored student commitment to learning and engagement as intrinsic and extrinsic incentives, with appropriate survey questions crafted for each aspect. All of the SurveyMonkey questions that dealt specifically with the incentive factor are show below in Table 7.

Table 7

Results from Survey: Incentives for Engaging TASC

Survey question	N	%
Intrinsic incentives		
Q9. I am motivated to seek out a tutor if I need one		
Strongly agree	124	47.33
Agree	119	45.42
Disagree	19	7.25
Strongly disagree	0	0.00

Survey question	N	%
Intrinsic incentives		
Q14. Which TASC service(s) do you find most useful, such as: tutors, language lab, Smarthinking, or staff assistance? (213 answered and students made multiple entries)		
Tutors	203	n/a
Staff Assistance	31	n/a
Smarthinking	25	n/a
Language Lab	8	n/a
Writing tutors	3	n/a
Q15. I am motivated to sacrifice non-essential activities to be successful in college		
Strongly agree	124	47.15
Agree	118	44.87
Disagree	18	6.84
Strongly disagree	3	1.14
Q18. I am responsible for my academic success		
Strongly agree	190	72.24
Agree	72	27.38
Disagree	0	0.00
Strongly disagree	1	0.38
Extrinsic incentives		
Q8. At least one of my college friends encourages me to use TASC		
Strongly agree	50	19.01
Agree	122	46.39
Disagree	68	25.86
Strongly disagree	23	8.75
Q13. At least one of my professors gives extra credit for getting tutor help		
Strongly agree	29	11.11
Agree	74	28.35
Disagree	108	41.38
Strongly disagree	50	19.16
Q19. My professors encourage students to use the library and/or TASC		
Strongly agree	112	42.75
Agree	131	50.00
Disagree	16	6.11
Strongly disagree	3	1.15
Q22. At least one of my professors requires me to use TASC		
Strongly agree	39	14.89
Agree	71	27.10
Disagree	112	42.75
Strongly disagree	40	15.27

The intrinsic measure of personal responsibility for academic success was surveyed to determine baseline commitment. A resounding 99% of students surveyed affirmed personal responsibility for academic success, as seen in Table 8.

Table 8

Personal Responsibility for Academic Success

<i>Q18. I am responsible for my academic success</i>		
Survey option	N	%
Strongly agree	190	72.24
Agree	72	27.38
Disagree	0	0.00
Strongly disagree	1	0.38

The researcher wanted to further explore the dilemma indicated in the Knowledge Factor regarding student schedules and engagement, as shown in Figure 4. The schedule impediment was explored in correlation with intrinsic incentives to sacrifice non-essential activities in order to be successful in college. Among students surveyed, 92% indicated that they would be willing to make changes (see Table 9).

Table 9

Sacrificing Non-Essential Activities for Success

<i>Q15. I am motivated to sacrifice non-essential activities to be successful in college</i>		
Survey question	N	%
Strongly agree	124	47.15
Agree	118	44.87
Disagree	18	6.84
Strongly disagree	3	1.14

Intrinsic incentivization was extended to include willingness to utilize specific academic support in the form of tutors, a key offering with TASC services, virtual or otherwise. This

aspect of student motivation was explored at length in the literature, where it was often seen as determining factor or even a deal breaker for student success. This variable involved significant input from studies in psychology. Among COD students surveyed, 93% indicated they would be willing seek a tutor (see Table 10).

Table 10

Motivated to Seek a Tutor

<i>Q9. I am motivated to seek out a tutor if I need one</i>		
Survey option	N	%
Strongly agree	124	47.33
Agree	119	45.42
Disagree	19	7.25
Strongly disagree	0	0.00

External incentives were measured to determine the influence of college peers and instructors/professors regarding engagement or non-engagement with TASC. Among students surveyed, 65% indicated that a friend (and a peer at college) had some or a significant influence on the decision to access TASC services, while 35% indicated otherwise, (see Table 11).

Table 11

College Friends Encourage Me to Use TASC

<i>Q8. At least one of my college friends encourages me to use TASC</i>		
Survey option	N	%
Strongly agree	50	19.01
Agree	122	46.39
Disagree	68	25.86
Strongly disagree	23	8.75

The faculty's influence on student decisions to engage or not engage TASC comprise a critical element for COD, since faculty endorsement of extraneous services is vital for mutual success.

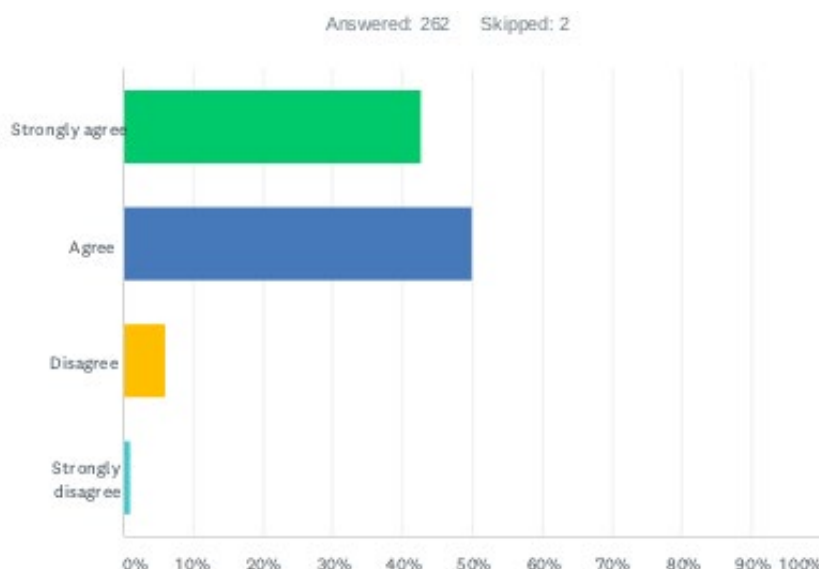
TASC is unlike most of the institutions surveyed by the Center for Community College Student

Engagement (CCCSE, 2012), which indicated that more than 75% of community college students surveyed generally did not use the academic support services at their respective institutions. In general, neither the instructors nor the programs surveyed required support services and therefore, the authors of the report recommended compulsory student attendance for those services. This is not an institutional mandate at COD; however, when student respondents were asked to indicate whether their faculty required engagement with TASC, 42% replied affirmatively. When asked if professors encouraged students to use the library and/or TASC, 73% indicated that they were encouraged to use those services, as seen in Figure 5.

Figure 5

Professors Encourage Students to Use TASC

Q19. My professors encourage students to use the library and/or TASC



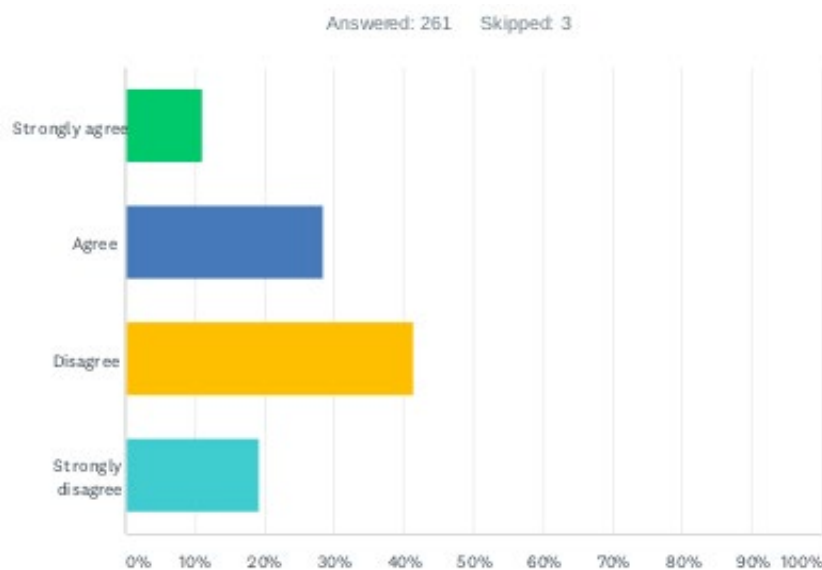
ANSWER CHOICES	RESPONSES	
Strongly agree	42.75%	112
Agree	50.00%	131
Disagree	6.11%	16
Strongly disagree	1.15%	3
TOTAL		262

When assessing the extent to which tangible incentives were used for desired behavior, students indicated that just 40% of their professors offered extra credit for seeking tutor assistance. This response was key to understanding faculty endorsement for academic support services beyond the classroom. The literature review affirmed that this element is extremely important for determining student engagement with college-based services (CCCSE, 2012). This finding is illustrated in Figure 6.

Figure 6

Faculty Extra Credit for Support

Q13. At least one of my professors gives extra credit for getting tutor help



ANSWER CHOICES	RESPONSES	
Strongly agree	11.11%	29
Agree	28.35%	74
Disagree	41.38%	108
Strongly disagree	19.16%	50
TOTAL		261

The intersection of knowledge and extrinsic incentives met on course syllabi. Among students surveyed, a notable 82% indicated that some form of information about TASC was included on their course syllabi, as seen in Table 12 below.

Table 12

Information about TASC Course Syllabi

<i>Q23. Information about TASC is included on my course syllabi</i>		
Survey option	N	%
Strongly agree	75	28.63
Agree	140	53.44
Disagree	39	17.89
Strongly disagree	8	3.05

Membership Factor

The researcher aimed to determine whether there was a measurable relationship between engagement with the academic support services of TASC and Tinto's (1993) assertion about "competent membership in the communities of college" (p. 208). Therefore, it was vital to explore how contemporary COD students interpreted extra-curricular activity in the institution and the extent to which they valued extra-curricular involvement or personally participated in activities beyond the classroom. The survey questions that specifically assessed the membership factor are shown in Table 13.

Table 13

Results from the Survey: The Factor of Membership

Survey question	N	%
Q10. I would like to participate in clubs and organizations at COD		
Strongly agree	77	29.28
Agree	123	46.77
Disagree	54	20.53
Strongly disagree	9	3.42

Survey question	N	%
Q11. I belong to this club or organization at COD (if not, leave blank. 51 answered)		
Active Minds	1	n/a
Alas Con Futuro	2	n/a
Alliance for Disability Awareness	1	n/a
American Sign Language	1	n/a
Associated Students COD (ASCOD)		
(student government)	1	n/a
CalWorks	1	n/a
Disabled Student Programs and Services		
(DSPS Trio)	1	n/a
Edge/Pledge	2	n/a
Fostering Knowledge Club	1	n/a
Gender Alliance	2	n/a
LGBTQPIA+ (see terms below)	2	n/a
Math Engineering Science Achievement		
(MESA)	3	n/a
Phi Theta Kappa	1	n/a
Rotoract (COD Rotary affiliation)	1	n/a
Science Technology Engineering Math majors		
(STEM)	1	n/a
Track & Field	1	n/a
Women's Softball	1	n/a
Blank/None/N/A	28	n/a
Q17. COD encourages me to join extra-curricular activities at the college		
Strongly agree	66	25.19
Agree	148	56.49
Disagree	44	16.79
Strongly disagree	4	1.53
Q24. I think it is important to be a member of a COD club or organization outside of class		
Strongly agree	57	21.6
Agree	153	58.17
Disagree	47	17.8
Strongly disagree	6	2.28

The researcher drew on previous knowledge and responses to questions about the reality of daily schedules and commitments (i.e., the access factor) as variables that could influence the reasonable expectation of student engagement with clubs and organizations. Among students

surveyed, 80% felt that being a member of an extra-curricular entity was important to some degree, as seen in 14 below.

Table 14

Importance of Membership

<i>Q24. I think it is important to be a member of a COD club or organization outside of class</i>		
Survey option	N	%
Strongly agree	57	21.6
Agree	153	58.17
Disagree	47	17.8
Strongly disagree	6	2.28

When asked to indicate their desire to get involved in a club or organization, 76% of students surveyed indicated they would like to join one or more such groups. In addition, 82% of students surveyed affirmed that the institution was instrumental in promoting extracurricular activity, as shown in Table 15 below.

Table 15

COD Encourages Membership

<i>Q17. COD encourages me to join extra-curricular activities at the college</i>		
Survey option	N	%
Strongly agree	66	25.19
Agree	148	56.49
Disagree	44	16.79
Strongly disagree	4	1.53

Students were surveyed with an open-ended question regarding their affiliations with a college club, organization, or membership at COD. Among students surveyed, 51 students volunteered an official college club or answered with blank, none, or non-applicable. Conversely, 213 students skipped the question entirely. This response combination was in contrast with the response pattern of another open-ended question in the survey about TASC

preferences. The top three extra-curricular affiliations were as follows: Alas Con Futuro ($N = 2$), Edge/Pledge (a fully-financed bridge program for local freshmen; $N = 2$), Gender Alliance ($N = 2$), LGBTQPIA+ (lesbian, gay, bisexual, transgender, queer, pansexual, intersex, asexual, plus other orientations; $N = 2$), and Math Engineering Science Achievement (MESA; $N = 3$). It was empirically apparent that while a majority of the respondents acknowledged the importance of extra-curricular activities, fewer than one fifth of the students surveyed participated.

Engagement Summary

Preliminary analysis of the engagement data revealed that there was a sufficient correlation between the factors of *knowledge* and *extrinsic incentives* to make a case for mutual influence. Conversely, data for the factors of *membership* and *intrinsic incentives* did not reveal a sufficient impact on student engagement with TASC. Reliability analyses were conducted on the TASC engagement factors using the Statistical Package for the Social Sciences (SPSS) software, currently developed by International Business Machines (IBM; see Table 16).

Table 16

Reliability of TASC Engagement Factors

Factor Variables	N	Mean	St Dev	Cronbach's alpha
Mean Knowledge Score	263	3.08	.44	.64
Mean Extrinsic Incentive Score	263	2.71	.56	.57
Mean Intrinsic Incentive Score	263	3.50	.45	.61
Mean Membership Score	263	3.02	.54	.58

Assumption testing was conducted on the premise that the dependent variable was binary or dichotomous, designed to determine student engagement or non-engagement with TASC. All of the variables exhibited characteristics that were sufficiently discreet from a mathematical

perspective, according to criteria for assessing multicollinearity. All of the observations were independent and calculations for the linearity of the logit for continuous variables involved the interaction term of predictor and natural log (LN) of predictor, which was non-significant for this assumption to be met. There were no apparent outliers in the data that would skew the results.

Logistic regression was used as a predictive analysis tool to address the first research question: What is the strength and direction of the association between knowledge of the academic success center, intrinsic and extrinsic incentives, and membership in college events, activities or clubs and student engagement or non-engagement with TASC? Logistic regression (Triola, 2018) was used to determine what, if any, relationships exist between the binary dependent variable (engagement or non-engagement with TASC) and a variety of independent variables that fall into one of four factors in the research question: knowledge, intrinsic or extrinsic incentives, and membership.

Descriptive analyses were conducted and tables were composed to convey key data for this study. Based on regression analyses, the dependent variable had only one variable observed in 222, or 95% of the sample. Tables provide basic summaries about the sample and the measures used. These can be found in Appendix D.

The logistic regression revealed a significant relationship between knowledge and use of TASC, such that greater knowledge was associated with a greater likelihood of using the TASC, $B = 1.571$, $SE = .435$, $p < .001$, odds ratio = 4.814. Additionally, there was a significant relationship between extrinsic incentives and use of TASC, such that greater extrinsic incentives were associated with a greater likelihood of using the TASC, $B = .693$, $SE = .293$, $p = .018$, odds ratio = 2.000. There was no significant relationship between intrinsic incentives and use of

TASC or between membership and use of TASC. A summary of the logistic regression findings is illustrated in Table 17 below.

Table 17

Results of Logistic Regression: Use of TASC

Predictor	B	SE	Wald	df	p-value	Odds ratio
Knowledge	1.571	.435	13.068	1	.000	4.814
Extrinsic Incentives	.693	.293	5.585	1	.018	2.000
Intrinsic Incentives	-.543	.355	2.330	1	.127	.581
Membership	-.265	.301	.776	1	.378	.767

Research Question 2: Engagement and Course Completion Analysis

The researcher proceeded to the final phase of the investigation to collect data and analyze results associated with the second research question: What is the strength and direction of the association between student engagement with TASC and course completion? This data was collected by using the college identification numbers volunteered by students on the survey instrument and then using a crosswalk document provided by OIR to match those identifiers with an alternate set of numbers assigned by the institution for database identification. The latter numbers were embedded on a series of Management Information System (MIS) files that met criteria established by the California Chancellor's Office (CCCC, 2021) for storing student data. Once those numbers were matched, the researcher isolated and extracted data on the student respondents from over 387,000 entries for course completion and parent education level (such as first-generation status) using the appropriate MIS files. During that process, information for 60 survey students could not be correlated with institutional data for unknown reasons, resulting in a sample of 204 students for analysis with the second question.

In addition to course completion data, 88.5% of the correlated sample students in the MIS files were identified as first-generation students (FGS), defined as individuals whose parents do not have four-year college degrees (Choy, 2001). Sample respondents had a much higher proportion of FGS status than the general population for COD at 56.2% (CCCCO, 2021). According to the literature and related studies, FGS's were less likely to engage with faculty—either intellectually or socially—or voluntarily participate in class (Choy, 2001; Tinto, 1993). Hutchison (2017) observed, “This reduced interaction may affect FGS’ success in college: Research has shown that higher levels of interaction with faculty strongly correlate with improved student outcomes” (para 3). Due to complex sociological and economic constructs, these students have been more likely to work to sustain a living, more likely to have dependents that require childcare, and academically, they have been invariably less prepared for the intellectual rigors of higher education (Choy, 2001; Hutchison, 2017; Tinto, 1993). These research findings resonate with the present study’s findings that most survey respondents identified similar impediments to seeking or accessing TASC services.

The chi-square method was used to address RQ2, analyzing the data drawn from the institutional data files. A chi-square can determine how likely it was that the observed distribution between engagement and course completion was due to chance. This method is also called the "goodness of fit" statistic, since it measures how well the observed distribution of data fits with the distribution that was expected if the variables were independent (Triola, 2018). The test is also designed to analyze categorical data that was counted and divided into categories. This method was only meant to test the probability of independence for the distribution of data between student engagement with TASC and successful course completion. Once all of the

discrete, individual data sets were analyzed, the results were displayed in a logical, coherent format to show both the context and application of the results.

The researcher utilized SPSS software to evaluate Tests of Independence by using a crosstabulation feature, also known as a bivariate table (Triola, 2018). Crosstabulation presented the distributions of two categorical variables simultaneously, showing the intersection of both key elements for RQ2. The rows represent value ranges for each Likert Scale survey question regarding student usage frequency or engagement with TASC. The columns represent student sample's success as a binary variable with the value 1 representing course completion and 0 representing failure to pass attempted courses with less than a C or a Pass during the 2021 spring term. The rows represent the ranges of student visits/engagement with TASC virtual services, and correspond with the Likert scale question number *Q6: I have used TASC services online, through Canvas*. The crosstabulation feature of the chi-square results is illustrated in Table 18 below and analyzed thereafter.

Table 18

Course Completion and Engagement with TASC: Crosstabulation

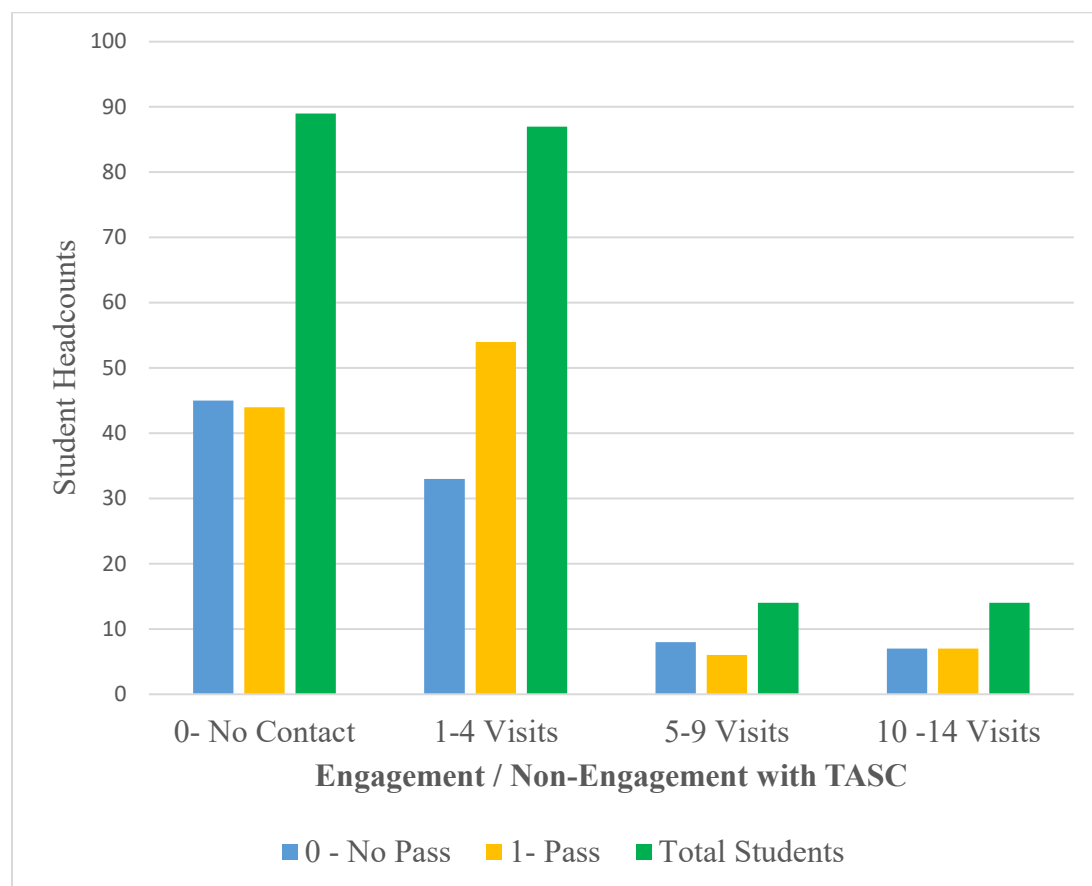
Correlation between course completion and number of student engagements with TASC

		Student Success		Total
		0 - No Pass	1 - Pass	
Range of student engagements with TASC virtual services	0 / None	45	44	89
	1 - 4	33	54	87
	5 - 9	8	6	14
	10 - 14	7	7	14
Total		93	111	204

The chi-square analysis revealed that among students surveyed, those who visited TASC one to four times were the most likely to be academically successful, with 21 more students passing than not in this category, representing 63% of the frequency sample size. All other rates of engagement, including non-engagement, were nearly equal for course success or failure. Figure 7 provides a graphic illustration of those findings and demonstrates relationships that were explored in the context of the Covid-19 season. See the bar chart illustration of TASC Engagement and Student Success

Figure 7

TASC Engagement and Student Success



The chi-square calculation with the MIS data was conducted and compared against critical values from the distribution, allowing the researcher to assess whether the observed cell counts were significantly different from the expected results. The Pearson Chi-Square revealed some association between level of TASC engagement and student success, $\chi^2 = 3.807$, $p = .283$ and a Likelihood Ratio of 3.827. These results were surprising, since additional engagement with TASC did not provide measurable increase of academic success for students. Moreover, nearly half of the respondents did not use TASC at all and had parity with three of the four ranges.

Conversely, this test utilized a Cramer's V measure as a means of calculating correlation in tables, which have more than two rows and columns. It was used as post-test to determine strengths of association after the chi-square has determined significance (Triola, 2018). The Symmetric Measures for Cramer's V was .137 and .283. Scores for Cramer's V vary between 0 and one, where values closer to 0 show minor association between variables and strong associations have values closer to one (Triola, 2018). This sample could have been stronger with more respondents, but as noted, nearly half of this sample did not use TASC.

Conclusion

This chapter presented findings from a student survey instrument and institutional data files accompanied by appropriate analysis for each source. Among the 263 students who participated in the survey for RQ1, 147 used TAC online, and 116 did not. The college has a headcount of approximately 4,067 for the summer 2021 term when the survey was disseminated. Based on the sample size calculator (Raosoft.com, 2021), the minimum recommended number of participants for this study was 254 students and there were nine more respondents than recommended. Survey respondents identified predominantly as female (83%), Hispanic (62%), and full-time students (64%). Survey demographics were consistent with COD institutional

trends for ethnicity (i.e., 70% Hispanic) but diverged sharply with the proportion of female respondents outnumbering the institutional percentage of female students (60%) Institutional database files derived from OIR (2021) indicated that among 204 survey respondents, 174 (88.5%) were identified as first-generation students (FGS) as illustrated in Table 3. The number of students engaging TASC dropped by nearly 40 users over the last year according to Figure 1, affirming the detrimental effects of pandemic campus closures on academic engagement and achievement.

Logistic regression was used in to determine what, if any, relationships existed between the binary dependent variable (engagement or non-engagement with TASC) and the independent variables that fell into one of four factors addressed by the research questions. In the regression model used for this study, the P-Value for each independent variable tested the null hypothesis that there was no correlation between the dependent and independent variables. A low p-value amounting to less than 0.05 would allow the researcher to reject the null hypothesis in favor of a statistically significant measurement. This process determined that two of the factors studied: knowledge about TASC and extrinsic incentives, had a significant correlation with TASC engagement, while the factors of intrinsic incentives and membership in college clubs or organizations did not.

Highlights of the survey indicated that respondents cited college friends as 65% likely to influence engagement with TASC, and faculty endorsement mattered to 73% of students surveyed (see Figure 5, Question 19). Only 38% of students sampled indicated that they were given extra-credit for seeking academic support (see Figure 6, Question 13). The researcher queried the sample about the role of “personal responsibilities” getting in the way of engaging extra-curricular opportunities or services. Tinto (1993) alluded to the fact that first generation

students were more likely to work either on or off campus and to work more hours than their peers with college educated parents. Work and life schedules presented formidable obstacles for 66% of the sample for accessing TAC, and it was interesting to note that over 90% of these students would sacrifice non-essential activities to be academically successful. The survey sample was not large enough to disaggregate the regression by gender, ethnicity, or enrollment status.

Institutional MIS files were used to extract student course completion and parent education data for RQ2. The researcher analyzed the distribution between two variables: student engagement with TASC and course completion. The analysis produced a matrix or crosstab format. A chi-square test was used to check if the results of the cross tabulation were statistically significant. The analysis revealed that among students surveyed, those who visited TASC one to four times were the most likely to be academically successful, with 21 more students passing than not in this category, representing 63% of the frequency sample size. All other rates of engagement, including non-engagement, were nearly equal for course success or failure. This data warrants more study to learn why students who engaged TASC five or more times were not as likely to pass their courses. The full analysis has implications for the leadership of TASC and College of the Desert that will be discussed in the subsequent chapter.

Chapter 5 will present a summary of the study, a review of the methodology, and the implications of the study. Additionally, the chapter will present interpretations of the findings relating to the research questions in light of previous research. Chapter 5 will conclude with recommendations for future research.

Chapter 5 - Summary, Discussion, and Recommendations

Summary of the Study

Overview of the Problem

The problem addressed by the study involved understanding the factors and challenges that affect student engagement with academic support services (TASC) and the course completion rates of participating students during the Covid-19 pandemic. Whole institutions were moved into virtual, digital environments where possible. This migration of instruction led to student support services moving in tandem, relocating from brick and mortar facilities to learning management systems (LMS) with a steep learning curve for everyone (Juszkiewicz, 2020). The challenge of succeeding in higher education for many students suggests that a corresponding demand for academic support services would exist, but that is not the universal student response at every institution (Hendriksen et al., 2005). Friedlander (1980) observed that students who need academic support services the most are the least likely to use it, while those who need it least are usually the first to request services such as tutors or learning resources. Academic support centers in general, and TASC in particular, were designed to address student needs for success. O'Banion (2019) observed, "In spite of ten years of interventions and student support initiatives, the nation's most disadvantaged adults and young people are not gaining traction toward degrees" (p. 284). Bailey et al. (2015) asserted, "There is little evidence that the nation is moving toward a widespread and significant improvement in the outcomes of community college students" (p. vii). Student engagement with TASC in a virtual environment presented both challenges and opportunities, and a global pandemic provided a unique opportunity to study this phenomenon.

Purpose of the Study

The purpose of this study was to analyze factors that relate to student engagement with TASC, the academic support service at COD. The factors were comprised of variables that measured knowledge about TASC, intrinsic and extrinsic incentives for engagement with TASC, and membership in college (defined as student involvement in college clubs and/or governance). The interaction of those factors was studied for relationships between student engagement with TASC and course completion.

Research questions for this study addressed a gap in the literature reviewed and the desire to understand student engagement with TASC at COD during a global pandemic. The overarching question: What is the relation between factors and variables involving student engagement with TASC at COD during Covid-19? The research questions were:

RQ1: What is the strength and direction of the association between knowledge of the academic success center, intrinsic and extrinsic incentives, and membership in college events, activities or clubs, relative to student engagement or non-engagement with TASC?

RQ2: What is the strength and direction of the association between student engagement with TASC and course completion?

Review of the Methodology

This study employed a quantitative correlational design. Data was collected with a student survey and institutional files, while analysis was conducted using logistic regression and a chi-square. The student survey was developed by the researcher using field tested sample questions provided by a current Community College Survey of Student Engagement (CCSSE, 2021) and feedback from a Cognitive Lab. Course completion data and parent education status for participating students were drawn from the Office of Institutional Research (OIR) at COD.

Phase one of data collection began with the first research question: What is the strength and the direction of the association between knowledge of the academic success center, intrinsic and extrinsic incentives, and membership in college events such as activities or clubs relative to student engagement with TASC? The survey was deployed on the platform, SurveyMonkey.com, and made available to all COD students with an announcement on Canvas, the institutional LMS. Demographic data was collected for the purpose of sample description. The researcher endeavored to investigate how student engagement or non-engagement was influenced by the independent variables associated with the factors.

Prior to distribution, the student survey instrument was pre-tested with student volunteers, (both TASC and non-TASC student employees,) professional staff, (both TASC and non-TASC employees,) to gauge clarity of questions and ease of navigation. Additionally, the researcher conducted this pre-test analysis with a Cognitive Lab setting, requesting that six of those respondents would be willing to take the survey while the researcher record verbal remarks to evaluate the mental processes of the respondents, especially with regard to individual perception about the clarity and/or difficulty of the survey instrument questions. Feedback revolved around the ease of navigating the survey, grasping the meaning of questions, and discussing the kinds of issues raised by the subject matter. That feedback was collected and analyzed, prompting the researcher to make changes to four specific questions to enhance clarity of purpose and to expand selection of responses. This revised survey was opened for access with SurveyMonkey on June 17, 2021 and made available to all COD students with active enrollment and current access to Canvas, the institutional LMS. The Canvas announcement was posted indicating that the survey was accessible for two weeks, between June 17, 2021 and July 1, 2021.

There were 25 total questions on the survey, including requests for demographic data and three open ended response questions.

Based on participation, the researcher offered respondents the opportunity to enter a raffle to win a \$20 Starbucks gift card. The survey concluded with two winners being contacted about their raffle winnings and a follow-up announcement declaring the conclusion of the survey, accompanied with gratitude expressed for participation.

Phase two of data collection addressed the second research question: What is the strength and direction of the association between student engagement with TASC and course completion? This data was collected by using the college identification numbers volunteered by students on the survey instrument and then using a crosswalk document provided by OIR to match those identifiers with another set of numbers assigned by the institution for database identification. The latter numbers were deployed on a series of Management Information System (MIS) files that met criteria established by the California Chancellor's Office (CCCC, 2021) for storing student data. Once those numbers were matched using Excel software, the researcher isolated and extracted data about course completion and parent education (or first-generation status) for each of the student survey respondents. Student course completion rates were compared with engagement or non-engagement with TASC using a chi-square.

Discussion of the Findings

Data collected for this study revealed that the total migration of academic support services from physical facilities to a virtual platform during the Covid-19 pandemic fostered disruption to student engagement with TASC and decimated the usual traffic flow of students. Since many of the most sought features of TASC (according to survey question #14) were unavailable in a physical sense, many students appeared reluctant to utilize similar services in a

virtual format. Student usage statistics collected by TASC (2021) in Figure 1, indicated a substantial drop in unique student users for the 2020-2021 academic year studied, the year of the Covid-19 pandemic, in contrast with previous years. TASC had just 4,699 unique student users, or only 30% of the total enrollment of 15,634 students for this year. That is almost a 40% drop from the previous year, when the unique student users for TASC was 11,391. Nearly 44% of the students surveyed did not use TASC, and 66% of the sample reported that obstacles got in the way of using these services. The survey findings indicated that slightly more than half of the survey respondents (147 or 56%) had one or more virtual, online engagements with TASC, while 116 (or 44%) had not used those services. According to open-ended question number 14 in the survey, the leading reasons for those visits were disclosed as access to tutors, staff, and the external tutor services provided by Smarthinking virtual tutor services. A number of student respondents utilized multiple services during their visit(s). Contact frequency ran counter to normal traffic trends. Among students surveyed, 88% replied affirmatively that they would be willing to use TASC services if more days and hours were made available in a virtual sense.

Survey respondents identified predominantly as female 83%, outnumbering the institutional percentage of female students at 60%, and that was 23% more than males in the survey, who accounted for 13% of respondents. Among students surveyed, 88.5% of the correlated sample students in the MIS files were identified as first-generation students (FGS), Sample respondents had a much higher proportion of FGS status than the general population for COD at 56.2% (CCCCO, 2021).

Among students surveyed, those who visited TASC one to four times during the Covid-19 pandemic were the most likely to be academically successful (with 21 more students passing than not), which represented 63% of the sample. All other rates of engagement, including non-

engagement, were nearly equal for course success or failure. Logistic regression analysis revealed that knowledge about TASC and extrinsic incentives had a significant correlation with engagement of TASC services. There was not a significant relationship between intrinsic incentives or membership with clubs and organizations and subsequent use of TASC.

Student membership in extracurricular activities such as clubs, organizations, or governance can provide students with a “commitment to the institution” that might translate into a personal investment that helps mitigate periodic adversity, according to Tinto’s (1993) Student Integration Theory. Membership among the student sample for this study was wide and thematically diffuse, according to Question 11 in Table 13. Math Engineering Science Achievement (MESA) featured the greatest involvement with three members among 17 different groups. In spite of extensive research that supports this theory (Tinto, 1993) in higher education, membership did not provide a significant correlation for engagement between COD students and TASC virtual services during the Covid-19 pandemic.

Implications of the Findings

Faculty interactions with students (especially FGS) are essential to promote student course completion (as seen in the literature with the DRIP program at Odessa College) and the promotion of student engagements with TASC, since 73% of students sampled noted that faculty endorsed TASC, and 82% of those students noted that TASC information was provided on their syllabi. Only 38% of students sampled indicated that they were given extra-credit for seeking academic support. This data suggests that both students and faculty alike perceive the value of academic support and perhaps students could benefit from more concrete incentives.

The fact that TASC services had moved entirely online during the Covid-19 crisis might be construed by some as convenient to access from home; nevertheless, the finite schedule that

carried over from the physical campus was still a sufficient barrier to access, according to 232 students or 88% of sample.

It was surprising that students who visited TASC five or more times did not achieve a measurable edge with course completion. What does this mean? Is this trend an illustration of the greater problem with community colleges (i.e. most students take and pass courses then move on, but many other students continue in a loop of repeat course failure without progressing forward)? This trend warrants more research.

It was also surprising that internal incentives did not correlate with TASC engagement on the survey. The literature indicated that students who needed academic support the least were the first to use them as a means to advance their already advanced position. Does this mean that FGS generally do not act on this impulse to seek assistance to advance their own cause, unless they are encouraged to do so by faculty? What can faculty do to promote systematic interactions with support?

The survey sample was provided with a hypothetical proposition: if TASC was open more hours, including late evenings and weekends, would students be more likely to avail themselves of those services? When the responses were tallied, a substantial 88% of students replied affirmatively, that they would be willing to use TASC services if more days and hours were made available. The fact that TASC services had moved entirely online during the Covid-19 crisis might be construed by some as more convenient to access from home; nevertheless, the finite schedule of hours was still a sufficient barrier to access, according to this sample. Given the 38% drop in engagement between students and TASC since the pandemic began and the high percentage of personal obstacles, it is recommended that more resources be allocated to hire additional staff for physical facilities, in addition to maintaining a virtual component of TASC

for the foreseeable future. This would include the addition of late evening and weekend coverage to the budget as necessary to sustain the demonstrable need. It should be noted that TASC contracts with an external vendor, Pearson Smarthinking, to provide unlimited 24/7 tutor support for synchronous subjects such as math or science and includes a virtual calendar for asynchronous subjects like essay analysis and review. Nevertheless, the survey demonstrated that 95% of students sampled prefer local TASC tutors and 15% prefer staff support compared to a 12% preference for the international option of Smarthinking. These are measurable affirmations of the demand for TASC and academic support services at this college.

Analysis of the survey data demonstrated that the intersection of knowledge and extrinsic incentives were significant for promoting awareness of TASC services, but not necessarily engaging them. As previously noted, 73% of students sampled noted that faculty endorsed TASC. A substantial 82% of those students noted that TASC information was provided on their syllabi. This relationship demonstrates the dynamic link between knowledge and extrinsic incentives for connecting students with academic support. Nevertheless, only 55.7% of the sample actually engaged TASC and this connection proved to be beneficial for course completion, based on the MIS data. What inhibited students from engaging TASC this last year? Given the challenges provided by the Covid-19 pandemic, one might expect more than 66% of the sample reporting that life challenges and responsibilities got in the way of using TASC. It is also significant for extrinsic incentives that only 38% of students sampled indicated that they were given extra-credit for seeking academic support. This data suggests that both students and faculty alike perceive the value of academic support and perhaps students could benefit from more concrete incentives and faculty could be reaffirmed about their potential influence on students seeking extra-curricular support.

The researcher recommends that tutors be embedded in traditionally challenging courses in order to offset some of the logistical burden for faculty attempting to meet with every student in single class session. Embedded tutors could be interchangeable and flexible for course scheduling without incurring the need for students to access support outside of the classroom. Faculty endorsement of academic support would be maximized if a member of TASC or any academic support services were actually present in the classroom, day by day. Having a peer tutor, a competent fellow student in classes where the majority of students could be FGS (88% of the present sample), could build a bridge for rapport and engagement that might not otherwise exist. Moreover, this model is easier to implement than the classic model of supplemental instruction (SI) with the requirement for the SI instructor to attend all lectures and conduct a review session, normally on Fridays.

Implications of the second research question are notable for the diminished returns on student success with five or more visits to TASC. One of the supervising professors (A. Goben, personal communication, September 13, 2021) for this study observed that the students who passed their courses and visited only one to four times could be characterized as the “just in time” crowd who found what they needed quickly and moved on, whereas “frequent fliers” might need more intrusive or tailored interventions to leverage success for course completion.

The methodology for this study is replicable and could easily be deployed at another comparable institution. While the findings for this study may not be generalizable to all California community colleges, the data warrants attention by executives and other professionals in academic support services.

Recommendations for Future Research

The scope of this study was confined to a specific academic support service at a single community college in California, yet the purpose of the study has relevance to many institutions of higher education. This study was designed to address a gap in the literature with a quantitative methodology that contributed empirical data to the field; however, a mixed methods approach could be used to capture qualitative findings in the form of descriptive and conceptual narratives. Such research could be devoted to determine how system-wide initiatives can sustain the pedagogical and technological gains that increased capacity for academic support services. A state or even nation-wide study could be warranted, utilizing a national database for academic support where professionals are eager to support such research and contribute their own insights and perspectives. More specific research could be devoted to how lessons learned during the pandemic could be institutionalized with a campus-wide strategy, to cultivate an enduring, innovative culture for academic support. Based on the data derived from this study, it might be wise to devote more research to faculty and student interactions that revolve around extraneous instructor suggestions (apart from course-related directions) and other extrinsic phenomena that influence student choices and subsequent behavior. It may also be valuable to further explore the interacting effects of demographic variables such as FGS status, socio-economic status (SOE), and ethnicity.

This survey sample demonstrated student appreciation for membership in clubs and organizations at COD, measuring 79% favorable with 82% indicating that the institution encouraged participation. Nevertheless, there was no sizable involvement in the sample, certainly not one that affected engagement with TASC. Perhaps clubs and orgs need to come to the student, in some novel, virtual way that allows greater participation.

According to the National Student Clearinghouse Research Center (NSCRC, 2021), “Male undergraduates are increasingly falling behind their female counterparts during this pandemic...”(para 7). According to COD (2021) data, a survey of the last five academic years affirms that statement. During the 2019-2020 academic year, females succeeded at 73.2% and males at 69.2%. Among student respondents to this survey, 83% identified as female and 13% identified as male. This is a statistically significant skew compared with institutional demographics but it may reflect that females were more willing to participate in surveys than males. It could, however, indicate an underlying disengagement among males at COD and community colleges in general. Resources should be allocated to investigate this situation further since the fallout appears to transcend regional boundaries and encompass the whole nation.

Concluding Remarks

As the first year of the Covid-19 pandemic comes to an end and outbreaks of viral resurgence threaten to upend another year of education, West and Fabre (2021) observed, “Nationally, college going rates for students straight out of high school were down 13% overall and 22% at community colleges in fall 2020...Experts attribute enrollment decline to the Covid-19 pandemic and aren’t sure how soon - or whether - those numbers will bounce back” (para. 6). Given the findings from the survey instrument, it was apparent that knowledge about how to access TASC and extrinsic incentives, especially endorsement by faculty, were essential for connecting students with academic support, in spite of campus and civic closures. The pandemic forced COD to expand its virtual infrastructure and it would be a loss not to exploit that environment for ongoing support after the pandemic has passed. Community college enrollment has always been subject to high and low tides, booms, and busts. Adverse times provide the

climate for making tough choices and the data-informed changes necessary to make academic support services more accessible.

Tinto (1993) and Weiner (1979) indicated that students are more likely to persist in their efforts at learning and seek support when they feel that they are in control of making that decision. Students are more likely to feel in control when the factors attributed to their positive outcomes are seen as internal and manageable. After a year that divested global citizens of personal control over their lives, it is imperative to restore courage and bold visions for youth. Students in this survey sample indicated that they overwhelmingly accept the challenges and responsibility for personal academic success, according to survey questions 15 and 18. COD students could benefit from sincere, coherent messaging that a collegiate education can be challenging and rigorous, but there is a unified community effort to be partners in success. Students should be fortified with the hope to succeed, backed by coherent, coordinated support services that faculty can enthusiastically endorse. As Tinto (1993) noted, high expectations need to be clearly articulated and supported with nimble, responsive support services. When adult college students are held to high standards, the data suggests that many will rise to the occasion.

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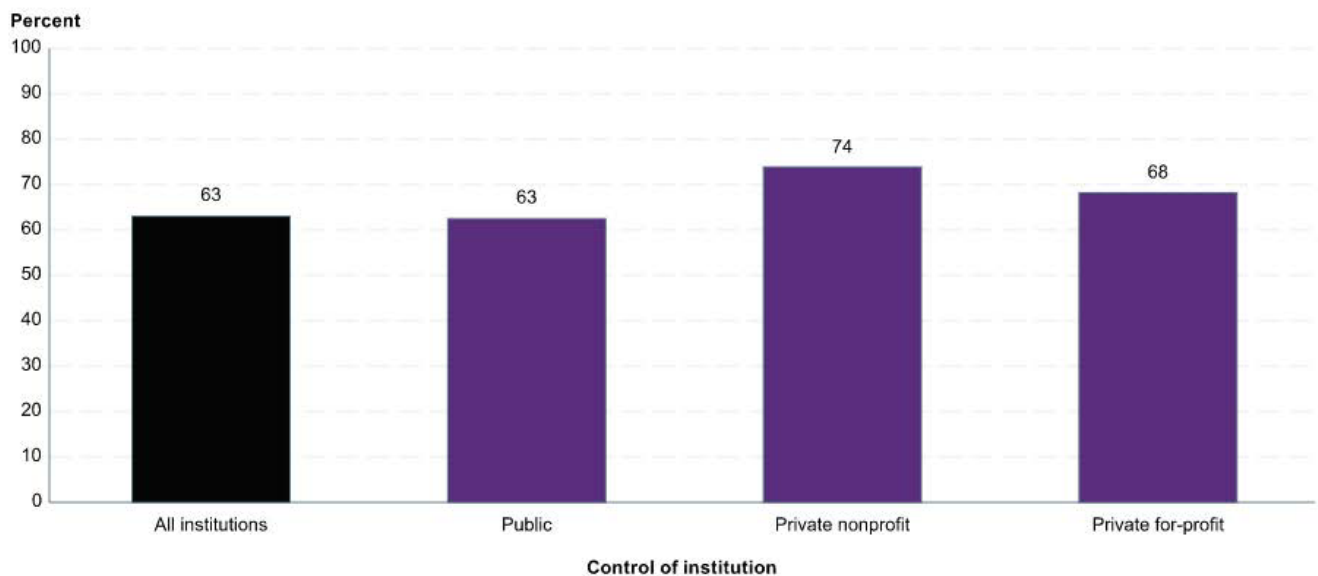
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Appendix A - Community College Retention Rates

Figure A8

Retention Rates Community Colleges 2018-2019



NOTE: Data are for 2-year degree-granting postsecondary institutions participating in Title IV federal financial aid programs. Data shown represent the 50 states and the District of Columbia. Retained students include students who re-enrolled at the institution in the following fall term (i.e., returning students) and those who completed their program of study during the following fall term (i.e., a degree/certificate program that takes less than 2 years). Although rounded numbers are displayed, the figures are based on unrounded data.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Spring 2020, Fall Enrollment component. See *Digest of Education Statistics 2020*, table 326.30.

At 2-year degree-granting institutions, the overall retention rate in fall 2019 for first-time, full-time degree-seeking undergraduate students who entered in fall 2018 was 63%. The retention rate for public 2-year institutions (63%) was lower than the retention rates for private for-profit (68%) and private nonprofit (74%) 2-year institutions.

Appendix B - TASC Student Engagement Survey

TASC Engagement Survey

Let your voice be heard! This survey is about the Tutoring and Academic Skills Center (TASC) at College of the Desert. The survey should take less than five minutes of your time. Your responses are voluntary and confidential. You may elect not to answer any or all questions at your discretion and you may disengage from the survey at any time.

1. What is your email address

2. What is your gender?

Female

Male

Other or prefer not to say

3. What is your race or ethnicity?

African-American

Asian

Hispanic or Latinx

White (Non-Hispanic)

Other

4. I am a full-time student or part-time student

Full-time

Part-time

5. I have used TASC services at a physical location

More than 10 times

5 - 9 times

1 - 4 times

Never

6. I have used TASC services online, with a computer

More than 10 times

5 - 9 times

1 - 4 times

Never

7. I would like to use TASC, but my work/life schedule gets in the way

Strongly agree

Agree
Disagree
Strongly disagree

8. At least one of my friends encourages me to visit TASC

Strongly agree

Agree

Disagree

Strongly disagree

9. I am motivated to seek out tutors at TASC as needed

Strongly agree

Agree

Disagree

Strongly disagree

10. I would like to participate in clubs and organizations

Strongly agree

Agree

Disagree

Strongly disagree

11. I am a member of these clubs and organizations

12. I know which services TASC offers during Covid-19

Strongly agree

Agree

Disagree

Strongly disagree

13. Which TASC service(s) do you find most useful?

14. At least one of my professors offer additional points/credit for getting tutor help

Strongly agree

Agree

Disagree

Strongly disagree

15. I am motivated to sacrifice other activities to be successful in college

Strongly agree

Agree

Disagree

Strongly disagree

16. I know how to access support at TASC during Covid-19

Strongly agree

Agree

Disagree

Strongly disagree

17. The college encourages me to join extra-curricular activities at COD

Strongly agree

Agree

Disagree

Strongly disagree

18. I am responsible for my academic success

Strongly agree

Agree

Disagree

Strongly disagree

19. At least one of my professors encourages us to seek tutors

Strongly agree

Agree

Disagree

Strongly disagree

20. If TASC was open more hours, including evenings and weekends, I could/would use those services

Strongly agree

Agree

Disagree

Strongly disagree

21. At least one of my professors encourages us to use TASC

Strongly agree

Agree

Disagree

Strongly disagree

22. I know the service hours for TASC during Covid-19

Strongly agree

Agree

Disagree
Strongly disagree

23. At least one of my professors requires me to use TASC

Strongly agree

Agree

Disagree

Strongly disagree

24. Information about TASC is included on my course syllabi

Strongly agree

Agree

Disagree

Strongly disagree

Appendix C – IRB / KSU Approval for this Study



TO: Martha Ellis
Educational Leadership
363
Manhattan, KS 66506

Proposal Number: IRB-10733

Bluemont

Hall

FROM: Rick Scheidt, Chair
Committee on Research Involving Human Subjects

DATE: 06/09/2021

RE: Proposal Entitled, "Student engagement with an academic support center during Covid-19."

The Committee on Research Involving Human Subjects / Institutional Review Board (IRB) for Kansas State University has reviewed the proposal identified above and has determined that it is **EXEMPT** from further IRB review. This exemption applies only to the proposal - as written – and currently on file with the IRB. Any change potentially affecting human subjects must be approved by the IRB prior to implementation and may disqualify the proposal from exemption.

Based upon information provided to the IRB, this activity is exempt under the criteria set forth in the Federal Policy for the Protection of Human Subjects, **45 CFR §104(d), category:Exempt Category 2 Subsection ii.**

Certain research is exempt from the requirements of HHS/OHRP regulations. A determination that research is exempt does not imply that investigators have no ethical responsibilities to subjects in such research; it means only that the regulatory requirements related to IRB review, informed consent, and assurance of compliance do not apply to the research.

Any unanticipated problems involving risk to subjects or to others must be reported immediately to the Chair of the Committee on Research Involving Human Subjects, the University Research Compliance Office, and if the subjects are KSU students, to the Director of the Student Health Center.

Electronically signed by Rick Scheidt on 06/09/2021 4:02 PM ET

Appendix D – Logistic Regression Summary and Assumption Tables

Descriptive statistical tables were composed to describe key aspects of the support data for this study. These tables provide basic summaries about the sample and the measures used. Based on regression results, the dependent variable has only one variable observed in 222, or 95% of populations, as illustrated in Table D19 below.

Table D19

Summary Data Logistic Regression Engagement

		N	Marginal Percentage
engagement	Did not use TASC	116	44.1%
	Used TASC	147	55.9%
Valid		263	100.0%
Missing		1	
Total		264	
Subpopulation		233 ^a	

According to Model Fitting Criteria analysis, the Chi-Square for engagement is 37.8, as illustrated below in Table D20.

Table D20

Model Fitting Criteria Logistic Regression

Model	Model Fitting Criteria -2 Log Likelihood	Likelihood Ratio Tests		
		Chi-Square	df	Sig.
Intercept Only	341.654			
Final	303.854	37.800	8	<.001

Predictors about the standard error of the estimates with mean membership, mean intrinsic and extrinsic incentive scores, and mean knowledge scores are illustrated below in Table D21.

Table D21

Standard Error of the Estimate

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.354 ^a	.125	.112	.46888

An Analysis of Variance (ANOVA) test was conducted to split the aggregate variability found inside the survey data for this study into two parts: systematic and random factors. According to classic ANOVA criteria, the systematic factors have a statistical influence on the data, while the random factors do not (Triola, 2018). The goal was to determine the empirical influence that the independent variables have on the single dependent variable in this regression study. The results are illustrated in Table D22 below.

Table D22

Analysis of Variance (ANOVA) Test for Survey Data

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.116	4	2.029	9.229	<.001 ^b
	Residual	56.721	258	.220		
	Total	64.837	262			

The sum of this assumption testing is illustrated in Table D23 below.

Table D23*Assumption Testing for TASC Engagement Data*

Predictor	B	SE	Wald	Df	p-value
Knowledge X LN(Knowledge)	2.490	3.741	.443	1	.506
Extrinsic Incentive X LN(Extrinsic Incentive)	-3.254	2.092	2.420	1	.120
Intrinsic Incentive X LN(Intrinsic Incentive)	1.313	3.476	.143	1	.706
Membership X LN(Membership)	-.411	2.441	.028	1	.866

Appendix E – Chi-Square Observed and Expected Values for TASC

Engagement with Student Course Completion

Table E24

Case Processing Summary TASC Engagement

	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Engagement TASC * Student Success	204	46.6%	234	53.4%	438	100.0%

Table E25

Chi-Square Assessment

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.807 ^a	3	.283
Likelihood Ratio	3.827	3	.281
Linear-by-Linear Association	.015	1	.901
N of Valid Cases	204		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.38.

Table E26 Chi-Square Symmetric Measures

Chi-Square Symmetric Measures

		Value	Asymptotic Standard Error ^a	Approximate T ^b
Nominal by Nominal	Phi	.137		
	Cramer's V	.137		
Interval by Interval	Pearson's R	.009	.071	.124
Ordinal by Ordinal	Spearman Correlation	.049	.071	.696
N of Valid Cases		204		

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.