

**Understanding First-Year College Students' Perception of Academic Rigor and Help-Seeking Behavior in College using BCSSE and NSSE**

by

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## Abstract

The first-year students join college with several expectations in their mind about their upcoming academic endeavors and their career. The first-year of college is the most crucial year of a students' college career. This dissertation explores first-year students' perceptions/ expectation of academic rigor and academic help-seeking in college as measured by Beginners College Survey of Student Engagement (BCSSE) and the National Survey of Student Engagement (NSSE). In three separate studies, we first observed the difference in first-year students' expectation of college academic rigor before they joined college versus observed academic rigor after a year in college, second is the difference in first-year students' expected academic help-seeking behavior before they joined college versus observed academic help-seeking after a year in college and third a proposed model showing the effect of several factors on expected academic rigor (ECrigor) and expected academic help-seeking (EAHS) along with the finding the effect of ECrigor on EAHS.

The samples for the first two studies are all students who participated in both BCSSE and corresponding NSSE surveys in years 2013-14, 2014-15, 2015-16 and 2016-17 counting to N= 2096. The sample for the third study consists of first-year students who participated in BCSSE survey for the years 2013, 2014, 2015 and 2016 counting to N= 7540. The result of the first study shows that students observed less academic rigor in college than they had expected before joining college. Similarly, the result of the second study also showed the observed help-seeking behavior to be less than what they had expected before joining college. Results of the third study showed seven exogenous variables predicting expected college rigor and expected academic

help-seeking. While high school rigor and advanced placement classes significantly predicted expected college rigor; self-efficacy, social behavior, relations with faculty, academic perseverance, and expected college rigor significantly predicted expected academic help-seeking.

In summary, the results of the first two studies are in alignment with previous literatures that showed first-year students' expectation of college does not match with their actual experience. But here the variance is inverted for the academic rigor construct compared to previous literatures. Usually, first-year students show difficulty in coping with college academic rigor, but in this study, students reported to have experienced less academic rigor. Students also reported less academic help-seeking which is understandable due to the fact that they perceived less academic difficulty. Lastly, the proposed model in study three is a useful way to use BCSSE data to look at the effect of various pre-college, personal, and in-college factors on expected academic rigor and expected academic help-seeking during the first-year of college.

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## List of Abbreviations

ACT	American College Testing
AMOS	Analysis of Moment Structures
Apcl	Advanced Placement Classes
BCSSE	Beginning College Student Survey of Expectations
Bfirstgen	First-generation Student
CFA	Confirmatory Factor Analysis
CMIN	Relative Chi-Square
DF	Degrees of Freedom
FR	Faculty Relation
Fypardeg	Parental Education
HBCU	Historically Black Colleges & Universities
Hgrade	High School Grade
HSrigor	High School Rigor
IFI	Incremental Fit Index
NCES	National Center of Education Statistics
NSSE	National Survey of Student Engagement
NFI	Normed Fit Index P
P	<i>P</i> value
Per	Academic Perseverance
RMSEA	Root Mean Square of Error Estimation

SB	Social Behavior
SEM	Structural Equation Modeling
SF	Self-Efficacy
SRMR	Standardized Root Mean Residua
TLI	Tucker Lewis Index
$\chi^2$	Chi square

## **Chapter I: Introduction**

Change can be unsettling, and in most cases, the human brain does not react well to uncertainty. The trek from high school to college is a significant change in a student's life. With thousands of students going through this change every year, there is a need for carefully studying the factors that affect the performance of the students and their academic prosperity. Looking at the statistical figure of student enrollment in colleges every year, we see that the National Center for Education Statistics [NCES] (2016) data shows that there is a constant increase in student enrollment in colleges until 2010/11. Though after 2010/11 there was a little stagnation in the enrollment figures which hovered around a little more than 20 million. For example, in 2013 fall, college enrollment was 20.4 million, falling 3 percent lower than the record enrollment in fall 2010. However, there is an anticipation that this statistic will change from fall 2018 through fall 2024 with the prediction to see an unprecedented number of college enrollments (NCES, 2016).

It is indeed an encouraging trend that there is rise in the college attendance rate. However, it is also crucial to examine the preparedness of the students. Students making their journey from high school to college add different viewpoints, attitudes, estimations, beliefs, and character, to a college environment. The first year of college is a crucial time for every student as this marks the transition for them from one type of institution to another. As per Tinto (1982, 1987), high school to college transition can place significant demands on young adults. During this time, it is very much required to provide the students with the necessary support so that the transition can be as smooth a journey for them as possible. Thus, this quantitative study explored first-year students' experiences in regard to academic rigor and help-seeking behavior in college. Data

from the Beginning College Survey of Student Engagement (BCSSE) and the National Survey of Student Engagement (NSSE) collected from an southeastern University in the United States were compared to identify the difference between the anticipated vs. observed academic rigor and help-seeking behavior of the students. Also, based on the data from the BCSSE survey, another objective of this dissertation is to find any relation of academic rigor in affecting students' help-seeking behavior along with studying the relation of various factors from the literature found to be predicting the two constructs of academic rigor and help-seeking.

### **Statement of the Problem**

The first-year of college is a very vital time for the students. For the first year students, starting the first year of college is like starting a new life in an unknown world, the success of which possibly will affect their academic prosperity in the future. Adjusting immediately to an unfamiliar environment following a successful high school career is hard for many young adults, as Woosly (2003) stated: "The move from high school to college can present a major challenge to students trying to make the transition" (p. 201). As the students step into their first year of college, they start to face many challenges, simultaneously there opens numerous doors to opportunities as well. These challenges range from managing school work to arranging for food to survive. For many of the students, it is the very first time that they start living on their own away from the family. Although the opportunity to stay away from home and be independent seems enticing at the beginning, this newfound independence also brings new responsibilities. Now the students are required to manage their day to day household work and academic responsibilities on their own with no family support. They are required to master the skills of time management, prioritization, staying healthy, acclimating to the academic expectation and new social responsibilities, self-initiative, self-regulation, etc. All these struggles to survive the



first year of college may result in psychological symptoms, underperformance, alcoholism, college dropouts, etc. (Tinto, 1982, 1987). In such a situation, one of the critical responsibilities of the educators of an institution is to provide students' academic needs with academic support and motivation, for a smooth first-year experience. As it says, "the success of an institution and the success of its students are inseparable" (Levitz & Noel, 2000, p. 1), ascertaining student success will assure the success of the institution.

The success or failure of the student can have a significant impact on their first-year college adjustment (Meyer, Spencer, & French, 2009). Some students constructively manage this transition and adapt to college life in a newly discovered way, and others can be seen struggling to efficiently meet the demands of their new roles and thus feel overwhelmed (Estrada, Dupoux, & Wolman, 2006). Likewise, Tinto (1993) said: "while many students soon adjust, others have great difficulty in separating themselves from past associations and/or in adjusting to the academic and social life of the college" (p. 163). The difference in standards and expectations between the college and high school environments is another reason as to why many students are ill prepared for these changes (Venezia, Kirst, & Antonio, 2003). This failure in understanding the varied expectations in these two settings can cause a negative impact on academic motivation and achievement for the first-year students.

Statistics show an increase in the number of young individuals enrolling in college. However, before we begin to celebrate the rising number of student enrollments in colleges, we must also analyze how many of these confident, motivated young individuals are likely to thrive in higher education. "What college is like" - in most cases, first-year college students' actual experiences and perceived expectations do not align with each other (Meyer et al. 2009; Smith & Wertlieb, 2005). The researchers interested in post-secondary instruction have repeatedly

emphasized the importance of the first-year experience for college students. The high school environments are entirely different from college, plus the difference in the course structure, and academic expectations situate the students in a whole new position which might not be easy for them to recognize and adjust. Thus, there is a need to understand the transition of the first-year students by analyzing factors influencing their first-year experience. Among the several factors influencing the first-year college experience, in this dissertation, we will emphasize on academic rigor and help-seeking behavior.

### **Research on Academic Rigor**

Usually, before we start anything new, we all have a perceived picture of the future in mind. Likewise, students also form a perception about college life, which is built upon and dependent on several factors like their family background, socio-economic background, precollege environment/experiences also called high school experiences, their exposure to the outer world, etc. (Hossler, Schmit, & Vesper, 1999; Meyer et al. 2009). Among the different expectations and perceptions about the college life that students develop before joining college, the most common are academic, social, and personal expectations. The academic expectation is the most crucial among these expectations as their academic success or failure depends on it.

The academic expectations in college can also be referred as academic rigor expectation. Academic rigor as defined by Winston, Vahala, Nichols, and Gillis (1994) is a learning environment that is intellectually challenging and demanding. Several aspects have been stated by researchers as significant factors in determining academic rigor expectation in the first year of college. Among the several factors influencing students' perception of academic rigor in college, research by Meyer et al. (2009) mentioned that the information received from close interpersonal sources influence the expectations or perceptions of the first-year college students about college

academic rigor or rigor of the courses in college. Along with interpersonal relationships, the role of media was also cited in forming perceptions about college rigor by Meyer et al. (2009). The other factors cited are students informal interactions with faculty members (Halawah, 2006), interpersonal connections made with peers (Enochs & Roland, 2006) and perceptions formulated about college from media (Martens, Page, Mowry, Damann, Taylor, & Cimini, 2006) are further discussed in Chapter two. Meyer et al. (2009) suggest that intervention in students' perceptions of academic rigor is critical to their success in the first semester. Thus the first theme appearing in this research is that of understanding students' prediction of academic rigor when they start college vs. their experience after completing the first year of college.

### **Research on Academic Help Seeking**

Continuing to the theme of academic rigor from above, research by researchers Meyer et al. (2009), reported that the first year students' perception of the rigor of college academics and the actual experiences of college rigor during the first semester was incongruent. This incongruence between their expectation and reality can have an adverse effect on their academic outcome and can result in poor academic performance or even college dropout. To tackle this incongruence, intervention in the form of advice or help is needed. The initial interactions (positive or negative) a first-year student has, like the interaction with faculty, interaction with peers, involvement in campus activities, etc. within the college environment helps in shaping the transition and consequently determines student attrition or student success.

Recognizing the need of help to sustain the academic rigor in the first year of college, the next theme of this investigation is about understanding students' academic help-seeking behavior at the start of college vs. after completing the first year in college. The field of research on college and university students is quite diverse as there are many different perspectives.

Understanding students' behavioral patterns is a hard task as there are no set rules and various factors to regulate it. Help-seeking being a behavioral model depends on factors such as achievement goals, task focused goals, relative ability, and perceptions of competence or self-efficacy (Ryan & Pintrich, 1997).

Research indicates that help-seeking is a “method” to cognitively, behaviorally, and emotionally engage learners and can be labeled as an important form of behavioral self-regulation (Pintrich & Zusho, 2002). Thus, we can say that students with positive help-seeking behavior can also be called as self-regulated learners. Schunk & Zimmerman (1994) in defining self-regulated learners said that they are always well organized and they use different strategies like cognitive, behavioral, and motivational strategies to guide and enhance their learning process toward completing academic tasks. For example, moving from small to large classes is among the most dramatic contextual changes for many college students. In such a setup it is expected that students will encounter a situation in which they need aid or advice (help) to continue an academic task. Here the use of self-regulated learning comes handy; a student must be aware of needing help (metacognition), must decide to seek help (motivation) and must implement strategies for engaging another person's help (Nelson Le-Gall, 1981; Newman, 1994). Thus students who can regulate their learning by seeking help are expected to be successful in academic life. But it is also often seen that students who need help choose not to seek help (Ryan & Pintrich, 1997). For first-year students, it is more obvious as they are still trying to deal with the changes in life which may further lead to students continuing unsuccessfully in the academic course, delayed graduation or even dropout. Thus the second theme here is to understand the first year students' perception of help-seeking and their actual behavior in college is an essential measure for educators to determine student success.

## Research on Proposed Academic Rigor and Academic Help Seeking Model

The third theme of this dissertation is to reestablish the factors that effects student’s perception of the constructs of academic rigor and help seeking using the BCSSE survey data from a southeastern university. Also, to propose a relation between expected academic rigor and expected help-seeking behavior of the first-year students by proposing a model shown in Figure 1.

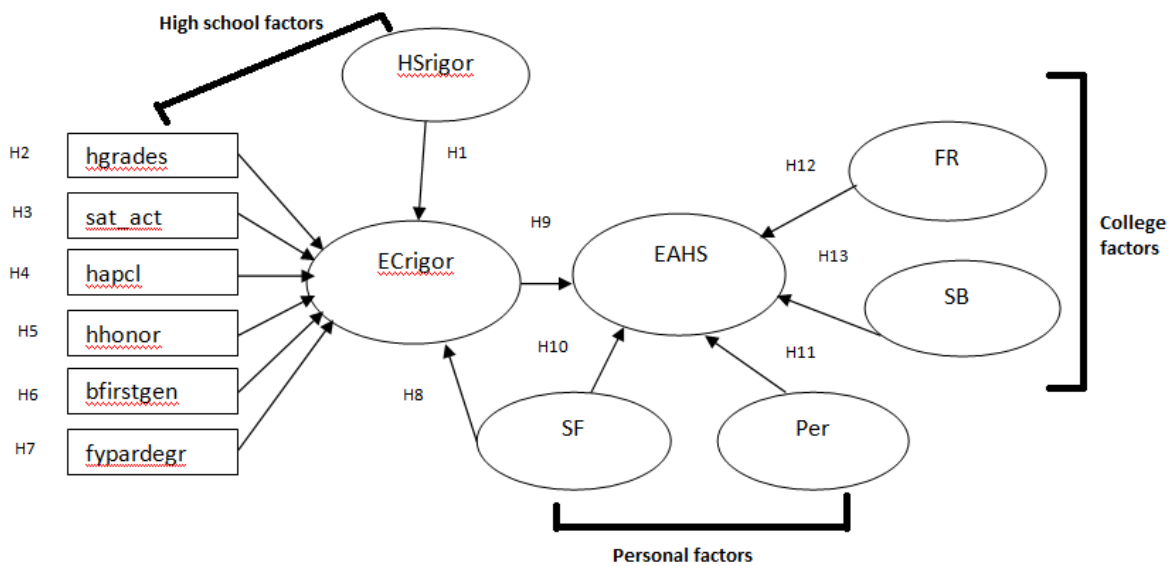


Figure 1. Hypothesized relationship between academic rigor and help-seeking.

Prior literatures has shown several precollege factors in causing influence on first-year college students’ academic success. The factors that are observed in prior literature relating to academic success are AP and honors courses (Adelman, 2006; Mayer, 2008; Wyatt, Wiley, Camara, & Proestler, 2012), students’ high school performance like grade, high school academic rigor (Adelman, 2006; Kuh, 2007; Wyatt et al., 2012), and ACT/SAT score (Kobrin, Patterson, Shaw, Mattern, & Barbuti, 2008; Porchea, Allen, Robbins, & Phelps, 2010). Citing about the effect of pre-college factors, as researchers (Adelman, 2006; Wyatt et al., 2012) stated, precollege environment such as high school experiences or high school academic performance

can predict the success of these students in college. Again, research also suggests that “academic intensity or academic rigor of students’ high school curriculum is positively related to several college outcomes including the avoidance of remediation and graduation attainment” (Wyatt et al., 2012, p.6).

It can be noticed that all the above mentioned pre-college factors are predictors of college academic success and as academic success is influenced by how well students’ manage college academic rigor, these factors can also be the predictor of the students’ perception of academic rigor. The formation of the perception academic rigor among students is a very difficult construct to measure thus there are not much prior lit about it, the only literature found is by Meyer et al. (2009) which mentioned parental education and role of media as factors affecting the perception of students’ in expecting about college rigor.

Help seeking is a very well-studied construct, and the factors affecting students’ academic help seeking behavior is already established in many studies. Prior literature has characterized help-seeking behavior into several types like “*instrumental help-seeking*,” “*executive help-seeking*,” “*adaptive help-seeking*” (Karabenick & Knapp, 1991; Nelson-Le Gall, 1985, 1987). As per literature, whether students’ ask for help or not may depend upon relationship with faculty, relationship with peer, social behavior, being a self-regulated learner, self-efficacy belief and gender type (Butler, 1998; Karabenick, 2003; Karabenick & Knapp, 1991; Nelson-Le Gall, 1985; Newman, 2002). Thus for theme three, all the predictor factors of academic rigor will be studied to check how well these factors affect the formation of expectation of academic rigor and also all the factors influencing students’ help-seeking behavior will be studied again to see whether these predictor factors from BCSSE survey is in consistence with prior researches.

## **Research Purpose and Research Questions**

Central to this dissertation is the focus on the student-end, who experiences the biggest transition of their life and copes to adopt with the changes in higher education settings. The BCSSE collects data about students' high school academic and co-curricular experiences and their expectation of the first year of college, NSSE then collects data after one year of college to understand first-year students' college engagement. Linking BCSSE data with NSSE data, the try is to shape our understanding of students' perception of academic rigor when they join a college and then align it with experience after the first year. Secondly, to understand students' attitude towards help-seeking behavior when joining college verses their actual behavior after the first year of college. Thirdly using the BCSSE data, the try is to find how academic rigor affects students' help-seeking behavior along with check the influence of the factors influencing expectation of academic rigor and help-seeking behavior.

The purpose of this study was to identify the gap in first-year students' anticipated vs. observed academic rigor and their behavior regarding anticipated vs. actual academic help asked during their first year of college. This study investigates changes in academic rigor beliefs and help seeking attitudes of the first year students by comparing the data obtained from the BCSSE and NSSE. In addition it also explores the factors that might influence the first-year students' expectation of academic rigor and help seeking behavior in college, also predicting effect of academic rigor on help seeking behavior. Several theories and models guided this study; like Draeger, del Prado Hill, & Mahler (2015)'s model of Student Conception of Academic Rigor, Self-Regulated Learning theory, and Bandura's (1995) self-efficacy theory. The following are the research questions:

1. What are the differences in first year college students' anticipated versus observed academic rigor after a year of college?
2. What are the differences in first year college students' anticipated versus observed help seeking after a year of college?
3. To what extent variables like high school type, high-school grade, ACT/SAT score, parental education, AP/Honors classes and the factor of high school academic rigor influences the first year students' to predict upcoming academic rigor in college. Also how students' academic help-seeking behavior in college is influenced by self-efficacy, perseverance, faculty influence, peers influence, social behavior, in addition to finding the relationship of college academic rigor and academic help seeking if any.

The research hypothesis based on the research questions are:

- H1: High school academic rigor (HSrigor) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H2: High school grade (hgrades) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H3: SAT/ACT score (sat\_act) has a significant negative effect on the Expected college academic rigor (ECrigor)
- H4: Advanced Placement classes completed (hapcl) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H5: Honor classes completed (hhonor) has a significant positive effect on the Expected college academic rigor (ECrigor)



- H6: Being a first generation student (bfirstgen) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H7: Parental education (fypardegr) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H8: Self-efficacy (SF) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H9: Expected college academic rigor (ECrigor) has a significant positive effect on the Expected academic help seeking (EAHS)
- H10: Self efficacy beliefs (SF) has a significant negative effect on the Expected academic help seeking (EAHS)
- H11: Perseverance (Per) has a significant positive effect on the Expected academic help seeking (EAHS)
- H12: Relation with Faculty (FR) has a significant positive effect on the Expected academic help seeking (EAHS)
- H13: Social Behavior (SB) has a significant positive effect on the Expected academic help seeking (EAHS)

### **Significance of the Study**

There are many studies that examined the data collected through the instrument of BCSSE and NSSE. But there are not many studies that have made a comparative study of the common variable present in the two instruments. The BCSSE has useful information on precollege experiences and expectations for the first year of college and NSSE has useful information on college students learning processes and engagement. Closely studying the two instruments, it can be seen that both the instruments' can be utilized together to compare students

expectation vs. achievement data. Academic rigor has a close association with student success, and help-seeking behavior is also a student behavioral component. In other words, we can say that both are related to students' academic achievement, success, outcomes. Secondly using BCSSE data the try is to find the association of predictors of academic rigor and the predictor of academic help seeking in predicting the relationship of the two constructs.

This study is significant as there is no quantitative study that explored the difference of students' expected vs. observed experience/ behavior in regards to academic rigor and help seeking. Secondly investigating the predictor factors influencing the formation of expected academic rigor among first-year students are an extensively studied which is very unique. Also no prior studies have shown any association on academic rigor and help seeking behavior which is proposed here.

This study will contribute to the knowledge of how results from the BCSSE and NSSE instrument can be used as a tool for the institutional staffs, faculties, advisors to understand the gap between expectation and reality so that the students can be better helped to meet their goal of academic success. This study is based on student population at an institutional level of a Southeastern University. Academic rigor and academic help seeking behavior, both being educational issues, if intervened properly at the beginning of their first semester can significantly contribute to their positive student attitude and success rates.

### **Limitations of the Study**

This study has two major limitations. The first limitation is that the two surveys used in this study do not have same data size. The BCSSE survey being administered with the other joining formalities for the entire freshman entering the institution has 90% completion rate, whereas NSSE survey is emailed to students, so the percentage of students' response is very low. So

when we are getting almost 90% of the students joining the first year completing the BCSSE survey, NSSE survey completion rate is less 50%. Thus, data for the comparative study will have limited in number data. Secondly, the data studied for this research involve only one university making the findings from this research hard to generalize across the country.

### **Definition of Terms**

The definitions of the terms used in this study are as follows:

- Self-Efficacy (SF): “Self-Efficacy is the belief in one’s capabilities to organize and execute the courses of action required to manage prospective situation” (Bandura, 1995, p 2).
- Precollege experiences: Precollege experiences expose high school students to the literacy, arts, concepts, careers, and cultural identity of American higher education (Biggs, Schomberg, & Brown, 1977). Due to such exposure, a high school student’s perceived abilities in educational activities develops via other individuals and experiences, and predispose him/her to certain outcomes and future educational engagement (Hurtado, Engberg, Ponjuan, & Landreman, 2002). For the purpose of this study, precollege experiences refer to the combination of college choice, academic preparation, past patterns of motivation and well-being, and college aptitude (Kuh, Gonyea, & Williams, 2005).
- At-risk: At-risk students are students who are academically underprepared and supported and are in danger of failure or dropping out (Vivian, 2005). For this study, an at-risk student was defined as a student who has earned a GPA below what is acceptable for good standing at the institution in this study. The GPA measurement designated as at-risk for this study was a GPA below 2.0.

- Academic performance: Academic performance was defined as the cumulative total GPA measure after the student's first academic year.
- High School Grade (hgrades): High school grade was defined as the cumulative total GPA measure after the student completes from high school.
- Student success: Student success was defined as the cumulative total GPA measure after the first academic year which places a student in good standing at the institution in this study. The GPA measurement designated as good standing at the institution for this study is 2.0 or above.
- First-year college student: A first-year college student is a high school graduate attending college for the first time. For the purpose of this study, surveys administered during freshmen orientation and include individuals from many backgrounds who are on campus for the first time since high school graduation self-identified in response to administration of the BCSSE.
- Retention: A student is retained when they return to an institution year after year (Roberts & Styron, 2010). The term retention was used in this study to describe the phenomena of a student with continued enrollment beyond their first year of college. Students who were not enrolled after their first semester were not included in this study, as they were not retained for one full academic year.
- Academic year: In this study, an academic year was defined as the period between a student's first fall semesters of enrollment through the end of the consecutive spring semester. GPA and earned hours were collected for students retained through their first year of enrollment and compared to BCSSE survey items.

- Parental Education (fypardegr): In this study, first generation student status was determined using parental degree attainment (BCSSE variable). Students who did not have at least one parent with a 4-year college degree were classified as a first-generation student.
- First Generation Student (bfirstgen): A first generation student is one whose parents or guardian have not attended college. They are usually the first from the family to attend a four year college to get a college degree.
- High School Academic Rigor (HSrigor): The extent of workload and amount of challenges faced in courses while in high school.
- Expected College Academic Rigor (ECrigor): The expectation of the extent of workload and amount of challenging coursework in college.
- Social Behavior of the first-year student (SB): Amount of interaction the first-year students have with peers and other people in the university.
- Faculty Relation of the first-year student (FR): Amount of interaction the first-year students have with the faculties.
- Academic Perseverance (Per): The tenacity, persistence and effort students show while feeling challenged in a coursework.
- Advanced Placement classes (hapcl): Advanced Placement (AP) offers college-level curricula and examinations to high school a student which is created by the College Board.
- Honor classes (hhonor): These are higher level classes which cover more material than general classes and provide academically challenging assignments, coursework and learning opportunities.

- SAT/ACT: SAT is Scholastic Aptitude Test and ACT is American College Test. These are standardized test to determine a high school student's preparation for college-level work and to forecast a high school student's ability to perform in college.
- BCSSE: Beginning College Survey of Student Engagement.
- NSSE: National Survey of Student Engagement

## **Chapter II: Literature Review**

The purpose of this study is to investigate first-year college students' experience in regards to academic rigor and help-seeking behavior with the help of data collected from BCSSE and NSSE instruments. For academic sustenance of the students, the first part of this dissertation aims to study differences in the first-year students' prediction/ perception/ anticipation verses their actual/ observed understanding of academic rigor and help-seeking behaviors after a year of college experience by comparing the BCSSE and NSSE data. The second part focuses on studying the factors that affect the formation of students' perception of academic rigor and help seeking along with finding the effect of academic rigor on help seeking.

This chapter provides reviews of literature relevant to the factors on which student conception of academic rigor and help seeking depends. The factors studied are pre-college experiences, start-of-college attitudes, and expectations, first-year experiences in regards to academic quality, faculty-student relation, relationships with peers, institutional support, etc. Previous theorized model about students' understanding of academic rigor and theories about students help seeking behavior are discussed to investigate the various themes of this study. These theories are Model of Student Conception of Academic Rigor by Draeger, del Prado Hill & Mahler (2013), Draeger et al. (2015), Self-Regulated Learning theory and theory of Self-efficacy.

A brief overview is presented about the student expectation and importance of high school experience and about life transition from high school to college. Then the chapter discusses what academic rigor means along with discussion about the development of a student's

perceptions of college academic rigor. The chapter also discusses prior literature on student's help-seeking/ help-receiving behavior in higher education. The following review of literature is a summary of works pertaining to the systematic, thematic, and theoretical backgrounds presented by other researchers on the topic of academic rigor, help-seeking/receiving behavior in relation to Student Perception Model proposed by Draeger et al. (2013, 2015), Self-Efficacy theory, and Self-Regulated Learning (SRL) theory. The review of the literature concludes with a discussion of the investigated variables.

### **Newly Admitted First-Year Expectations**

One of the recurring themes in this dissertation is newly admitted first-year students' expectations in college. Here we will be studying about expectation about academic rigor in college and expected help seeking behavior in college. So what is expectation in general? According to Olson, Roese, and Zanna (1996), expectations can be defined as the result of the interaction of our experiences with our anticipated environment. Universally human beings have the trait to have expectations for about everything in their life regardless of whether it is very new or very familiar situation. We form expectations about a familiar situation from our past experience in that particular situation, whereas expectations about a new situation are dependent on several related factors. Expectation about first-year of college is one of such new life events where we consider several related factors. For example a student who is good in academics in high school will expect to do good academically in college, or a student who is shy in high school will expect not be make much friends in college, etc. These two examples are two of the several factors that build up students expectations about college. Expectations are not solely dependent on direct experience; expectations can also be formed based on information received from others. For example, if a student has a family member attending college or one who had



attended college, there is a high possibility that the experiences shared by such a person can help to develop an idea about college life. Other types of indirect sources that can possibly shape our expectation are admissions materials received from college, campus visits, high school counselors, and others. Collectively all this information leads us to have expectations during our first-year of college and further these expectations influences our upcoming choices as the first-year of college progresses (Cole, Kennedy & Ben-Avie, 2009).

### **Importance of High School Experience**

The topic of academic rigor studied in this dissertation is directly or indirectly influenced by students' high school experiences along with other factors like personal characteristics, family background, socio-economic standing, etc. However, high school experience remains the most important factor to predict first-year college students' academic behavior in college. Students' conception of college academic rigor has a very consistent connection with their high school standards and fundamentals. Astin and Lee (2003) reported that 61 percent of the variance in time spent studying in college can be predicted by the factors like hours spent studying in high school, academic ability, leadership ability, and developing a meaningful philosophy of life. The relation of high school academic achievement and precollege behaviors with students' behaviors while in college, their college academic performance, and their experiences in college have been expressed by Cole et al. (2009) in their research.

Studies have shown the components of experience, engagement, and academic achievement in high school as significant predictors of student college success (Cole et al., 2009). The examples of high school experiences as predictors are- the prediction of poor academic skills assumed based on inadequate education the students had received in poor high schools (Schnee , 2008), prediction of student success in relation to performance in AP classes or

honors level courses in high school (Adelman, 2006; Geiser & Santelices, 2004; Mayer, 2008; Wyatt et al., 2012), higher academic standards in the nation's high schools as advocate of increase in the college graduation rate (Wyatt et al., 2012). Also, research shows high school grade as a significant contributor to college-going perceptions and forecasting success (Adelman, 2006; Astin & Oseguera, 2005). Thus, a consistent standard across schools, is crucial in “understanding the relationship between the student experience in high school and subsequent success in college” (Palmer, 2000, p. 100). Besides these, the importance of school-college connections is reinforced by many states in their school reform policies, for instance, the states of Oregon and Georgia have adopted policies adopted to have a K-16 seamless education system (Palmer, 2000).

### **Transition from High School to College**

“The sociology of life transition” is a crucial subject for sociologists. Similarly, for educationists, a key event in students' academic life is the life transition when they move from high school to college. Thus, Fromme, Corbin, and Kruse (2008) stated that “the transition from high school to college is an important developmental milestone that holds the potential for personal growth and behavioral change” (p. 1497). However, as per Holmstrom, Karp, and Gray (2002), perhaps the most dislocating change for the economically comfortable students is to leave home for college. Hence the challenge for the freshman students' is to balance academic, social, and personal expectations. Consequently, the students must adapt simultaneously to college academic rigor and new social responsibilities for success in college life (Holmstrom et al., 2002).

Students joining college have limited knowledge about what to expect from college. Their knowledge is built on a variety of high school academic experiences, their exposure to

college information, and family's socioeconomic and educational influences. Grounded in this varied experiences it is expected that they will adapt to the new situation, otherwise "failure to understand the different expectations in the two settings can impact academic motivation and achievement" (Kern, Fagley, & Miller, 1998, p.154). A report from Bridge Project, a project aimed at studying high school- college transition in six states, stated that there are very little evident of association between k-12 and postsecondary institutes (Kirst, 1998; Kirst & Venesia, 2001). The disjuncture between the two systems impedes successful transition and thus diminishes student success (Kirst & Venesia, 2001). The result is leaving an abyss for students to negotiate on their own as the two systems operate singularly without considering students interest (Smith & Wertlieb, 2005).

### **Transition from High School Rigor to College Rigor**

Astin and Oseguera (2005) stated that high school grades are more reliable than standardized test results (e.g., the ACT and SAT) at predicting success which is reiterate by Adelman, (2006) in saying that high school grades are considered as a large contributor to college-going perceptions. However, in another research by Adelman & Taylor (2002) showed that high school outcomes (grade-point average, ranking, awards, curriculum, etc.) do not always guarantee a smooth transition to the first year of college from secondary education institutions. This gap in high school outcome and academic success is often the cause of the struggle the first year students' face to meet faculty expectations.

College faculty often feel that the first year students are ill prepared for college rigor and statistics shows that about 40 percent of the recent graduates had a skill gap to meet the demand of college (Archieve 2014). The state and local educational systems do not consistently report high school graduates' college attendance and retention rates or evaluate the quality of college

preparation programs (Venezia et al., 2003), making it difficult to recognize struggle to cope with the change in school to college rigor. There exist several college and career ready (CCR) policies; however, there is a very limited improvement in aligning the standards of the high school course rigor to match that with the college course rigor. Though the schools aim at developing school curriculum to match state or national standards, the standards do not always align to college curriculum and professor expectations (Linn, 2000). The reason is there is always a difference of view between high school teachers and college professors regarding college preparation (Kirst & Bracco, 2004). Moreover, the lack of data about K-12 to college transition makes it difficult to suggest any changes in course content, in improving the learning standards in high school, thus it was difficult to prepare students better for the transition to college (Smith & Wertlieb, 2005).

### **Academic Rigor**

Remember the three Rs in education? Reading, writing and arithmetic, these three core competencies of educational foundation of a student are now joined by a fourth one, called rigor. Research by Jacobs and Colvin (2009) suggests that faculties across the country define academic rigor differently. To quote a few from his study, Jerry D. Weast, superintendent of the Montgomery County Public Schools in Maryland said, “Academic rigor quite simply means giving students a curriculum that will prepare them to succeed in college or the world of work” (Jacobs & Colvin, 2009. p.2). William Schmidt, Professor in the College of Education at Michigan State University, defined academic rigor as “A curriculum that exemplifies academic rigor is focused, coherent, and appropriately challenging” (Jacobs & Colvin, 2009, p.3). According to Barbara Blackburn, who teaches at the University of North Carolina, "academic rigor is determined not just by what is taught, but how it is taught and how it is assessed” (Jacobs

& Colvin, 2009, p.3). Regarding the number of books students should be required to read, president-elect of the National Council of Teachers of English and author of *With Rigor for All*, Carol Jago, said: “more is more.” She further said, “In academically rigorous classrooms, students read at least one book every two to three weeks – ideally more” (Jacobs & Colvin, 2009, p.1).

To sum up the above ideas, educators defined academic rigor as an arrangement of standards that will develop students into active learner and a thinker rather than merely being passive listener, they will be challenged to think, perform, and grow to a level that they were not at previously, students will be able to demonstrate not only content mastery but can apply skills and think critically (Braxton 1993; Draeger et al., 2013; Jacobs & Colvin, 2009; Nordvall & Braxton, 1996; Payne, Kleine, Purcell, & Carter, 2005). A rigorous academic structure will be such that the course standard will calibrate the students in a way that they are forced to grow without getting overwhelmed in the process.

**Faculty perception.** Many educators associate academic rigor with difficulty, rigid thinking, and harshness. “Too often, rigor becomes ‘Let’s give more homework’” (Jacobs & Colvin, 2009). However, in a research by Draeger et al. (2013), representing faculty perception of academic rigor, shows that the faculty members unanimously described the goal of academic rigor is to involve students in learning meaningful course content actively with higher-order thinking at the appropriate level of expectation.

The model of academic rigor as shown below (Figure 2) that has been suggested by the faculty member “includes active learning, meaningful content, higher-order thinking, and appropriate expectations” (Draeger, et al., 2013, p. 278). This model proposed by Draeger, et al., 2013, involves overlapping the elements of active learning, meaningful content, higher-order

thinking, and appropriate faculty expectations along the variety of contexts (e.g., assignments, course, a course of study, or institution). The elements referred in this model are coherent with the elements of the definition of academic rigor presented by the educators.

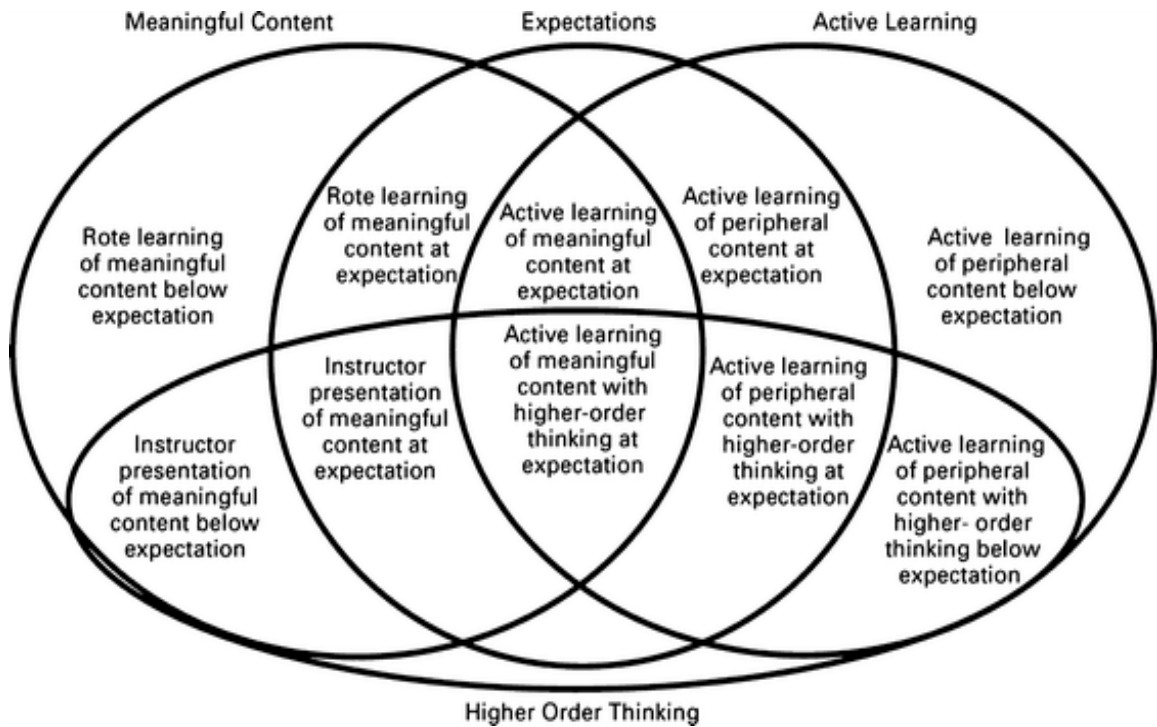


Figure 2. Faculty Model of academic rigor showing overlap between meaningful content, active learning, higher-order thinking, and expectations (Draeger et al., 2013, p. 224).

**Student Perception.** In the earlier mentioned model of faculty conception of academic rigor that Draeger et al. developed in 2013, higher order thinking was identified as an important element of academic rigor. Even literature on academic rigor has referred higher order thinking as a significant constituent of academic rigor (Jacobs & Colvin, 2009; Nordvall & Braxton, 1996; Payne et al., 2005). However, interesting to note (Figure 3) that in the three student models developed by Draeger et al. (2015), the higher-order thinking element is absent. The reason as explained by the authors is that may be the “students were either unfamiliar with these skills or did not see them as central to a rigorous academic environment” (p. 222).

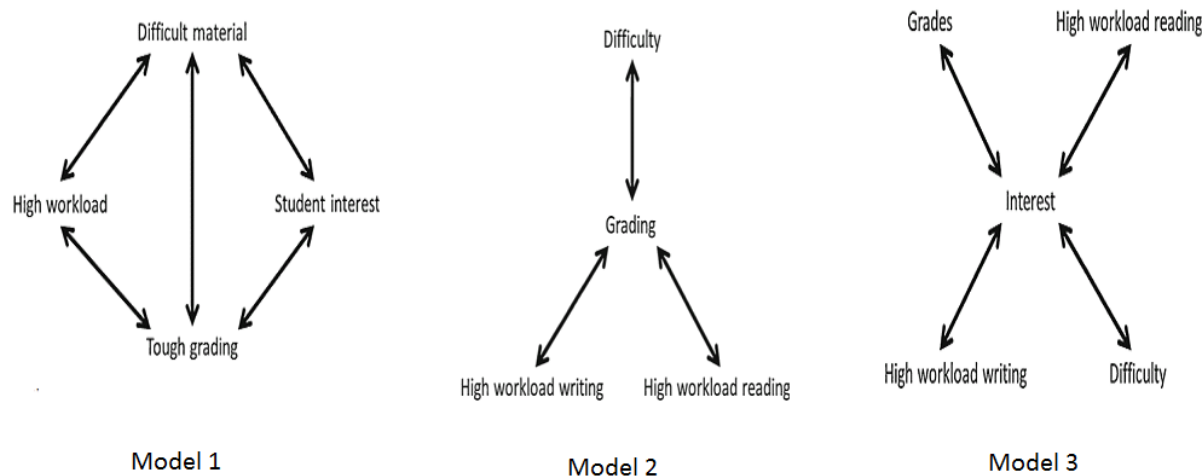


Figure 3. Student Models of academic rigor showing element of academic rigor as proposed by the students (Draeger et al. 2015)

To sum up the finding of the student conception model of academic rigor in college by Draeger et al. (2015), the elements of academic rigor that have been identified are tough grading, workload (amount of reading and writing), the level of difficulty and student interest. Based on the student responses, the researchers here grouped student models of academic rigor into three. First model is a web of connection of the elements of academic rigor such as tough grading, workload (amount of reading and writing), the level of difficulty and student interest, second has ‘hub and spoke’ arrangement of the same elements with grading as the hub in connection with the elements workload (amount of reading and writing), the level of difficulty and student interest and third model has interest in the center with other elements surrounding it.

### **Students’ Expectation versus Experience of Academic Rigor in College**

The previous findings on academic rigor presented the definition of academic rigor where the elements of active learning, higher-order thinking, challenging curriculum, demonstration of meaningful content were mentioned (Jacobs & Colvin, 2009; Nordvall & Braxton, 1996, Payne et al., 2005). Research on faculty perception of academic rigor in college analyzing the NSSE data by Draeger et al. (2013) echoed the same elements as necessary constituent of academic

rigor. Another study by Draeger et al., in 2015 developed models of student conception of academic rigor based on NSSE data where the elements of academic rigor presented are tough grading, workload (amount of reading and writing), and the level of difficulty and student interest. Since this dissertation aims at utilizing NSSE and BCSSE (highly related to NSSE) data to study the constructs of academic rigor and help seeking, academic rigor models development by Draeger et al. (2013, 2015) inspired the theoretical base of the academic rigor study in this dissertation.

The above mentioned works of Draeger et al. (2013, 2015) showed models based on faculty and student conception of academic rigor. Both the faculty model and student model in those studies were developed using a part of the NSSE subscales of level of academic challenge. The successful use of the NSSE subscale of level of academic challenge to predict models of academic rigor validate the utilization of this scale in the academic rigor part of this dissertation. Though, Draeger et al. (2013, 2015) used NSSE data along with interview data in both of their studies. But as the key focus of this dissertation is to make a quantitative comparison of academic rigor utilization both BCSSE and NSSE data, thus personal interview data is not collected here. There is another previous study by Payne et al. (2005) that investigated student and faculty perception of academic challenge based on early administration of NSSE. However, the study by Payne et al. (2005) proposed modification of the NSSE items on academic challenge and student engagement which was but it was back in 2005. After that there were modifications of the NSSE items to align it more with the BCSSE items, and new updated NSSE was introduced in 2013 (Fosnacht & Gonyea, 2012) to make the NSSE benchmark more valid.

**BCSSE and NSSE Defined.** BCSSE and NSSE instruments are widely used surveys in higher education institutions to study students' expectations and engagement in college. When



Kuh created NSSE in 2000, the idea was to provide high-quality, actionable data that institutions can use to improve the undergraduate experience. The NSSE was developed as an instrument designed to measure student engagement along with measuring the degree to which institutions are providing students with an effective learning environment (Kuh et al. 2001; Kuh 2001). Complimenting to NSSE, BCSSE survey was developed by the Center for Postsecondary Research at Indiana University to help institutions to collect pre-college data of the first-year students joining college and data of students' expectations about college before joining college. According to Crisp et al. (2009), students mostly do not have realistic expectations about college, so knowing students' expectation can help educators to focus on developing expectations that are more appropriate for them and thus can be met (Miller, Bender & Schuh, 2005). Thus BCSSE data about entering college students' expectations about college academics during the first college year can help the institution to better respond to those expectations. The BCSSE administration generally takes place prior to the start of fall classes which is designed to be paired with a NSSE administration at the end of the first college of year. This alignment of BCSSE and NSSE surveys is useful in providing an in-depth understanding of first-year student engagement on campus.

The first part of the dissertation tries to find out the transformation, if any, in student conceptions of academic rigor when they join college and after a year of college. Thus the first research question is: What are the differences in first-year college students' anticipated versus observed academic rigor after a year of college? Previous qualitative research by Meyer et al. (2009) showed the transformation of perception of first-year student about college academic rigor, showing discord between expectation and experience. However, there is no quantitative study that measured the transformation, if any, in student conception of academic rigor when

they join college and after a year of college. Besides there is no study that compared items of BCSSE and NSSE to measure the change in expected academic rigor versus academic rigor experienced.

The NSSE benchmarks are based on 42 items survey that are designed to measure the most important aspects of the student experience covering five key areas, which are then combined into subscales: Level of academic challenge, Active and collaborative learning, Student-faculty interaction, Enriching educational experiences, and Supportive Campus Environment (Kuh, 2003). BCCSE contains six sets of items as indicators of a students' high school academic background, their college expectations, and attitudes toward their academic work in the first year of college (Cole et al., 2009). The sets are High School Academic Engagement, Expected First-Year Engagement, Academic Persistence, Expected Academic Difficulty, Academic Preparation, and Importance of Campus Environment. Grounded on the research by Draeger et al. in 2013 and 2015 where NSSE items were used to propose academic rigor models, here also academic rigor items are identified from NSSE. The BCSSE being highly aligned with NSSE, similar rigor items are identified from BCSSE as well. To find the change in students' perception if any in regards to academic rigor and challenge expected in college as reported in BCSSE to observed academic rigor and challenge from NSSE, the research hypothesis was proposed in this dissertation. In alignment with previous qualitative finding by Meyer et al. (2009), the current hypothesis is: H1: There will be difference in students expected vs. observed academic rigor in college.

### **Academic Help-Seeking**

The transition from high school to college situates student in an unsettling situation be it in their social life or academic life. As reported by Karabenick and Knapp (1991), the difference

of academic rigor from high school to college makes the students feel that they are inadequately skilled in mastering the increasingly complex academic demands of the college education.

Inevitably, in such a situation a student may encounter doubt or difficulty in their course work and may need assistance. This view has been echoed by Karabenick & Knapp (1988) in their study where almost all of the college students conveyed their desire to use help with their courses or study skills during a typical term.

Early studies considered help seeking as a degrading activity stating that it shows deficiency in development, self-reliance, and even incompetence. However, later studies showed help seeking in a positive light as necessary and beneficiary activity (Nelson-LeGall, 1985).

There are several aspects of help-seeking, but here we are mainly focused on the academic help seeking aspect. The distinction between the two types of help-seeking “executive” or dependency oriented help seeking and “instrumental” or mastery oriented help seeking is effective in understanding college students’ help-seeking characteristics. Nelson-LeGall (1981, 1985) proposed the following the distinction between instrumental and executive help-seeking goals. When a student’s intention is that someone else will attain goal for his or her behalf, it is called executive help seeking. But what educators aim is for the instrumental help seeking, where a student attains the goal on its own with minimum assistance or help from others (Karabenick & Knapp, 1991). That is why mastery-oriented help seeking is considered as an achievement behavior (e.g., Ames, 1983; Nelson-LeGall, 1981; Nelson-LeGall, Gumerman, & Scott-Jones, 1983), an example is when a student encounter academic difficulties he seeks help by asking for a hint for problem-solving to improve his ability to achieve the goal.

## **Students' Expectation versus Experience of Academic Help Seeking in College**

Several studies are there measuring student engagement behavior in college but none of the studies ever studied the change in students' expectation of academic help seeking in college. Again coming to the topic of high school-college disconnect, a number of college students enrolled can be seen remedial classes. This is a clear reflection of disparity in academic expectations. The inconsistency in expected academic rigor and actual academic rigor or the academic difficulty faced by the students can be overcome by seeking help. When in difficulty, the adaptive behavior of students is to use others as a resource to receive the necessary help and continue the learning process (Nelson-LeGall, 1985, 1990). Researches on student help seeking in learning acknowledge the adaptive role of help seeking for ages (Ames, 1983; Nelson-LeGall, 1981, 1985; Newman, 1994; Schunk & Zimmerman, 1994). But many a times students never seek the requisite help to overcome what are often manageable academic challenges. These students who are non-adaptive to their academic requirements can be seen unsuccessful in their course and dropping out of courses or program (Newman, 1994).

In this part of the dissertation we will be looking at the whether students show any change in their help seeking behavior as reported by them before joining college and after one year of college. The difference in student help seeking behavior will be studied here using the BCSSE and NSSE data. The NSSE items were previously used in a study by Palmer (2015) in examining poor help-seeking behavior among Black men at Historically Black Colleges and Universities (HBCU). Thus items related to help seeking were identified from NSSE and similar items were identified from BCSSE. These items were used to study the hypothesis: H2: There will be difference in students expected vs. observed academic help seeking behavior in college.

## **Factors Influencing Student Perception of Academic Rigor**

When we are considering students' perception of academic rigor, we cannot come to assumptions easily as their perceptions are still in a growing stage. Comparing that to faculty perceptions is not practical as faculties' ideas are already grounded on solid experience and understanding. The expectations of the student conception of academic rigor in the first year of college are likely to be varied depending on the students' academic background, family background, and socio-economical background. Evidently, a student who will be joining a college will build his perception of rigor based on his previous experience. Therefore, to understand a student's perception about academic rigor in college we have to consider several factors.

Students who are moving from high school to college, be it a four-year institution or a community college, comes across difference in the level of academic standard as the standards of the higher secondary level, be it performance, content coverage, or challenge of the material comes nowhere close to the threshold demands of either four-year or community colleges. Draeger et al. (2015) while emphasizing the importance of high school experience in forming academic rigor said that when the first year students come to college if the entry standard of academic rigor is significantly elevated from their K-12 standard, it might be difficult for some student to sustain in their academic career. Thus the academic quality and intensity of one's high school curriculum is an essential element of postsecondary success (Alderman, 2006). Considering the above arguments, we can say that high school experience has a major influence in outlining the concept of academic rigor in a student's mind.

Other influences as suggested by research are parental education level (Hertel, 2002). Emphasizing about parental influence of academic rigor, Hertel (2002) said that college educated

parents are "able to pass knowledge about the college culture on to their-children" (p. 4) compared to those parents who are not college educated. When it comes to student's success, "students whose parents are not college-educated may not receive sufficient familial support for attending college" (p. 1). Also, information received from close interpersonal sources, and media which plays a major role in forming perceptions about expected college rigor (Meyer et al., 2009). By interpersonal sources the researchers meant information received from peers, guardians, high school teachers. Students' builds their perception of academic rigor from the information received from close interpersonal sources (Meyer et al., 2009) and this pre-college relationship significantly contributes to their success and perception about college.

Along with the factors that literature show as having influence in building students' perception of rigor, other factors that might influence are ACT/SAT score, grade in high school, high school academic rigor, high school type. Although literature does not have any direct association of all these added factors with building students' perception of college rigor but they are predictors of college success. Considering academic success in college is influenced by how well students' manage college academic rigor, factors predicting academic success can also be the predictor of students' perception of academic rigor. Research suggests that students' precollege experiences are good indicators of college success (Adelman, 2006; Wyatt et al., 2012). For example AP and honors courses shows significant effect on academic success (Adelman, 2006; Mayer, 2008) as statistics shows "students with no AP participation had a mean FYGPA of 2.85, compared to 3.10 for those participating in a single AP course and 2.93 for the overall sample" (Wyatt et al., 2012, p. 18). Students' high school performance (grade, advanced math courses taken), high school academic rigor or measuring the intensity of academic rigor the student experienced in high school attended has significant effect on college success (Adelman,

2006; Kuh, 2007; Wyatt et al., 2012). The themes that emerged from research by Reid & Moore III (2008) stated the same “the preparation during high school helped with college success” (p. 240). Also ACT/SAT score is recognized to be significant indicator of college success (Porchea et al., 2010) as stated by Kobrin et al. (2008) that “SAT is to measure a student’s potential for academic success in college” (p. 1).

Summarizing the above literature, the factors that are identified as affecting academic rigor are parental education, high school academic rigor, high school GPA, ACT/SAT score, AP and honor classes taken, relation with high school faculty, peers and media. In this dissertation we will look at the influence of parental education, high school academic rigor, high school GPA, ACT/SAT score, AP and honor classes taken on expected academic rigor (Figure 4) by analyzing the data collected using BCSSE.

### **Factors Influencing Student Perception of Academic Help-Seeking**

Newman (2002), in describing a typical student behavior, stated that when a student faces difficulty in the academic task, they will either actively engage, sit passively, give up prematurely, or continue unsuccessfully. Help seeking is considered as an important learning strategy that is linked to students’ achievement goals and academic performance (Karabenick & Newman, 2013). Several models of the help-seeking process have been proposed, but Roll, Alevan, McLaren, and Koedinger (2011) stated that self-regulatory skill as the key to knowing when and how to seek help during learning (Nelson-LeGall, 1981; Newman, 1994; Pintrich, 2000). Based on this the conceptual framework this part of the dissertation is grounded on Self-Regulated Learning Theory.

The importance of SRL for student knowledge and achievement has gained increased recognition in the last decade. According to Zimmerman (1994) a self-regulated learners are

students who are metacognitively, motivationally, and behaviorally involved in their learning. In presenting the relation between self-regulated learning and motivation, Zimmerman (1990) said, “self –regulated learning requires more than cognitive skill; it requires a will or motivational component as well” (pg. 11). There is a close relationship of motivation and SRL (Zimmerman & Schunk, 2008); regarding the motivational process, the self-regulated learners report high self-efficacy, self-attributions and intrinsic task interest (Schunk & Gunn, 1986; Zimmerman, 1985). The self-efficacy beliefs of self-regulated learners make them highly motivated students, and thus they show greater progress in a task, will put forth increased effort to learn thus will attain a higher level of master and will persist to learn more on their own (Schunk & Zimmerman, 2008).

**Self-regulated learning, academic self-efficacy, and help-seeking.** Should I need help?

This is a question that students might have asked themselves many times in academic life. It is inevitable in an academic setting the students will encounter situations in which they need aid or advice to continue an academic task. One specific characteristic of a self-regulated learner in such a situation is their ability to use others as a resource to cope with ambiguity and difficulty in the learning process (Newman, 1991, 1994; Zimmerman & Martinez-Pons, 1988). The three general types of motivational beliefs in self-regulated learning that has been proposed by Pintrich (1999) are:

'(a) self-efficacy beliefs (that refers to ability to judge one's capabilities to do the academic task), (b) task value beliefs (that is the belief about whether the task is importance, valuable, and how much interest one have in the task), and (c) goal orientations (that is, whether the students' the focus is on mastering the task, or they just to focus on grades or extrinsic reasons for doing the task, or relative ability in relation to social comparisons with other students)' (p. 462).



**The role of self-efficacy beliefs.** When students judge whether they need to ask for help is actually judging their own capabilities. Bandura's (1997) definition of self-efficacy refers to people's judgment of their capabilities to organize and successfully complete a task. Academic self-efficacy is referred as a feature that helps students to better judge about their capability and ability to complete their schoolwork successfully (Pintrich & Schunk, 1996; Schunk, 1991). The significant correlation between self-efficacy and help seeking manifest in help-seeking behavior in student (Williams & Takaku, 2011). Various research (e.g., Bouffard, Bouchard, Goulet, Denoncourt, & Couture, 2005; Pajares, 2003, 2006; Pajares & Usher, 2008; Usher & Pajares, 2008; Zimmerman & Bandura, 1994) shows help seeking and self-efficacy belief to be a predictor of academic success. A student with high self-efficacy in time of academic need will show high help-seeking behavior vs. a student with low self-efficacy (Linnenbrink & Pintrich, 2003; Nelson & Ketelhut, 2008; Paulsen & Feldman, 2005; Pintrich & Zusho, 2007; Tan et al., 2008), thus will be more successful academically.

There are other examples where the students' with high self-efficacy avoid seeking help even in need (Madni, 2008; Ryan, Pintrich & Midgley, 2001) because of threat to ego (Karabenick, 2003). However, as per Ryan, Gheen & Midgley, (1998) it is also factual that, students with low self-efficacy are less likely to seek help, as they do not want others to think their need for help is because of their lack of ability whereas, students who have self-efficacy about their ability will ask for academic help whenever needed to overcome difficulty.

**The role of task value beliefs.** According to Pintrich (1999), self-regulated learning and task value beliefs are positively related. Task value is the perceived value of a particular task as supposed by a student. Wigfield and Eccles (2000) suggested four components of task value on student achievement that is the value of attainment or importance, intrinsic value, utility value or

usefulness and cost. Attainment value or importance of the task value is referred to the perceived value of a particular task as identified by an individual. Intrinsic value refers to the general attitudes or liking of an individual for a particular task. Utility value is an individual's perception of the usefulness of the task for them. And, cost referred to the perceived consequence of the time spent, the effort given, alternative not pursued for a given task (Zimmerman & Schunk, 2008).

From task value perspective, students who believe that their course work is interesting, important, and useful will readily report the use of self-regulatory strategies (Pintrich, 1999). A self-regulated learner who has perceived the value of a given task, in difficulty will look for help to accomplish it. Butler and Neuman (1995) found individuals in a task-focused goal condition requested more help than individuals in a relative ability goal condition. This is because individuals with task-focused goals desire for mastery or adaptive achievement goal (Ryan & Pintrich, 1997).

**The role of goal orientation.** Goal orientation or students' personal goals is studied in most of the researches on achievement goal theory and help seeking. Research on college students' help-seeking and their perceived achievement goal strategy explains two general patterns. The two types of goals are mastery goals and performance goals. According to what shown in studies is that the mastery goal oriented students (focus here is on learning and self-improvement) are more likely to engage in and adopt to instrumental/autonomous help-seeking, in comparison to performance goals orientated students (concerns about ability and social comparisons) who would either avoid seeking help or seek expedient help (Karabenick, 1998, 2003). Adult students who own mastery goal orientation is seen to persevere in the development of competence (Ong, 2014).

Of course from the above lit looking at the different types of help-seeking behavior self-regulated learners are obviously will go for adaptive help seeking or instrumental help seeking as they have personal motivational reasons to achieve goals (Newman, 2002). Research on student help seeking in learning acknowledges the adaptive role of help seeking for ages (Ames, 1983; Nelson-LeGall, 1981, 1985; Newman, 1990; Zimmerman & Schunk, 1998). When in difficulty, the adaptive behavior of students is to use others as a resource to receive the necessary help and continue the learning process (Nelson-LeGall, 1985, 1990). Generally educators emphasis in how student ask help (just a hint) to learn independently, not just getting the answer.

**Threat to academic help-seeking.** Several studies have established the inverse relation of the threat to self-esteem and help seeking (Arbreton, 1993; Karabenick & Knapp, 1991; Newman, 1990; Newman & Goldin, 1990; Newman & Schwager, 1993; Ryan et al., 1998; Ryan & Pintrich, 1997; Shapiro, 1983). Especially among college student threat is inversely related to instrumental help seeking (Karabenick & Knapp, 1991). When there is an implication that the individual cannot succeed without help, and perhaps not even with help, help seeking is assumed as to lower self-esteem. They were also lower achievers who would resist obtaining the help they needed, thereby decreasing their chances of success (Karabenick, 2004).

How teachers and peers respond is an essential determinant of whether students seek help or not. Research says that a teacher's involvement is the base to students' belief about benefit and cost of help seeking and this belief, in turn, affect their help-seeking behavior (Newman, 2010). In addition, peer influence is seen as an important to students' help-seeking behavior (Newman, 2010). There can sometimes be positive and sometimes negative effect of peer involvement in help-seeking. The process of seeking help is inherently social, students who are concerned about their social image and are optimistic about performance will readily ask for help

whereas students who unsure about their abilities will feel threatened to ask for help (Ryan & Pintrich, 1997).

Another thing that works as a threat to help seeking is poor performance. According to the finding by Karabenick and Knapp (1988), the rate of help seeking is low among poor performing students. Poor performance brings in negative emotions and low expectancies leading to withdrawal from task and avoiding help seeking (Ames, 1983). Also, failure after assistance can be thought as evidence of low ability, thus can act as a deterrent to help seeking (Karabenick & Knapp, 1988).

**Research Hypothesis.** Summarizing the above literature, the factors that are identified affecting academic help seeking are self-efficacy, task-value, goal-orientation academic perseverance, relation with peer and faculty, social behavior. In this dissertation we will look at the influence of self-efficacy, academic perseverance, faculty relations and social behavior on expected academic help seeking (Figure 4) by analyzing the data collected using BCSSE. In the last part of this dissertation we are also interested in studying the association of academic rigor with help seeking.

As already discussed above there are several factors that affect the formation of concept of academic rigor in students. Similarly we also saw that help seeking characteristic in students depends on many factors. All of these factors are identified from the literature which is also discussed above. In accordance with the literature mentioned earlier this part of the dissertation will try to find whether data from BCSSE measuring these factors also holds similar association of the factors with the constructs. Additionally we will also look at the association of expected academic rigor on expected help seeking. The factors for academic rigor that will be tested are high school type, grades, ACT/SAT score, parental education, first-generation student, high

school academic rigor, AP and honor classes with an additional factor of self-efficacy which was never associated before. And for help seeking the factors are self-efficacy, academic perseverance, teacher's influence, social behavior. Based on this the following hypothesis will be tested based on the proposed model in Figure 4.

- H1: High school academic rigor (HSrigor) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H2: High school grade (hgrades) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H3: SAT/ACT score (sat\_act) has a significant negative effect on the Expected college academic rigor (ECrigor)
- H4: Advanced Placement classes completed (hapcl) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H5: Honor classes completed (hhonor) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H6: Being a first generation student (bfirstgen) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H7: Parental education (fypardegr) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H8: Self-efficacy (SF) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H9: Expected college academic rigor (ECrigor) has a significant positive effect on the Expected academic help seeking (EAHS)

- H10: Self efficacy beliefs (SF) has a significant negative effect on the Expected academic help seeking (EAHS)
- H11: Perseverance (Per) has a significant positive effect on the Expected academic help seeking (EAHS)
- H12: Relation with Faculty (FR) has a significant positive effect on the Expected academic help seeking (EAHS)
- H13: Social Behavior (SB) has a significant positive effect on the Expected academic help seeking (EAHS)

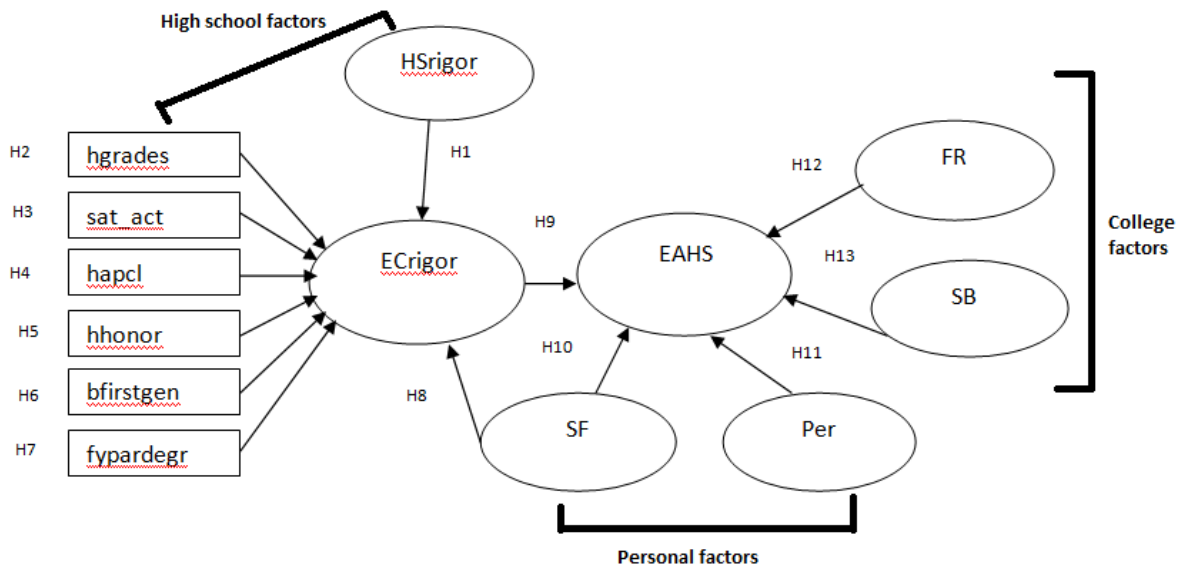


Figure 4. Hypothesized relationship between academic rigor and help-seeking.

### Summary

This chapter presented the conceptual foundation of why it is important to understand the change in academic rigor and help seeking in college students. The significance of steady growth during the transition time from school to college is explained by referring several studies. The value of academic rigor and help seeking behavior during the first year of college is explained by

knowing previous studies on rigor and help seeking. The factors that influence these constructs are also explained from prior studies. It is understood that there is need to explain the untouched areas of academic rigor and help seeking. Hence, this dissertation aims to contribute by exploring the perspective about academic rigor and help seeking that is still needed to be studies.

### **Chapter III: Methods**

Numerous studies are there providing insight into how college students are performing and adjusting to college life. Managing college transition is an overwhelming process that every student passes through. Morales (2012) referred several studies (e.g., Clark & Cundiff, 2011; Hughes, 1987; Lang, 1986, 1992) to establish that initial college experience is significant in determining the chances of timely graduation and success. There are various degrees of both “social and academic integration” along with “self-efficacy,” “expectancy for success” and “strong work drives” that correlate with eventual college success (Morales, 2012, p. 91). Thus studying these variables affecting the initial college experience is a useful way to know which of these variables correlate with college success and the lack of which leads to attrition.

As mentioned earlier, school to college transition is seen as a significant event in the academic life of the students. Often we come across bulletin that exhibits the complex process of school to college transition and the anxiety that the students go through. This transition many a time brings personal and emotional troubles, psychological problem, anxiety, and low self-esteem leading to depression (Gerdes & Mallinckodt, 1994). The complexity arising from these changes hampers students’ academic standing, leading them to have a staggered academic profile or even college dropout. It is likely that the students in the freshman cohort will not have uniform characteristics. The problem is that the colleges treat all the first year students as a homogeneous cohort (Duggan, 2010; Kuh, 2003; Tinto, 2003), with academic policies same for all. With a wide variety of precollege experiences ranging from high school type, social



experiences, economic status, to personal attributes, and then being treated homogenously; the inevitable result is the disparity in academic standing among the students.

Thus for the need to better understand and the importance of evaluating first year experiences of the students, BCSSE was developed as a companion survey to NSSE. Where the purpose of BCSSE is to measure entering first-year students' pre-college experiences and their expectations and attitudes before starting the first college year; NSSE's purpose is to measure the fulfillment of the students' expectation and their actual experiences and to infer about the effective educational practices and assessing the level of academic challenge (Kuh, 2009) in the postsecondary settings. The results from these instruments when studied and compared together can characterize students as who they are and what they expect to do in college, and their subsequent experiences in college. The arrangement of the information can be used towards enhancing student engagement and learning by knowing the design of their precollege orientation and their socialization experiences (Kuh, 2005, 2009).

One of the major areas of concern is freshman class's adaptability to college academic rigor. The lack of college readiness among high school students who will soon be joining college (Greene & Forster, 2003; Byrd & MacDonald, 2005; Conley, 2007), has been mentioned in many previous studies. By college readiness, the concern here is how well the students joining college are prepared for the college academic rigor, as college preparedness has strong association with postsecondary GPA, in other words their academic success. There are various studies that provide theories of and insights into the general perceptions of academic rigor and its subsequent adjustment to students' academic life in college. But few of them have tried to understand academic rigor from a students' perspective. And no study has demonstrated the contrast in students' expected academic rigor before they join college vs. their observed

academic rigor in college. Also except for one, there is no prior research about factors that influence student perception of the academic rigor of college courses.

In continuation of school to college transition and academic challenge, another important student behavior for academic success is how the students are coping with the academic challenge they face in college. Do the first year students ask for academic help in need? The existing research related to help seeking have focused more on establishing the theory of help seeking behavior, assessing the factors that influence students' academic help seeking behavior, the factors that are detrimental to help seeking, etc., on a generic level and only few of them focused on college students. And among these few studies involving college students' help seeking behavior, none of them have assessed the effect of transition in students' life on their help seeking behavior by comparing their self-reported probable help seeking behavior vs. their observable/actual help seeking behavior in college. In addition, there are no literature that demonstrates the relationship between academic rigor and students' help seeking behavior. All the previous studies on academic rigor and help seeking behavior had focused on each of these constructs individually from defining the meaning of these constructs, to forming theories, to assessing the factors affecting the individual constructs.

Thus the purpose of this study is to holistically examine first-year college students' experiences in regard to academic rigor and academic help seeking. A qualitative study by Meyer et al. (2009) showed that first year students' perceptions (which is based on the influences from their close personal relations and media) of college academics and academic rigor prior to/after enrolling to college vs. actual experience after the completion of first year in college was incongruent. The aim in this study is whether a quantitative analysis using BCSSE, NSSE data can find any difference in students' expected academic rigor versus observed academic rigor.

Further, from the expectation that college will have significant effect on students' characteristic build up, the aim here is to see the change in first year college students' behavior pertaining to help seeking when they join college and their actual help seeking behavior while in college. For both the studies, quantitative approach is considered and the comparison will be based on analyzing Beginners College Survey of Student Engagement and National Survey of Student Engagement. The third quantitative study is to see how well the predictors of academic rigor and help seeking align with each other, to find out the relationship of, if any, academic rigor and help seeking behavior.

### **Statement of the Problem**

Increase in the number of students enrolling for college degree is good but what has to be ensured is that they successfully complete their degree. With the increase in number of students joining college, there are a good number of students who remain unsuccessful in obtaining a college degree. American Institutes for Research's study on college student attrition reported that in a post-secondary setting about one-third of students who enter college with expectation to earn a degree leave without one (Johnson, 2012). Among others causes, the change in academic rigor differing from school to college, students' behavior in dealing with the change and subsequently their behavior in regards to academic help seeking are decisive factors for college success.

The one-third of the college students leaving colleges not only damages their career/future, it has economic setback as well as unfinished degrees are costly for states, students, and institutions. Unfinished degree is not only a financial burden for the student or the family; in addition it is a financial burden for state and federal taxpayers. As per the report *Finishing the First Lap* of 2010 more than \$9 billion was spend from taxpayers money for educating first-year students who will not return the following year (Johnson, 2012). A positive development now is

that government, educators, stakeholders have realized the need of understanding, motivating, engaging, nurture the students' for a successful academic experience and the result is increasing number of surveys trying to capture experiences of college students. With such an intention, college students' engagement surveys like NSSE and BCSSE was developed which is widely used in four-year institutions for collecting students self-reported data on college experiences for review. Institutional research team of the BCSSE, NSSE participating universities do yearly report on standards of student experience, engagement in college. Individual student responses of BCSSE and NSSE can help the educators to understand students' background, their expectation, their ability, their perception and their achievement, thus the faculties can better advise the students. This study will look at the two constructs of academic rigor and academic help seeking with an intention to see how BCSSE and NSSE data can be used in a way that the institutions have not done before to predict student success. In other words, this will help institutions to predict student academic output (i.e., GPA), help with student retention, and locate at-risk students thus enhance their undergraduate experience and help them achieve success in college.

### **Study Context**

There are studies that worked on academic rigor and academic help seeking behavior before but rarely BCSSE and NSSE instruments are used in explaining these particular constructs. There is increasing number of four-year institutions that are now voluntarily participating in BCSSE and NSSE surveys which has an extensive research base. So in this research the aim is to involve these instruments in diverse research ideas this time in regards to academic rigor, help seeking behavior. This study sought to find out the differences between the students' prediction/ perception/ anticipation and their actual/ observed understanding of academic rigor and help-seeking behaviors after a year of college. Then identify the significant

factors that affect the difference in their anticipated versus observed academic rigor and help seeking. Also, finding the relationship between predictors of academic rigor and academic help seeking and correlation between the two if any. While finding out this, the main purpose is to get more out of BCSSE and NSSE surveys at a southeastern university to provide the institution with an exhaustive cross-sectional study of the first year students' experiences.

### **Review of Previous Research on Academic Rigor and Academic Help-Seeking**

The construct of academic rigor in this research is built upon a model proposed by Draeger et al. (2013; 2015) who used the NSSE scale to understand student conception of academic rigor. Draeger et al. (2015) while proposing the student model used several items from NSSE survey. In his model "the students defined rigor in terms of workload, level of complexity, amount of time demanded by course materials, the level of thought required, and its value outside the classroom" (Draeger et al., 2015, p. 219). In addition to items mentioned above in defining the construct of academic rigor by the students, added item in this study will be academic challenge.

Students' perception of expected academic rigor in college depends on several factors/predictors. The factors that are observed in prior literature are parental education as "most experts in higher education agree that students' informal interactions with faculty members have a positive relationship to personal growth as well as academic achievement" (Halawah, 2006, p. 670) and role of media (Meyer et al., 2009). With the exception of Meyer et al. (2009) no prior literature studied what influences the students' perception about academic rigor in college. There are several researches that studied about academic success in college. As academic success is influenced by how well students' manage college academic rigor, the factors influencing academic success in college will be studied here to see how well it predicts students' perception

of academic rigor in college along with parental education. These factors are AP and honors courses as such courses are indicators of the quality of the academic program the high schools offered to their students and as Mayer (2008) held that such courses are indicators of college readiness. Other factors which are good predictor are the students' high school performance (grade, advanced math courses taken), high school academic rigor (Kuh, 2007) and an added factors that will be studied is high school type. ACT/SAT score is also a good predictor as literature says "SAT is to measure a student's potential for academic success in college" (Kobrin et al., 2008, p. 1) and "Prior academic achievement is often measured by.....standardized test scores (e.g., ACT or SAT scores)" (Porchea et al., 2010, p 753).

Students' academic help seeking behavior is a very widely studied topic. The construct of academic help seeking may be measured by evaluating whether the students' are making the full use of available aid in the university. For example, did the students intended to use or used the learning support system available in the university, did the students intended to ask or asked for help from faculties & peers, did the students ever involved in collaborative learning. Prior studies on help seeking mentioned all these as active help seeking behavior (Karabenick, 2003; Mäkitalo-Siegl, Kohnle & Fischer, 2011; Newman, 2002). Prior literature has typified help seeking behavior into several types like "instrumental help seeking", "executive help seeking", "adaptive help seeking" (Nelson-LeGall, 1985, 1987; Karabenick & Knapp, 1991). As per literature, whether students' ask for help or not may depend upon relationship with faculty, relationship with peer, social behavior, being a self-regulated learner, self-efficacy belief and gender type (Butler, 1998; Karabenick, 2003; Karabenick & Knapp, 1991; Nelson-LeGall, 1985; Newman, 2002).

There are items relating to academic help seeking and academic rigor both in BCSSE as well as in NCCE surveys. And the factors affecting the perception buildup of these constructs among students are also present in the BCSSE survey. But there are not many researches that used these surveys in relation to help seeking and academic rigor. Thus this study focuses on this unexplored area with an expectation that we will understand the factors mentioned above in new light linked to both academic rigor and academic help seeking.

### **Research Questions:**

- What are the differences in first year college students' anticipated versus observed academic rigor after first year of college?
- What are the differences in first year college students' anticipated versus observed help seeking after first year of college?
- To what extent variables like high school type, high-school grade, act/sat score, parental education, AP/Honors classes and the factor of high school academic rigor influences the first year students' to predict upcoming academic rigor in college. Also how students' academic help-seeking behavior in college is influenced by self-efficacy, perseverance, faculty influence, peers influence, social behavior, in addition to finding the relationship of college academic rigor and academic help seeking if any.

### **Research Model and Research Hypotheses**

**Objective one and objective two.** For the comparative investigation of academic rigor predicted versus observed and academic help seeking predicted vs. actually asked, it is required to match the rigor and help seeking items from the BCSSE and NSSE surveys. This is possible as

six of the ten NSSE Engagement Indicators (EIs) have similar content on the BCSSE survey, thus the items representing rigor and help seeking matching both the surveys are sorted out. In order to provide a better understanding of academic rigor and help seeking among college students based on self-reported student data from BCSSE and NSSE surveys, two separate studies were proposed. The first study evaluates the differences if any reported using BCSSE and NCCE items representing academic rigor and the study evaluates the differences if any reported using BCSSE and NCCE items representing help seeking behavior.

***Proposed hypothesis Academic Rigor and Help-Seeking***

- There is no different comparing Academic Rigor items from the BSSE and NSSE data.
- There is no different comparing Academic Help Seeking items from the BSSE and NSSE data.

**Objective three.** The second study of this dissertation proposes a model to evaluate the relation between academic rigor and help seeking, and the relation with the cognitive and non-cognitive factors influencing students' perception of academic rigor, help seeking as recognized from prior literature using the BCSSE instrument. Here only the BCSSE survey is employed to see which factors better predict the two constructs, whether the predictors are in alignment with prior literature or not and whether there is any relation between the two constructs. The proposed model is depicted in Figure 5.



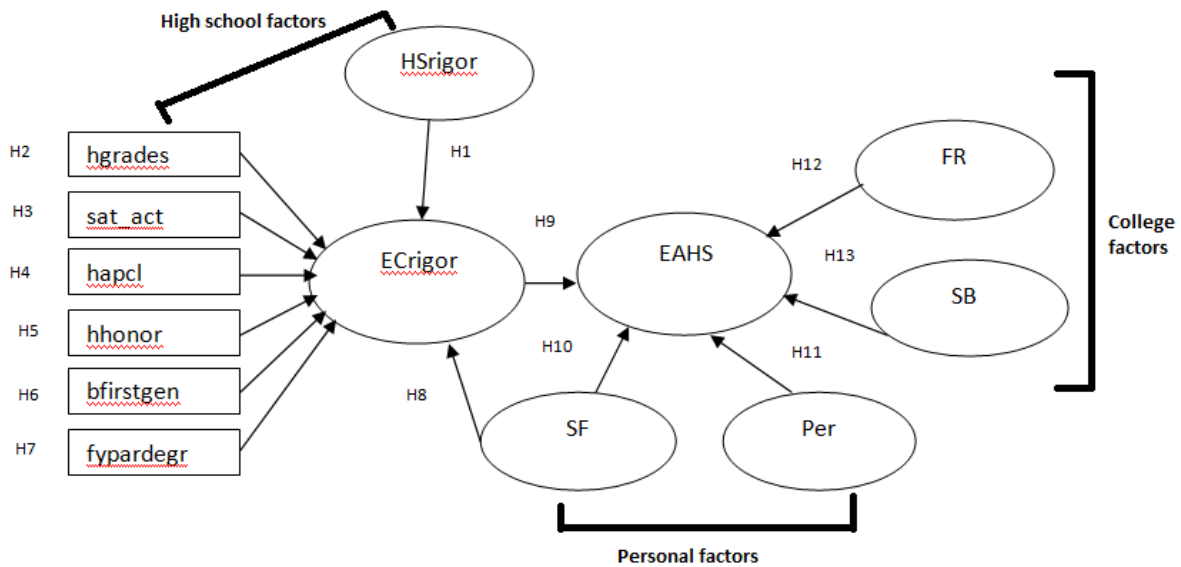


Figure 5. Proposed Model of Relation of Academic rigor and Help-seeking along with the Factors.

**Proposed hypothesis.**

- H1: High school academic rigor (HSrigor) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H2: High school grade (hgrades) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H3: SAT/ACT score (sat\_act) has a significant negative effect on the Expected college academic rigor (ECrigor)
- H4: Advanced Placement classes completed (hapcl) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H5: Honor classes completed (hhonor) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H6: Being a first generation student (bfirstgen) has a significant positive effect on the Expected college academic rigor (ECrigor)

- H7: Parental education (fypardegr) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H8: Self-efficacy (SF) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H9: Expected college academic rigor (ECrigor) has a significant positive effect on the Expected academic help seeking (EAHS)
- H10: Self efficacy beliefs (SF) has a significant negative effect on the Expected academic help seeking (EAHS)
- H11: Perseverance (Per) has a significant positive effect on the Expected academic help seeking (EAHS)
- H12: Relation with Faculty (FR) has a significant positive effect on the Expected academic help seeking (EAHS)
- H13: Social Behavior (SB) has a significant positive effect on the Expected academic help seeking (EAHS)

### **Sampling**

This research attempts to examine the difference in expected behavior of the first year students entering college and their actual behavior during their first year of college, the sample for this study are all entering first year students and senior students participated in the BCSSE and NSSE surveys for the year 2013, 2014, 2015, 2016 and 2017. For the second research objective of evaluating the relation between the two constructs, the sample are all the first year students participated in 2013 to 2016 BCSSE survey. All the participants are 18 years or older. The data is obtained from Auburn University's Office of Institutional Research (OIR) in Auburn,

Alabama for the years 2013 to 2017 that collects this significant data to assess the quality of student engagement in college.

For study one and two, the total sample size is  $N= 2096$ . Data was analyzed for all the students who have participated both in the BCSSE and NSSE for the first two studies. For the comparative analysis in study one and two stratified random sampling method was used, as it requires only those data that can be matched in both BCSSE and NSSE. The sampling procedure for the relation study, i.e. study three, followed a random sampling in which each unit in the population had an equal probability of being selected in the sample. The proposed sample includes all first year students participated in BCSSE surveys from the years of 2013, 2014, 2015 and 2016 which counted for a huge sample size of 17,305. Bigger sample size is associated with more statistical power making the study more reliable. Since in the year 2012 the format of BCSSE and NSSE was updated, data from and after 2013 was used.

### **Instrumentation**

The BCSSE and NSSE surveys are considered as key source of information for the institutions and the faculties to comprehensively identify the student engagement behavior in college. As many as 465 institutes participated in BCSSE in U.S. and Canada, and NSSE participation is more than 1,500 in four-year colleges of U.S. and Canada. Auburn University is one of those institutions who participated in both the programs. The administration of BCSSE takes place prior to the start of fall classes. It is newly redesigned to be paired with the administration NSSE that happens in the spring (Cole & Dong, 2013).

For this research, designing a new survey was not considered as one of the main objectives of this research is to see how BCSSE and NSSE surveys can be used in mining information related to academic rigor and help seeking. Also a newly designed survey requires

significant amount of time to be a valid and reliable survey and get it approved by IRB. Secondly, there are a lot of surveys already in progress in the institution and as literature suggests that over-surveying hampers response rate (Baruch & Holtom, 2008), thus for the optimum utilization of institutional resources data from two existing surveys was used. One advantage of using an existing data is of the general likelihood of it consisting of large sample size and eliminating the risk of poor data collection. Therefore, the study employs quantitative methods to analyze the BCSSE and NSSE data collected by Auburn University's Office of Institutional Research. The research design for this study involves data that were collected from the first year cohort joining the university and students after the completion of first-year who have participated in the 2013, 2014, 2015, 2016 and 2017 administration of the BCSSE and NSSE.

The BCSSE measures the incoming first-year students' precollege academic, co-curricular experiences, along with their expectations from the college. Data collected through BCSSE include students' recent 'high school academic experiences in regards to writing and reading rigor, hours studying, learning strategies, quantitative reasoning, highest math completed, AP courses and dual enrollment; and expectations for first year of college comprises expected of writing and reading rigor, expected hours studying, expected collaborative learning, expected discussions with diverse others, student-faculty interaction, academic perseverance, expected academic difficulty, expected academic help seeking, perceived academic preparedness, importance of campus support. College data through BCSSE include college expectations and attitudes, like expected academic engagement, perceived academic preparation, expected grades, academic persistence, along with other characteristics. In the NSSE, there is a

total of 84 items that students had to respond to. The NSSE website reports that the survey includes questionnaire that collects information in five categories:

- (1) participation in dozens of educationally purposeful activities
- (2) institutional requirements and the challenging nature of coursework,
- (3) perceptions of the college environment,
- (4) estimates of educational and personal growth since starting college, and
- (5) background and demographic information.

Both in BCSSE and NSSE there are items with the categories mentioned above that characterize the concerned latent constructs i.e. academic rigor and help seeking.

Since BCSSE and NSSE are self-reported data one of the concerns is about the accuracy of the responses, though Cole and Gonyes (2009) found that overall validity of self-reported test scores to be high. Validity of BCSSE items to measure student engagement is confirmed by Cole and Dong (2013) by doing confirmatory factor analysis of the items. NSSE surveys are also established to have good psychometric properties along with strong face and construct validity. Pearson coefficient for test retest reliability of all the NSSE items is measured to be .83 which shows fair amount of stability across student responses (Administering, N. S. S. E., & Portfolio, 2005).

### **Data Analysis**

The quantitative analysis of the first two research questions involved the comparison of the BCSSE items of expected academic rigor/help seeking in college versus NSSE items of observed academic rigor/help seeking in college. 8 pairs of academic rigor items are to be compared expected vs. observed from the BCSSE and NSSE data. Similarly, five pairs of academic help seeking items are also being compared expected vs. observed from the BCSSE

and NSSE data. Paired sample t-test method will be used for the statistical analysis to know whether there exists any difference in expected versus observed Academic Rigor/ Help Seeking BCSSE and Academic Rigor/ Help Seeking NSSE. For the proposed study, items that are present in both BCSSE and NSSE representing the separate constructs of Academic Rigor and Help Seeking will be used. The quantitative analysis for second objective of measuring the relation of academic rigor and help seeking and the effect of the cognitive and non-cognitive factors predicting academic rigor, help seeking is proposed to be done with a complex structural equation model. No previous research suggest any link between students' perception of academic rigor with their help seeking behavior in college but in this study the expectation is to find that academic rigor will have an effect on students help seeking behavior. Also another expectation is to find clusters of cognitive and non-cognitive factors that have substantially helps in forming expectations about college experience which is here their perception of academic rigor and help seeking.

### **Variables**

The BCSSE and NSSE items and first year student admission items related to the below variables are studied. They are:

- The AP Classes/Honors Classes: Indicator of students' academic preparation.
- The SAT/ACT score: An indicator of academic ability.
- Gender: The influence of gender on difference in behavior in regards to academic rigor and help seeking. As well, characteristics differ with gender.
- High School Type: Students' academic experience differs with public school, private school, home schooling, etc., thus can be good indicator in founding perception of academic rigor.

- Parents' Educational Level: It is an important indicator as it has effect on building students' perception of academic rigor.
- Current Grades: Indicator of progress students have made through college career.
- High School Rigor: High school rigor and Experienced Academic Engagement items like High school challenge, hours spend for academic purpose during high school days, reading, assignments, writing, collaborative learning, etc.
- Expected Academic Rigor in College from BCSSE: Expected Academic Difficulty items like expected hours of study, assignments, reading, writing, Challenging course work, collaborative learning, etc.
- Observed Academic Rigor in College from NSSE: Observed Academic Difficulty items like hours of study, assignments done, reading, writing, Challenging course work.
- Expected Help seeking: Help expected to be asked from faculties, peers, need of institutional support for academic success.
- Observed Help seeking: Help asked from faculties, peers, need of institutional support provided for academic success.
- Self-efficacy: Self-perception items from BCSSE will be used in study for identifying Self-regulated Learners.
- Relationship with Faculty: Items from BSCCE explaining such relationship will be used in the study of academic help seeking.
- Perseverance: Items from BCSSE explaining the students' behavior or certainty that they will persist in the face of academic adversity.

- Social Behavior: Items from BCSSE explaining the students' social interaction ability or capability.



## Chapter IV: Results

The purpose of the present study is to examine the first-year college students' prediction/expectation of college academic rigor before they join college and their experience of academic rigor in college. Also, this study examines the differences in first-year college students' self-reported anticipated help-seeking behaviors in college before they join the college with actual self-reported help-seeking behavior in college. The last part of the study explores a relationship pattern to find the influence of different factors on how first-year students expect college academic rigor to be and the influence of different factors on their anticipated help-seeking behavior in college.

The following research questions guide this study:

1. What are the differences in first-year college students' anticipated versus observed academic rigor after the first year of college?
2. What are the differences in first-year college students' anticipated versus observed help-seeking behavior after the first year of college?
3. To what extent do variables like high high-school grade, act/sat score, parental education, AP/Honors classes and the factor of high school academic rigor influence the first year students' to predict upcoming academic rigor in college? Also, how are students' academic help-seeking behavior in college influenced by self-efficacy, perseverance, faculty influence, peers influence, social behavior? Also, what relationship exists, if any, between college academic rigor and academic help-seeking?

## **Descriptive Statistics**

Table 1 presents the descriptive characteristics of the sample of students used for research question one and two. Descriptive statistics were conducted to determine the general characteristics of the data. Combining the BCSSE and NSSE data for the years 2013-2014, 2014-2015, 2015-2016 and 2016-2017 into a single data file, we get a sample size of N=2096. In which the number of males is 721 (34%) and females are 1375 (66%) who completed both the BCSSE and NSSE surveys. Of the 2096 people in the overall sample, 1521 (72.6 %) were from public schools, 370 (17.7%) from private religious schools, 154 (7.3%) were from private independent schools, and 48 (2.3%) were from home schools and 2 (.1 %) were GED. The ethnicity statistic is White 1779 (84.88%), Black or African American 137 (6.54 %), Hispanic 62 (2.96%), Asian 59 (2.81%), Multiracial 25 (1.19%), International 14 (0.67%), American Indian or Alaska Native 7 (.33%) and unknown 13 (0.62%). Most of the student participated are full-time students 1892 (90.27 %) and the part-time student population is 204 (9.73%). To check the representative of the sample used in this study, a comparative analysis was done with the University demographic data (See Table2). The comparison does not show much difference of the sample used in this study with the total population of first-year students enrolled in 2017 in the Southeastern University from where the data was collected. The number of male participants in the sample is 15% less than that in the population and number of female participant is 15% more than that of the population. The percentage of ethnic representation in the sample compared with the population shows only 1% to 2% difference. Thus it can be said that the sample used is representative of the population of the university.

Table 1 Descriptive Statistics

*Descriptive Statistics of the Sample (N=2096)*

<b>Variables</b>		<b>Frequency</b>	<b>Percentage (%)</b>
Gender			
	Female	1375	66%
	Male	721	34%
Ethnicity			
	American Indian or Alaska Native	7	0.33%
	Asian	59	2.81%
	Black or African American	137	6.54%
	Hispanic or Latino	62	2.96%
	White	1779	84.88%
	Foreign or Nonresident alien	14	0.67%
	Two or more races/ethnicities	25	1.19%
	Unknown	13	0.62%
High School Type			
	Public Schools	1521	72.57%
	Private Religious Schools	370	17.65%
	Private Independent Schools	154	7.35%
	Home Schools	48	2.29%
	GED	2	0.10%
Academic Major			
	No Major	767	36.59%
	Arts & Humanities	122	5.82%
	Biological Sciences, Agriculture, & Natural Resources	139	6.63%
	Physical Sciences, Mathematics, & Computer Science	63	3.01%
	Social Sciences	84	4.01%
	Business	156	7.44%
	Communications, Media & Public Relations	37	1.77%
	Education	56	2.67%
	Engineering	387	18.46%
	Health Professions	266	12.69%
	Social Service Professions	7	0.33%
	All Other	9	0.43%
	Missing	3	0.14%

Table 2 Sample Representativeness Statistics

*Comparison of the Sample Used and Auburn Demographic data*

<b>Variables</b>	<i>Sample Used</i>		<i>Total First-time First Year Enrollment Data</i>		<b>Percentage Difference</b>
	<b>Frequency (N=2096)</b>	<b>Percentage (%)</b>	<b>Frequency</b>	<b>Percentage (%)</b>	
Gender			N=6086		
Female	1375	66%	3103	51%	15%
Male	721	34%	2983	49%	-15%
Ethnicity			N=4834		
American Indian or Alaska Native	7	0.33%	16	0.33%	0%
Asian	59	2.81%	108	2.23%	1%
Black or African American	137	6.54%	233	4.82%	2%
Hispanic or Latino	62	2.96%	172	3.56%	-1%
White	1779	84.88%	4087	84.55%	0%
Foreign or Nonresident alien	14	0.67%	67	1.39%	-1%
Two or more races/ethnicities	25	1.19%	147	3.04%	-2%
Unknown	13	0.62%	4	0.08%	1%

**Research Question 1**

- The difference in first-year college students’ anticipated versus observed academic rigor after the first year of college

Data from the instruments of BCSSE and NSSE taken together can describe who students are and what they expect to do in college as well as what they subsequently experience (Kuh 2005; Kuh et al., 2005; Kuh, Kinzie, Cruce, Shoup, & Gonyea, 2006). Thus to explore the difference between first-year students’ perceived versus observed academic rigor in college, the

data that is used here are collected from the incoming freshmen for the Fall semesters of 2013 to 2016 who were surveyed using BCSSE and their corresponding participation in National Survey of Student Engagement NSSE for the years 2014-2017, enrolled in a four-year institution in the southeastern region of the United States. As this study involves comparison of students' experiences before and after, BCSSE data for the years 2013, 2014, 2015 and 2016 and matching student profile from the NSSE data for the years of 2014, 2015, 2016 and 2017 are only taken into consideration.

Though the participation in the 2013 BCSSE survey was 3693, for the comparison study we can only use 564 students who also completed the 2014 NSSE as this particular analysis necessitate both BCSSE and NSSE participation, and this trend is similar for the years 2014-15, 2015-16, 2016-17 where the number of NSSE participation is much lower than BCSSE. Though all the sophomores were requested to complete the NSSE survey, one reason for higher BCSSE participation than NSSE might be that BCSSE was usually conducted as a necessary college entering procedure.

Table 3 Reliability Statistics Academic Rigor

*Reliability Statistics*

	<b>Cronbach's Alpha</b>	<b>Cronbach's Alpha based on Standardized Items</b>	<b>N of Items</b>
<b>BCSSE</b>	.760	.766	8
<b>NSSE</b>	.444	.471	8

Internal consistency reliability was calculated for the eight items measuring academic rigor scale both for BCSSE and NSSE (See Table 3). The coefficient of reliability which ranges from 0 to 1 measures internal consistency of the items. The rule of thumb is that a score of .5 or less is unacceptable, .5 to .6 is poor .6 to .7 is questionable, .7 to .8 is acceptable, .8 to .9 is good, and greater than .9 is excellent (George & Mallery, 2003). Cronbach's alpha of the BCSSE

academic rigor scale of the data set analyzed here is .760, and NSSE scale is .444. The item deleted the table (Table 2) do not show any suggested item deletion for the NSSE scale to increase the Cronbach's Alpha value. Reliability value of the NSSE scale of the data used here is low though in the NSSE publisher's website high reliability of the items was reported. It is also noted that the reliability coefficient is in the acceptable range for BCSSE academic rigor scale but is unacceptable for the NSSE academic rigor scale though items in both the scales are the same. To find the difference between anticipated versus observed academic rigor in college, eight items (see Table 4) measuring academic rigor has been selected that are both common in BCSSE and NSSE.

Table 4 Item-Total Statistics Academic Rigor

*Item-Total Statistics*

<b>BCSSE Academic Rigor Items</b>	<b>Cronbach's Alpha if Item Deleted</b>	<b>NSSE Academic Rigor Items</b>	<b>Cronbach's Alpha if Item Deleted</b>
During the coming school year, how many hours do you expect to spend in a typical 7-day week doing each of the following? Preparing for class	.753	During the coming school year, about how many hours do you expect to spend in a typical 7-day week doing each of the following? Preparing for Class	.403
During the coming school year, of the time you expect to spend preparing for class in a typical 7-day week, about how many hours were on assigned reading?	.746	During the coming school year, of the time you expect to spend preparing for a class in a typical 7-day week, about how many hours were on assigned reading?	.445
During the coming school year, about how often do you expect to do each of the following? Prepare two or more drafts of a paper or assignment before turning it in	.745	During the coming school year, about how often do you expect to do each of the following? Prepare two or more drafts of a paper or assignment before turning it in.	.375
During the coming school year, about how often do you expect to do each of the following? Come to class without completing readings or assignments	.754	During the coming school year, about how often do you expect to do each of the following? Come to class without completing readings or assignments	.431
During the coming school year, about how many papers, reports, or other writing tasks of the following length do you expect to complete? Up to 5 pages	.704	During the coming school year, about how many papers, reports, or other writing tasks of the following length do you expect to complete? Up to 5 pages	.410
During the coming school year, about how many papers, reports, or other writing tasks of the following length do you expect to complete? Between 6 and ten pages	.689	During the coming school year, about how many papers, reports, or other writing tasks of the following length do you expect to complete? Between 6 and ten pages	.375
During the coming school year, about how many papers, reports, or other writing tasks of the following length do you expect to complete? 11 pages or more	.708	During the coming school year, about how many papers, reports, or other writing tasks of the following length do you expect to complete? 11 pages or more	.423
How important is it to you that your institution provides each of the following? A challenging academic experience	.766	To what extent have your courses challenged you to do your best work?	.418

The total sample size is  $N= 2096$  of the BCSSE-NSSE combined data for the year 2013-14, 2014-15, 2015-16, 2016-17. To find the difference in expected versus observed academic rigor Wilcoxon Signed Ranked Test was employment. This test is equivalent to paired sample t-test. The data used in this study violated the assumptions required for a paired sample t-test. Thus this non-parametric statistical test was conducted. Tables 5 below include the result of comparing the anticipated versus observed academic rigor items using Wilcoxon Signed Ranked Test. Also, the effect size was calculated to signify the standardized difference between two the means.



Table 5 Wilcoxon Signed Ranked Test for Academic Help-Seeking Academic Rigor

*Wilcoxon Signed Ranked Test for Academic Rigor*

Items	Ranks	N	Mean Rank	Z	Significance	Effect Size
Item1 Hours per week: Preparing for class (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities) - During the coming school year, about how many hours do you expect to spend in a typical 7-day week doing each of the following? Preparing for class	Negative Ranks	656 <sup>a</sup>	562.62	-6.178	<.001	-.1162
	Positive Ranks	448 <sup>b</sup>	537.68			
	Ties	310 <sup>c</sup>				
	Total	1414				
Item2 Of the time you spend preparing for class in a typical 7-day week, about how many hours are on assigned reading? - During the coming school year, of the time you expect to spend preparing for class in a typical 7-day week, about how many hours were on assigned reading?	Negative Ranks	915 <sup>a</sup>	576.89	-20.778	<.001	-.3918
	Positive Ranks	197 <sup>b</sup>	461.81			
	Ties	294 <sup>c</sup>				
	Total	1406				
Item3 Prepared two or more drafts of a paper or assignment before turning it in - During the coming school year, about how often do you expect to do each of the following? Prepare two or more drafts of a paper or assignment before turning it in	Negative Ranks	1054 <sup>a</sup>	752.48	-17.444	<.001	-2.701
	Positive Ranks	396 <sup>b</sup>	653.69			
	Ties	636 <sup>c</sup>				
	Total	2086				
Item4 Come to class without completing readings or assignments - During the coming school year, about how often do you expect to do each of the following? Come to class without completing readings or assignments	Negative Ranks	1393 <sup>a</sup>	729.51	-30.879	<.001	-.4788
	Positive Ranks	94 <sup>b</sup>	744.98			
	Ties	593 <sup>c</sup>				
	Total	2080				
Item5 Number of written papers or reports: Up to 5 pages - During the coming school year, about how many papers, reports, or other writing tasks of the following length do you expect to complete? Up to 5 pages	Negative Ranks	1037 <sup>a</sup>	664.33	-19.948	<.001	-.3549
	Positive Ranks	262 <sup>b</sup>	593.28			
	Ties	281 <sup>c</sup>				
	Total	1580				
Item6 Number of written papers or reports: Between 6 and 10 pages - During the coming school year, about how many papers, reports, or other writing tasks of the following length do you expect to complete? Between 6 and 10 pages	Negative Ranks	1229 <sup>a</sup>	707.58	-27.358	<.001	-.4867
	Positive Ranks	145 <sup>b</sup>	517.27			
	Ties	206 <sup>c</sup>				
	Total	1580				
Item7 Number of written papers or reports: 11 pages or more - During the coming school year, about how many papers, reports, or other writing tasks of the following length do you expect to complete? 11 pages or more	Negative Ranks	1169 <sup>a</sup>	668.08	-27.197	<.001	-.4843
	Positive Ranks	129 <sup>b</sup>				
	Ties	279 <sup>c</sup>				
	Total	1577				
Item8 To what extent have your courses challenged you to do your best work? - How important is it to you that your institution provides each of the following? A challenging academic experience	Negative Ranks	180 <sup>a</sup>	491.48	-23.403	<.001	-.4213
	Positive Ranks	1039 <sup>b</sup>	630.53			
	Ties	324 <sup>c</sup>				
	Total	1543				

\* = significant at  $p < .05$

b = Academic rigor pre < Academic rigor post

a = Academic rigor pre > Academic rigor post

c = Academic rigor pre = Academic rigor post

The results from the Wilcoxon Signed Ranked Test indicates that there is significant difference in anticipated vs. observed academic rigor as reported by the first-year student before joining college and after a year of college. The academic rigor item pairs' shows that observed academic rigor is less than anticipated academic rigor except for the academic challenge item. For example, comparing number of hours spent preparing for class (Item 1); we found that students spent significantly less hours preparing for class than they expected to do prior to entering college. The Wilcoxon Signed Rank Test revealed significantly difference in Item 1 measured pre and post  $z = -6.178, p = <.001$  with a small effect size ( $r = -.1162$ ). Similarly comparing hours spent on assigned reading (Item 2) expected Vs. observed, shows that students reported to spend significantly less time on assigned reading than they expected to do before joining college, this difference has a large effect size [ $z = -20.78, p <.001, r = -.39$ ]. Item 3 shows that students reported to prepare less number of drafts compared to what they anticipated before and the effect size is medium [ $z = -17.44, p <.001, r = -.27$ ]. Students stated to come to class without completing readings or assignments (Item 4) more than they perceived before joining college which also has a large effect size [ $z = -30.88, p <.001, r = -.4788$ ]. This item has been reversed coded to maintain consistency in the result interpretation. For Pair 5, Pair 6 and Pair 7 we see that students expected to complete more writing task than they actually did in college, these differences also has a large effect size of  $z = -19.948, p <.001, r = -.354, z = -27.358, p <.001, r = -.486$  &  $z = -27.197, p <.001, r = -.484$  respectively. The only exception is Pair 8 which also shows a significant difference but contrary to low academic rigor in college as reported by the other seven items. The students experienced significantly more academic challenge in their course work than they had expected it to be academically challenging before, with a mean difference showing large effect size [ $z = -23.403, p <.001, r = -.421$ ].

## Research Question 2

- The differences in first year college students' anticipated versus observed help-seeking behavior after the first year of college.

To find the difference between the anticipated versus observed academic help-seeking in college, items measuring help-seeking, those were common both in BCSSE and NSSE were used. Internal consistency reliability was calculated to check the internal consistency of the 5 items measuring academic help-seeking scale for the years 2013-14, 2014-15, 2015-16 and 2016-17 from the BCSSE and NSSE data. BCSSE data for the year 2013, 2014, 2015, 2016 and NSSE data for the year 2014, 2015, 2016, and 2017 were combined, and Cronbach's alpha of the academic help-seeking scale was calculated. As stated earlier, the rule of thumb is that a score of .5 or less is unacceptable, .5 to .6 is poor .6 to .7 is questionable, .7 to .8 is acceptable, .8 to .9 is good, and greater than .9 is excellent (George & Mallery, 2003). Cronbach's alpha of the BCSSE and NSSE academic rigor scale are .708 and .654. Though BCSSE scale has acceptable Cronbach's Alpha value, the NSSE scale has reliability coefficient which is slightly lower than the desired level of .7 (Table 6). Results also suggested that there were no changes needed to improve the NSSE Cronbach's Alpha (See Table 7).

Table 6 Reliability Statistics Academic Help-Seeking

*Reliability Statistics*

	<b>Cronbach's Alpha</b>	<b>Cronbach's Alpha based on Standardized Items</b>	<b>N of Items</b>
<b>BCSSE</b>	.708	.741	5
<b>NSSE</b>	.654	.652	5

Table 7 Item-Total Statistics Academic Help-Seeking

*Item-Total Statistics*

<b>BCSSE Academic Rigor Items</b>	<b>Cronbach's Alpha if Item Deleted</b>	<b>NSSE Academic Rigor Items</b>	<b>Cronbach's Alpha if Item Deleted</b>
During the coming school year, about how often do you expect to do each of the following? Ask another student to help you understand course material	.696	During the coming school year, about how often do you expect to do each of the following? Ask another student to help you understand course material	.609
During the coming school year, about how often do you expect to do each of the following? Prepare for exams by discussing or working through course material with other students	.679	During the coming school year, about how often do you expect to do each of the following? Prepare for exams by discussing or working through course material with other students	.546
During the coming school year, about how often do you expect to do each of the following? Work with other students on course projects or assignments	.69	During the coming school year, about how often do you expect to do each of the following? Work with other students on course projects or assignments	.585
How important is it to you that your institution provides each of the following? Support to help students succeed academically	.602	How important is it to you that your institution provides each of the following? Support to help students succeed academically	.618
How important is it to you that your institution provides each of the following? Learning support services	.575	How important is it to you that your institution provides each of the following? Learning support services	.644

The total sample size is N= 2096 in the BCSSE-NSSE combined data for the year 2013-2014, 2014-15, 2015-16, and 2016-17. Tables 8 below include the result of items compared to show anticipated versus observed help-seeking behavior of college students using Wilcoxon Signed Rank Test. The effect size is also calculated to signify the standardized difference between the two means perceived versus experienced.

Table 8 Wilcoxon Signed Ranked Test for Academic Help-Seeking Academic Help-Seeking

*Wilcoxon Signed Ranked Test for Academic Help-Seeking*

Items	Ranks	N	Mean Rank	Z	Significance	Effect Size
Item 1 Asked another student to help you understand course material - During the coming school year, about how often do you expect to do each of the following? Ask another student to help you understand course material	Negative Ranks	643 <sup>a</sup>	606.44	-2.296	.022	-.0358
	Positive Ranks	563 <sup>b</sup>	600.14			
	Ties	850 <sup>c</sup>				
	Total	2056				
Item 2 Prepared for exams by discussing or working through course material with other students - During the coming school year, about how often do you expect to do each of the following? Prepare for exams by discussing or working through course material with other students	Negative Ranks	898 <sup>a</sup>	652.66	-15.452	<.001	-2.431
	Positive Ranks	361 <sup>b</sup>	573.64			
	Ties	761 <sup>c</sup>				
	Total	2020				
Item 3 Worked with other students on course projects or assignments - During the coming school year, about how often do you expect to do each of the following? Work with other students on course projects or assignments	Negative Ranks	866 <sup>a</sup>	631.22	-15.249	<.001	-.2411
	Positive Ranks	349 <sup>b</sup>	550.38			
	Ties	785 <sup>c</sup>				
	Total	2000				
Item 4 Institutional emphasis: Providing support to help students succeed academically - How important is it to you that your institution provides each of the following? Support to help students succeed academically	Negative Ranks	1235 <sup>a</sup>	629.5	-21.485	<.001	-.4019
	Positive Ranks	172 <sup>b</sup>	784.35			
	Ties	130 <sup>c</sup>				
	Total	1429				
Item 5 Institutional emphasis: Using learning support services (tutoring services, writing center, etc.) - How important is it to you that your institution provides each of the following? Learning support services	Negative Ranks	1127 <sup>a</sup>	629.5	-21.485	<.001	-.4019
	Positive Ranks	172 <sup>b</sup>	784.35			
	Ties	130 <sup>c</sup>				
	Total	1429				

\* = significant at  $p < .05$

b = Academic rigor pre < Academic rigor post

a = Academic rigor pre > Academic rigor post

c = Academic rigor pre = Academic rigor post

The result of the above analysis shows a significant difference in all the five items measuring the academic help-seeking behavior of college going students. The self-reported data shows that anticipated versus observed help-seeking behavior of the first-year students' differs, the students expected to seek more academic help during the first year of college than they did. Help asked from other student to understand course material, exam preparations with other student while discussing the course material, assignment and project done with other student, support of the college to succeed academically and to use learning support system in college, all the help-seeking items shows significantly low observed help-seeking behavior among students than what they anticipated before joining college. The Wilcoxon Signed Rank Test revealed significantly difference in Item 1 where the students were asked how much help they asked from other student to understand course material. The measured pre and post difference is  $z = -2.296$ ,  $p = <.022$  with a small effect size ( $r = -.0358$ ). Similarly comparing expected vs. observed behavior for exam preparations with other students while discussing the course material, shows that the students reported to have done discussion less often than they expected to do before joining college, this difference has a large effect size [ $z = -15.452$ ,  $p <.001$ ,  $r = -2.431$ ]. Item 3 shows that students reported to work less with other students on course projects or assignments compared to what they anticipated before and the effect size is medium [ $z = -15.249$ ,  $p <.001$ ,  $r = -.2411$ ]. For items 4 and 5 measuring students view of importance of the support of the college to succeed academically and their view about the use institutional learning support system, have declined pre vs. post with a large effect size [ $z = -21.485$ ,  $p <.001$ ,  $r = -.4019$ ,  $z = -21.485$ ,  $p <.001$ ,  $r = -.4019$  respectively].

### Research Question 3

- To what extent do variables like high-school grade, act/sat score, parental education, AP/Honors classes and the factor of high school academic rigor influence the first year students' to predict upcoming academic rigor in college? Also, how are students' academic help-seeking behavior in college influenced by self-efficacy, perseverance, faculty influence, peers influence, social behavior? Also, what relationship exists, if any, between college academic rigor and academic help-seeking?

The third part of this study aims to uncover the relationship or potential pattern between expected academic rigor and expected academic help-seeking in college and to find if certain factors influence how students' perceive college academic rigor and influences their help-seeking behavior in college. Factors used in this study were high-school grade (hgrade), act/sat score (sat\_act), parental education(fypardeg), high school academic rigor (HSrigor), AP/Honors classes (apcl), first-generation student(bfirstgen), self-efficacy(SF), perseverance (Per), faculty relation (FR), social behavior (SB). The proposed model is depicted in Figure 6.

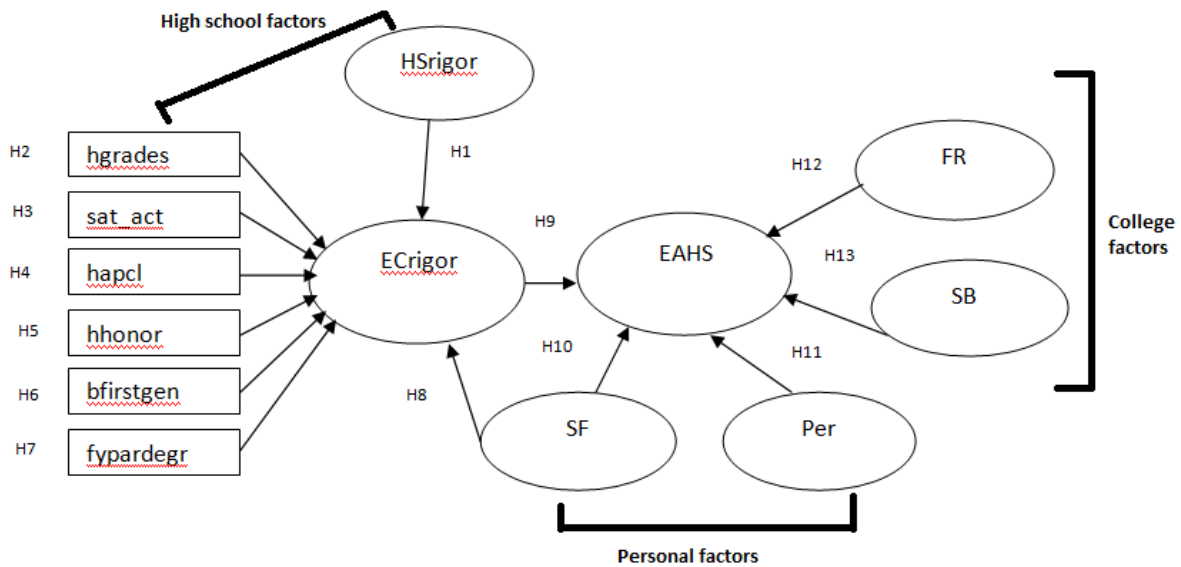


Figure 6. Hypothesized relationship of academic rigor and help-seeking with high-school grade (hgrade), act/sat score (sat\_act), parental education(fypardegr), high school academic rigor (HSrigror), Advanced Placement Classes (apcl), High School Honor Classes (hhonor), first-generation student(bfirstgen), self-efficacy(SF), perseverance (Per), faculty relation (FR), social behavior (SB).

Based on prior literature the following hypothesis will be tested:

- H1: High school academic rigor (HSrigror) has a significant positive effect on the Expected college academic rigor (ECrigror)
- H2: High school grade (hgrades) has a significant positive effect on the Expected college academic rigor (ECrigror)
- H3: SAT/ACT score (sat\_act) has a significant negative effect on the Expected college academic rigor (ECrigror)
- H4: Advanced Placement classes completed (hapcl) has a significant positive effect on the Expected college academic rigor (ECrigror)
- H5: Honor classes completed (hhonor) has a significant positive effect on the Expected college academic rigor (ECrigror)



- H6: Being a first-generation student (bfirstgen) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H7: Parental education (fypardegr) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H8: Self-efficacy (SF) has a significant positive effect on the Expected college academic rigor (ECrigor)
- H9: Expected college academic rigor (ECrigor) has a significant positive effect on the Expected academic help-seeking (EAHS)
- H10: Self-efficacy beliefs (SF) has a significant negative effect on the Expected academic help-seeking (EAHS)
- H11: Perseverance (Per) has a significant positive effect on the Expected academic help-seeking (EAHS)
- H12: Relation with Faculty (FR) has a significant positive effect on the Expected academic help-seeking (EAHS)
- H13: Social Behavior (SB) has a significant positive effect on the Expected academic help-seeking (EAHS)

The hypothesized model is proposing a relationship of two latent endogenous variables of Expected College Academic Rigor (ECrigor) with Expected Academic Help-seeking (EAHS) along with looking at the effect of several exogenous variables SB, PER, SF, FR, and HSrigor on the latent variables. Unlike Study one and two, Study three used only the BCSSE data capturing expectation of the incoming first-year students. The NSSE data is not considered here as NSSE survey gathers students' experience in college whereas the hypothesized model is about students' expectation.

BCSSE data ranging from the year 2013 to 2016 were employed in this study which had 3692, 4497, 4719 and 4397 participants respectively. With participation of more than 97% of the incoming first-year students, BCSSE survey is a very successful instrument to obtain students' expectation about college. Among the several items in BCSSE survey, items related to the hypothesized model were selected. In total 45 items were selected measuring seven latent constructs naming HSrigor, ECrigor, EAHS, SF, Per, FR, SB and there are also six directly measured variables which are also called manifest variable like hgrades, sat\_act, hapcl, fypardegr and bfirstgen. The participants gave their opinion to the latent construct on an eight, six and four point Likert scale. The below Table 9 shows the counts of items in each latent construct.

Table 9

*Measurement Items*

<b>Constructs</b>	<b>Items</b>
High School Rigor	9
Expected College Rigor	8
Expected Academic Help-Seeking	7
Student-Faculty Interaction	5
Academic Perseverance	5
Academic Self-Efficacy	7
Student-Peer Interaction	2
Student Social Behavior	4
Total	45

### **Data Analysis**

The Structural Equation Modeling (SEM) analysis was run following the recommendation of Anderson and Gerbing's (1988), suggesting a two-step approach. The first step was to conduct a Confirmatory factor analysis (CFA). We use CFA as it specifies the relations of the observed variables to the underlying constructs testing the degree to which the indicators represent the constructs. The second step was to run the SEM. Here SEM was run on data that was created by combining 4 years BCSSE data ranging from 2013 to 2016. According

the popularized standards SEM's sample size requirement was very comfortably fulfilled. In 2008, Hoe's research suggested 10 participants for every construct estimated for a SEM study. With 45 items the required sample size was 450, thus our final sample size of 7540 was way above the required number.

The initial data set was a combination of BCSSE data for the years 2013, 2014, 2015 and 2016 consisting of 17,305 participants. But as SEM analysis requires complete data set with no missing data, rows with missing points were removed bringing down the sample size to 7830. The following assumptions of multivariate normality and linearity were evaluated. The multivariate outliers were deleted by calculating the Mahalanobis Distance which further reduced the sample size from 7830 to 7346. To check the normality assumption both univariate and multivariate normality of data were conducted. The range of skewness and kurtosis of the data ranged from -0.923 to + 2.018 and from -0.964 to + 3.956 respectively. Most of the data did not exceed the range of  $\pm 3$  except HSrigor3 with kurtosis more than +3, these items will be closely monitored during CFA and SEM. Otherwise the data for this study were considered as meeting univariate normality assumptions. But the multivariate assumptions seems to be not what suggested by Bentler (2005). The c.r. value of 71.582 is much above the suggested c.r value of >5.00 and Kurtosis of 96.823 indicates a non-normally distributed data with the violation of multivariate normality assumption (See Table 10). Then the multicollinearity assumption was checked to validate that the data do not have multicollinearity issues. Collinearity statistic suggests that there is no issue as none of the tolerance value is less than 0.01 with tolerance value range being 0.307 to 0.89555 and VIF value is greater than 10 with the range being 1.118 to 3.258.

Table 10

*Assessment of Normality (Group Number 1)*

<b>Variable</b>	<b>min</b>	<b>max</b>	<b>skew</b>	<b>c.r</b>	<b>kurtosis</b>	<b>c.r.</b>
ECrigor8	1	6	-0.229	-8.016	0.115	2.012
ECrigor7	1	6	-0.397	-13.901	-0.112	-1.963
FR5	1	4	0.504	17.632	-0.491	-8.595
SB4	1	6	-0.922	-32.276	0.33	5.775
SB2	1	6	-0.843	-29.49	0.178	3.122
SB1	1	6	-0.577	-20.2	-0.329	-5.759
HSrigor8	1	4	-0.039	-1.373	-0.834	-14.595
HSrigor7	1	4	-0.128	-4.472	-0.939	-16.424
HSrigor6	1	4	0.209	7.308	-0.666	-11.656
HSrigor5	1	6	0.845	29.58	1.096	19.167
PER5	1	6	-0.645	-22.555	-0.121	-2.109
SF7	1	6	-0.698	-24.424	0.024	0.424
HSrigor9	1	7	-0.398	-13.936	-0.046	-0.798
PER4	1	6	-0.061	-2.146	-0.564	-9.87
PER3	1	6	-0.529	-18.512	-0.221	-3.863
PER2	1	6	-0.517	-18.095	-0.401	-7.01
PER1	1	6	-0.059	-2.054	-0.414	-7.239
FR4	1	4	0.349	12.215	-0.958	-16.752
FR2	1	4	0.446	15.601	-0.475	-8.303
FR1	1	4	0.358	12.528	-0.686	-12.008
SF6	1	6	-0.587	-20.524	-0.311	-5.436
SF5	1	6	-0.848	-29.661	0.251	4.399
SF4	1	6	-0.569	-19.901	-0.265	-4.638
SF3	1	6	-0.706	-24.715	0.026	0.448
SF2	1	6	-0.617	-21.574	-0.198	-3.466
SF1	1	6	-0.644	-22.517	-0.155	-2.716
ECrigor6	1	7	1.122	39.245	2.048	35.823
ECrigor5	1	7	0.627	21.943	0.623	10.899
ECrigor4	1	7	0.519	18.173	-0.284	-4.961
ECrigor3	1	4	-0.06	-2.114	-0.77	-13.478
ECrigor2	1	8	0.941	32.917	1.134	19.845
ECrigor1	1	8	0.408	14.28	-0.06	-1.057
EAHS6	1	6	-0.826	-28.911	-0.017	-0.305
EAHS5	1	6	-1.024	-35.822	0.549	9.605
EAHS4	1	6	-0.649	-22.725	-0.296	-5.171
EAHS3	1	4	-0.2	-6.988	-0.809	-14.152
EAHS2	1	4	-0.348	-12.191	-0.636	-11.134
EAHS1	1	4	0.107	3.748	-0.964	-16.866
HSrigor4	1	8	1.346	47.102	1.984	34.715
HSrigor3	1	4	2.018	70.6	3.956	69.218
HSrigor2	1	7	1.087	38.034	1.783	31.187
HSrigor1	1	7	0.732	25.613	-0.135	-2.359
Multivariate					96.823	71.582

The relation of the expected college rigor and expected college help-seeking was measured using seven constructs and 45 variables. The means and standard deviations of all of the constructs and items are presented in Table 11. The mean scores of all the items ranged from 1.26 to 5.13 which show variation in the responses and the standard deviations of the scores ranged from .539 to 1.333.

Table 11

*Mean and Standard Deviation of the Measurement Constructs and Items*  
*N=7349*

<b>Constructs and Items</b>	<b>Mean</b>	<b>SD</b>	<b>Constructs and Items</b>	<b>Mean</b>	<b>SD</b>
<b>Expected College Rigor (ECrigor)</b>			<b>High School Rigor (HSrigor)</b>		
ECrigor1	4.61	1.238	HSrigor1	3.55	1.548
ECrigor2	3.31	1.115	HSrigor2	1.81	.816
ECrigor3	2.86	.785	HSrigor3	1.24	.481
ECrigor4	4.26	1.311	HSrigor4	3.01	1.241
ECrigor5	3.39	1.070	HSrigor5	2.09	.841
ECrigor6	2.54	1.033	HSrigor6	2.36	.886
ECrigor7	4.59	1.030	HSrigor7	2.82	.887
ECrigor8	3.93	1.000	HSrigor8	2.75	.861
			HSrigor9	4.91	1.294
<b>Self-Efficacy (SF)</b>			<b>Expected Academic Help-seeking (EAHS)</b>		
SF1	4.85	1.049	EAHS1	2.87	.745
SF2	4.75	1.103	EAHS2	3.20	.692
SF3	5.00	.936	EAHS3	3.08	.717
SF4	4.68	1.112	EAHS4	4.90	1.025
SF5	5.15	.884	EAHS5	5.11	1.005
SF6	4.73	1.105	EAHS6	5.00	1.040
SF7	4.94	.981	EAHS7	2.58	1.060
<b>Faculty Relation (FR)</b>			<b>Perseverance (PER)</b>		
FR1	2.67	.729	PER1	4.27	1.046
FR2	2.56	.742	PER2	4.69	1.098
FR3	2.74	1.201	PER3	4.78	.991
FR4	2.73	.764	PER4	4.13	1.101
FR5	2.53	.776	PER5	5.02	.893
<b>Social Behavior (SB)</b>					
SB1	4.58	1.220			
SB2	5.05	.972			
SB3	3.87	1.244			
SB4	5.12	.944			

Cronbach's alpha reliability test was conducted to test the internal consistency of the indicators of each of the eight constructs. The reliability statistics show the alpha coefficients for all five scales are above .70 (ranges from .721 to .814), suggesting that the items have acceptable to good internal consistency. High school rigor, Expected college rigor has a slightly lower Cronbach's Alpha of .676 and .673 respectively, but as per the recommendation by Nunnally, 1976; Aron & Aron, 1999 Cronbach's alpha of 0.6 is sufficient to be acceptable value for research purpose. And based on very low Cronbach Alpha value, the constructs of Student-Peer Interaction was dropped along with dropping item 7 from EAHS scale, item 3 from FR scale, and item 3 from SB scale.

Table 12

*Measurement Items After Items Deletion*

<b>Constructs</b>	<b>Items</b>	<b>Items Retained</b>	<b>Cronbach's Alpha</b>
High School Rigor (HSrigor)	9	9	.676
Expected College Rigor (ECrigor)	8	8	.673
Expected Academic Help-Seeking (EAHS)	7	6	.721
Student-Faculty Interaction (FR)	5	4	.834
Academic Perseverance (Per)	5	5	.743
Academic Self Efficacy (SF)	7	7	.819
Student Social Behavior (SB)	4	3	.774
<b>Total</b>	<b>45</b>	<b>42</b>	

**Confirmatory Factor Analysis**

Next step is to conduct Confirmatory Factor Analysis to test the factorial structure of the hypothesized six factor measurement model (Figure 7). The CFA was conducted using the data with a sample size of 7540 participants. Forty measured items were allowed to load on seven variables dropping three items as per the reliability table 12. Based on the above result of multivariate normality, Bollen-Stine bootstrapping method was employed instead of Maximum Likelihood Estimation.

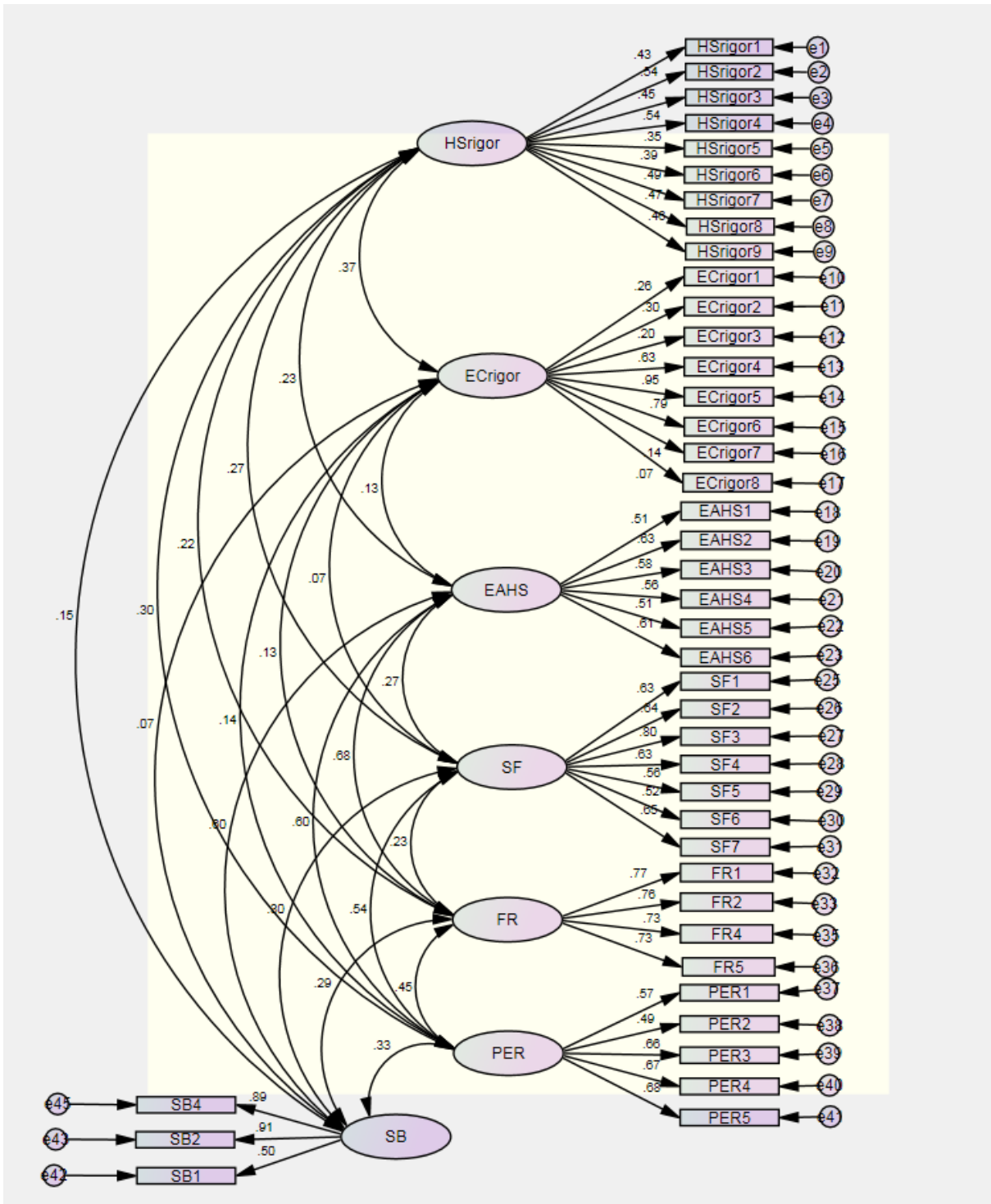


Figure 7. The hypothesized seven factor CFA model

The initial confirmatory factor analysis show factor loading ranging from .96 to .20 (Table 11). Some of the item loadings are less than .30. The general rule of thumb according to

Tabachnick and Fidell (2007) is factor loading above 0.71 is excellent, 0.63 very good, 0.55 good, 0.45 fair, and 0.32 poor. But in educational research any factor that loads more than 0.3 can be considered to be retained. Moreover, it is also said that following the cut-off value is an arbitrary decision, we can find one researcher including items above a cut-off of .30 while another researcher may include items above a higher level (Distefano, Zhu & Mindrila, 2009).

Table 13

*Factor Loadings/Standardized Regression Weights Coefficients*

<b>Item</b>		<b>Factor</b>	<b>Loading</b>	<b>Item</b>		<b>Factor</b>	<b>Loading</b>
HSrigor1	<---	HSrigor	0.42**	ECrigor1	<---	ECrigor	0.26
HSrigor2	<---	HSrigor	0.54**	ECrigor2	<---	ECrigor	0.30**
HSrigor3	<---	HSrigor	0.44**	ECrigor3	<---	ECrigor	0.2
HSrigor4	<---	HSrigor	0.54**	ECrigor4	<---	ECrigor	0.63**
HSrigor5	<---	HSrigor	0.35**	ECrigor5	<---	ECrigor	0.95**
HSrigor6	<---	HSrigor	0.39**	ECrigor6	<---	ECrigor	0.79**
HSrigor7	<---	HSrigor	0.49**	ECrigor7	<---	ECrigor	0.14
HSrigor8	<---	HSrigor	0.47**	ECrigor8	<---	ECrigor	0.07
HSrigor9	<---	HSrigor	0.46**	EAHS1	<---	EAHS	0.51**
SF1	<---	SF	0.63**	EAHS2	<---	EAHS	0.63**
SF2	<---	SF	0.64**	EAHS3	<---	EAHS	0.58**
SF3	<---	SF	0.80**	EAHS4	<---	EAHS	0.56**
SF4	<---	SF	0.63**	EAHS5	<---	EAHS	0.51**
SF5	<---	SF	0.56**	EAHS6	<---	EAHS	0.61**
SF6	<---	SF	0.52**	FR1	<---	FR	0.77**
SF7	<---	SF	0.65**	FR2	<---	FR	0.76**
PER1	<---	PER	0.57**	FR4	<---	FR	0.73**
PER2	<---	PER	0.49**	FR5	<---	FR	0.73**
PER3	<---	PER	0.66**	SB1	<---	SB	0.50**
PER4	<---	PER	0.67**	SB2	<---	SB	0.91**
PER5	<---	PER	0.68**	SB4	<---	SB	0.89**

\*\*Significant Item Loading

The unstandardized parameter estimates and the critical ratios for all forty two items were also significant (See Table 14) indicating strong relationship of the items with their relative latent constructs.



Table 14

*Unstandardized Parameter Estimates of the 40 Measurement Model*

Items	Factors	Estimate (Unstandardized Estimates)	Standard Error of Estimates	Critical Ratio (C.R.)	P	
HSrigor1	<---	HSrigor	1			
HSrigor2	<---	HSrigor	0.667	0.025	26.732	***
HSrigor3	<---	HSrigor	0.323	0.013	24.273	***
HSrigor4	<---	HSrigor	1.022	0.038	26.829	***
HSrigor5	<---	HSrigor	0.442	0.021	20.857	***
HSrigor6	<---	HSrigor	0.53	0.023	22.669	***
HSrigor7	<---	HSrigor	0.661	0.026	25.602	***
HSrigor8	<---	HSrigor	0.617	0.025	25.091	***
HSrigor9	<---	HSrigor	0.9	0.036	24.721	***
EAHS1	<---	EAHS	1			
EAHS2	<---	EAHS	1.138	0.031	36.53	***
EAHS3	<---	EAHS	1.085	0.031	34.831	***
EAHS4	<---	EAHS	1.508	0.044	34.259	***
EAHS5	<---	EAHS	1.348	0.042	32.31	***
EAHS6	<---	EAHS	1.649	0.046	35.789	***
ECrigor1	<---	ECrigor	1			
ECrigor2	<---	ECrigor	1.056	0.065	16.17	***
ECrigor3	<---	ECrigor	0.502	0.039	13.024	***
ECrigor4	<---	ECrigor	2.692	0.134	20.159	***
ECrigor5	<---	ECrigor	3.349	0.161	20.77	***
ECrigor6	<---	ECrigor	2.636	0.127	20.709	***
ECrigor7	<---	ECrigor	0.445	0.044	10.091	***
ECrigor8	<---	ECrigor	0.206	0.039	5.233	***
SF1	<---	SF	1			
SF2	<---	SF	1.062	0.024	44.576	***
SF3	<---	SF	1.139	0.022	52.443	***
SF4	<---	SF	1.064	0.024	44.338	***
SF5	<---	SF	0.757	0.019	40.587	***
SF6	<---	SF	0.866	0.023	37.682	***
SF7	<---	SF	0.965	0.021	45.305	***
FR1	<---	FR	1			
FR2	<---	FR	1.004	0.016	61.125	***
FR4	<---	FR	1	0.017	59.218	***
FR5	<---	FR	1.02	0.017	59.449	***
PER1	<---	PER	1			
PER2	<---	PER	0.912	0.028	32.873	***
PER3	<---	PER	1.092	0.027	39.809	***
PER4	<---	PER	1.24	0.031	40.306	***
PER5	<---	PER	1.014	0.025	40.495	***
SB1	<---	SB	1			
SB2	<---	SB	1.457	0.033	44.042	***
SB4	<---	SB	1.387	0.031	44.095	***

\*\*\* P &lt; .001

Following the recommendation of Weston and Gore (2006), model fit was assessed using the combination of several fit indices from categories like absolute fit indices and incremental fit. There are several fit indices to assess the model's overall goodness of fit, but the most commonly used fit indices of Chi Square statistics (CMIN), Root Mean Squared Error of Approximation (RMSEA), Goodness-of-fit statistic (GFI), Adjusted goodness-of-fit statistic (AGFI), Comparative Fit Index (CFI), Incremental Fit Index (IFI), Normed Fit Indices (NFI), Tucker Lewis Index (TLI) are used here. The Results CFA are shown in Table 13.

Table 15

*Fit Indices of Initial CFA*

<b>Absolute Fit Indices</b>		
	<b>Recommended Level of Fit</b>	<b>Proposed Measurement Model</b>
Chi-Square	not significant at $p < 0.05$	32870.656, $df = 798$ , $p < .001$
Relative Chi-Square (CMIN/DF)	2~5, <5 (Bentler,1990)	41.191
RMSEA (Root Mean Square of Error Estimation) with 90% Confidence Interval	$\leq 0.06$ , (Joreskog & Sorbom,1993)	.074
SRMR (Standardized Root Mean Residual)	$\leq .80$ (Teo, 2012)	.830
Goodness-of-fit index(GFI)	$\geq .90$ (Jöreskog & Sörbom, 1981)	.796
Adjusted goodness-of-fit statistic (AGFI),	$\geq .90$ (Jöreskog & Sörbom, 1981)	.769
<b>Incremental Fit Indices</b>		
	<b>Recommended Level of Fit</b>	<b>Proposed Measurement Model</b>
CFI (Comparative Fit Index)	$\geq .95$ (Hu & Bentler,1999) or $\geq .90$ , (Browne & Cudeck, 1992)	.705
IFI (Incremental fit index)	$> .90$ (Bentler,1990)	.705
NFI (Normed Fit Index)	$\geq .95$ good, .90 to .95 acceptable (Bentler,1990)	.700
TLI (Tucker Lewis Index)	$\geq .90$ (Marsh, Hau & Wen,2004)	.676

The fit indices of the initial CFA in Table 15 above show that none of the result satisfies the level of fit: ( $\chi^2 = 32870.656$ ,  $df = 798$ ,  $p < .001$ ,  $CMIN/DF = 41.191$ ,  $RMSEA = .074$ ,  $SRMR = .830$ ,  $CFI = .705$ ,  $IFI = .705$ ,  $NFI = .700$ ,  $TLI = .676$ ,  $GFI = .796$ ,  $AGFI = .769$ ). Since the  $\chi^2$  statistic

is very sensitive to sample size, it is usual to get significant  $\chi^2$  value for a huge sample size of 7405 (Bentler & Bonnet, 1980; Jöreskog & Sörbom, 1993; Schlermelleh-Engel, Moosbrugger, & Muller, 2003; Vandenberg 2006). The relative chi-square CMIN/DF value is also way above the acceptance range. But Garson (2011) showed there are four ways in which the chi-square test may be misleading, one of which is large sample size. In such a case it is better to check other fit indices (ex., NFI, CFI, IFI, RMSEA, GFI, and AGFI). To reach the desired fit value of NFI, CFI, IFI, RMSEA, GFI, and AGFI, several changes were made following the modification indices table. Items ECrigor1, ECrigor3, ECrigor7 & ECrigor8 were deleted because of poor factor loading of .24 and .20 respectively. The other items deleted were HSrigor1, HSrigor2, HSrigor4, EAHS4, EAHS6, and SF5. The error variances associated with these other deleted items showed high modification index value suggesting covariance with error term of the one item with a different construct. Further modification in the CFA was to add correlation arrow to the error variances within the same construct following the modification table. Then the CFA was run again. One more item was deleted which was ECrigor5 as it was loading too significantly with value 1.04 suggesting error. The third CFA run was the final model with thirty one items for the seven constructs nine items less than the initial forty two items model.

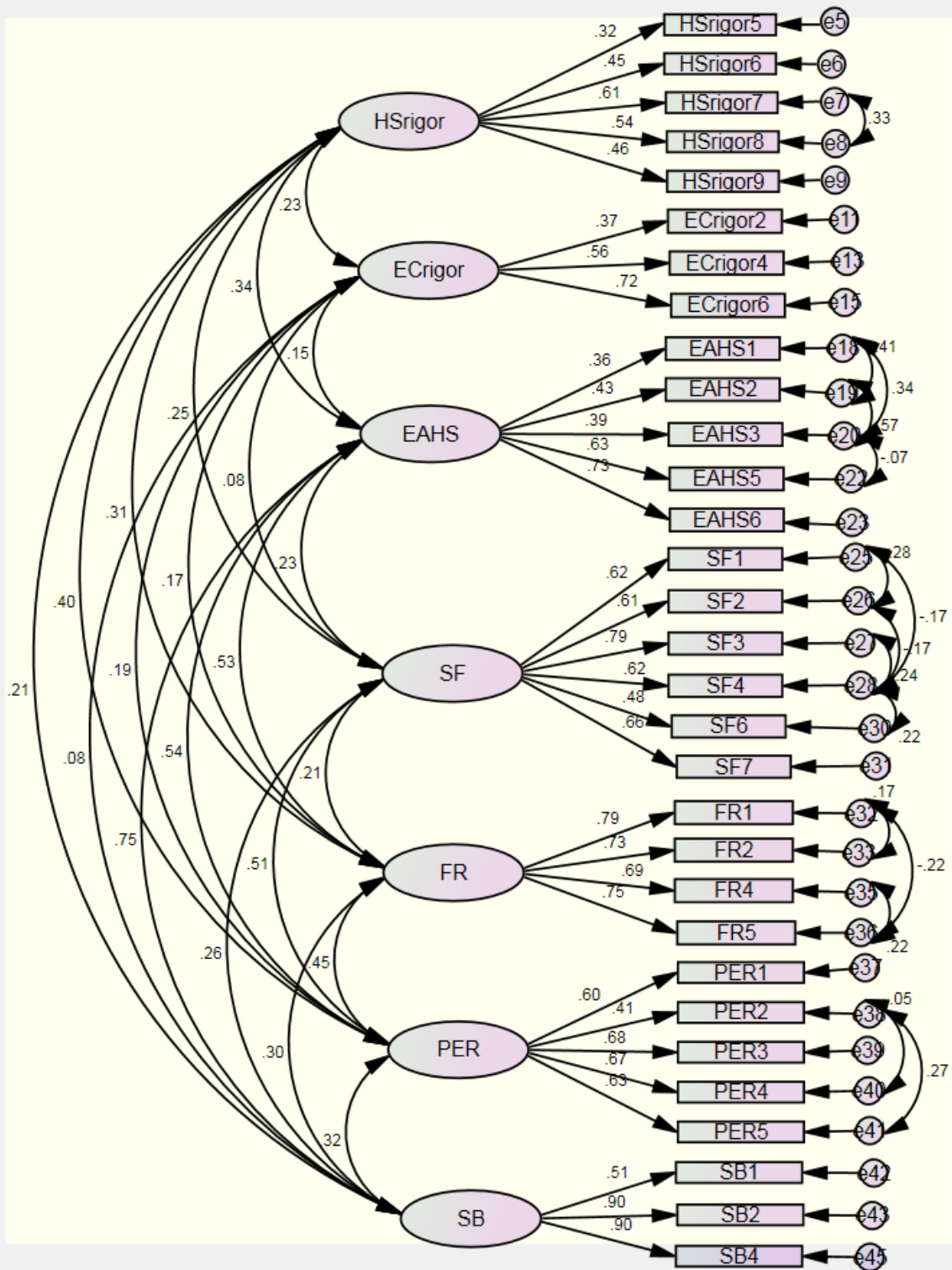


Figure 8. Final CFA model

The final CFA model shows standardized factor loading within the acceptance range of .33 to .92 (Cohen et al., 1990) for all the constructs. After the modification, the fit indices reaches the recommended level except for  $\chi^2$  (See Table 16) which was not unusual. As discussed earlier  $\chi^2$  and Relative Chi-Square value which failed to reach the desired fit level will be ignored as we have a large sample size. The remaining fit indices showed good fit to that of the recommended range (RMSEA = 0.042, SRMR = .0497, CFI= .927, IFI=.927, NFI= .922, TLI= .915, GFI= .951, AGFI=.939). This indicates that the CFA model fits the data. Though NFI value of .95 is called good fit but .926 is still can be considered as acceptable fit as it falls within the acceptable range of .90 to .95 (Bentler, 1990). RMSEA value shows very strong fit as well as GFI. IFI, TLI, NFI, AGFI all were above the recommended level of 0.9.

Table 16

*Fit Indices of Modified CFA*

<b>Absolute Fit Indices</b>		
	<b>Recommended Level of Fit</b>	<b>Proposed Measurement Model</b>
Chi-Square	not significant at $p < 0.05$	5660.495, $df = 398$ , $p < .001$
Relative Chi-Square (CMIN/DF)	2~5, <5 (Bentler, 1990)	14.222
RMSEA (Root Mean Square of Error Estimation) with 90% Confidence Interval	$\leq 0.06$ , (Joreskog & Sorbom, 1993)	.042
SRMR (Standardized Root Mean Residual)	$\leq .80$ (Teo, 2012)	.046
Goodness-of-fit index (GFI)	$\geq .90$ (Jöreskog & Sörbom, 1981)	.952
Adjusted goodness-of-fit statistic (AGFI),	$\geq .90$ (Jöreskog & Sörbom, 1981)	.939
<b>Incremental Fit Indices</b>		
	<b>Recommended Level of Fit</b>	<b>Proposed Measurement Model</b>
CFI (Comparative Fit Index)	$\geq .95$ (Hu & Bentler, 1999) or $\geq .90$ , (Browne & Cudeck, 1992)	.927
IFI (Incremental fit index)	$> .90$ (Bentler, 1990)	.927
NFI (Normed Fit Index)	$\geq .95$ good, .90 to .95 acceptable (Bentler, 1990)	.922
TLI (Tucker Lewis Index)	$\geq .90$ (Marsh, Hau & Wen, 2004)	.915

**Structural Equation Modeling**

Structural Equation Modeling was performed using AMOS 19 statistical package on BCSSE data with a sample size of 7540 collected from undergraduates at a midsized southeastern university in U.S. The next step in this data analysis process was to run the SEM model consisting of seven latent constructs, 30 measured items and seven other exogenous variables i.e. high school grade (hgrades), placement classes attended in high school (hpacl), first-generation student (bfirstgen), SAT score (SAT\_ACT), parental education level (fypardegr), and honor classes attended at high school (hhonor) all of these were represented with casual direction. The variable of hhonor has kurtosis of 10.258 and also because of the multivariate

normality violation shown previously, here also Bollen-Stine bootstrapping method was employed. The SEM model and the relation are shown below (Figure 9).

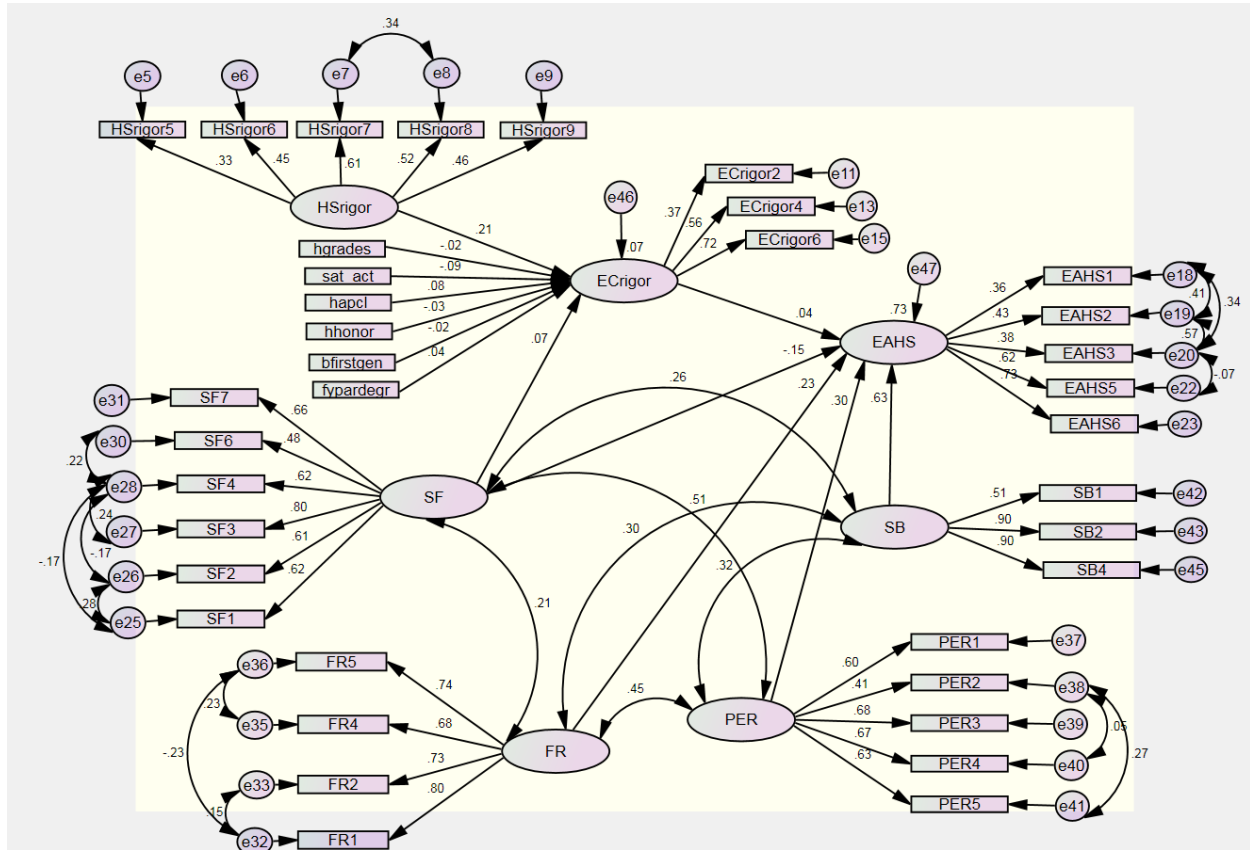


Figure 9. Hypothesized structural model

The first step here was to first check the various fit indices from various categories like Absolute fit indices; Incremental fit indices following Hair et al.'s (2006) recommendation. The initial results indicated poor fit for the research model as:  $\chi^2 = 22996.212$ ,  $df = 601$ ,  $p < .001$ ,  $CMIN/DF = 38.263$ ,  $SRMR = .0774$ ,  $CFI = .747$ ,  $IFI = .747$ ,  $NFI = .742$ ,  $TLI = .720$ ,  $RMSEA = .071$ ,  $GFI = .881$ ,  $AGFI = .860$ . None of the fit indices met the recommended level of acceptable fit (See Table 17).

Table 17

*Fit Indices of Hypothesized Model*

<b>Absolute Fit Indices</b>		
	<b>Recommended Level of Fit</b>	<b>Proposed Measurement Model</b>
Chi-Square	not significant at $p < 0.05$	22996.212, $df=601$ , $p < .001$
Relative Chi-Square (CMIN/DF)	2~5, <5 (Bentler,1990)	38.263
RMSEA (Root Mean Square of Error Estimation) with 90% Confidence Interval	$\leq 0.06$ , (Joreskog & Sorbom,1993)	.071 with HI .072 & LO.07
SRMR (Standardized Root Mean Residual)	$\leq .80$ (Teo, 2012)	.774
Goodness-of-fit index(GFI)	$\geq .90$ (Jöreskog & Sörbom, 1981)	.881
Adjusted goodness-of-fit statistic (AGFI),	$\geq .90$ (Jöreskog & Sörbom, 1981)	.860
<b>Incremental Fit Indices</b>		
	<b>Recommended Level of Fit</b>	<b>Proposed Measurement Model</b>
CFI (Comparative Fit Index)	$\geq .95$ (Hu & Bentler,1999) or $\geq .90$ , (Browne & Cudeck, 1992)	.747
IFI (Incremental fit index)	$> .90$ (Bentler,1990)	.747
NFI (Normed Fit Index)	$\geq .95$ good, .90 to .95 acceptable (Bentler,1990)	.742
TLI (Tucker Lewis Index)	$\geq .90$ (Marsh, Hau & Wen,2004)	.720

To meet the suggested fit value the table of regression weights was checked. Table 18 shows that all paths are significant except one (i.e., bfirstgen to ECrigor), so bfirstgen to ECrigor path was removed. The next step was to remove all the constructs showing poor regression weight and also opposing the theory. For example hgrade should have positive effect on ECrigor but here the regression weight is -.063. The other changes were made following the modification indices like correlating the error variances as suggested in the modification indices table but these can only be done if such changes are warranted theoretically (Schreiber, Nora, Stage, Barlow, & King, 2006). So only the items with error variances from the same construct were correlated.



Table 18

*The Estimation for Regression Weights Suggesting First Modification*

Items		Constructs	Estimate	S.E.	C.R.	P	Std. Regression Wgt.
ECrigor	<---	HSrigor	0.213	0.023	9.424	***	0.207
ECrigor	<---	SF	0.047	0.01	4.565	***	0.075
ECrigor	<---	sat_act	0	0	-6.3	***	-0.094
ECrigor	<---	hapcl	0.023	0.004	5.528	***	0.082
ECrigor	<---	hhonor	-0.011	0.006	-1.98	0.048	-0.029
ECrigor	<---	hgrades	-0.003	0.002	-1.357	0.175	-0.02
ECrigor	<---	bfirstgen	-0.02	0.013	-1.554	0.12	-0.023
ECrigor	<---	fypardegr	0.009	0.004	2.487	0.013	0.036
EAHS	<---	ECrigor	0.029	0.009	3.309	***	0.045
EAHS	<---	SF	-0.06	0.007	-9.033	***	-0.147
EAHS	<---	SB	0.268	0.012	22.688	***	0.626
EAHS	<---	PER	0.13	0.009	14.339	***	0.305
EAHS	<---	FR	0.106	0.008	13.796	***	0.232
EAHS1	<---	EAHS	1				0.357
EAHS2	<---	EAHS	1.108	0.038	29.017	***	0.426
EAHS3	<---	EAHS	1.036	0.04	26.032	***	0.385
EAHS5	<---	EAHS	2.359	0.091	25.881	***	0.624
ECrigor4	<---	ECrigor	1.786	0.083	21.493	***	0.557
ECrigor6	<---	ECrigor	1.83	0.096	19.05	***	0.725
SF1	<---	SF	1				0.622
SF2	<---	SF	1.025	0.021	48.225	***	0.607
SF3	<---	SF	1.14	0.025	45.904	***	0.795
SF4	<---	SF	1.056	0.031	34.188	***	0.619
SF6	<---	SF	0.82	0.024	33.755	***	0.484
FR1	<---	FR	1				0.798
FR2	<---	FR	0.931	0.016	57.805	***	0.73
FR4	<---	FR	0.897	0.025	35.931	***	0.683
PER1	<---	PER	1				0.597
PER2	<---	PER	0.727	0.027	27.197	***	0.413
PER3	<---	PER	1.081	0.026	41.277	***	0.68
PER4	<---	PER	1.188	0.029	40.955	***	0.673
SF7	<---	SF	0.997	0.023	42.817	***	0.664
PER5	<---	PER	0.908	0.023	39.544	***	0.634
HSrigor6	<---	HSrigor	1				0.449
HSrigor7	<---	HSrigor	1.367	0.067	20.27	***	0.613
HSrigor8	<---	HSrigor	1.124	0.059	18.93	***	0.519
SB1	<---	SB	1				0.509
SB2	<---	SB	1.414	0.031	45.376	***	0.903
SB4	<---	SB	1.367	0.03	45.363	***	0.899
FR5	<---	FR	0.988	0.026	37.388	***	0.741
HSrigor9	<---	HSrigor	1.495	0.071	21.155	***	0.459
ECrigor2	<---	ECrigor	1				0.367
EAHS6	<---	EAHS	2.868	0.107	26.863	***	0.734
HSrigor5	<---	HSrigor	0.702	0.04	17.703	***	0.332

\*\*\* P &lt;.001

The revised SEM model was checked again after incorporating the changes. The revised model shows one insignificant path see Table 19, path between ECrigor and fypardegr was removed and the model was run again.

Table 19

*The Estimation for Regression Weights Suggesting Final Modification*

Items		Constructs	Estimate	S.E.	C.R.	P	Std. Regression Wgt
ECrigor	<---	HSrigor	0.23	0.023	9.952	***	0.226
ECrigor	<---	SF	0.037	0.01	3.619	***	0.06
ECrigor	<---	hapcl	0.013	0.004	3.123	0.002	0.046
ECrigor	<---	fypardegr	0.002	0.004	0.44	0.66	0.006
EAHS	<---	ECrigor	0.027	0.009	2.983	0.003	0.041
EAHS	<---	SF	-0.06	0.007	-9.04	***	-0.146
EAHS	<---	SB	0.268	0.012	22.69	***	0.626
EAHS	<---	PER	0.13	0.009	14.348	***	0.305
EAHS	<---	FR	0.106	0.008	13.815	***	0.232
EAHS1	<---	EAHS	1				0.357
EAHS2	<---	EAHS	1.108	0.038	29.019	***	0.426
EAHS3	<---	EAHS	1.036	0.04	26.034	***	0.385
EAHS5	<---	EAHS	2.36	0.091	25.885	***	0.625
ECrigor4	<---	ECrigor	1.867	0.089	20.893	***	0.576
ECrigor6	<---	ECrigor	1.798	0.096	18.822	***	0.704
SF1	<---	SF	1				0.622
SF2	<---	SF	1.025	0.021	48.23	***	0.607
SF3	<---	SF	1.14	0.025	45.896	***	0.795
SF4	<---	SF	1.057	0.031	34.186	***	0.62
SF6	<---	SF	0.82	0.024	33.756	***	0.484
FR1	<---	FR	1				0.798
FR2	<---	FR	0.931	0.016	57.808	***	0.73
FR4	<---	FR	0.897	0.025	35.942	***	0.683
PER1	<---	PER	1				0.597
PER2	<---	PER	0.727	0.027	27.198	***	0.413
PER3	<---	PER	1.081	0.026	41.277	***	0.68
PER4	<---	PER	1.188	0.029	40.953	***	0.673
SF7	<---	SF	0.997	0.023	42.812	***	0.664
PER5	<---	PER	0.908	0.023	39.543	***	0.634
HSrigor6	<---	HSrigor	1				0.449
HSrigor7	<---	HSrigor	1.362	0.067	20.358	***	0.61
HSrigor8	<---	HSrigor	1.121	0.059	19.013	***	0.517
SB1	<---	SB	1				0.509
SB2	<---	SB	1.414	0.031	45.379	***	0.903
SB4	<---	SB	1.367	0.03	45.365	***	0.899
FR5	<---	FR	0.988	0.026	37.4	***	0.741
HSrigor9	<---	HSrigor	1.496	0.071	21.163	***	0.46
ECrigor2	<---	ECrigor	1				0.363
EAHS6	<---	EAHS	2.869	0.107	26.865	***	0.734
HSrigor5	<---	HSrigor	0.707	0.04	17.778	***	0.334

\*\*\* P &lt; .001

The final SEM model after the final modification is below Figure 10.

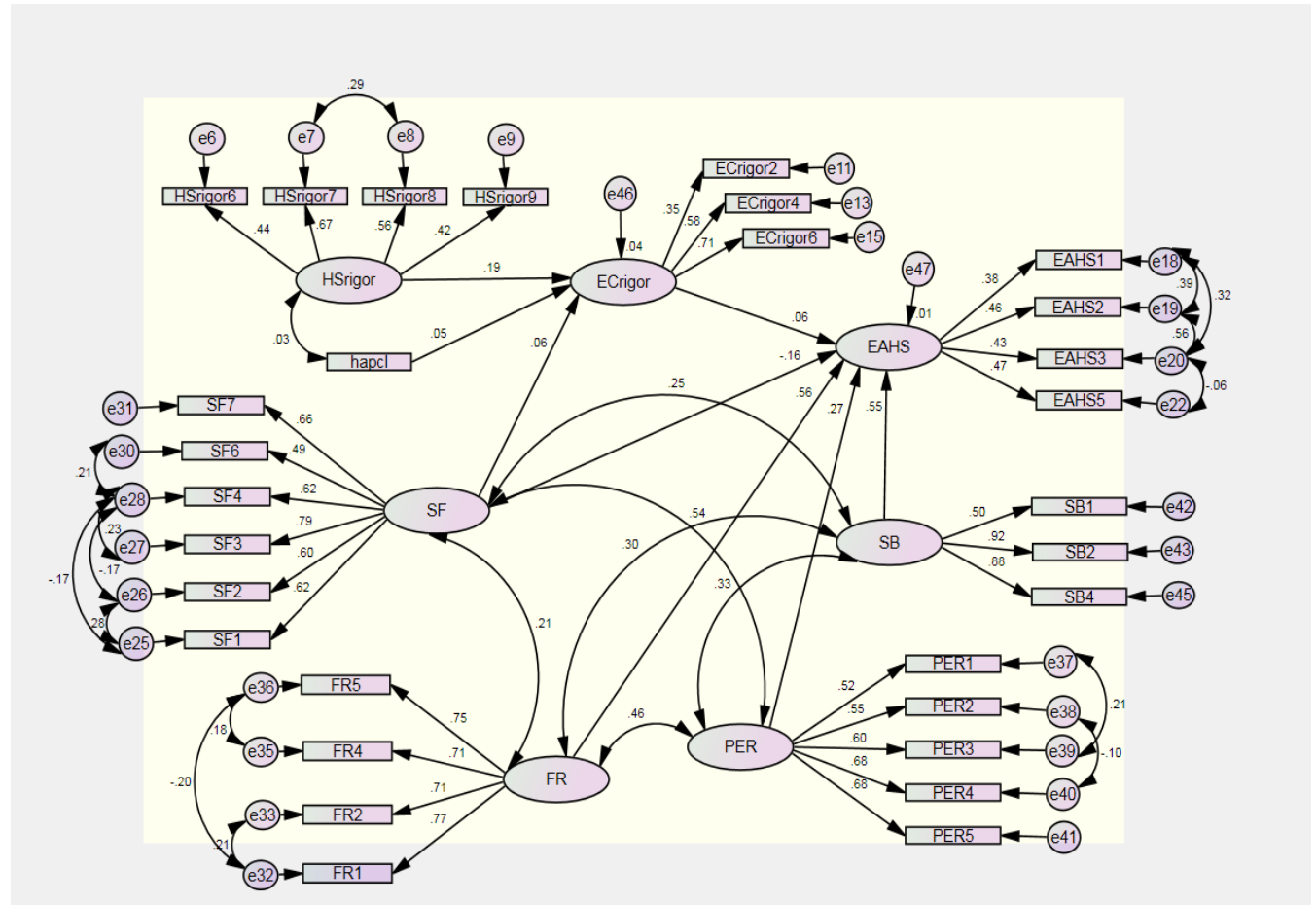


Figure 10. Final Structural Model

The final SEM model looks explanatory of the relationship among the constructs. After the second modification, the fit indices of the SEM showed that the model met the acceptable cut-off values (except for  $\chi^2$ ) ( $\chi^2 = 6623.483$ ,  $df = 433$ ,  $p < .001$ ,  $CMIN/DF = 15.297$ ,  $SRMR = .0694$ ,  $CFI = .915$ ,  $IFI = .915$ ,  $NFI = .910$ ,  $TLI = .903$ ,  $RMSEA = .044$ ,  $GFI = .943$ ,  $AGFI = .931$ ). Though CFI of .95 is desirable but 0.917 is also acceptable considering that all the other fit indices are above .9. RMSEA is showing good fit as it is less than .05. All these results suggest that the structural model fits the data fairly well. The fit indices value to test the models is depicted in Table 20.

Table 20

*Fit Indices of Modified SEM*

<b>Absolute Fit Indices</b>		
	<b>Recommended Level of Fit</b>	<b>Proposed Measurement Model</b>
Chi-Square	not significant at $p < 0.05$	6623.483, $df=433$ , $p < .001$
Relative Chi-Square (CMIN/DF)	2~5, $< 5$ (Bentler, 1990)	15.297
RMSEA (Root Mean Square of Error Estimation) with 90% Confidence Interval	$\leq 0.06$ , (Joreskog & Sorbom, 1993)	0.043 with HI .045 & LO .044
SRMR (Standardized Root Mean Residual)	$\leq .80$ (Teo, 2012)	.067
Goodness-of-fit index (GFI)	$\geq .90$ (Jöreskog & Sörbom, 1981)	.943
Adjusted goodness-of-fit statistic (AGFI)	$\geq .90$ (Jöreskog & Sörbom, 1981)	.931
<b>Incremental Fit Indices</b>		
	<b>Recommended Level of Fit</b>	<b>Proposed Measurement Model</b>
CFI (Comparative Fit Index)	$\geq .95$ (Hu & Bentler, 1999) or $\geq .90$ , (Browne & Cudeck, 1992)	.915
IFI (Incremental fit index)	$> .90$ (Bentler, 1990)	.915
NFI (Normed Fit Index)	$\geq .95$ good, .90 to .95 acceptable (Bentler, 1990)	.910
TLI (Tucker Lewis Index)	$\geq .90$ (Marsh, Hau & Wen, 2004)	.903

Overall, we can say that the model had successfully predicted the complex relation between some school factors like hapcl, high school rigor on expected college rigor (endogenous variable) and relation of college and behavioral factors on expected help-seeking in college (endogenous variable) along with depicting the relation between these two endogenous variable. The estimation for regression weights of the final re-specified model (final model) is depicted in Table 21.

Table 21

*The Estimation for Regression Weights After Final Modification*

Items		Constructs	Estimate	S.E.	C.R.	P	Std. Regression Wgt
ECrigor	<---	HSrigor	0.201	0.022	9.141	***	0.19
ECrigor	<---	SF	0.034	0.009	3.595	***	0.06
ECrigor	<---	Hapcl	0.01	0.004	2.564	0.01	0.05
EAHS	<---	ECrigor	0.025	0.009	2.681	0.007	0.06
EAHS	<---	SF	-0.057	0.006	-8.989	***	-0.16
EAHS	<---	SB	0.235	0.01	22.729	***	0.55
EAHS	<---	PER	0.125	0.009	14.227	***	0.27
EAHS	<---	FR	0.1	0.007	13.542	***	0.56
EAHS1	<---	EAHS	1				0.38
EAHS2	<---	EAHS	1.111	0.039	28.68	***	0.46
EAHS3	<---	EAHS	1.039	0.04	25.765	***	0.43
EAHS5	<---	EAHS	2.408	0.094	25.639	***	0.47
ECrigor4	<---	ECrigor	1.973	0.097	20.296	***	0.58
ECrigor6	<---	ECrigor	1.965	0.111	17.752	***	0.71
SF1	<---	SF	1				0.62
SF2	<---	SF	1.025	0.021	48.209	***	0.6
SF3	<---	SF	1.14	0.025	45.889	***	0.79
SF4	<---	SF	1.058	0.031	34.2	***	0.62
SF6	<---	SF	0.82	0.024	33.767	***	0.49
FR1	<---	FR	1				0.77
FR2	<---	FR	0.931	0.016	57.777	***	0.71
FR4	<---	FR	0.896	0.025	35.844	***	0.71
PER1	<---	PER	1				0.52
PER2	<---	PER	0.727	0.027	27.203	***	0.55
PER3	<---	PER	1.081	0.026	41.267	***	0.6
PER4	<---	PER	1.188	0.029	40.951	***	0.68
SF7	<---	SF	0.998	0.023	42.814	***	0.66
PER5	<---	PER	0.908	0.023	39.539	***	0.68
HSrigor6	<---	HSrigor	1				0.44
HSrigor7	<---	HSrigor	1.383	0.07	19.842	***	0.67
HSrigor8	<---	HSrigor	1.135	0.061	18.543	***	0.56
SB1	<---	SB	1				0.5
SB2	<---	SB	1.185	0.026	45.76	***	0.92
SB4	<---	SB	1.254	0.027	47.188	***	0.88
FR5	<---	FR	0.988	0.026	37.305	***	0.75
HSrigor9	<---	HSrigor	1.549	0.074	21.016	***	0.42
ECrigor2	<---	ECrigor	1				0.35
ECrigor	<---	HSrigor	0.201	0.022	9.141	***	0.19
ECrigor	<---	SF	0.034	0.009	3.595	***	0.06
ECrigor	<---	Hapcl	0.01	0.004	2.564	0.01	0.05

\*\*\* P &lt; .001

The above table shows that all the paths have significant relation with the constructs.

**Hypotheses testing results.** The SEM results depicts that some of the pre-school factors have effect on a student's expectation of college rigor. High school rigor and hapcl, these two preschool factors are shown to have significant effect on ECrigor. Therefore hypotheses H1, H4 were supported by the analysis. The other pre-school factors do not show any significant effect on ECrigor, hypothesis H2, H3, H4, H6, H7 however show no significant effect of ECrigor, so these hypothesis were rejected. Second latent variable i.e. EAHS was found to be significantly affected by SF, SB, PER, FR. Thus, all the proposed hypotheses (H9, H10, H11 and H12) regarding effects of SF, SB, PER, FR on EAHS were supported. SF was found to be negatively affects EAHS. A student with high self-efficacy is less likely to seek academic help. The next hypothesis of H8 where we were looking at the relation of the two endogenous variables was found significant. The below Table 22 shows the results of the hypotheses tests including the regression weights of each of the 12 significant paths.

Table 22

*Hypotheses Path Testing Results*

<b>Hypotheses</b>	<b>Support</b>	<b>Path</b>	<b>Regression Weight</b>
H1: High school academic rigor (HSrigor) has a significant positive effect on the Expected college academic rigor (ECrigor)	Yes	ECrigor<--- Hsrigor	0.19**
H2: High school grade (hgrades) has a significant positive effect on the Expected college academic rigor (ECrigor)	No		
H3: SAT/ACT score (sat_act) has a significant negative effect on the Expected college academic rigor (ECrigor)	No		
H4: Advanced Placement classes completed (hapcl) has a significant positive effect on the Expected college academic rigor (ECrigor)	Yes	ECrigor<--- hapcl	0.05**
H5: Honor classes completed (hhonor) has a significant positive effect on the Expected college academic rigor (ECrigor)	No		
H6: Being a first-generation student (bfirstgen) has a significant positive effect on the Expected college academic rigor (ECrigor)	No		
H7: Parental education (fypardegr) has a significant positive effect on the Expected college academic rigor (ECrigor)	No		
H8: Self-efficacy (SF) has a significant positive effect on the Expected college academic rigor (ECrigor)	Yes	ECrigor<--- SF	0.06**
H9: Expected college academic rigor (ECrigor) has a significant positive effect on the Expected academic help-seeking (EAHS)	Yes	EAHS<--- ECrigor	0.06**
H10: Self Efficacy (SF) has a significant negative effect on the Expected academic rigor (ECrigor)	Yes	EAHS<--- SF	-0.16**
H11: Perseverance (Per) has a significant positive effect on the Expected academic help-seeking (EAHS)	Yes	EAHS<--- Per	0.27***
H12: Relation with Faculty (FR) has a significant positive effect on the Expected academic help-seeking (EAHS)	Yes	EAHS<--- FR	0.56***
H13: Social Behavior (SB) has a significant positive effect on the Expected academic help-seeking (EAHS)	Yes	EAHS<--- SB	0.55***

\* $P < .05$ , \*\* $P < .001$

The above table depicts the regression weights representing the respective determinant's direct effect on the respective endogenous variable. Our endogenous variables are ECrigor and EAHS. The direct effect of HSrigor, hapcl and SF on ECrigor are .19, .06 and .06 respectively, meaning one full standard deviation increase in HSrigor would increase ECrigor by .19 standard deviations keeping the other variables hapcl and SF constant. According to Cohen (1988) these regression weights with significant paths are considered to be small to medium. The three variables together counts for  $R^2$  of .05 which means that the HSigor, hapcl and SF jointly accounted for only 5% of the variance in ECrigor. Though the result shows significant path but this is not a strong relations with 5% variable. The second endogenous variable EAHS was



established to be very significantly determined by five variables SF ( $\beta = -.163$ ,  $p < .05$ ), FR ( $\beta = .557$ ,  $p < .001$ ), per ( $\beta = .267$ ,  $p < .001$ ), SB ( $\beta = .554$ ,  $p < .001$ ) and ECrigor ( $\beta = .06$ ,  $p < .05$ ).

Here the path strength is considered to be medium to large with the only exception of ECrigor and the resulting  $R^2$  is .72, which means that the SF, FR, Per, SB and ECrigor jointly accounted for 72% of the variance in EAHS.

### **Summary**

Literatures suggest that BCSSE and NSSE surveys had been used in the past covering varied topic on college students. But in no previous study it has been used to do a comparative analysis of rigor and help-seeking pre and post of first-year students joining college. This dissertation successfully shows the change in first-year college students' perceptions and attitude regarding academic rigor and help-seeking before they join college and after a year in college. Also a model predicting relation of expected academic rigor and expected help-seeking is shown in this dissertation.

## **Chapter V: Summary, Implications, and Conclusions**

This study was designed to assess first-year college students' perception of academic rigor and help-seeking behavior in college. With quantitative analyses of the BCSSE and NSSE data, the purpose of this study is to have a comprehensive understanding of the attitude and behavior of the entering freshmen cohorts concerning. Also along with the study of the discrepancy in perceived vs. actual academic rigor and help-seeking, the third part of this dissertation aims to evaluate a more complex model showing how several school factors can influence first-year students' outlook about expected academic rigor in college and, in turn, how academic rigor affects expected academic help-seeking.

### **Summary of the Studies**

With the intent to better understand first-year students' college experiences, three separate hypotheses were presented with three different research questions. The sample used for this study consisted of first-year students who participated in the BCSSE survey, and the students participated in NSSE survey after their first year. The BCSSE and NSSE surveys are widely used in universities, capturing students' college experience. So, the idea here was to expand its use in studying topics like academic rigor and help-seeking. Further, there were not many studies that made a comparative study of the common variables present in the two instruments.

Study one was built on the qualitative research by Meyer et al. (2009) showing incongruence in first-year students' perceptions of the rigor of college academics and the actual experiences of college during the first semester. The present study was a quantitative study, and here the goals were to use BCSSE and NSSE data to see whether we get the same picture as

portrayed in the research by Meyer et al. (2009). Study two was the same comparison study about students' help-seeking behavior. This study desired to explore the difference in anticipated help-seeking vs. observed help-seeking response by the first-year students by matching the help-seeking items from BCSSE and NSSE surveys.

The third part of this dissertation was focused on the association of expected academic rigor with expected help-seeking in the presence of several factors. These factors have been identified from the literature such as AP and honors courses (Adelman, 2006; Mayer, 2008), high school academic rigor (Adelman, 2006; Kuh, 2007; Wyatt et al., 2012), ACT/SAT scores (Porchea et al., 2010), parental education (Hertel, 2002; Meyer et al. 2009), high school type, high school grade (GPA), gender having influence on expected academic rigor in college. Similarly factors like self-efficacy (Linnenbrink & Pintrich, 2003; Nelson & Ketelhut, 2008; Paulsen & Feldman, 2005; Pintrich & Zusho, 2007; Tan et al., 2008), teacher's influence (Newman, 2010), social behavior as seen from peer relation (Newman, 2010; Ryan & Pintrich, 1997), perseverance (Newman, 2002) were expected to influence expected academic help-seeking in college.

The collected data was analyzed using different of statistical procedures relevant to the research questions which is explained in the previous chapter. Findings of this study were reported in chapter four. In this chapter, we will look at how the results can be summarized along with discussing the findings and its implications, then we will discuss about the recommendations for future research in this field.

### **Summary of the Results**

To examine the first research question which finds the differences in first-year college students' anticipated versus observed academic rigor after the first year of college, paired sample

t-test was employed. Items concerning academic rigor were selected from BCSSE and NSSE, and only the items common in both were used. There were eight academic rigor items that were found common to both. These items collected students' responses on the degree of academic rigor in college like number of hours they expect to spend/actually spent studying for class and reading, number of draft they expect to prepare/actually prepared before submitting an assignment, amount of writing assignment they expect to do/actually did consisting more than five or 10 or more than 11 pages, also number of times they expect to come/actually came to class unprepared and last, their expected/actual academic challenge in college.

Results indicated that there is a significant difference in anticipated vs. observed academic rigor as reported by the first-year student before joining college and after a year of college. The academic rigor item pairs show that observed academic rigor is less than anticipated academic rigor except for the academic challenge item. It is interesting to see that students reported spending significantly fewer hours preparing for class and on assigned reading. Students also reported preparing fewer drafts of assignment and completed fewer of writing assignment than they expected to do before joining college. Similarly, students reporting coming to class without completing readings or assignments, but they were more academically challenged in their course work than they had expected it to be.

Considering the above results, we can say that there is similarity to results from the literature where students' prediction about college and actual experience is incongruent (Meyer et al., 2009; Smith & Wertlieb, 2005). This quantitative analysis utilizing BCSSE and NSSE surveys echoes the results of the qualitative analysis by Meyer et al. (2009), showing that initial perceptions of first-year students about academic rigor were higher than their actual experience. With very limited research on this particular topic, the reason as to why the students found actual

academic rigor to be less than expected rigor is difficult to explain. Few literatures also suggests conflicting theory that the first-year students find it difficult to cope with college academic rigor and many of them had to take remedial courses being not adequately prepared for the rigors of college (Education Trust, 2001). One rationale that can be draw from the results of this study is that the students may have overestimated about college academic rigor. Second, since freshman year courses are mostly of an introductory level, students might not yet found it academically rigorous enough.

To analyze the second research question, studying the differences in first-year college students' anticipated versus observed help-seeking behavior after the first year of college, the same method was employed as that of the first research question, including the Wilcoxon Signed Ranked Test. The analysis of the self-reported data about help seeing shows that anticipated vs. observed help-seeking behavior of the first-year students' differs. The students reported that they expected to seek more academic help during the first year of college than they actually did. Items demonstrating help asked from another student to understand course material, exam preparations with another student while discussing the course material, assignment and project done with another student, using support of the college to succeed academically and using learning support system in college, all showed significantly lower observed help-seeking behavior among students than what they had anticipated before joining college.

It is interesting that no previous research had shown how the help-seeking behavior among first-year students differ when they were asked to report about their anticipated help-seeking behavior before they join college vs. actual help asked in the first year of college. Hence this result is an important piece of information about the how student attitude change. There might be several reasons for the decline in academic help asked by student in college. Firstly,

maybe the students' were competent enough to manage the academic workload by them and might not have felt the need to ask for academic help. We can consider this as a strong reason considering the results from study one that students' experience of academic rigor in college found to be less than what they had expected before joining college. Other factors like perceived competence (social competence and cognitive competence) and achievement goals can also be the cause of decline in help-seeking in college among students (Ryan & Pintrich, 1997). Ryan and Pintrich (1997) discussed that students' were more likely to feel threatened asking for help from their peers when they are unsure of their cognitively and socially ability, and more likely to avoid seeking help. Also, students' achievement goals like task focus goals, extrinsic goals, and relative ability can be causes toward less help-seeking attitude in students. Like students taken this survey may have fewer tasks focused goals or extrinsic goal or more relative ability which thus resulted in a less conducive atmosphere for help-seeking.

Study three analyzed a model based on prior literature showing the relation of different factors on expected academic rigor and help-seeking and their mutual connection. The proposed model can be divided in two parts Expected College Rigor (ECRigor) and its related pre-college factors like HSrigor, high school grade, SAT score, parental education, first-generation student, self-efficacy, advanced placement and honors classes; the other part is Expected Academic Help-seeking (EAHS) and its predictor factors like self-efficacy, social behavior, student-faculty interaction, perseverance. These two parts are then joined together predicting a positive effect of expected rigor on expected help-seeking.

The result of the present research contributes to the understanding of the relation of pre-college factors on expected college rigor. Though the prediction based on literature was that factors like high school rigor, high school grade, SAT score, parental education, first-generation

student, self-efficacy, advanced placement and honors classes will have a direct effect on expected academic rigor, the BCSSE data studied in this context did not confirm the effect of all the predictor variables. The results here show only small effects of HSrigor, AP courses and self-efficacy. These variables had a very small positive effect on expected college rigor with only 5% of the total variance predicted by these three variables.

Another understanding from the results was about the effect of expected college rigor, self-efficacy, social behavior, student-faculty interaction and perseverance on expected help-seeking. These factors were seen to predict 73% of the variance in expected academic help-seeking. Self-efficacy was shown to have a negative relation with help-seeking, meaning high self-efficacy results to decline in help-seeking. Whereas social behavior, perseverance and expected faculty interaction had a positive effect on help-seeking, (i.e., an increase in these variables would result in increased help-seeking behavior among students). Although small, expected college rigor also has a positive effect on expected help-seeking.

## **Conclusion**

The results from these studies have important implications for administrators, faculty, and other stakeholders interested in student experience, engagement, and success in college. The findings in study one and two could lead administrators and faculties to consider as for why first-year students' reported finding less academic rigor in college than what they have expected and also the reason for their declining help-seeking attitude in college. One concern is if the students' misjudge academic rigor in their first year, they might not be prepared to face academic challenges in the coming years. For example, Item 4 of the academic rigor scale showed that students' reported coming to class unprepared more often than they thought they would. This is a

problematic behavior to get used to for the first-year students. The more they get used to rigor the more they will thrive academically in the coming college years.

Declining help-seeking attitude reported in the results is also a matter of concern as the next level of education will certainly be tougher, and when they are out of the habit of asking for help or working with peers on projects, it will be arduous for them to manage academic work in their sophomore and later years. Administrators and faculty members should explore the causes for such negative attitudes like whether it is because of poor peer relations, poor faculty interactions or it is because of poor social skill of the student. Help-seeking being a social interaction (Ryan & Pintrich, 1997), administrators must look for those practices that can foster positive help-seeking among college students, like increasing amount of collaborative assignment and group projects in class.

Study three contributes to our understanding of the influence of academic rigor on help-seeking. If a homework is challenging, students are expected to look for help from faculty, peers and institutional learning centers. Based on this and from a literature, the expectation was with more academic rigor there will be more help-seeking. The path from expected rigor to help-seeking shows significant effect in the model, but it is not a very strong relationship.

### **Limitations**

This dissertation has several limitations. One of the important limitations is that the data used in this dissertation is self-reported data. With self-reported data, the concern is how honest and accurate the information provided by the responders as self-reported research is often tagged with response bias (Van de Mortel, 2008). Second, the data is collected from a single institution. Therefore, interpretation and generalization of the results to overall population should be done with caution. But since the sample size is huge we can still generalize the results. Third, for study



one and two matching BCSSE and NSSE data was needed and as the response rate was low in NSSE, so only the matching BCSSE data was used. This raises a question of convenient sampling making the generalization of the results more difficult.

The Cronbach's alpha value for reliability analysis of the NSSE scale was reported to be high by the publisher of the survey, but the Cronbach's alpha value of the academic rigor item from NSSE in our data is not good. Thus one of the limitations of this study is the reliability issue of the NSSE items in study one. I addressed this by analyzing individual item rather than scales scores.

### **Future Studies**

1. This study can be done on a more representative sample which could yield more comprehensive results. The sample used in this study comprises only Auburn University students, a future study could repeat this procedure on a more representative sample consisting other state or national universities.
2. A similar study like study one can be repeated comparing students from different departments and majors. This would be helpful to understand whether students from particular department or major are finding their courses less rigorous. Thus faculties and administration can plan to design courses that will enhance the academic experience.
3. Study three can be done using NSSE data and consider other factors that might affect academic rigor and help-seeking during the college years.
4. This study is heavily based on data from BCSSE and NSSE instruments collected from the Office of Institutional Research. Further research can be done adding

supplementary surveys along with these surveys extending the items on rigor and help-seeking.

5. This study was a quantitative research study; however further studies employing mixed-methods could be utilized to further contribute to the literature.
6. There must be further research on student experiences as they move through all the levels of their college year. As Graunke and Woosley (2005) argue that college sophomores face specific and unique challenges; additional studies will be helpful in understanding the challenges students face as they progress through their academic career.

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**Appendix A:**

IRB Approval Letter from Auburn University

# AUBURN UNIVERSITY INSTITUTIONAL REVIEW BOARD for RESEARCH INVOLVING HUMAN SUBJECTS REQUEST FOR EXEMPT CATEGORY RESEARCH

For information or help completing this form, contact: THE OFFICE OF RESEARCH COMPLIANCE, 115 Ramsay Hall  
Phone: 334-844-5966 e-mail: IRBAdmin@auburn.edu Web Address: <http://www.auburn.edu/research/vpr/ohs/index.htm>

**Revised 2/1/2014** Submit completed form to [IRBsubmit@auburn.edu](mailto:IRBsubmit@auburn.edu) or 115 Ramsay Hall, Auburn University 36849.

Form must be populated using Adobe Acrobat / Pro 9 or greater standalone program (do not fill out in browser). Hand written forms will not be accepted.

Project activities may not begin until you have received approval from the Auburn University IRB.

## 1. PROJECT PERSONNEL & TRAINING

### PRINCIPAL INVESTIGATOR (PI):

Name Shankharupa Chaudhuri Title Graduate Student Dept./School \_\_\_\_\_ EFLT \_\_\_\_\_  
 Address 112 S College Street, Auburn, Al 36849 AU Email szc0063@auburn.edu  
 Phone 3344982467 Dept. Head Dr. Sheri Downer

### FACULTY ADVISOR (if applicable):

Name Dr. Paris Strom Title Professor Dept./School \_\_\_\_\_ EFLT \_\_\_\_\_  
 Address 4036 Haley Center, Auburn, Al 36849  
 Phone 3348443077 AU Email stromps@auburn.edu

**KEY PERSONNEL:** List Key Personnel (other than PI and FA). Additional personnel may be listed in an attachment.

Name	Title	Institution	Responsibilities
<u>Joni Lakin</u>	<u>Associate Prof</u>	<u>Auburn University</u>	<u>Committee Member</u>
<u>Chih-hsuan Wang</u>	<u>Assistant Prof</u>	<u>Auburn University</u>	<u>Committee Member</u>
_____	_____	_____	_____
_____	_____	_____	_____

**KEY PERSONNEL TRAINING:** Have all Key Personnel completed CITI Human Research Training (including elective modules related to this research) within the last 3 years?  YES  NO

**TRAINING CERTIFICATES:** Please attach CITI completion certificates for all Key Personnel.

## 2. PROJECT INFORMATION

Title: Understanding First Year College Students' Academic Rigor and Help Seeking Behavior using BCSSE and NSSE

Source of Funding:  Investigator  Internal  External

List External Agency & Grant Number: \_\_\_\_\_

List any contractors, sub-contractors, or other entities associate with this project.

List any other IRBs associated with this project (including those involved with reviewing, deferring, or determinations).

FOR ORC OFFICE USE ONLY			
DATE RECEIVED IN ORC:	_____ by _____	APPROVAL	<p style="color: blue; font-weight: bold;">The Auburn University Institutional Review Board has approved this Document for use from</p> <p style="color: blue; font-weight: bold; font-size: 1.2em;">06/13/2017 to 06/12/2020</p> <p style="color: blue; font-weight: bold;">Protocol # <u>17-145 EX 1706</u></p>
DATE OF IRB REVIEW:	_____ by _____	APPROVAL	
DATE OF ORC REVIEW:	_____ by _____	INTERVAL	
DATE OF APPROVAL:	_____ by _____		
COMMENTS:			

3. **PROJECT SUMMARY**

a. Does the research involve any special populations?

- YES  NO Minors (under age 19)  
 YES  NO Pregnant women, fetuses, or any products of conception  
 YES  NO Prisoners or Wards  
 YES  NO Individuals with compromised autonomy and/or decisional capacity

b. Does the research pose more than minimal risk to participants?  YES  NO

*Minimal risk means that the probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests. 42 CFR 46.102(i)*

c. Does the study involve any of the following?

- YES  NO Procedures subject to FDA Regulation Ex. Drugs, biological products, medical devices, etc.  
 YES  NO Use of school records of identifiable students or information from instructors about specific students  
 YES  NO Protected health or medical information when there is a direct or indirect link that could identify the participant  
 YES  NO Collection of sensitive aspects of the participant's own behavior, such as illegal conduct, drug use, sexual behavior or use of alcohol  
 YES  NO Deception of participants

***If you checked "YES" to any response in Question #3 STOP. It is likely that your study does not meet the "EXEMPT" requirements. Please complete a PROTOCOL FORM for Expedited or Full Board Review.***

***You may contact IRB Administration for more information. (Phone: 334-844-5966 or Email: [IRBAdmin@auburn.edu](mailto:IRBAdmin@auburn.edu))***

4. **PROJECT DESCRIPTION**

a. **Subject Population** (Describe, include age, special population characteristics, etc.)

The sample for this study are beginning first year students and students completing first year in Auburn University. The expected age of the population is 18 and or older.

b. Describe, step by step, all procedures and methods that will be used to consent participants.

- N/A (Existing data will be used)

c. **Brief summary of project.** (Include the research question(s) and a brief description of the methodology, including recruitment and how data will be collected and protected.)

- What are the differences in first year college students' anticipated versus observed academic rigor after first year of college?
- What are the differences in first year college students' anticipated versus observed help seeking after first year of college?
- What is the association of predictors of academic rigor like high school type, grades, act/sat score, parental education, high school academic rigor, AP/Honors classes, etc with the predictor of academic help seeking like self-efficacy, task value, goal objective, teachers influence, peers influence, grade, etc in predicting the relationship of the two constructs?

Existing data from BCSSE and NSSE surveys will be collected from the Office of Institutional Research for the years 2013 to 2016. Data will be accessed only by the primary investigator and the faculty advisor in their personal computer maintaining security of the data. To seek answers of the research questions data will be analyzed following statistical method in SPSS. The study will compare BCSSE and NSSE data. Though BCSSE and NSSE are student surveys but the data required for the study do not need identification of the students. De-identified data (no IDs) will be requested from the Office of Institutional Research for the study.

d. **Waivers.** Check any waivers that apply and describe how the project meets the criteria for the waiver.

- Waiver of Consent (Including existing de-identified data)
- Waiver of Documentation of Consent (Use of Information Letter)
- Waiver of Parental Permission (for college students)

This study will use BCSSE and NSSE data. BCSSE and NSSE surveys are administered through the Office of Institutional Research to assess student engagement in college. As these are existing data and the required procedures are already fulfilled by the administrating body, these existing data qualify for the all the above mentioned waivers.

e. **Attachments.** Please attach Informed Consents, Information Letters, data collection instrument(s), advertisements/recruiting materials, or permission letters/site authorizations as appropriate.

Signature of Investigator	Shankharupa Chaudhuri	Digitally signed by Shankharupa Chaudhuri DN: cn=Shankharupa Chaudhuri, o=Azusa University, ou=Faculty of Education, c=US Date: 2017.06.12 09:48:19 -0500'	Date	6/12/2017
Signature of Faculty Advisor	Paris Strom	Digitally signed by Paris Strom Date: 2017.06.12 11:01:48 -0500'	Date	6/12/2017
Signature of Department Head	Sherida Downer	Digitally signed by Sherida Downer Date: 2017.06.12 11:44:45 -0500'	Date	6/12/2017