



Examining the Contribution of Academic College Readiness Measures, the College Readiness Curriculum and the Ecological Context in Promoting College Success of the Ethiopian Public Higher Education Graduates

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This is to certify that the thesis prepared by **Lemecha Geleto**, entitled **Examining the Contribution of Academic College Readiness Measures, the College Readiness Curriculum and the Ecological Context in Promoting College Success of the Ethiopian Public Higher Education Graduates** and submitted in partial fulfillment of the requirements for the degree of **Doctor of Philosophy in Curriculum Design and Development** complies with the regulations of the university and meets the accepted standards with respect to originality and quality.

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Abstract

This study aimed at 1) examining the effect of college readiness on college success at the values of the moderators; 2) analyzing how university quality assessment and university entry cutting scores are related to college readiness and college success; 3) comparing and contrasting the Ethiopian Prep curriculum with major college readiness curricula in the world, and; 4) studying how graduates experienced college readiness. The study employed a mixed research design in which the quasi-experimental and phenomenological research designs were used. All 2011 E.C./2019 G.C. undergraduate graduating year students from governmental Higher Education Institutions, the Ministry of Education officers, and the Ethiopian National Educational Assessments and Evaluations Agency officers were the populations. Both probability and non-probability sampling designs were used in sampling. Additionally, a graduate survey, a graduate interview, and document analysis methods were the instruments of the study. The result revealed that the stronger effect of college readiness on college success did not guarantee a higher probability of college success. Also, promoting the conditional effect of college readiness on college success while heightening the probability of college success is interpreted as a trait of a high-performing institution. The Ethiopian Prep courses have contradictions regarding the sources of the courses, the setting for delivery, and the teachers who teach the courses. The Ethiopian teachers have a minor role in curriculum development, and in reshaping the curriculum depending on the context. The Ethiopian Prep has a weaker relationship with universities in curriculum revisions and test development, and it does not badge college readiness. International Baccalaureate and Advanced Placement examinations are composed of both objective and subjective items, unlike the Ethiopian University Entrance Examination. Like college courses, Dual Enrollment courses' assessment is based on course grading. Remediation is inappropriately used, and the elements of the ecosystem are loosely integrated with building college readiness in Ethiopian education.

Keywords: College Readiness; College Success; College Readiness Curriculum; Context

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Table of Contents

Contents	Page
List of Figures.....	viii
List of Tables	ix
List of Abbreviations	x
Chapter One: Introduction	1
1.1. Background of the Study.....	1
1.2. Statement of the Problem	7
1.3. Objectives of the Study.....	12
1.4. Research Questions	13
1.5. Theoretical Framework.....	14
1.6. The Significance of the Study.....	23
1.7. Delimitation	24
1.8. Limitation of the Study.....	25
Chapter Two: Literature Review	26
2.1. Curricula, Assessments, and Indicators for College Readiness.....	26
2.1.1. Curriculum and Assessment of College Readiness	26
2.1.2. CR and CS Indicators	29
2.2. Theories and Practices in Building College Readiness	33
Chapter Three: Methodology	62
3.1. Methods.....	62
Research paradigm	62
Phenomenology	64
Mixed methods design.....	65
Explanatory correlational research design	67
Population and participants.....	68
Data collection tools	70
Data analysis methods	76
<i>Triangular observation of the Ethiopian college readiness phenomenon</i>	80
Ethical considerations	81
Chapter Four: Results	85
4.1. Introduction	85

4.1.1. Quantitative Data Analysis Results: The Relationship between College Readiness and College Success at the Values of the Moderators and Covariates.....	87
4.1.2. The Qualitative Data Analysis: The Ecological and Curricular Aspects of College Readiness	95
Chapter Five: Discussion and Summary	148
5.1. Introduction	148
5.2. The Effect of College Readiness on College Success.....	148
5.3. The Relationship between HE Quality Assessment, College Readiness Level, and College Success Level of Graduates	153
5.4. The Ethiopian Preparatory Curriculum as Compared to the International College Readiness Curricula (IB, AP and DE).....	155
5.5. Understanding the College Readiness Experiences of the Participants	165
5.6. Observing the Tri-sides of Ethiopian College Readiness Model: The Convergence, The Curriculum, and the Context.....	179
Chapter Six: Conclusion and Recommendation	184
6.1. Conclusion.....	184
6.2. Recommendation.....	201
References.....	204
Appendices.....	254

List of Figures

FIGURE 1: THE THEORETICAL FRAMEWORK.....	20
FIGURE 2: THE CONCEPTUAL FRAMEWORK OF THE STUDY	23
FIGURE 3: PARALLEL-DATABASES MIXED METHODS DESIGN (KENNEDY, 2018).....	66

List of Tables

TABLE 1: DESCRIPTIVE STATISTICS FOR ACHIEVEMENT DATA	75
TABLE 2: RELIABILITY ANALYSIS RESULTS FOR THE FACTOR DIMENSIONS OF THE SURVEY QUESTIONNAIRE.....	83
TABLE 3: THE CORRELATIONS BETWEEN VARIABLES IN THE STUDY: N = 50	83
TABLE 4: THE EFFECT OF COLLEGE READINESS ON COLLEGE SUCCESS AT THE VALUES OF MODERATORS:.....	88
N = 551	88
TABLE 5: CONDITIONAL EFFECTS OF THE FOCAL PREDICTOR AT VALUES OF THE MODERATORS: N = 551	89
TABLE 6: THE PROBABILITY OF COLLEGE SUCCESS AT VALUE OF UG AND DEPARTMENT: N = 551.....	90
TABLE 7: PERFORMANCE: TOTAL CONDITIONAL EFFECTS AND AVERAGE PROBABILITY OF COLLEGE-SUCCESS.....	94
TABLE 8: GENERAL FACTORS AFFECTING COLLEGE READINESS: N = 20	97
TABLE 9: LANGUAGE OF INSTRUCTION RELATED PROBLEMS AFFECTED COLLEGE READINESS REPORTED BY THE PARTICIPANTS: N = 20	98
TABLE 10: AVERAGE NUMBER OF REMEDIATION THE PARTICIPANTS RECEIVED DURING THEIR UNDERGRADUATE CLASSES: N = 20 .	99
TABLE 11: MATHS AND ENGLISH EXPERIENCES AND SELF-EFFICACY OF THE PARTICIPANTS: N = 20	100
TABLE 12: SOURCES AND INDICATORS OF MOTIVATION TO REACH COLLEGE AS REPORTED BY PARTICIPANTS:.....	101
TABLE 13A: ACADEMIC HABITS OF THE PARTICIPANTS: N = 20	101
TABLE 13 B: ACADEMIC HABITS OF THE PARTICIPANTS: N = 20.....	102
TABLE 14: INDICATORS OF ACADEMIC SELF-EFFICACY REPORTED BY THE RESPONDENTS: N = 20	102
TABLE 15: MAJOR FACTORS UNDERLYING THE COLLEGE KNOWLEDGE AS REPORTED BY PARTICIPANTS:	103
TABLE 16: MAJOR REPORTED UNDERLYING FACTORS OF COLLEGE ASPIRATION: N = 20	103
TABLE 17: THE MAJOR SCHOOL-RELATED FACTORS THAT IMPACTED COLLEGE READINESS OF THE PARTICIPANT: N = 20	104
TABLE 18: DESCRIPTIONS OF MAJOR FACTORS RELATED TO COLLEGE MAJOR CHOICE: N = 20.....	105
TABLE 19: TEACHER RELATED FACTORS AFFECTING COLLEGE READINESS: N = 20.....	105
TABLE 20: THE ROLE OF FAMILY IN AFFECTING COLLEGE READINESS OF THE PARTICIPANTS: N = 20.....	106
TABLE 21: THE DESCRIPTION OF THE NATURE OF COOPERATIVE LEARNING AT STUDENTS' MESOSYSTEM:.....	106
TABLE 22: CULTURES THAT MOLDED THE COLLEGE READINESS OF PARTICIPANTS: N = 20.....	109
TABLE 23: THE ETHIOPIAN PREP CURRICULUM.....	115

List of Abbreviations

ACC = Advanced College Credit courses

ACT = American College Test

ANCOVA = Analysis of Covariance

AP = Advanced Placement

AVID = Advancement Via Individual Determination

CB = College Board

CGPA = Cumulative Grade Point Average

CPD = Continuous Professional Development

CRC = Curriculum Review Committee

CRIS = College Readiness Indicator Systems

CTE = Career and Technical Education

DC = Development Committee

DE = Dual Enrollment

DRC = Diploma Review Committee

EAP = Early Assessment program

ECTS = European Credit Transfer and Accumulation System

ESLCE = Ethiopian School Leaving Certificate Examination

ETP = Education and Training Policy

ETS = Educational Testing System

FGEC = French Government Examination of Competence

FP = Freshman Program

FPC = Freshman Program Complete

FYGPA = First Year Grade Point Average

GPA = (Grade Point Average)

GSEE = General Secondary Education Examination

GTUAP = Graduates' Technology Use for Academic Purposes

HEI = Higher Education Institutions

HERQA = Higher Education Relevance and Quality Assurance

HL = Higher Level

HSGPA = High School Grade Point Average

IB = International Baccalaureate

IBCA = International Baccalaureate Assessment Center

IBO = International Baccalaureate Organization

I-E-O = Input-Environment-Outcomes

K-12 = kindergarten up to grade 12

LEAP = Learning, Education, Aspiration, Participation

LSLCE = London School Leaving Certificate Examination

MOE = Ministry of Education

NEAEA = National Examinations, Assessments and Evaluations Agency

OOP = Outdoor Orientation Program

PGDT = Post-Graduate Diploma in Teaching

PPC = Preparatory Program Complete

PPCT = Process-Person-Context-Time

QUAL = Qualitative

QUAN = Quantitative

SAT = Scholastic Aptitude Tests

SES = Socio-Economic Status

SES= Socio-Economic Status

SIP = Stem Intervention Program

SL = Standard Level

SPSS = Statistical Package for Social Sciences

STEM = Science Technology Engineering and Mathematics

TGE = Training and General Education

Training of the Trainers = TOT

TVET = Technical Vocation and Education Training

UEE = University Entrance Examination

UG = University Generation

Chapter One: Introduction

1.1. Background of the Study

College-ready students are more likely prepared for university education, job, and to participate in the social, and political concerns of society than students who are not college-ready (Moore et al., 2010). The academic achievement records and preparations for college in high school are among the determinants of college outcomes (Adelman, 1999; Aldeman, 2010; Kurlaender & Larsen, 2013). Studies identified four major findings on college readiness: 1) Students who are better prepared academically for college have a greater chance of persisting in college and completing a degree; 2) Using multiple measures of college readiness helps to inform students' likelihood of college success; 3) Racial/ethnic and family income gaps in college success rates are reduced when college readiness is taken into account, and 4) Early monitoring of college readiness is associated with increased college success (Bahr et al, 2019; Jackson & Kurlaender, 2013; McMahan et al, 2017; Ngo & Kwon, 2014; Mokher & Leeds, 2018). College-ready students will likely be more academically adept and successful in postsecondary and workforce arenas than their counterparts who graduate with academic deficiencies (Barnes, 2010). Also, college-ready graduates will more readily assimilate themselves into the complex, bureaucratic global society and are more likely to develop and perpetuate personal attributes (i.e., cultural, social, and economic capital) and become engaged citizens than students who are not college-ready (Barnes, 2010).

The competency standards for college readiness vary following the tracks of the changes in career requirements that result from the technological advancements (Bales & Akdere, 2014). Careers of the 21st century now require some form of postsecondary education; 73% of the fastest-growing occupations require some form of postsecondary education or training (Moore et al, 2010). Although a high school diploma historically signified adequate training for the workforce, the modern knowledge-based economy increasingly requires tertiary degrees (Tierney & Duncheon, 2015). In recent years, several factors, including changes in employer expectations, a move to mass education, and a concern for the inadequate preparation of high school graduates, have pulled college readiness to the center of policy discussions (Nunley et al., 2000).

A leading cause of the low college entrance and success rates is the lack of college readiness (Yavuz, 2019). Significant growth in the number of college-entering students who are placed in non-credit-bearing remedial courses across universities necessitated the

investigation of college readiness (Daugherty et al, 2021; Jackson & Kurlaender, 2013). Strong High School Grade Point Averages (HSGPA) and Scholastic Aptitude Tests (SAT) scores were associated with many college outcomes, such as credits earned, retention, second-year grades, college Cumulative Grade Point Average (CGPA), and eventual graduation (Coyle & Pillow, 2008; Cromwell et al., 2013). Recent paradigm shifts in education have brought college readiness to the forefront of educational reforms.

Remedial or developmental education is used as a mechanism to mend the breaks of college readiness by the education systems. Remedial coursework is closely linked to reduced rates of retention and completion. Bridging students' transition to higher education (HE) by increasing their college readiness is, therefore, a major concern globally (Thomas & Quinn, 2007).

Generally, scholars listed course-taking, HSGPA, college entrance GPA, class rank and SAT as the major indicators of college readiness. Achieving mathematics college readiness standard through continuous three-year mathematics coursework significantly related to college mathematics achievement (Ayebo et al, 2016; Harwell et al, 2015; Taylor & Mounfield, 1989). Course-taking in high schools determines Science Technology Engineering and Mathematics (STEM) field enrollment in college (Wang et al, 2018; Taylor & Mounfield, 1989). On the other hand, literature listed assignment to remediation, degree completion, time to degree, and CGPA of graduating seniors as the major indicators of postsecondary outcomes used to measure college readiness.

There are scholarly criticisms and inconsistencies on the validity of both the indicators of college readiness measures and college outcome measures. The significance of predicting college performance from college admission tests is minimum and not substantial (Niu & Tienda, 2010). Fagioli (2013) stated that SAT is a threat to diversity in HE enrollment. Standardized norm-referenced test scores reflect how students are compared to other students who take the tests rather than what content they have mastered (Atkinson & Geiser, 2009). Standardized test scores conflate performance with real student learning. This means that students can achieve high in some tests without mastering course content or acquiring a broad range of skills and knowledge (Nichols et al, 2006; Zamir & Flavian, 2015). College admission tests are largely associated with socioeconomic status (SES); high-income families provide their children with supplemental test preparation (Lehman, 1999; Rattani, 2016). A recent study by Geiser (2020) reported that when student demographic variables, such as parental education, family income, and race/ethnicity are controlled, the effect of HSGPA on

college success is greater than the effect of SAT scores on college success. The correlation between the first semester GPA of students and the aptitude test component score of the Ethiopian University Entrance Examination (UEE) was found to be non-significant (Wariyo & Kelbago, 2020).

In addition to criticisms on admission tests as indicators of college readiness, scholarly criticisms are there on course taking as related to college readiness. The number and types of college preparatory courses that are listed on students' transcripts can be quantified, but course titles do not convey the level of rigor or breadth of content students experienced (Chen et al, 2021; Dahlke et al, 2018). A mismatch can exist between academic rigor and GPA. For instance, the highest GPA of 4.0 may signal that a student is hard-working, but it does not necessarily indicate that a student mastered college-ready academic content and acquired college-ready academic skills. Generally, students with high and the same grades, for example, students who scored 4.0, may be substantially and significantly different in the knowledge they have acquired and the level of college readiness they have gained. This difference is due to the level of academic rigor the students have experienced and other non-cognitive college readiness factors (Kowski, 2013; Porter & Polikoff, 2012).

College readiness is not merely the acquisition of academic content knowledge or skills; it is also a function of non-cognitive factors (Conley, 2012; Dryer et al, 2016). Indicators of academic preparation are often claimed to measure college readiness in mainstream policy discourse. Yet while academically ready students may be positioned to perform well in college courses, they are not inherently college-ready (Sommerfeld, 2011). Therefore, measures of academic performance may not fully capture the developmental process required for the young to complete high school, enter, succeed in, and graduate from HE (Ali and Hayat, 2019; Fox & Kimball, 2018). Time management, income, social interaction, satisfaction with university service and climate, goal-setting, help-seeking, and self-advocacy are more frequently accounted for college readiness than academic skills like math and reading (Tinto, 1993; Byrd & Macdonald, 2005; Hooker & Brand, 2010). College knowledge is another non-cognitive aspect that affects college performance (Chlup et al, 2016). Concerned with the low validity of SAT scores in predicting college success, The Rainbow Project Collaborators, & The University of Michigan Business (2004) augmented new testing with SAT to increase its validity (Kuh et al, 2005).

Generally, these critics argue that academic preparedness alone cannot be a significantly and substantially powerful predictor of college performance contrary to the bulk of findings

that support the impact. Scholars also argue that college readiness is deeply rooted in the precollege social, developmental, and family factors that allow students to psychologically and academically ready as well as develop the culture of college-going. Additionally, to ensure college readiness, the accountability for responsible student learning should monitor student progress. For this purpose, professionally skilled and committed teachers that are supported by adequate and appropriate resources are needed so that all students regardless of background are prepared for both college and career when they graduate from high school (Darling-Hammond, Wilhoit & Pittenger, 2014). Also, the relationship between the college and career readiness of students and the college success of students is related to the alignment of the K-12 curriculum and college curriculum (Moore, 2013).

Despite the criticisms over standardized tests and other tests as a measurement of college readiness and prediction of student college outcomes, the utilization of these tests to predict the relative college student outcomes and value-added to student learning has persisted to be used in the HE Institutions (HEIs) around the world (Allensworth & Clark, 2020; Cohn et al, 2004).

Even though the largest percentage of studies in Ethiopia supported the significance of college entrance scores in predicting first-year college academic performance (Alamiraw, 2007; Olani, 2007; Bekele, 2013; Gelane, 2014; Yosef, 2014; Zebdewos et al, 2015), a study by Silabat (2017) found less contribution of college entrance exam scores than high school average transcript in predicting first-year college GPA. Most of these studies are masters and Ph.D. theses, and there is a shortage of internationally peer-reviewed research works on the topic. Diversified studies that are published in international journals and books, in addition to PhD and masters theses may give stronger data on these variables' validity in predicting college performance.

Since decades ago, Ethiopia has given much emphasis to college access of the citizens. For this reason, the rapid expansion of HEIs signals Ethiopia's vision and urge to produce the skilled, knowledgeable, attitudinally matured and ready graduates to achieve the nationally set developmental goals. In Ethiopia, there has been a huge effort by the Ministry of Education (MOE) to increase the enrolment rates of students in different universities. The process of selecting ready students for university learning has been accomplished by the MOE. For example, No. 650/2009, section 3, article 39: 1 of the HE Proclamation (HEP) stated that *“Admissions to undergraduate programs of any institution shall be based on completion of the preparatory program and obtaining the necessary pass marks in the*

university entrance examination.” The proclamation also clearly stated in article 39:2 that the cut scores for university admission shall be decided by the MOE: “*The Ministry shall administer the university entrance examination and decide on eligibility for admissions to any institution*”

Even though there are numerous research findings on the quality of education in Ethiopia at all levels of education, amazingly, few studies considered the contribution of the college readiness factor in HE quality assessment. Studies conducted around this issue are largely emphasized the predictive validity of grade 10 and 12 scores of students in predicting first-year college achievement (Kebede, 1991; Surafel, 2004; Olani, 2007; Gelane, 2014; Bekele, 2013; Prof. Fantu, Prof. Zelalem, & Prof. Belay, 1996; 1996; Yosef, 2014; Yosef, 2015; Zebdewos et al, 2015). Compared to studies around the world, the Ethiopian studies did not consider long-term college outcomes, such as graduate cumulative GPA, time to graduation, assignment to remediation, and college completion rates. While taking into account the contribution of college readiness on HE quality assessment, international studies controlled covariates and mediators such as motivation, gender, SES, interest-major-congruence, a field of study, and other institutional factors (Coates, 2009; Cunha & Miller, 2014; Jackson & Kurlaender, 2013; Fina et al, 2018; Liu, 2011). However, the international studies also failed to produce a comparative model that takes into account the college readiness factors, the institutional factors, and the student college learning outcome factors to comparatively assess the direct HE quality. Because of the multidimensional and multifaceted nature of quality, the international quality assessment studies failed to come up with a more comparative and comprehensive HE quality assessment model. Also, most of them emphasized indirect HE quality assessment rather than the direct HE quality assessment.

The Ethiopian Prof. Fantu et al (1996) studied whether the High School score, Differential Aptitude Test score, and the Ethiopian School Leaving Certificate Examination (ESLCE) to be differently weighted for the different higher learning institutions using first-year freshman GPA. Although Prof. Fantu et al’s (1996) study took a more applied approach while it related college readiness and success measures, it did not control the confounding variables with pre-college academic measures that may distort the tests’ prediction of first-year success difference between Urban and Rural students as well as between males and females. For example, the difference between male and female first-year college success is highly affected by non-academic variables in the Ethiopian context. Besides, the difference between Addis Ababa students’ and rural students’ precollege performance affects their first-

year college, and matching of students' pre-college ability was needed. The study also did not consider the difference between the institutions the students attended. The prediction of the tests can be moderated by the type of HEIs the students attended. The study must have used an ex-post-facto design in which some variables could have been controlled. On the other hand, the study should have included some variables as covariates and moderators in a regression analysis.

Amid the absence of studies on college readiness as related to college success in the Ethiopian context, the researcher, as a university instructor, had experienced university teaching in some faculties where he met a significant number of students who were in serious need of remediation and support from instructors. In addition, rumors are common among university instructors regarding the level of academic preparation and the ability of independent learning of their students as college students. Even though the students' motivation to learn and to change themselves as individuals has a major impact on their all life achievements including academic performance, the question, "how the pre-college curriculum and teaching-learning process adequately prepare the students for the current demand of college education, expectation, and the career?" should get scientific answers.

To sum up, the sole use of cognitive measures of college readiness has recently been assumed to be traditional. As previously stated, the importance of including the no-cognitive measures of college readiness in the college readiness assessment models is the current scholastic argument. In the Ethiopian system, the traditional approach dominated college readiness assessment. Non-cognitive college readiness indicators, such as academic self-concept and confidence, motivation, college aspiration, academic discipline, interest-major-congruence, college knowledge, and others are rarely related with college CGPA by Ethiopian studies. Non-cognitive college success indicators are assignment to remediation, academic and self-discipline, college completion, study skills, time management, adaptation to institutional environment and others. As far as my knowledge is concerned, studies conducted in this area in Ethiopia could not go further beyond correlating cognitive measures of college readiness with cognitive college success measures, i.e., first-year GPA. In addition, there is a shortage of studies on the relationship between college readiness curriculum and college success and expectations. For this reason, the bridge between the preparatory for HE (Prep) and HE seems to be weak and less research-oriented.

Therefore, firstly, this study analyzed the effects of college readiness levels of students on college success by university generation (UG) and fields of study controlling for some

non-cognitive and cognitive college readiness factors. This helps to understand: 1) whether, as it has been assumed by decision theorists and policymakers, the college readiness positively affects college success; in other words, to understand to how much extent these decisions are working positively; 2) To assess whether the cutting scores for college admission are working well and fair for different groups of students by UGs and departments for employment, and 3) To study how college readiness levels of graduates can be related to college CGPA (college success level) while producing a comparative direct HE quality assessment model. This is believed to work as another approach to quality assessment in HEIs. In doing this, the study assessed the conditional effects of college readiness on college success in line with the probability of college success across UGs and fields of study to make a comparative study on the quality of the UGs. The objective is to search for such models that include both cognitive and non-cognitive measures. Also, a comparative analysis of college readiness/preparatory curriculum as promoting college readiness is conducted. The Ethiopian preparatory curriculum is compared and contrasted with another world college readiness curriculum depending on some parameters.

1.2. Statement of the Problem

Studies in the Ethiopian context are largely embarked on correlating the academic college readiness measures with college academic performances. They studied the predictive validity of the pre-college academic measures in predicting college performance, particularly, first-year college performance. Compared to studies around the world that relate college readiness and success phenomena, the Ethiopian studies were largely concerned with one aspect of college readiness, i.e., academic college readiness assessment with college success. The curricular and the ecological aspects of college readiness as related to college success are ignored by the Ethiopian research. For this reason, the Ethiopian college readiness research is concerned with one side of college readiness. The comprehensive college readiness model that takes into account the major aspects of college readiness as it relates to college success is needed to be developed to establish a strong building of the high school to HE transitions.

Also, the studies rarely controlled major pre-college and college factors that may affect the relationship between pre-college academic measures and college success measures. When studying the impact of college readiness of students on college success, it is advisable to take into account the level of quality reputation of a UG in addition to some major student-related factors. In other words, the assessment of the relative contribution of the HEIs in producing competent graduates should be based on the level of preparation the students have made for

the college education. Therefore, this study is opted to observe the extent to which the college readiness of students as measured by UEE score affects the college success of different groups of graduates as measured by graduates' CGPA at the time of graduation controlled for graduates' Ethiopian General Secondary Education Examination (GSEE) grade, gender, SES, interest-major congruence, graduates' technology use for academic purposes (GTUAP), graduates' Socio-Economic Status (SES), UG, and field of study.

Currently, both in Ethiopia and over the world, cognitive college readiness measures are widely used in selection, admission, and placement to universities and departments. Similarly, college CGPA highly serves as a leading measure of graduates' job and career success. In addition, the current HE quality assessment of the value-added studies considers the college readiness of students, college continuous assessment scores and the college CGPA as a direct assessment of college outcomes. Supporting this idea, Cunha and Miller (2012) argued that student performance, which is directly related to institutional quality, should be included in 'value-added' measures of HE research. On the other side, the result of this measure should be open to students and the public to provide policymakers and consumers with an accessible measure of the relative effectiveness of HEIs.

The value-added assessment approach computes value-added estimates by comparing predicted against actual performance using data from entrance tests and routine course assessments (Coates, 2009). Existing and readily available measures of student achievement can provide useful information on the growth and college readiness of students (Fina, 2014). As college admission criteria, currently, Ethiopia uses UEE scores (consists of seven subjects including Aptitude Test) for college readiness assessment and college admission of students. However, these test results are not empirically related to college outcomes (e.g., time to graduate, employment, graduation rates, college CGPA, assignment to remediation) to study both the impact of students' college readiness on college success and the relative quality of HEIs in terms of the changes to student learning. The empirical works that analyze the pre-high school, high school and post-secondary indicators of college readiness and success are very limited in Ethiopian literature. As previously mentioned, these studies largely focused on correlating the GSEE GPA, UEE scores, high school and preparatory transcript scores to university first-year GPA.

Currently, various standardized tools have been developed and being used for assessing HE quality (Education International, 2007), even though such assessments faced strong criticisms. The critics stated that learning at HEIs is so diversified that the use of externally

imposed standardized tests to make a comparative analysis of HEI quality of learning is not feasible and realistic. Generally, the current quality assessment trend of HEIs is focused on HE learning outcomes, specifically, student learning. The argument asserts that the continuous assessment result that measures student learning outcomes in HE is the strongest tool that can be used for HE teaching-learning productiveness assessment.

The current main important move to enhance the college readiness and success of students is to embark on early interventions such as organizing early support, warning and assessment systems, curricular changes that correspond to students' college expectations, enhancing teacher quality and resource availability. For this purpose, the empirically recognized college readiness and success indicators are identified by scholars. These indicators are identified as pre-high school, late high school, and post-secondary college readiness and success indicators. In addition, these indicators have been conceptualized at an individual (student), setting (school, family, etc) and system levels (policy, economic status, curriculum, etc). Organizing the works of literature on college readiness assessment systems and interventions and presenting for readership and policy discussions in the Ethiopian context are some of the objectives of this study.

Although the students were given adequate time to prepare themselves for college during the former Ethiopian Socialist Regime, students were expected to prepare themselves for a field of their interest after they enter a university in the freshman year. In reality, students' academic status in freshman year determined the chance of selecting a field of their interest. Believing that college-level course-taking before college entry prepares students for college academic rigor and expectations, the former Ethiopian college introductory freshman courses were moved down to grades 11 and 12. Students who score adequate grades in their GSEE are eligible to be admitted to the two-year Prep school. Depending on the UEE score, eligible students for college access will directly choose and join their field of study or department immediately at their entry to a university. Similar to the previous system, students' academic readiness for college determines the students' future career success.

Students' environmental interaction level also highly affects students' level of college readiness. College readiness is not only an individual phenomenon; it is the product of the cumulative effect of the sum of an individual (the student) and environmental (schools, families, teachers, education policy, political, social and economic factors, etc). For instance, graduate unemployment affects college readiness and vice-versa.

In Ethiopia, comparative measurement of HE student learning for purpose of HE quality assessment is not yet practiced. In addition, students' college readiness level as related to the students' college performance for purpose of the HE quality assessment has not been researched in the Ethiopian context. A comparative analysis of the quality of student learning by UGs as measured by graduate CGPA, taking into account students' college readiness level was conducted in this study. This is believed to work as one aspect of quality assessment since HE quality assessment is multidimensional.

In Ethiopia, the Affirmative Action Policy in education has already been being implemented to enhance college access of disadvantaged groups, such as females, students with special needs, students from the remotest areas of the country. Article 3.7.7 of the Education and Training Policy (TGE, 1994) stated that due emphasis will be given to females and to community members who were in shortage of opportunities in education. As a result, the gender gap in college access has been decreasing following the rise of disadvantaged groups' participation in education in general and in groups' college enrolment in particular. The number of female students in HEIs has risen from 1,277 in 1994 to 2, 384 in 2,000 (MOE, 2015).

In addition, it is stated in No. 650/2009, section 3, article 39: 6 of the HEP that:

“The Ministry shall consult the public institutions concerning student placement so long as the current centralized placement of students in public institutions shall continue.”(p.5004)

The proclamation intended to communicate to the concerned that, although the placement is centralized, the Ministry makes appropriate communication regarding placement requirements, such as resource availability, and the capacity to host a number of students.

However, one issue that should get attention is the comparative analysis of the proportion of disadvantaged groups enrolled and graduated from a college compared to the others by fields of study. In the University World News newspaper released on 19 November 2017, Dr. Wondwosen Tamrat reported that “while significant improvements have been made in female student access rates in universities in Ethiopia, high attrition rates remain an ongoing challenge.” From 28 % of the first-year students dismissed, male students were 25.7% while female students 41.4% (Aemero and Kinde, 2011). This study confirmed that the largest percentage of the students dismissed is females. Aemero and Kinde also stated that MOE's

effort to increase college access has been jeopardized as many students are dismissed from their education. In other words, only lowering college entrance grades for these groups may not guarantee the college success of these groups unless the college readiness of these groups is enhanced and monitored before college entry using research-oriented early warning assessments, interventions, and special supports.

Also, the Affirmative Action model is not clearly defined in the HEP 2009 and the Ethiopian Curriculum Framework 2009. The internationally utilized Affirmative Action models that use scientific procedures may be advised to be utilized to ensure equity, meritocracy, and quality in high school to HE transition. This study also attempted to discuss the Affirmative Action models in the literature review.

In addition, the unpreparedness of students for a college education is also exacerbated by different factors such as SES. Earlier findings from studies on a national cohort of tenth graders illustrate profound differences in the pathways of students from low- and higher-income families and the central role of their high school experiences in preparing them for a range of postsecondary options (Oseguera, 2013). Family background heavily influences educational aspirations (Marjoribanks, 2005). In this study, the parents' education status and income levels were controlled.

Studies also confirmed that interest in the college major affects students' college success. Both the amount and direction of one's life accomplishments are largely determined by the factor of ability and interest. Studies ranked the major factors that were considered during college major choice as 1) interest in the subject, 2) prior academic performance, 3) guaranteed employment, 4) expected earnings in the field, and 4) a prestigious career. A major assumption in career intervention models is that people do better and are more satisfied in occupational environments that match their interests. These matching of interests and occupations serve as a cornerstone in major theories of occupational choice (Dawis & Lofquist, 1984; Holland, 1997).

In Ethiopian college admission, the college readiness level of students (UEE score) determines the students' freedom to choose the college major of their interest. In other words, the higher the students are ready for the college education, the more they will earn the freedom to choose their field of interest.

Academic self-confidence, sociocultural characteristics, ethnic/racial identity; beliefs, coping styles; pre-college academic experiences, college experiences; motivation and

commitment to learning; social interactions with supportive ones; perceptions of the campus climate/environment; and institutional characteristics are related to the academic success of students (Taggart & Nora, 2015). One of the most important predictors of students' gaining access to college, persistence toward educational goals, and attainment of bachelor's degree at a 4-year institution is the parents' educational level (Choy, 2001; Nunez & Cuccaro-Alamin, 1998).

In General, empirical studies analyzed the problems of college readiness from individual personal characteristics to student's environmental effects (microsystem, mesosystem, exosystem, and macrosystem to the far as chronosystem). It may be unreal to detach college readiness from these complex interactions of these systems. For this reason, this study attempts to observe the students' college readiness within these complex environmental interactions. Using mixed methods, this study triangulates the quantitative findings of the relationship between college readiness and success with the qualitative narrations of the students' college readiness lived experiences and their college readiness. The author believes that, in the Ethiopian college admission process, the students' voices are not heard as the admission process is nationally centralized. The field selection of students is also depended on resource availability in universities and college readiness status (UEE results) of students. The interest of the learners is not well addressed in college admission and placement. The situation of the country may not allow meeting every student's interest-major-congruence as MOE (2015) stated 'the intake capacity of educational disciplines and the number of those who want to take them are not commensurate. Some fields of study are highly chosen by applicants while the most important ones for the country are not often chosen at all. For this reason, the MOE will be forced to depend on the grades of applicants to place them in fields of study that are close to and related to their first-choice, but that is also not applicable.'

When it is observed in the global eyes, the probability of being placed to selective pathways is still determined by student abilities. The most recent mechanism being used is expanding supportive measures from early school years to all disadvantaged groups to maximize their potential to equally access HE with their advantaged groups. A recent inclusive approach is also realized through changes and adjustments in the curriculum and teaching-learning process.

1.3. Objectives of the Study

The **general objectives** of this study are to 1) Understand the contribution of college readiness level of students to assess institutional performance and placement by UG and

fields of study; 2) Discuss the significance and standard of college readiness curriculum in preparing students for college academic rigor and expectations; 3) Present, critically discuss and review the existing trends, curricula, theories, and practices in building college readiness as related to college success of students and make policy recommendations.

The **specific objectives** of this study are to:

- Determine to how much extent college readiness affects student college success by UG, fields of study, and gender;
- Assess how college readiness and success measures are related in the determination of the university admission cutting scores and HE quality assessment;
- Compare and contrast the Ethiopian college preparatory/readiness curriculum and assessment with another world for promoting college readiness;
- Study the college readiness experiences of graduates.

1.4. Research Questions

The research questions of this study are spelled out as follows:

- I. How college readiness affects college success by UG, fields of study, and gender when some college readiness factors are controlled as covariates?
- II. How HE quality assessment and university entry cutting scores are related to college readiness level and college success level of graduates?

In order to systematically answer the two research questions I and II listed above, the following null and alternative hypotheses were formulated:

H0a: The effect of college readiness on college success is not significant.

H1a: There is a significant effect of college readiness on college success.

H0b: The conditional effect of college readiness on college success does not significantly differ by UGs and departments.

H1b: The conditional effect of college readiness on college success significantly differs by UGs and departments.

H0c: The probability of college success at a value of college readiness does not significantly vary by UGs and departments.

H1c: The probability of college success at a value of college readiness significantly varies by UGs and departments.

H0d: A UG with the highest total conditional effect of college readiness on college success has no highest average probability of college success

H1d: A UG with the highest total conditional effect of college readiness on college success has also the highest average probability of college success.

- III. What are the similarities, differences, strengths and weaknesses of the Ethiopian college readiness curriculum and assessment compared to International Baccalaureate, Advanced Placement and Dual Enrollment?
- IV. How the graduates describe their experiences of college readiness?

1.5. Theoretical Framework

Introduction. This study used a combination of major theories discussed in college readiness studies. These are decision-making theory, ecological systems theory, input–environment–outcomes (I–E–O) theory, and role and socialization theory.

College admission and placement systems around the world used decision-making theory in the student selection and placement process through the general assumption that college readiness affects college success (Sawyer, 1996, van der Linden, 1996). Using college readiness measures and college success measures, this study adopted decision-making model to produce a comprehensive and comparative model. Although there are competing socio-cultural theories that can be used in the college readiness studies, Urie Bronfenbrenner’s theory is preferred in this study as the best one for the reason that 1) previous studies used ecological theory in multi-ethnic societies and races where relationships and broad ecologies are more compelling for success than multiculturalism; 2) sociocultural theories are more concerned with the impact of multiculturalism in academic success and less focused on the broader ecological effect; 3) The researcher believes that multiculturalism is a subset of ecology and Ethiopian’s college readiness and success problems lie in the depth of ecology than in the narrower multiculturalism. For the researcher, even though Ethiopia is a multicultural nation, cultures are overlapping in different aspects. How the ecological variables stated in Urie Bronfenbrenner’s ecological systems theory affected one another matter in the current Ethiopian Education (Arnold et al, 2013; Hines, 2014; Williams, 2016).

Have you ever seen a student with high University Entrance Examination (UEE) score who is unsuccessful at college because of not his efforts and ability but because of the institutional factors? There are some such students of the researcher’s acquaintance. Input-Environment-Outcomes model attempts to control the institutional variables that create negative impacts on student progress. The college readiness curricula described in this study attempt to build the college readiness of students by building college standard curriculum at

high school, and through exposing students to college environment. Also, this role of Ethiopian Prep curriculum as exposing students to college academic rigor and experience was observed.

According to role and socialization theory, through being exposed to college environment through dual enrollment and in other ways, students learn their roles as university students. Students learn how to behave, how to learn and how to be successful at college through socialization process they encounter during their exposure to college experience.

Generally, this study argues that student aptitudes correlate across the time as assumed by decision theorists if things go naturally. However, the ecological factors, the personal factors, the environmental factors and the social factors can distort this reality and the education system can wisely deal with these factors in order to attain maximum benefits (i.e, effect or convergence in the language this study). In multi-ethnic society like Ethiopia, the comprehensive college readiness system that considers these factors should guide the transition to higher education beyond the academic assessment results. Depending on this argument, this study attempted to use a combination of these theories to describe the Ethiopian college readiness model and to recommend a more comprehensive approach to recommend the country build college readiness of students.

Decision-making theory in education. According to the decision theory described by van der Linden (1996), test-based decision typology is based on the use of flowcharts to define different types of decision-making in Education. van der Linden stated that in each decision problem, three common elements can be identified: (a) the test that provides the information is based on, (b) the treatment with respect to which the decision is made, and (c) the criterion by which the success of the treatment is measured.

According to this theory, in order to arrive at a decision depending on the student performance, test scores (e.g., UEE score in this study), the treatment (e.g., the educational process of the universities to produce quality graduates in this study's case) and the criterion (e.g., the graduate CGPA of the students in this study's case) are empirically related. From this relationship, the effect of college readiness on college success can be empirically studied controlling for the covariates and the moderators. The assumption is that a group of students who are well equally prepared for college education performs equally well in their college learning at a value of the supportive role of the HEIs attended. According to decision theory,

the accuracy of the decision is gleaned from the relationship between the criteria on which the decision is made and the outcomes of the decision. Naturally, it is believed by the educational policymakers that students with high college readiness perform better at college at a value of the quality of service delivered in the HEIs.

Observation of the quantitative relationship between college readiness and college performance of the students is not sufficient. Factors that moderate this relationship can be studied qualitatively. Why groups of students who have achieved high in their UEE in average achieve low in their college GPA compared to their peers? Does this relate to the quality of teaching and learning conditions of the HEIs? Some factors which have significant associations with college readiness and success, such as interest-major-congruence, family income and educational status, students' technology use for academic purposes have been included in the analysis.

Decision theorists also argue for using a placement test score (or other variables) to identify academically unprepared students. The decision problem can be formally contextualized as follows. In the Ethiopian HE admission process, the selection committee selects a particular cutting score (d) from a set D of possible decisions. Then, after the student is admitted to a field of study, a particular outcome θ (e.g., the student graduation CGPA) occurs, from a set of possible outcomes Θ (e.g., a set of possible chances of achieving). A Bayesian utility function $u(d, \theta)$ assigns a value to the accuracy and desirability of the decision of the selection committees' cutting score when the outcome is the graduation CGPA θ . In a Bayesian decision theory model, this information is described by a subjective probability distribution on Θ ; the Θ quantifies the selection committees' beliefs about the probable values of θ , assumed that both prior beliefs and any relevant data previously collected. The Bayesian optimal model is to choose the decision d that approximates or maximizes the expected value of $u(d, \theta)$ with respect to the subjective probability distribution on Θ (Sawyer, 1996).

When we come to Ethiopia, the MOE uses some criteria to arrive at a decision about student selection, placement and admission. Although the decision model used in this situation is not stated in the policy document, one can interpret that the MOE seems to use a mix of both prescriptive and descriptive approaches. It seems prescriptive when it takes into account the best alternatives; for example, considering the importance of a field of study to the country, the capacity of university or study program and others. It seems descriptive when

it attempts to consider the practical situations of the country. Anyway, there ought to be a research-oriented decision model that guides the decision-makers on this big decision.

The second popular model for college readiness building, Astin's input–environment–outcomes (I–E–O) model, considers institutional characteristics and student characteristics on student development. Taking into account characteristics and qualities the students bring to university as inputs, and the experiences students develop when they are in college as environments, I-E-O model describes outcomes as the developmental endpoints that occur for students as a result of their experiences with the environment (Astin & Antonio, 2012; Mukhopadhyay & Tambyah, 2019). A fundamental purpose of the I–E–O model is to allow HE researchers to examine a less biased estimate of the effects of environments on an outcome after the researcher accounts for differences in characteristics students bring to college (Astin & Antonio, 2012; Pike et al, 2014). Therefore, studies assume that dual-enrolled students have prior exposure to curricula, teaching-learning experiences, communications with lecturers and college students, and the physical factors around the DE programs in college (Kim & Bragg, 2008; Pike & et al, 2014).

Also, the role and socialization theory has gained attraction in DE research as an explanation of how DE prepares students for college beyond academic preparation. According to role theory, individuals inhabit roles or positions within a social structure. These roles reflect patterns of behaviors and attitudes that provide actors a strategy to deal with recurrent sets of situations (Turner, 1990). Students gather information on the roles of the university community, such as faculty and peers during the interaction period. They use this information to predict the expectations others hold for them (Lile et al, 2017). These studies revealed that role-based identities become integrated into individuals' self-concepts, which helps college-goers shape their future actions and interactions with others.

Roles are dynamic, and they may change over time (An & Taylor, 2019; Turner, 1990). During their transition to HE, students' social structures change. Therefore, students will be in a position to adjust their cultural repertoires and how they behave and understand the university environment and teaching-learning circumstances. The problem is that this process is not immediate and it may require a trial period in which the students may need to adjust and conform to the normative expectations (An & Taylor, 2019). Studies state that DE program works as a socialization organization in which students get rid of their inappropriate understanding of the college environment and teaching-learning experience by providing students with a transition period in which they learn the normative rules and behaviors of

being a university student (An & Taylor, 2019). Also, DE allows students to develop skills and coping strategies, such as critical thinking and help-seeking that are important for college success (An & Taylor, 2019; Kanny, 2015).

Erie Bronfenbrenner's Ecological Theory and college readiness. Bronfenbrenner's ecological theory of human development is also known as the process-person-context-time (PPCT) model (Arnold et al, 2013; Bronfenbrenner & Morris, 2006). The field of college readiness needs to account for all of the components in this model: the role of student individual characteristics and personal agency; the characteristics of multiple, interacting levels of context; the effects of chronological and historical time; and, above all, the processes through which all these elements bring about change in students (Arnold et al, 2012, 2013).

Principles of development in ecological theory. Urie Bronfenbrenner's influential human ecology model meets the challenge of accounting for the complex picture of college access and success. This theory assumes that individuals and environments are inseparably interwoven. Development refers to change in individuals toward progressively more complex and adequate functioning in their environments (Arnold et al, 2012; Arthur et al, 2012). Student development consists of multiple and complex college readiness attributes, knowledge, and behaviors. *Proximal processes* represent the changes that occur as a result of these interactions. Proximal processes are defined as sophisticated and complex bi-directional interactions between an active and dynamic human organism, and the human beings, symbols, and objects in his/her own immediate environment (Arnold et al, 2013).

Firstly, individuals grow as a result of experiences in which they are challenged by encountering complexity. For example, responding attentively to another person. Objects and symbols are challenging when they are "of a kind that invites attention, exploration, manipulations, elaboration, and imagination" (Bronfenbrenner & Morris, 2006). The dysfunctional, chaotic, or overwhelming environments lack challenge or do not provide the experience of complexity. Environmental disorder and dysfunction are strongly and negatively related to negative personal outcomes (Wachs, 1992). Arnold et al (2012) also asserted that overwhelming challenge is a likely cause of problems in college readiness for students who face many barriers to academic achievement and college access.

Secondly, a person reciprocally produces his or her own development by acting on or by being acted on the environment. The type of response a student makes to his/her mentor

affects the behavior of the mentor. This is an especially important point in ecology theory—the “person” component of the PPCT equation. Individuals affect their contexts through ways in which they selectively choose arenas of participation, need degrees of challenge, and respond and interact with the persons and things. These individual differences in what Bronfenbrenner calls “developmentally instigative characteristics” are themselves formed as a result of environmental experiences. The occurrence of proximal processes shows a strength-based perspective: environments do not determine student outcomes because they are continuously evolving through the agency of the person that encounters them (Arnold et al, 2012; Arthur et al, 2012; Williams, 2016).

Thirdly, people develop only through experiences in their “immediate environment.” Proximal processes are direct experiences with people (such as parents, teachers, and friends) or objects (like computers or books), or symbols (like language or art). More distant levels of the environment must be filtered through the individual’s direct experience to constitute a proximal process. For example, students experience the effects of school accountability legislation only through interactions within their immediate environment, such as test-oriented classroom instruction or the experience of taking a standardized examination (Arnold et al, 2012; Williams, 2016).

Environmental contexts. The direct interaction that produces the proximal process is the interactive role of the developing person both in the immediate and remote environment. (Bronfenbrenner & Morris, 2006; Hines, 2014). The ecological model consists of five levels of the environment ranging from the most immediate to the most distant: microsystem, mesosystem, exosystem, macrosystem, and chronosystem.

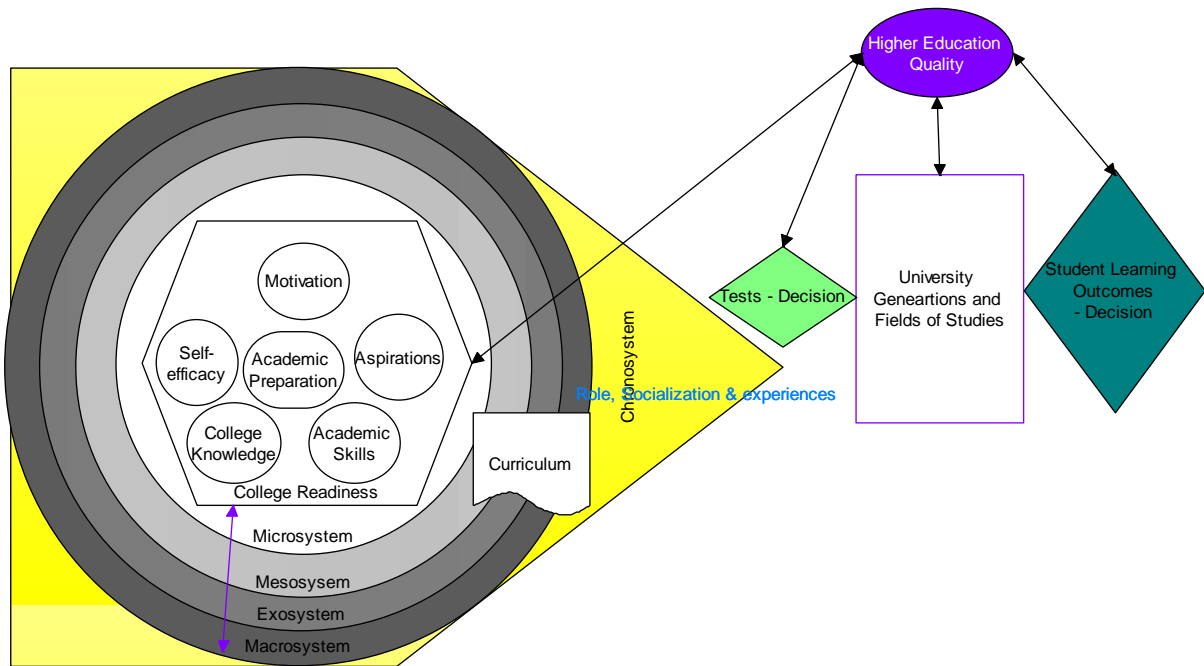


Figure 1: The Theoretical Framework

Conceptual Framework of the study. Conceptually, College readiness is viewed in different ways by many scholars. College readiness is the level of preparation a student needs in order to enroll and succeed - without remediation - in a credit-bearing general education course at a postsecondary institution (Conley, 2007; Arnold et al, 2012). Having both the mindset and the disposition necessary to able to succeed at college is defined as college readiness by these authors. College readiness is a criterion because we are matching performance on the predictor (test) with outcome data (college grades) and establishing some probability level (e.g., 67%, 50%) of a specific outcome, e.g., grade in Biology, First Year GPA (Camara, 2013). Students are college-ready when they have the knowledge, skills, and behaviors to complete a college course of study successfully (Tierney & Duncheon, 2015). These authors also take developmentally instigative characteristics that constitute college readiness—study skills, self-efficacy, aspirations, and academic preparedness—and explore how they synergistically influence individuals. College readiness can encompass a wide range of domains and contexts: curricular content, academic behaviors, cognitive strategies, and knowledge about the context of college itself (Tierney & Sablan, 2014). Generally, the concept of college readiness that is discussed in the literature is beyond student’s academic preparedness, and it includes student characteristics such as motivation, college knowledge, attitudes, academic discipline, and academic skills.

Conceptually, **College success** is viewed and researched in different measures of postsecondary success: 1) Persistence and continuous successful completion of courses resulting in a certificate or degree (e.g., persistence to the second year); 2) Graduation or completion of a degree or certification program; 3) Time to degree or completion of a certification program (e.g., 6-year graduation for a Bachelor's degree); 4) Placement into college credit courses; 5) Exemption from remediation courses; 6) Grades (and performance) in specific college courses (e.g., college algebra, freshman composition), or grades in specific subjects during freshman year (e.g., mathematics, English composition), and 7) GPA in college which can also be described as successful performance across a range of college courses (Camara, 2013). The postsecondary college readiness and success indicators are graduation from a college, CGPA, immediate and continuous enrollment, the placement to a selective institution, credits earned, First Year GPA, grades in entry-level credit-bearing courses, and course placement (Cromwell et.al, 2013). Conley (2005) stated that college success is the completion of a course; for certificate courses, and success is demonstrated by proficiency or eligibility for subsequent required levels of work.

Generally, the definition of college readiness is highly dependent on the contexts, time and place. College readiness in the Ethiopian context may have different meanings compared to the definitions given for college readiness in the USA or Germany. Also, college readiness before COVID 19 and after can have a different definition. Additionally, the culture, the value and the philosophy of life and education in society produce different college readiness expectations for society. For this reason, it is the mandate of an educational system to create a definition for college readiness. College readiness is a complex term that changes from time to time and from place to place. It constitutes both academic and psychological concepts.

In this study, **college readiness** is operationally defined as the students' level of academic preparation for college education as measured by UEE scores in Ethiopia. Although college readiness has been viewed in different ways by many scholars in the world, when it comes to the measurement of college readiness for purpose of observing its impact on college outcomes, high school grades are widely used. High school GPA, high school class rank, or standardized college entrance exam scores, such as the SAT, have been used to measure whether or not a student is college-ready (Tierney & Sablan, 2014; Wiley et al, 2011)

College success is also viewed and gauged in various ways in the world. In this study, college success is operationally defined as the extent to which students successfully complete their college study within the time planned by the institution for the study program to be

completed as measured by the students' graduation CGPA and student surveys. College readiness measure is the UEE score earned after completion of two-year Ethiopian Prep school whereas college success measure is defined in this study as graduation CGPA.

The Ethiopian **Prep curriculum** involves minimum coursework in core academic subjects (e.g., four years of English language and at least three years of math) that make students eligible for HE entrance (Venezia & Jaeger, 2013). In this study's context, the Prep curriculum refers to the coursework in the Ethiopian two-year Prep school (i.e., grades 11 and 12) academic subjects that are believed to make students prepared for Ethiopian HE.

A **college readiness assessment** is academically assessing high school students' eligibility for college entry (Venezia & Voloch, 2012). In the Ethiopian context, college readiness assessment is accomplished through UEE. In another world, college readiness is assessed in both standardized achievement tests, such as SAT and American College Test (ACT). On the other hand, college readiness can also be assessed through classroom course assessments and course grading in the case of Dual Enrollment (DE) programs, and through teachers' classroom continuous assessment parts of International Baccalaureate (IB) programs. Most recently college readiness assessments added other non-cognitive and non-academic aspects of assessments, assessment of student maturity level for a college learning environment through interviews and other tools.

Arnold et al (2012) operationally defined these elements of college readiness as follows:
Self-efficacy: Self-appraisal of academic capabilities that relate to the academic performance and affected by prior performance in coursework. Self-efficacy is closely related to self-evaluation of achievement potential (i.e., self-directive beliefs).

Motivation: An orientation toward engaging challenges, persevering, and overcoming obstacles that relates to academic performance and aspirations (i.e., structuring proclivities or predispositions).

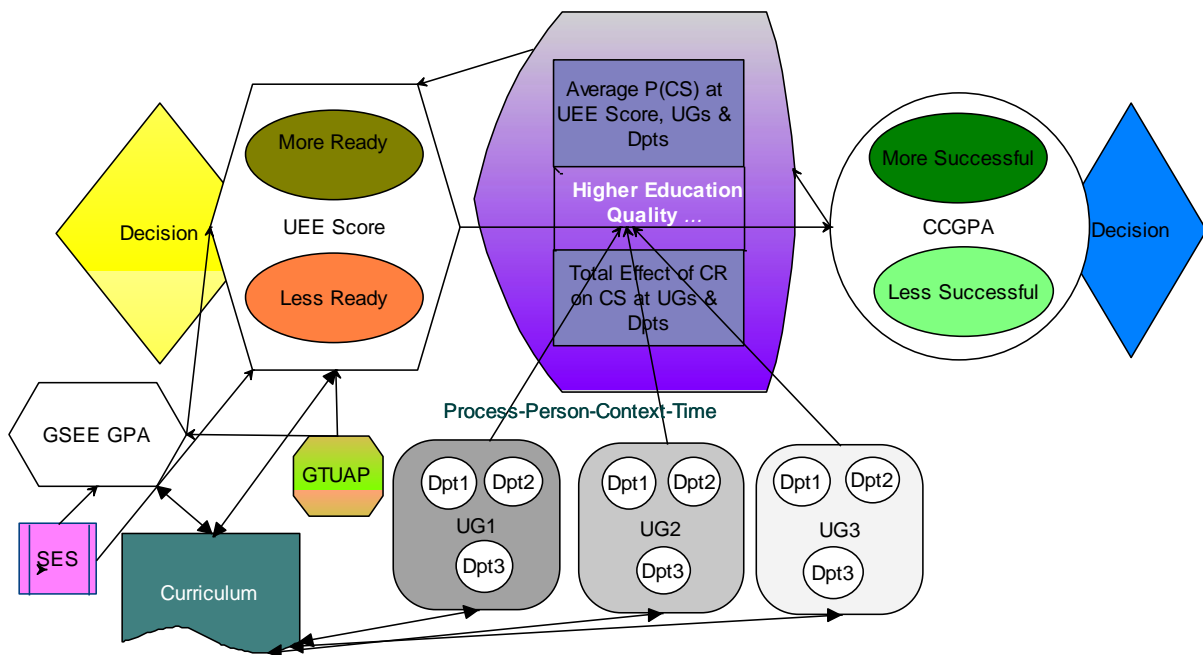
Academic skills and discipline: Academic skills and discipline influence performance and encompass related skills, such as time management and intentional reading (i.e., selective responsiveness).

Aspiration: A desire to attend college that influences academic performance.

College knowledge: Knowing conventions required to being eligible to enter college and any means that help to succeed in college access that promotes the chance of enrollment in college.

Academic preparation: Academic preparation includes proficiency in: a) *subject matter knowledge*: English language arts, writing, math, sciences, and social sciences; b) *cognitive skills*: problem formulation, research, interpretation, communication of well-reasoned arguments, precision, and accuracy, and c) *general academic skills*: reading and writing a variety of texts and styles, and study skills (Conley, 2006, 2012).

Therefore, the conceptual framework of this study will be framed as follows:



Note: $P(\text{CS})$ = Probability of *College Success*; CR = *College Readiness*

Dpt = department, UG, UEE Score, and GSEE GPA are previously defined.

CCGPA= College CGPA

SES = Socio-Economic Status

GTUAP = Graduates' Technology Use for Academic Purposes

Figure 2: The Conceptual Framework of the Study

1.6. The Significance of the Study

This study contributes significant directions and policy recommendations on the relevance of college readiness for college and career success. The study also elaborated the basis of quality assessment of HE as preparing the skillful, knowledgeable and attitudinally matured graduates as related to accepting and training the academically and psychologically prepared students for college education. This study presented its argument, depending on the empirical shreds of evidence over the world, that the basis for the quality of students'

learning in HE is rooted in the early readiness of the students. The study also reviewed different college readiness theories, and indicators, as well as the practical trends and partnerships in building college readiness beyond the traditional school teaching-learning approach, and presented to the policy recommendations in Ethiopia. It contributes a share in filling the current gap in building college readiness.

The study also pays a significant contribution to college readiness curriculum development and implementation. Using comparative analysis, the study has elaborated the characteristics of the contemporary college readiness curriculum in terms of building college readiness. In the literature review, the study also elaborated some important issues that should be addressed by contemporary college readiness policymakers in enhancing successful high school to HE transition of the students. These are admission issues, the issues in balancing meritocracy, equity and quality to maintain a holistic success in college readiness building.

Another implication of this study is its contribution to the placement and selection mechanisms of students for HE. The new thing in this issue is that the admission and placement to HEIs should consider the comparative efficiency of the HEIs in making their graduates employable. In other words, the study demonstrated how the probability of college success has to be taken into consideration in determining cutting scores for college entry.

1.7. Delimitation

The study is delimited to the Ethiopian public HEIs (i.e. first, second and third-generation universities) for the reason of financial and time constraints. In addition to time and financial constraints, another reason that caused the exclusion of 4th generation universities from this study is the fact that this study was conducted on the graduating year students and some of 4th generation universities did not reach their students to graduation year. The population of the study was delimited to undergraduate regular graduating students and the MOE officers. The quantitative variables of the study were also delimited to college readiness (independent variable) that is measured by UEE score; the GSEE, the interest-major-congruence, SES, and GTUAP (covariates); the UG, and the Department (moderators) and the college success (dependent variable) that is measured by college CGPA.

In the qualitative part of the study, the components of college readiness, such as self-efficacy, motivation, academic skills and discipline, aspirations and college knowledge were discussed. Some variables that promote the successful college readiness and high school to

HE transition, such as admission issues, the theories and practices in building college readiness were discussed in the literary qualitative analysis.

1.8. Limitation of the Study

The study can have limitations for some reasons. For reasons of time and financial constraints, the sample of the study was only limited to 551 graduate students. Although the sample size is large enough for generalization, stronger findings are expected if the sample size is larger than the sample size of this study. Also, extraneous factors, other than the main factors and covariates included in the design of this study, can affect the relationship between college readiness and success. Although some non-cognitive factors that create the nature of college readiness of students were tried to be studied qualitatively, the shortage of time and finance to construct the standardized instruments to collect data regarding these variables creates a limitation.

Chapter Two: Literature Review

2.1. Curricula, Assessments, and Indicators for College Readiness

The programs for college readiness were discussed in this section under the sub-sections entitled college readiness curriculum and college readiness assessment. The college readiness and college success indicators were also discussed. Also, scholarly criticisms and supports are presented.

2.1.1. Curriculum and Assessment of College Readiness

Attention to college readiness has sparked reforms to smooth students' transitions from high school to postsecondary education (Cline et al, 2007; Domina & Ruzek, 2013). College readiness policies broadly defined assume many forms. For example, Hoxby et al (2009) defined as expanding charter schools, while Hoffman & Vargas (2010) described it as developing early college high schools. Also, hiring experienced teachers, and building continuous or longitudinal data tracking systems (Adelman, 2010; Howell, 2011). Among many policies, the policies that explicitly address college readiness in public high schools and are mainly aimed at preparing the majority of underserved students for HE are the *college for all curriculum* and *college readiness assessment* (Tierney and Duncheon, 2015).

The **college readiness curriculum** is included in the college readiness policy approach implying that all high school students should graduate prepared to pursue postsecondary degrees (Carnevale, 2008; Osterman, 2008). This goal emphasizes the need to expose all students to a college preparatory curriculum (Hoffman et al, 2007).

A college readiness curriculum includes minimum coursework in core academic subjects, for example, four years of English language and three years of mathematics that make students eligible for HE entrance (Venezia & Jaeger, 2013). Traditionally, underrepresented students have been less likely than their higher-income counterparts to be ushered into the college readiness or preparatory track, and they are more likely to be steered into vocational courses (McDonough, 1997; Oakes, 2005).

Recently, policymakers have aimed to challenge this trend and interested in increasing college-going by implementing stricter curricular requirements and reforms (Venezia & Jaeger, 2013). These reforms aimed at ensuring that all high school graduates meet the course-taking requirements for entrance into HEIs. These policies are motivated by research showing that schools in which all students take college preparatory coursework have higher

achievement outcomes and more equitable learning opportunities for low-income students (Lee et al, 1997).

The *programs*, such as AP and DE expose high school students to college-level academic rigor and the opportunity to earn college credits (Struhl & Vargas, 2012). DE courses use a college syllabus, confer college credits to students who pass the class and may be given on a postsecondary campus (Speroni, 2011). AP courses have a standardized curriculum planned to be college-level, and students can earn college credits if they pass the optional exam at the end of the year. Studies comparing the outcomes of AP and DE course-takers to non-course-takers reveal that participation in college-level classes increases the probability that students will enroll and achieve college success (Iatarola et al, 2011). Policymakers have encouraged schools to offer these courses to a broader population of students (Ward & Vargas, 2012). Generally, the ‘college for all’ reforms encompass requiring a college preparatory curriculum for all students and expanding access to accelerated learning programs.

‘College readiness assessment’ is another college readiness initiative that is focused on assessing high school students’ proficiency prior to college matriculation (Venezia & Voloch, 2012). These initiatives reflect the concern that many students do not know they are not ready until they enter college and are placed into remediation (Knudson et al, 2008). The assumption is that if students learn they are not ready earlier, they can try to improve their preparation before completing high school. This reduces their need for remediation at the college. Assessment initiatives often involve interventions for students who stagger academically. The Early Assessment Program is an example of an early college readiness assessment.

Implications for Ethiopian college readiness policies. When we closely observe the current Ethiopian curricular reform efforts to enhance the college readiness of students, preparatory education matches the “college readiness curriculum” policy that has been discussed in the literature. Despite the fact that this curricular approach to preparing the students for college has been applied in Ethiopia since decades ago, some studies have reported controversial findings on the preparatory curriculum’s rigor in preparing ready students for college compared to the former Socialist system. For example, Regassa (2005) compared the reading ability of the former freshman students and preparatory complete students and found that former freshman students outperformed preparatory complete students in reading comprehension. Demewoz, Mehadi and Prof. Tesfaye (2005) also

conducted a comparative study on the Preparatory Program Complete (PPC) and Freshman Program Complete (FPC) students on their self-efficacy and academic achievement and reported that FPC and PPC students differed to a statistically significant extent in academic self-concept and academic achievement in favor of the former. While, on other hand, most of the studies associated the entrance exam scores with the first-year GPA of students supported the predictive validity of entrance exam scores (Alamiraw, 2006; Olani, 2007; Bekele, 2013; Gelane, 2014; Yosef, 2014; Zebdewos et al, 2015), Kebede (1991) stated that neither ESLCE GPA nor ESLCE Maths results significantly contributed in predicting college performance; however, the ESLCE English language test result produced significant correlations with GPA of the students. Another study found less contribution of UEE scores than high school average transcript in predicting first-year college GPA (Silabat, 2017). Studies concerning the standard of preparatory curriculum, the quality of teachers and teaching-learning process and the fulfillment of resources should have been widely conducted.

Regarding the college readiness assessment program of Ethiopia, except the national grade 8, grade 10 and the UEE, there is the absence of nationally organized assessment interventions aimed at improving and monitoring the college readiness of students. Nationally organized assessment programs that opt to remedy students' English language and maths problems from early years of education are absent. The classroom teacher assessments alone are not sufficient to awaken the students from their early school years academically and psychologically for the future.

Additionally, there is an absence of studies on the content validity of GSEE and UEE, and this may be another gap. The fact that the format of both of these examinations is objective can raise another question on the depth and validity of the assessments. Also, the researcher has learned from the observations that these objective national assessments are exposed to cheating. For these reasons, it is always predictable for Ethiopian national test-takers that the examinations can be cheated in some ways.

In general, studies view college readiness as a developmental issue and the result of lifelong effort. They also argue that college readiness is affected by multiple factors such as individual factors, setting factors, system factors and they view it as the cumulative result of the effective interaction of these factors. This means that students may not be blamed for their academic failures if the setting, the policy and other factors are not working to enhance their college readiness. On the other hand, individual factors such as low motivation and academic self-efficacy, poor study skills may contribute to students' poor college readiness. The

argument in studies is that these personal and environmental problems can be resolved if they are intervened early in students' school life.

2.1.2. CR and CS Indicators

The college readiness and college success indicators have been observed in different forms by different scholars. Some scholars specify the indicators to the students' cognitive and non-cognitive preparation and performance levels whereas other scholars observe the indicators of college readiness of students within the context of the students: setting and system contexts.

CR indicators. Until today, standardized test scores often constitute the yardstick for readiness. However, new ideas have recently emerged on the skills and competencies that students require to gain entry to and succeed in college. The share of non-cognitive skills in predicting college success is also reported by studies. These factors include contextual awareness and process-oriented knowledge, such as how to choose among colleges, how to apply to college and for financial aid, and more sophisticated insights into how college is different from high school (Lewin & Sheff, 2015).

Numerous studies reported the research on college readiness systems. These studies listed indicators of being on track for college at the individual level while some studies go beyond the individual including the issues that signal, support and affect students' college readiness, such as course availability, college-going culture, and academic resources that operate at setting and system levels. Indicators at these two levels include schools, districts, and states and provide the information educators need to inform responses to readiness indicators at the individual level (Balfanz & Byrnes, 2019; Borsato et al, 2013; Mishook, 2013).

Studies also argued that individual-level college readiness indicators shifted from focusing on merely completing high school education to assuring readiness for college academically, attitudinally, and being knowledgeable about how HE works. One of the individual-level college readiness indicators is 'academic preparedness'. In addition to academic preparedness, Borsato et al (2013) and Mishook (2013) mentioned academic tenacity and college knowledge to individual level college readiness indicators. Academic tenacity was defined as the beliefs, attitudes, values and behaviors that drive students to embrace and engage with the challenging work, and to pursue academic achievement. To acknowledge the role of context in college readiness, these researchers synthesized their

research into a tri-level indicator system. Within their categories of academic preparedness, academic tenacity, and college knowledge, they discussed indicators and related supports at the individual, setting, and system levels. The indicators they listed at the individual level include students' progress towards college readiness, such as study skills, courses and credits, persistence, perseverance, goal-setting and expectations for the future, and college knowledge. According to these authors, setting-level indicators highlight actionable measures around the resources and opportunities for students provided by a program, classroom, or school. For example, the presence of a college-focused culture, the coherence and rigor of instruction as well as supports for teachers, for example, professional development that aims at developing college knowledge and assistance with data use. The third level, system-level indicators, include the policy and funding infrastructure that impacts school resources, student programs, and college readiness supports the professional development district level regarding college readiness and resources to support data use.

Other researchers categorized college readiness measures into three categories: assessment scores, for example, SAT scores, transcript attributes, and attendance. These authors recommended knowledge of these indicators as helpful to administrators, educators, and students working to determine whether students are progressing toward succeeding in their postsecondary aspirations (Cromwell et al, 2013).

Standardized Test Score College Readiness Indicators, such as SAT, and ACT share the largest role in college admission. Organizations publish college-ready benchmark scores and validation studies to show the relationship between test performance and college success outcomes (Lewin & Sheff, 2015).

Meeting the benchmark score on the SAT has been linked to four-year college enrollment, higher First Year GPAs, and stronger retention rates. Students who meet ACT's college-ready benchmarks are more likely to earn grades of B or higher in their first-year courses, achieve a First-Year GPA of 3.0 or higher, continue into their second year, and complete their degree than students who do not meet those college-ready benchmarks (Cromwell et al, 2013).

In addition to using assessment scores as one of the important predictors of college readiness, researchers have also studied a number of courses listed in student transcripts to get a more in-depth view of student achievement in relation to HE outcomes. Generally, students who complete a core curriculum, mathematics courses beyond Algebra II, and

rigorous courses (e.g., AP, Honors, DE) tend to be more successful in college than students who do not complete (Cromwell et al, 2013). Other transcript indicators that predict college success are student's High School GPA. High school GPAs have been strongly correlated with other high school achievements, such as AP exam scores, SAT scores, and ACT scores, and related to many postsecondary outcomes, including First Year GPA, credits earned, retention, second-year grades, cumulative college GPA, and eventual graduation (Cromwell et al, 2013).

In the former Socialist regime of Ethiopia, the only national examination that students took to be screened for HE was the ESLCE. This examination consisted of seven subject tests for both social science and natural science streams. In the current system, the UEE includes seven subject tests for both of the streams. GSEE is also another national examination administered to grade 10 students. This test screens students who can continue to their Prep school. Those students who fail to be eligible join the technical and vocational education college and teachers training college. In the current system, for purpose of producing middle-level manpower, Ethiopia allowed the administration of the national certificate exam at grade 10. Generally, in the Ethiopian context, there is a shortage of empirical studies on the level of rigor of these transcripts (grade 10, and 12 total subjects covered by students). This means that studies that empirically demonstrate the rigor and content validity of these transcripts as preparing students for postsecondary education are absent. The existing studies, as it is mentioned in chapter one, mainly focused on associating test scores of these tests to university first-year grades of students.

Also, some skills and behaviors that correlate with college readiness measures are there, although academic preparedness is crucial to students' final success in college. These skills and behaviors can often be identified early, and these indicators include attendance, academic motivation, academic discipline, school conduct, and contextual knowledge (Conley, 2007; Adelman, 1999). Academic discipline (the planning, effort, and organization with which students do their work) has been correlated with eighth-grade course completion, ninth grade GPA, and High School GPA. Problems about disciplinary conduct in middle school are associated with decreased eighth-grade course completion, ninth-grade GPA, and high school graduation rates (Styron & Nyman, 2008). To adequately prepare for and apply to college, students also need to have contextual knowledge (Conley, 2007). Generally, the studies give their own credits to the validity of each of college readiness and success indicators.

Practically, although there are critics on their validity, SAT and ACT scores are widely used as college readiness indicators.

College success indicators. Studies viewed postsecondary college success indicators in many aspects. The first college success indicator the studies mentioned is degree completion. In addition to degree completion or graduation, the other college success indicators that dominated the literature are cumulative GPA, assignment to remediation, transfer from a two-year to a four-year university study, amount of credits earned, First Year GPA, grades in credit-bearing courses, and course placement.

In the Ethiopian context, the major college success indicator used in job selection is graduation CGPA. Beyond college CGPA, some organizations have already started to use their own mechanisms to select competent employees. These organizations administer competency exams on job-specific knowledge, skills and attitudes. They also conduct interviews to assess the employees' readiness for the job along with other competencies. The trend in the world to solve the college readiness and success concerns consisted of working with students from the early years. For example, conducting early warning system and support interventions have dominated the systems. These interventions work cooperating with families, schools, governmental and non-governmental organizations, providing professional development training for teachers, and resource fulfillment. Curricular interventions, especially in secondary schools such as DE, AP and IB, are measures taken. Assessment systems are also the measures taken to awaken the students from their early years. The use of the criterion-referenced assessment approach in the UEE is the strong side of the current HE preparatory assessment. With a criterion-referenced test, the test items can be conceived as a sample from a domain of tasks covering a well-defined objective or competency, and the concern is ordinarily with the examinee's domain score. Domain score is the proportion of successes to be expected when an examinee is administered the entire domain; formally, it is known as the relative generic true score (Lord & et al, 2008)

In summary, in addition to standardized test scores that are administered to earlier grade students that vary by region and country, researchers listed course rigor, course grades/GPA, attendance, behavior and motivation as earlier indicators. Late high school indicators the scholars listed are SAT and ACT scores, AP exam scores, core curriculum, course rigor, course grades/GPA, behavior, motivation and contextual knowledge. In addition, the researchers also discussed graduation, cumulative GPA, assignment to remediation, transfer

from a two-year to a four-year university, credits earned, First Year GPA, and course placement as college success indicators.

As college readiness and success indicators, each indicator can have its own problems. For example, the number of courses listed on a transcript may not guarantee that the student is ready or successful unless the individual has rigorously mastered the courses. The content validity, the format, the type, and the security of their administration processes can limit their credibility as indicators of college readiness and success. For this reason, the indicators may work best when they are used together. For instance, the continuous assessment results and summative assessment results can be used together in college readiness assessments. In order to assess how a candidate has mastered the courses listed in the transcript, some employers administer competency assessment tests and interviews.

2.2. Theories and Practices in Building College Readiness

Models of decision making. This study considered test-based decision-making quality in college readiness and success assessment as a major factor that affects the validity of direct HE quality assessment. For this reason, the researcher attempted to make a review of the major decision-making models in this section. This is to show the role of decision-making science in enhancing efficiency through student learning management and thereby contributing a significant indirect contribution to HE quality management.

In the decision-making process, the decision-maker chooses a course of action or inaction in which an outcome can be an expected behavior or not (McFall, 2015). The literature on decision-making discussed three major decision-making models: normative, prescriptive, and descriptive (Elqayam and Evans, 2011; Kowalski, 2008; McFall, 2015).

Normative decision-making depends on logic and reason and emphasizes the rationality of the decision-making process. In order to verify the norm and rationality of the decision-making process, normative decision-making science created a linear mathematical process that empirically relates alternatives and consequences. Therefore, the main objective of normative decision-making is choosing the best alternative or a group of alternatives that end in the highest expected utility. A normative decision-maker deals with or is challenged by 1) his/her background information about the problem, 2) what others do, and 3) by features or states of nature in the decision-making process (McFall, 2015; van der Linden, 1991).

Although the normative decision-making model is the most widely applied one, it faced criticisms because 1) people unpredictably behave and the rationality and the logical formula

does not capture the reality of human behavior, 2) normative decision-making theories exclude cognitive characteristics of human beings such as, anxiety, charity, envy, and others, 3) there are so many extraneous variables that highly distort the logical expected relationship between the alternatives and consequences (Elqayam and Evans, 2011; McFall, 2015; Raiffa, 1994). Generally, the normative decision-making model is highly criticized for its low ecological validity.

The weaknesses of classical normative models caused the birth of bounded rationality in the second half of 20th C (McFall, 2015; March, 1978; Wang, 1996). Let's elaborate on the difference between the normative model's expected utility assumption and the bounded rationality theory of the descriptive model. These studies stated that the normative model conducts an endless and exhaustive search for an alternative or a group of alternatives that ends in a *maximum* expected utility. However, the supporters of bounded rationality stated that this is fruitless and its benefit is low. Also, classical models depend on logic and norm rather than criteria. These proponents of bounded rationality, however, argue that norms and logic do not bring about satisfactory ends, but the criteria do. For this reason, they conduct a sequential search for a satisfactory criterion or standard that brings about *satisfaction*. In this study's context, we can raise examples. The contemporary college readiness policymakers tend to favor the descriptive approach; they work on selecting and incorporating the best competency-based standards in the curriculum and teaching-learning process before trusting the quantitative college readiness measures through sole predictions of college success.

Baron (2004) stated that, naturally, most of the problems in the world are more descriptive rather than normative; the decisions on them need descriptive procedure than normative procedure. He also stated that descriptive models deal with both actual behavior and reflective judgment. The descriptive decision-making model emphasizes heuristics and ethics in the contexts of the decision-making process rather than the algorithm and the norm. Although the bounded rationality surpasses the expected utility model in practicality and importance across disciplines, the expected utility models are better in precision and parsimony or simplicity (McFall, 2015)

On the other hand, Raiffa (1994) and Baron (2004) pointed out that the prescriptive model especially considers the cognitive characteristics of the individuals. Raiffa argued that normative models should modify themselves in a more applicable manner for human behavior. Baron (2004) also asserted that prescriptive models provide the applicable decision-making procedure for individuals integrating the strong sides of normative and descriptive

models. These studies describe the prescriptive model as a hybrid of normative and descriptive decision-making models. For instance, the behavioral model highly emphasizes describing behavior as related to consequences and uses mathematical linear procedures. For its descriptive approach towards a behavior (McFall, 2015) and, for the fact that it applies the principle of bounded rationality (Kowalski, 2008) in the decision-making process, it resembles the descriptive decision-making model while, on the other hand, for its use of mathematical linear procedure (Kowalski, 2008), it resembles the classical decision-making model.

Concerned with the dispersed roles in the body of decision-making models, McFall (2015) stated that the previous decision-making models produced proliferative rather than ameliorative processes for decision-making science, and he argued for the development of a metatheory that integrates the merits of all decision-making models for practice. Also, recent studies by Arnold (2018) and Turner and Angulo (2018) integrated classical and contemporary decision-making models and offered a heuristic for analyzing both internal and external pressures in HE. Also, the mechanisms by which schools and HEIs store and use data for decision-making research help them to make rational and effective decision-making in the selection, admission, and placement (Al-Twijri and Noamanb, 2015; Martín-García, Martínez-Abad and Reyes-González, 2019). In general, the contemporary decision-making models in selection and placement take a pragmatic approach.

When we come to Ethiopia, the MOE uses some criteria to arrive at a decision about student selection, placement and admission. Although the decision model used in this situation is not stated in the policy document, one can interpret that the MOE seems to use a mix of both prescriptive and descriptive approaches. It seems prescriptive when it takes into account the best alternatives; for example, considering the importance of a field of study to the country, the capacity of university or study program and others. It seems descriptive when it attempts to consider the practical situations of the country. Anyway, there ought to be a research-oriented decision model that guides the decision-makers on this big decision.

Researchers, policymakers, and educational practitioners have addressed the movement from high school to college using some terms, including *college choice*, *college transition*, *college access*, *college success*, and *college preparation*. However, the emphasis on college preparation over the past decades has given way to the more general term *college readiness*. College readiness is defined as a student's capacity to enroll at a HEI, take credit-bearing classes beginning in the first year, earn passing grades in courses, and persist to his or her

educational goals. College readiness is a broad term that refers to the multidimensional set of skills, traits, habits, and knowledge that students need to develop to enter college with the capacity to succeed once they are enrolled (Arnold et al, 2012; Camara, 2013; Conley, 2005).

In Ethiopia, the term college readiness is generally viewed as preparation for university/HE entry. HE has been defined in HEP No. 650/2009 article 2.8 as: “*higher education*” means education in the arts and sciences offered to undergraduates and graduate students who attend degree programmes through any of the delivery modes stated under Article 19 of this Proclamation;”(p.4977). Defining HE in this way, the proclamation stated in article 39.1: “*Admissions to undergraduate programs of any institution shall be based on completion of the preparatory program and obtaining the necessary pass marks in the UEE.*”(p.5003).

In Ethiopia, the college readiness level of students generally depends on the student efforts and aspirations, the quality of instructional delivery at school, socioeconomic status, gender, etc. In order to address the equity issues in HE access of citizens, the MOE has taken some measures, such as lowering entry cutting grades for females, students with special needs and students from developing regions. The contemporary practices applied to promote college readiness of disadvantaged groups are, however, establishing research-oriented early warning, assessment, and support systems that intervene into the readiness problems of students from early grades (Bernbaum et al, 2011; Grigal et al, 2018). These interventions try to make these students prepare early (i.e. score similar university entrance scores to their peers; acquire adequate knowledge and psychological preparations early).

College readiness programs are a major emphasis of research, policy, and practice. These programs opted to maintain social equality throughout kindergarten up to grade 12 (K–12) and HE and to enable economically and educationally staggering students to enter college and persist to a college degree. These readiness programs are offered by the government, schools, nonprofit and educational organizations (Swail, 2000).

The broader literature on readiness shows that the knowledge base on school- and community-based readiness programs is incomplete and fragmented. Even relatively rare instances of rigorous program evaluations have resulted in controversial findings on whether and how programs can help students to access HE (Arnold et al, 2012). Scholars found that the job of assessing and judging the college readiness of students has been difficult. Even meeting eligibility requirements and being accepted into a college or university may not

warrant students are college-ready (Haycock, 2010; Shulock, 2010). For this reason, college readiness needs early preparation of students from earlier grades academically and psychologically. The current college readiness is beyond achieving the highest college entrance examination. The highest entrance scores may show eligibility for college entry; however, the current holistic college readiness concept is beyond academic performance. Studies also found that the issue of college readiness is something that should be addressed from the broad social and cultural, national, ideological contexts of the individual students. Within demographic groups, individuals vary in their personal qualities and experiences. In other words, individual students respond differently to the same environmental contexts. Importantly, individuals have at least some degree of influence in choosing and shaping their environments. College readiness has to do with all of these simultaneously interacting forces of ideology, social and organizational structure and time (Bronfenbrenner & Morris, 2006).

Erie Bronfenbrenner's Ecological Theory and college readiness. Bronfenbrenner's ecological theory of human development is also known as the process-person-context-time (PPCT) model (Arnold et al, 2013; Bronfenbrenner & Morris, 2006). The field of college readiness needs to account for all of the components in this model: the role of student individual characteristics and personal agency; the characteristics of multiple, interacting levels of context; the effects of chronological and historical time; and, above all, the processes through which all these elements bring about change in students (Arnold et al, 2012, 2013).

Principles of development in ecological theory. Urie Bronfenbrenner's influential human ecology model meets the challenge of accounting for the complex picture of college access and success. This theory assumes that individuals and environments are inseparably interwoven. Development refers to change in individuals toward progressively more complex and adequate functioning in their environments (Arnold et al, 2012; Arthur et al, 2012). Student development consists of multiple and complex college readiness attributes, knowledge, and behaviors. *Proximal processes* represent the changes that occur as a result of these interactions. Proximal processes are defined as sophisticated and complex bi-directional interactions between an active and dynamic human organism, and the human beings, symbols, and objects in his/her own immediate environment (Arnold et al, 2013).

Firstly, individuals grow as a result of experiences in which they are challenged by encountering complexity. For example, responding attentively to another person. Objects and

symbols are challenging when they are “of a kind that invites attention, exploration, manipulations, elaboration, and imagination” (Bronfenbrenner & Morris, 2006). The dysfunctional, chaotic, or overwhelming environments lack challenge or do not provide the experience of complexity. Environmental disorder and dysfunction are strongly and negatively related to negative personal outcomes (Wachs, 1992). Arnold et al (2012) also asserted that overwhelming challenge is a likely cause of problems in college readiness for students who face many barriers to academic achievement and college access.

Secondly, a person reciprocally produces his or her own development by acting on or by being acted on the environment. The type of response a student makes to his/her mentor affects the behavior of the mentor. This is an especially important point in ecology theory—the “person” component of the PPCT equation. Individuals affect their contexts through ways in which they selectively choose arenas of participation, need degrees of challenge, and respond and interact with the persons and things. These individual differences in what Bronfenbrenner calls “developmentally instigative characteristics” are themselves formed as a result of environmental experiences. The occurrence of proximal processes shows a strength-based perspective: environments do not determine student outcomes because they are continuously evolving through the agency of the person that encounters them (Arnold et al, 2012; Arthur et al, 2012; Williams, 2016).

Thirdly, people develop only through experiences in their “immediate environment.” Proximal processes are direct experiences with people (such as parents, teachers, and friends) or objects (like computers or books), or symbols (like language or art). More distant levels of the environment must be filtered through the individual’s direct experience to constitute a proximal process. For example, students experience the effects of school accountability legislation only through interactions within their immediate environment, such as test-oriented classroom instruction or the experience of taking a standardized examination (Arnold et al, 2012; Williams, 2016).

Environmental contexts. The direct interaction that produces the proximal process is the interactive role of the developing person both in the immediate and remote environment. (Bronfenbrenner & Morris, 2006; Hines, 2014). The ecological model consists of five levels of the environment ranging from the most immediate to the most distant: microsystem, mesosystem, exosystem, macrosystem, and chronosystem.

The *microsystem* consists of the immediate social and physical environment, including the people, places, objects, symbols, and activities that an individual experiences directly. It is the life-world of everyday affairs, where people attend to the business of living (Hines, 2014; Williams, 2016). Microsystems for students are school, family, and neighborhood. An unread book, an unimplemented policy, an unconsulted guidance and counselor and not directly encountered HE lie outside this layer. Changes in student college readiness, according to this view, can take place only in the “life-world of everyday affairs” (Arnold et al, 2012). Microsystem is a phase of the ecosystem where all actual experiences take place and all levels of the environmental influence are filtered through. *Proximal processes* are essentially patterns of person-environment interactions in the *microsystem* (Bronfenbrenner & Morris, 2006; Emmanuel et al, 2021).

Student development occurs through direct experience in immediate settings, but each individual experiences many settings, activities, and roles (Arnold et al, 2012; Emmanuel et al, 2021). *Mesosystem* interactions are connections across microsystems. This is the network of overlapping relationships, messages, objects, and symbols in a person’s everyday world. The mesosystem is a crucial layer of the environment for college readiness because the totality of students’ experiences determines their educational dispositions and behaviors. The relative importance of any particular microsystem varies within the mesosystem (Arnold et al, 2012; Emmanuel et al, 2021). A student’s investment of time working at a paid job, caring for siblings, or viewing social networking sites, for example, means less time available for study (Arnold et al, 2012; Perna, 2010). Another important point in a mesosystem analysis is the way in which relationships and messages carry across different microsystems. Families vary in the degree to which they transmit teachers’ messages about academic achievement behaviors. Cultural knowledge might be reinforced or contradicted in school settings (Coddett & Orr, 2020; Villalpando & Solorzano, 2005). One microsystem can change another, e.g., some parenting practices predispose children to choose particular peer groups (Kolluri & Tierney, 2020) or teachers invite students into special programs. In theory, the most influential mesosystems are those that invite increasing complexity in microsystems and offer a high degree of overlap and congruence across the many facets of a student’s life. This proposition suggests that the lack of success in college readiness might result from inconsistent and contradictory membership and messages in a student’s everyday arenas (Arnold et al, 2012; Kitchen, et al, 2019).

The *exosystem* is the level of the environment in which individuals are not physically present but where events that occur indirectly affect processes in their immediate settings (Bronfenbrenner and Morris, 2006). For example, students are rarely in direct contact with their family members' workplaces, but their immediate experience is affected by the schedule, pay, distance, and work conditions of their parents' jobs. The parenting practices in the families of students' friends create an example of another exosystem factor that has been found to affect adolescents' academic achievement (Kolluri & Tierney, 2020). The worlds of HEIs and related policy organizations and decision-makers are similarly farther from a student's personal experience yet instrumental in shaping it. Many studies and policy work in HE describe environments that lie in the exosystem of students: policies, institutional and organizational systems, laws and regulations, and educational program models and designs (Arnold et al, 2012). Social structures such as community characteristics, the relationship between educational credentials and the labor force, and the organization of social services and postsecondary financial aid are encompassed by the exosystem. Curriculum alignment policies and partnerships between high schools and colleges are examples of key college readiness efforts that happen in the student's exosystem. Close attention to this level of the environment is warranted because it is here that politicians, policymakers, and educators can design structural and program interventions for the purpose of decreasing socioeconomic gaps in college readiness. However, it bears repeating that change can occur only when exosystem factors make their way into the student microsystem, where they will have differential effects according to the way in which an individual engages a particular immediate environment and how that setting interacts with other parts of his or her life (Arnold et al, 2012).

The *macrosystem*, the broader phase of the ecosystem, comprises the ideology, culture, religion, government, and the economy. The current state of ethnic, social and political stratification in Ethiopia, for instance, is a macrosystem factor, as are ideologies of individualism and culture. Globalism is another macro-level element of human ecology. The educational institutions own the ideology of accountability as a macrolevel social value. The macrosystem also contains language, metaphors, and large concepts that construct experience (Iverson, 2012).

Macrosystems can and do change as a result of pressures within other levels of the environment. They can change as a function of time - the final component of the PPCT model. The *chronosystem* affects all levels of the environment and the ways in which

individuals interact with their ecosystem. The metaphor of “pathway” or “pipeline” dominates the college readiness conversation, suggesting that college access and success is a longitudinal process requiring steps that must be achieved at particular times and in a particular order (Arnold et al, 2012; Slade et al, 2015; Welton & Martinez, 2014).

In addition to addressing the importance of timing, the *chronosystem* identifies the effects of changing social contexts within historical time. Student lives occur within historical times and in age cohorts that experience historical events in particular ways (Arnold et al, 2012). For instance, graduates from HEIs in Ethiopia, have recently faced unemployment. In response to the constraints of that particular historical moment, the government has been grouping graduates and funding them to create their job. Generally, while relatively few students leave high school well developed in every component of college readiness, individuals’ strengths in a particular area can bolster college access and success (Arnold et al, 2012).

Developmentally instigative characteristics affect development in different ways. The first instigative characteristics, *resource characteristics*, are abilities, knowledge, and skills that enable individuals to engage in developmentally more complex interactions with their environment (Bronfenbrenner & Morris, 2006, Gregor et al, 2020). For instance, students’ knowledge about scholarships contributes to a view that college is a possibility and compels them to prepare for college. Similarly, students’ content knowledge of subject matter enables them to learn more advanced concepts within the discipline (Arnold et al, 2012; Durham et al, 2015).

Secondly, *force characteristics* influence the ways individuals choose to respond to their environment. These characteristics are labeled as “differential interests, values, belief systems, and goals in relation to persons, objects, and symbols in the environment and in relation to the self ” (Bronfenbrenner, 1979; Kyllonen et al, 2014). Among force characteristics, structuring natural tendencies lead individuals to seek out varying degrees of complexity in their environments. Directive perceptions about their own role are other force characteristics that show individuals’ behaviors and expectations about the possible consequence of their behaviors. For example, individuals who have a strong sense of academic self-efficacy might choose to take advanced coursework. Individuals who plan to go to college might attend their school’s college fairs, engage in more co-curricular activities, and seek out information about the college admissions process (Arnold et al, 2012; Le et al, 2005).

Thirdly, individuals' *demand characteristics* consist of the attributes affecting the responses individuals invite or elicit from their environments. For example, students with high college aspirations and academic motivation may attract the attention of their classroom teachers and can be recommended for special college preparatory summer bridging courses.

Generally, college readiness is a developmental process that constitutes prior experiences and skills. Peoples' experiences, biological characteristics, and abilities serve as *resource characteristics* that predispose individuals to a particular developmental trajectory relative to their developmental stage. In developing college readiness, understanding college costs and the application process, along with academic preparedness, orients students toward considering college as a possibility and enables them to perform at the required academic levels.

The first resource characteristic is academic preparation. Students are expected to master core concepts in key subject areas and acquire ways of thinking to be considered college-ready. The process of learning is dynamic and additive; prior knowledge influences students' subsequent ability that helps them acquire advanced concepts (Reid & Moore, 2008). Prior learning experiences, familiarity with problems, chunking, and other cognitive processes enable individuals to acquire information more easily and learn more effectively (Relles & Tierney, 2013; Uy et al, 2016). Conley (2010) names the key cognitive strategies that underlie ways of knowing that are needed for success in college-level coursework, including problem formulation, research, and interpretation, communication of well-reasoned arguments, precision, and accuracy. Conley (2010) emphasizes the importance of broad, interdisciplinary academic skills, such as reading, identifying multiple text formats, editing, writing in different modes, and rewriting. Individual development on these dimensions grows through practice and results in the ability to succeed in tasks of progressively greater complexity. These skills assist individuals in learning more advanced concepts in key subject areas (Arnold et al, 2012).

The second resource characteristic is academic habits. Academic habits, such as self-management, self-awareness, self-monitoring, and self-discipline, consist of another set of actions and skills students need to master academic content and concepts. These traits constitute study skills such as the ability to record, organize, synthesize, remember, and use information (Komarraju et al, 2013). Study skills strongly influence college academic achievement (Griffin et al, 2012; Lammers et al, 2001). A student with stronger academic

habits is better able to allocate time, energy, and resources to mastering content (Arnold et al, 2012).

Academic self-discipline is defined as the amount of time the students spend on coursework and how much they see themselves exerting effort to complete homework. Academic self-discipline correlates positively with high school grade point average. Student's self-discipline is a much better predictor of achievement than demographic characteristics in the areas of college academic achievement and postsecondary retention. Self-discipline is related closely to motivation; both concern students' selective responsiveness to academic tasks however. Students are most successful when they show engagement, self-regulation, and self-determination in choosing to complete assignments when they are interested in exerting their best effort (Hollingsworth, 2018).

Despite the fact that developing strong academic study skills is crucial, study skills are not necessarily taught in schools. These skills require practice and training, as studying is an intentional activity that typically occurs outside formal learning environments (Gettinger & Seibert, 2002). Environmental interactions and personal qualities mutually constitute. This means that the development of academic behaviors can be self-reinforcing, as in the case of students whose positive results from academic behaviors increase their motivation to develop more advanced skills (Arnold et al, 2012).

College knowledge is also mentioned as another resource characteristic. According to Conley (2005), college knowledge influences individuals' academic behaviors, including their likelihood of eventual enrollment in college. College knowledge includes understanding what college is, how to choose colleges, and how to pay for HE. Developing the knowledge to understand the complicated pathway to college is especially challenging for students without a family history of HE. Knowledge about HE involves a hierarchy of information, skills, and required supports (Arnold et al, 2012). In Ethiopia's context, college knowledge helps students to easily adapt to the life and academic changes they face during their first year at college and helps them to smoothly move through their studies at college. Students with less college knowledge and especially students who are the first person in their family to go to college also face problems in choosing their best field of study that matches their tendency and interest.

Force characteristics initiate the ways that individuals engage with their environments and therefore the ways that they experience proximal processes of development. Individuals

invest agency over the development of their college readiness when they choose to take an advanced math class to earn college credits in high school or, conversely, or when they look for any means of improving their English language knowledge. Students' perceptions of their abilities and the probability of earning a college degree can also influence their behaviors in ways that support the development of college readiness. Similarly, college aspiration serves as another developmentally instigative characteristic that shapes interactions with the environment (Arnold et al, 2012; Kusrkar et al, 2012).

Self-efficacy is the first force characteristic. Self-efficacy is defined as the belief that one is capable of acting in ways that will achieve the desired ends (Bandura, 1997; Talsma et al, 2018). This belief affects students' understanding and feelings about their abilities and mediates their decisions and actions about whether and how to prepare for college (Alhadabi & Karpinski, 2019). Self-efficacy results from the messages individuals receive and their experiences over time. The more students feel they are more capable, the more likely they engage in tasks of greater complexity, such as a rigorous coursework. In addition, they are more likely to see themselves as capable of going to college and more likely to follow through with their plans for HE. College success predictors found strong relationships between academic self-efficacy and cumulative college grade point average (Zhang et.al., 2004). Chemers (2001) also found a strong relationship between students' perceptions of their own self-efficacy and their academic performance.

Similar to other developmentally instigative characteristics, self-efficacy is both the product of interactions with the environment and the producer of environmental effects. This means that positive self-efficacy is shaped by the outcomes of prior coursework and influences subsequent academic performance (Beatson et al, 2012).

Self-appraisal (self-rated ability) is related to self-efficacy (Felson, 1984). Individuals also make different appraisals of the opportunities and hazards in their environments. Students' analysis of their costs and benefits in college, including the perceived likelihood of succeeding in college, influences their enrollment decisions (Strowd et al, 2019).

The second force characteristic is academic aspiration. Students with strong desires for college access strongly search for information about admissions requirements, study hard, and participate in Summer Bridge and other college readiness programs (Arnold et al, 2012; Baber, 2014). Studies support the association between aspirations and other components of college readiness (Martinez et al, 2017). Evaluations of college preparation programs have

indicated relationships between anticipating college enrollment and academic preparedness (Dyce et al, 2013; Jorstad et al, 2017).

Aspirations differ across students in different demographic subgroups for the reason that they are socially constructed (Arnold et al, 2012). Students with low socio-economic status and educationally challenged are less likely than wealthier groups to report that they expect to attend college (Misran, et al, 2012). Higher career aspirations among females emerge as early as elementary and middle school (Arnold et al, 2012).

Motivation positively influences academic performance, study strategy, adjustment and well-being of students in education (Ferreira et al, 2011). Motivation is related to various educational outcomes, such as curiosity, persistence, learning, and performance (Ferreira et al, 2011; Gottfried et al, 2008).

Demand characteristic is understood in the way that the students themselves influence environmental interactions, and elicit responses from the surrounding environments. For example, teachers might refer individuals who exhibit high levels of academic discipline or college aspirations to college preparation programs or extracurricular opportunities. Similarly, students who show a greater understanding of academic subject matters might be placed in higher-level classes. Studies examined how student characteristics elicited differential responses from teachers. Students who exhibit high engagement in the classroom can receive greater support from instructors than more passive students; less initially engaged students experienced more neglect, coercion, and inconsistent instruction from teachers (Van Ryzin et al, 2020; Zentall et al, 2010).

CRIS framework. In order to monitor students' progress towards college, schools ought to use early warning systems. The College Readiness Indicator Systems (CRIS) framework builds upon and enhances existing early warning systems in schools in different ways. The CRIS framework is an advanced form of early warning system that aims beyond high school completion and organizes and mobilizes the major indicators of college readiness at national, local and school levels. For CRIS, college readiness is not a mere academic preparation; it is the knowledge, skills, beliefs, and attitudes students need to acquire to be eligible and successful at college (Balfanz & Byrnes, 2019; Borsato et al, 2013; Mishook, 2013).

In addition, the CRIS Framework proposed indicators at a student level, school level, and district level. Indicators at the student level help in identifying individual student's problems.

School and system-level indicators help in identifying the appropriateness of conditions for advancing college readiness (Balfanz & Byrnes, 2019; Borsato et al, 2013; Mishook, 2013).

According to CRIS, building college readiness is not only the responsibility of schools and districts. For this reason, CRIS uses indicators in all levels. CRIS builds on its respective *Cycle of Inquiry* to strengthen efforts at each level (i.e., districts and its community members) and establishes a network of college readiness activities that align with the needs identified in the population of students. Using these indicators and *cycles of inquiry*, CRIS monitors the research-oriented supports. CRIS also pays due attention to the flexibility, and the local variation in capacities, needs, and opportunities. Depending on this, CRIS monitors the effective utilization of resources to provide supports and interventions in building college readiness.

The CRIS Framework lists indicators that measure the three distinct and interdependent college readiness dimensions: academic preparedness, academic tenacity, and college knowledge (Balfanz & Byrnes, 2019; Borsato et al, 2013; Mishook, 2013). ***Academic preparedness*** is defined by CRIS as the key academic content knowledge and cognitive strategies that a student needs to be successful at college. Some indicators of academic preparedness at the school level are students' GPA and the existence of Advanced Placement (AP) courses. CRIS defined ***Academic tenacity*** as drivers of student performance, such as latent beliefs and attitudes. Indicators for academic tenacity are student self-discipline, attendance, disciplinary infractions, teachers' pressure on students to strengthen their effort and rigor. The knowledge and contextual skill of a college-goer about college learning and environment that makes the student achieve successful college access, college navigation and success is defined as ***college knowledge***. Knowledge of payment, financial needs, and scholarship opportunities at college as well as the promotion of college-going culture at schools are some of the college knowledge indicators.

In addition to indicators that are organized into dimensions and levels, the CRIS Framework clarifies college readiness supports. These supports refer to programs, activities and interventions that are implemented to bring about intended improvements in student behavior, performance, and environment. These supports monitor the process of identifying individual students in need of supports and connect them with the appropriate supports (e.g., tutoring, counseling, etc.). Through this *Cycle of Inquiry* process, indicators are connected with supports (Balfanz & Byrnes, 2019; Borsato et al, 2013; Mishook, 2013).

David Conley's College and Career Readiness (CCR) model. Another college readiness model which is frequently discussed in college readiness researches is Conley's (2008) college and career readiness model. For Conley, college readiness is the level of readiness college-goers need to be eligible to enter college and succeed at college after taking a credit-bearing course at a baccalaureate degree offering HEI. Conley also categorized components of college readiness into four: key cognitive strategies, academic knowledge and skills, academic behaviors, and contextual skills and awareness.

Conley stated that those college-ready students who have *key cognitive strategies* have the ability to formulate and solve problems, evaluating and incorporating reference material appropriately, developing a logical and coherent argument or explanation, critically interpreting conflicting points of view and data, and accomplishing assignments and projects with precision, accuracy and timely. Generally, a college-ready student is endowed with the ability of problem-solving and problem formulation, the ability of research, the ability of reasoning, argumentation and proof, the ability of interpretation as well as precision and accuracy.

Conley also stated that key academic knowledge and skills are what college-goers need to master to be college-ready. These key academic knowledge and skills should the students master are knowledge of English, maths, science, social studies, world language, and arts.

Conley also stated *academic behaviors* as the behaviors the students need to develop during their journey to college. Higher student self-awareness, self-monitoring, and self-control of processes and actions necessary for academic success were listed by Conley as good academic behaviors. Conley argues that students who are endowed with such behaviors tend to monitor actively, regulate, evaluate, and direct their own thinking. Conley asserts that self-management includes the students' self-awareness of their mastery level of the course and the mechanisms they produce to solve the problems they encounter during learning the course.

Another important academic behavior that Conley stated is *study skill*. Those study skills that consist of active learning strategies further beyond reading and answering the questions were listed as good study habits or skills. Generally, college-ready students know how to study the course (method), when to study (time management) and where to study (study place). The study skills also include stress management, task prioritizing, using information

resources, note taking, communicating with teachers and advisers, and controlling internal and external distractors (Conley, 2008).

Contextual skill and awareness is another important factor that a college-going student should acquire. ‘Contextual skill and awareness’ is defined as college knowledge, that is, the information students need to apply successfully to college, gain necessary financial aid, and then, successfully matriculate, understand how college works as a system and culture. Another dimension of college knowledge Conley listed is information about college admissions, requirements, both stated and unstated learning and cultures. Highly affected by lack of college knowledge are the first and new students to attend college in their family and students who come from remote areas who have less access to college cultures and requirements.

Transition theories and practices as related to building college Readiness. Numerous transition theories and practices in building college readiness were discussed by studies around the world. Especially, theories, such as need satisfaction theories, self-determination theory, career decision-making self-efficacy theory, and social-cognitive career theory are strongly related to building college readiness (Lindstrom & et.al, 2019).

The combined model (Sá & Tavares, 2017) roots the student choice in economic and social factors. The economic view assumes that the assumption of accurate information depends on the estimation that students perform a rational analysis of the costs and benefits to maximize the benefit of attending a college or a field of study. Under the economic theory, students give attention to the labor market of the academic area they choose. On the other hand, the students tend to make a comparative analysis of the costs of attending an institution or training against the returns they get after graduation. According to sociological theory, the social status that is achieved through getting specialized in an academic area is a factor that pushes students to choose a certain field of study. The gender and personality of students also determine student choices.

Self-determination theory states that the school’s social and environmental factors affect the degree to which students’ basic needs are satisfied in the setting. Also, how the student adapts to or responds to these affecting factors determines the well-being, performance, commitment, and persistence of the student in transition to college. The extent to which the schools and the environments fulfill or fit his/her needs affects the transition to HE (Davidson & Beck, 2019; Filak & Nicolini, 2018).

Defining the term ‘meritocracy’ as a social system in which an individual’s talent and effort, rather than ascriptive traits, determine individuals’ placements in a social hierarchy, Carter & et.al (2019) viewed the ‘high school to HE transition’ as a merit-based objective phenomenon that should be based on the objective assessment of individuals’ natural talents and efforts. The mandate of the admission system is maintaining and cultivating the meritocratic principle in education that is the basis for performance-based college admission and developing college-going culture.

Fong & Kremer (2020) analyzed the successful transition to HE through the lens of expectancy-value motivational theory stating that personal motivation shares a significant variance in academic success. Another theory that underlies student transition to HE (i.e., student effort and attainment) is the educational expectation that is rooted in sociological, economic, and psychological literature. According to this model, students’ family, social backgrounds and academic intelligence impact their educational achievement and the advice they receive from significant persons. The cumulative of these factors shape students’ educational and career expectations; this also impacts their educational and occupational achievement (Domina, Conley & Farkas, 2011).

Psychological perspectives on readiness for college. From the developmental psychology perspective, ‘high school to HE’ transition overlaps with both adolescent identity development and transition from late adolescence to early or emerging adulthood. It is a period of changing roles, new challenges, and responsibilities for adolescents. It is a critical time for adolescents when miss-definition of their identity leads them to confusion (Taylor et al, 2014). For this reason, studies associate the period of transition to HE with stress, disruption, and emotions (Azmitia et al, 2013; Conley et.al, 2014). Johnson et.al (2010) stated that family functioning and emotional coping determine the success of transition both to emerging adulthood and HE.

The social bond, self-care and awareness, cognitive styles, and life skills of college-going students affect high school to HE transition (Leary & DeRosier, 2012). The student’s college knowledge (i.e., knowledge of application process, college learning, and environment) is among the factors that determine successful high school to HE transition. This knowledge is partially developed through high school and HE partnerships and students’ social capital (Kim, 2012). HEIs should focus on the education and psychosocial interventions that target changing parental expectations and developing students’ self-advocacy and self-efficacy to

improve transition-age youth at risk of poor post-high school employment outcomes (West et.al, 2018).

Studies also report a significant association between the adolescent transition to HE and substance use, and addiction (Derefinko et.al, 2016; Quinn & Fromme, 2011). Gonçalves et.al (2017) found significant relationships between the capacity for resilience and age, marital status, area of residence, school, and the use of drugs during the transition period to HE; while life event dimensions, such as neglect, separation, or loss and friend satisfaction were found to be strong predictors of resilience capacity in college. Parent support during the transition to college is also associated with a significant decrease in stress levels for female students (SY et.al, 2012). Terry et al (2013) recommended self-compassion as one of the mechanisms to weather the difficulties of transition period depressions. Studies relate emotion regulation with success in college (Srivastava & Tamir, 2009). Generally, to deal with these psychological factors that affect student transition to college, student counseling services are broadly implemented around the world.

The role of curriculum and teaching-learning in building college readiness. The curriculum is the pillar in college readiness building. The teachers are the first-level facilitators of student learning and the journey to HE. For instance, Liou & Rojas (2018) studied the significance of racial contract in teachers' college expectancies for students of color. This study analyzed how 27 classroom teachers harnessed school structure and classroom curriculum to support the college readiness of students of color. Generally, the significance of teachers' high and equitable expectancy for all students for an equitable and successful transition to college is discussed. Duncheon & Muñoz (2019) used a sense-making theory when they discussed the effect of teachers' views, definitions, and understandings of college readiness on their students' readiness for college.

The current competency perspectives on building college readiness assert that the twenty-first century skills, such as learning strategies, self-regulated learning, adaptability, communication skills and cooperative attitude, technology use, creative problem solving, critical thinking and decision making skills, time management, self-management, life skills, and study skills are highly needed to be embedded (Terpstra-Tong & Ahmad, 2018; Winne, 2013). On the other hand, an implementation of a career-based curriculum, e.g., career readiness business curriculum model, at a high school successfully promoted a successful transition to college and the workplace (Amoroso & Burke, 2018; Perry et al, 2016). Course taking, e.g., completing Algebra II promotes college success (Kim et al, 2015). The IB

curriculum is credentialed for its gold-standard status of academic excellence and was also criticized for its elite agency that aims at serving the private international schools with its longstanding liberal arts curriculum. The IB has turned its face to the public through the incorporation of a new career readiness program that benefitted applied learners' needs of college and career readiness (Lakes & Donovan, 2018). DE successfully promoted students' college and work market success (Phelps & Chan, 2017). The IB and AP have gradually been changing from elite nature to more inclusive (Lineham, 2013). The early colleges are the advanced and more inclusive college readiness programs (Adams & et al, 2020).

Also, the 'curriculum integration and configuration' process is used to integrate career readiness curriculum with high school curriculum to develop career readiness of high school students (McPhail, 2017; Park et al, 2017). The English language, as a heritage language and language of instruction (Bruce et al, 2016), and the mathematics knowledge (Dodd et al, 2016) had also had significant effects on college readiness. On the other hand, overdependence on the depth of achievement in specific subjects across grade levels (i.e., horizontal transition), rather than interdisciplinary knowledge building creates disciplinary disjuncture in high school to HE transition curriculum (Gallagher-Brett & Canning, 2011). The misaligned high school and HE curriculum standards are the causes for the increase in the need for remediation in HE (Perna & Armijo, 2014). Students with learning disabilities who took applied STEM courses significantly lowered their chances of dropout, increased mathematics test scores, and their chance of college access (Plasman & Gottfried, 2018).

Misalignment between the high school curriculum and college curriculum creates predicaments to college readiness (Mouton & Archer, 2019). Poor teaching and content-based curriculum in high school, poor mathematics learning, lack of STEM preparation, and difficult transition contributed to students' decision to leave STEM (Thiry, 2019). The high school pedagogy that the college-entering students are accustomed to before college access creates contradictions with the HE pedagogy and expectations and affects student success at college (Dooley, 2004). The motivational and career theories relate successful college-going with long-term incentives, such as jobs and other privileges that can be earned after graduation (Graham & et al, 2014).

The K-12 and HE partnerships were created on the alignment of high school and HE teacher education to remedy the poor teacher quality, drop-out, and attrition (Arnauld, 2006). Adequate pedagogical and interpersonal communication with college instructors facilitates

effective college readiness (Wang, 2013). The type of high schools the students attended also significantly determines the nature of the college readiness. Those students from specialized STEM schools perform significantly better on mathematics and science tests, they are more interested in STEM, and they are more likely to earn STEM degrees compared to students in traditional schools (Erdogan & Stuessy, 2015).

Teachers align the curriculum with the standards in the teaching-learning process, update the curriculum in line with the current developments, and maintain the linkage with the college requirements of student learning (Reitsma et al, 2009). Bales and Akdere (2014) analyzed how quality management tools and curriculum articulation strategies can support high school mathematics teachers prioritize these policy demands. These authors showed how the district-level maths curriculum deviates from the Federal level's common core maths standards and discussed how these inconsistencies may affect college readiness and quality assessment. The challenge-based teaching method that is dependent on developing guiding questions and activities to determine solutions for implementation is found to be one of the teaching methodologies that support students to develop college and career readiness (Shuptrine, 2013).

The role of convergence between K-12 and HE. Studies reported some major factors that have significant contributions in creating a convergence between K-12 and HE. Governance was stated as a source of convergence between K-12 and HE. Both the lines of divergence and convergence in k-12 and HE are related to governance. The required mandates, incentives, norms, and pressures that span the K–16 education play a great role in converging the k-12 and HE. The cross-sector bodies, the system of government (e.g. Federalism), and the spread of privatization, and the public-private framework are some of the governance factors that shaped K-12 and HE convergence (Mok, 2006; Rippner, 2015). The equitability of the funding system for all social groups by levels and sectors of K-12 education and HE can be a source of convergence (Dougherty & Natow, 2019; Rutherford & Rabovsky, 2014). Standardization of the external assessment of students for both the K–12 and HE sectors, despite the vast differences in the populations, is also one of the mechanisms that are used in converging K-12 and HE (Lorson & Mitchell, 2016; Steiner, 2007). Emphasizing the teacher quality of the valued-added to enhance convergence is also used as a mechanism (Burroughs et. al, 2019). A policy that is focused on making schools and colleges responsible for the improvement of measurable student outcomes also plays a significant role in convergence (Jankowski & Provezis, 2012; Keller & Hammang, 2008). Also, the studies

viewed the K-12 and HE as a single educational system, rather than as a discontinuous and poorly aligned one, and they focused on the bond between high schools, community colleges, and career outcomes (Klein & Green, 2012; Kolluri & Tierney, 2020). Studies discussed *college access and equity* as an issue of convergence. Evidencing the sharp increase of underrepresented groups in college access and opportunity, the studies described the convergence system through the prevalence of college-based bridging programs and mutually beneficial relationships between colleges, schools, community-based organizations, and nonprofit organizations that serve K–12 students (González Canché, 2019; Baber, 2014). The curriculum standards-based initiatives that focused on the convergence between K-12 and HE through uniform common core curriculum standards play major roles in building college readiness (Comfort & Timms, 2018; Kolluri, 2018). Also, the role of technology is high in convergence. The social and technical factors combine in human action. This human action also results in the adoption of technology that also has consequences for new technology in organizations. Primary and postsecondary institutions influence one another, and various factors converge through the interaction, and the role of technology influence in education systems' change and evolution is very high (Selwyn, 2013). Also, convergence agenda must be viewed in the global context and policymakers should reanalyze their educational responses to the volatile, continuously changing global situation, and ought to consider the importance of continuous adjustment of the education system (k-16) to the continuously changing global contexts (Gopinathan & Mardiana, 2013; Loss & McGuinn, 2018; Wang, 2006).

Admission policies. College admission systems and models of countries are also other significant issues that have been discussed in promoting successful high school to HE transition research. The HE admission policies around the world have already emphasized college completion and quality in graduates' outcomes than college access (Flores & Oseguera, 2013).

The 'access and equity' in high school to HE transition is approached in multiple ways in different regions of the world. Firstly, the transformation of an internal academic decision to a gradual external and politically driven decision making on access and equity was accompanied by the drive to develop mass systems of HE. Secondly, universities have cultural differences in their admission process and ways of addressing equity issues. Thirdly, the contrasting organization of HE in parts of the world has different organizational influences on admission policies. There are significantly different sources of power and

authority that influence the policy on access and equity to HE. However, even with these differences, there are patterns of convergence in policy goals. Generally, the expansion of access to HE is forced by the intention to create a more equitable society in the era of massification of HE for the public good and to bolster economic growth (Douglass, 2005; St. John et al, 2018; Strayhorn, 2018).

This expansion of access has undergone through 1) restructuring formerly elite institutions to a broader purpose; 2) establishment of new universities and colleges; 3) expansion of scholarship grants and government financial aids. These three ways of expanding access are more passive (i.e., lowering costs and expanding universities to expand access). However, the 4th approach takes the most interventionist approach while it focuses on the development of college-preparatory skills of the target students; and raising the expectations of students guiding them on the HE admission process. The 5th is the development of diversified systems approaches to HE management of enrollment. The 6th is the creation of admission practices, such as Affirmative Action and Deliberate Action targeted at increasing the enrolment of underserved and disadvantaged groups. The seventh mechanism that was applied to make the admission process equitable is the gradual politicization of the admission process; e.g. the influence of Court decisions in the USA, and government regulatory funding that is tied to quality controlling in the UK (Douglass, 2005; St. John & et al, 2018; Strayhorn, 2018; Winkle- Wagner & Locks, 2018).

Affirmative action models. The Affirmative Action models, such as actuarial models and clinical models have also been used in addressing equity issues in college access (Maeder & Wiener, 2010). Maintaining equity and quality simultaneously has also become a difficult job for universities and policymakers (Shulruf et al, 2009). Although Affirmative Action was historically believed to work against meritocracy and quality, a study by Rotem, Yair & Shustak (2020), which compared Affirmative Action group college students and non-affirmative group students in Israel found a non-significant difference between groups in college performance. On the other hand, Venkataramani and et al (2019) found a significant positive relationship between Affirmative Action ban and risky health behaviors of American underrepresented minority adolescents.

In order to address the issue of equity and quality, various admission models have been devised. For instance, the equity-based open admission policy allows all students who fulfill the minimum criteria (e.g., high school grade) to enroll in an academic area. After enrollment to an academic area, however, students have to register an adequate first-year GPA to

continue in their studies. The high rate of student failures in their first-year study raised critics against the open admission policy. The more recent admission model (Dual Model), which was implemented in New Zealand, uses a competency and standards-based assessment system and emphasizes both the credit-based model and an alternative GPA (for details see Shulruf et al, 2009; Wang & Shulruf, 2012). This Dual Admission Model (DAM) is developed to achieve both equity and quality through admission. The model allows high variance in college success and a higher proportion of college-eligible student groups by SES compared to the other models.

The second major group of admission models (Affirmative Action models) is largely applied in the USA and India. Historically, Affirmative Action was applied in the two processes of selection. One method of selection method is the clinical approach, in which the decision-makers rely on their intuitive theories of academic performance to choose the best students based on the experiences learned from counselors' consultations about selection and rejection. On the other hand, counselors use actuarial models, i.e., mathematically based plans that depend on preselected factors rooted in performance research to make research-based predictions and select the candidates that the models pick as the most likely students to succeed. Generally, Affirmative Action existed in two forms; that is, holistic or intuitive in the USA and mechanistic, e.g., the cotta system, in India (Maeder & Wiener, 2010; Warikoo & Allen, 2019).

The Affirmative Action policy aims at providing disadvantaged and minority groups with societal achievement. It is targeted at giving chances to these groups to succeed. Affirmative Action has been challenged by self-interests and racist beliefs who favored selective universities for Whites, and as a result, it faced bans and rejections in some states and universities in the USA (Baker, 2019; Blume & Long, 2014). On the other hand, the studies on the cotta system of Affirmative Action in Brazil and Georgia reported that the problem of minority and underserved groups is low academic performance. As a solution, these studies recommend that the Affirmative Action policy should focus on quality, and to achieve quality the mechanisms that improve the Affirmative Action groups' potential to achieve competence must be devised and implemented (Junior et al, 2016; Tabatadze & Gorgadze, 2017).

Lehmuller and Gregory (2003) proposed the use of Goldman's four types of Affirmative Action programs, including backward, forward, weak reverse discrimination, and strong reverse discrimination. Backward affirmative action programs are aimed at correcting past injustices toward disadvantaged groups. The backward looking refers to the importance of

compensating for past institutionalized discrimination against minorities while forward-looking argues that globalization necessitates the diversity of the workforce in order to succeed in multicultural societies. Weak reverse discrimination programs give preferences to minority candidates who are equally as qualified as majority candidates. Preference is also given to disadvantaged and minority groups who are less qualified than majority groups in the strong reverse discrimination model. The quota system type also reserves spots for minorities (Tabatadze & Gorgadze, 2017).

Studies recommended the reliance on the performance of students in the context of their educational opportunities rather than the sole dependence on the national college entrance exam. The reliance on standardized national college entrance exam grades in college admission has created equity problems for the reason that such test tends to bias for socioeconomic status, race, and gender (Deil-Amen & Tevis, 2010; Zwick, 2012; Santelices & et al, 2017).

The inability to pay school fees, movements from place to place, parents' conditions; individual students' motivation towards college access are factors that affected college readiness and college-going in the USA (Cilesiz & Drotos, 2014). The mismatch between the culture and languages of the students and the school curriculum, culture, and language of instruction at schools the students attended also contributed to problems in college readiness in the USA (Kanu, 2006). Economic and other incentives that underlie college academic area choices have related to the promotion of college readiness (Sotomayor, 2011).

If the influence of SES and educational environment on the college entry exam score rises over that of innate talents, labor productivity of overall society appears to decline (Kim & et al, 2014), and this remains a threat to meritocracy in college admission. The influence of social capital (the social bonds and interactions and their advantages) of the college applicants and the cultural capital (e.g., the dominance of groups' cultures and values in education that creates biases for groups) have been discussed as long-standing and dominant factors that underlie the success in high school to HE transition (Marshall, 2016).

Also, assessment programs have been used as tools to guide the successful journey to the college by giving a chance for early warning, monitoring student learning, early information, and choice. The enhancement of information and choice and cultural integrity for disadvantaged groups is promoted through the implementation of an early assessment

program (Kolluri & Tierney, 2020). The way schools and HEIs store and use data for decision-making research helps them to make rational and effective decision-making in the selection, admission, and placement (Al-Twijri & Noamanb, 2015; Martín-García & et al, 2019).

Partnerships and interventions in building college readiness. Different partnerships have been created to support students' college readiness. These partnerships have been formed between different organizations including schools and universities.

For instance, Ellis & Helaire (2020) used the Theory of Reasoned Action and studied how Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) enhanced the racial-ethnic, low-income adolescents, adults, and peers relationships. These relationships have been formally established to make students and their families take steps toward pursuing a college degree. The studies found significant direct and indirect effects of GEAR UP on college readiness (Morgan & et al, 2015). Australia's KickStart program (Breyer & et.al, 2017) was also created to help students become more engaged with their subject content and feel better prepared and motivated at a critical stage of their studies. This program emphasized student engagement, preparation, and motivation in supporting student transition to HE. STEM Intervention Programs (SIPs) are created to help students develop their college readiness for talented students of color in the USA (Lane et al, 2020). The SIP delivers its service to this group of students through academic advising, course work designed to introduce students to college-level rigor, structured-mentoring programs, networking opportunities, and professional development. Undergraduate research and STEM-based student organizations provide supports to STEM students in high schools. Mentoring Program is also another program that is created to facilitate a successful transition to HE. For instance, Australia's Macquarie University Learning, Education, Aspiration, Participation (LEAP) mentoring program is one of such partnerships that recognize the need for the ongoing support of the targeted high school, refugee, and humanitarian background students to support and enable their successful transition to HE (Singh & Tregale, 2014). The high school adolescents' substance misuse preventive interventions were conducted to study their effects on academic success in college, and the study found that the intervention significantly and positively affected the adolescents' long-term academic success (Spoth & et.al, 2019).

A program named, 'Foundation High School Program', and college and career readiness program was opted to support the college and career readiness development of students from their early secondary school years (Adamuti-Trache & et al, 2020; Raines & Talapatra,

2019). Counselors also implement counseling services (Walden and et al, 2020; Williams; 2016). For example, a group counseling program at high school (Hines & et.al, 2020) was a program targeted at building college readiness. Also, the implementation of the college access program named Advancement Via Individual Determination, AVID, (Kolbe et.al, 2018) increased the likelihood of college access and matriculation. The coaching program on social-emotional learning, community, and cultural wealth curriculum was implemented by university residential life community directors to enhance the protective and thriving skills of growth mindset, sense of belonging, self-management, self-advocacy, and community and cultural wealth. The program significantly supported underserved first-year university students (Knotek et.al, 2019).

Teacher education focused, grant-based high school and HE partnership, particularly targeted at improving educators' understanding and utilization of research-based practices, capturing practitioners' professional wisdom, and supporting practice through instructional coaching were effective in supporting special education learners' college readiness (Maheady & et al, 2016). Research-based two-way partnerships between the university and high schools in the mode of teaching-learning in specific subjects (e.g. Maths) were found to be effective (Seshaiyer & Kappmeyer, 2016; Hartman, 2018).

The effect of parent-school, home-school, and community-school partnerships in different aspects of student supports have been proved to be effective in supporting student successful transition to college (Deslandes, 2009; St. John & Girmay, 2019). In addition to the horizontal partnerships, the vertical two-way partnerships between universities and different types of high schools were created to support students' college preparedness and success (Burhanna & Jensen, 2006; Groves, 2019).

The Outdoor Orientation Program, which is run by *accelerated social group formation for transitioning young adults to college*, is found to be successful (Pickard & et.al, 2020). Another program is Summer Bridge Program (Frischmann & Moor, 2017) that is targeted at enhancing successful high school to HE transition. This program takes an inclusive approach when it helps students in some general courses and an additional credit of supportive instruction, particularly, on academic strategies specific to the disciplines represented by those general education courses. Kallison Jr and Stader (2012) also stated that effective summer-bridge programs make very strong relationships with their partner schools in districts; deliver professional development to all summer bridge program staff; conduct preprogram orientation sessions and closing ceremonies; provide bus transportation services;

involve parents in the summer bridge program; expose and provide students with labs to support classroom instruction; provide academic counseling services and other support services, and apply both formative and summative evaluation methods. Another form of high school-HE partnership is through the pre-service teaching practices (Vanslyke-Briggs et.al, 2015).

The colleges send pre-service teachers to take a practicum in high schools. This type of partnership is also happening between high schools and universities in the teaching profession in Ethiopia. This type of partnership is mostly one-way in Ethiopia and it is not aimed at bridging high school to HE transition of students; it is aimed at teachers' training and development. The high school and HE partnerships should be supported by staff and the community in order to be successful (Bettencourt et.al, 2020). Etshim (2017) from DR Congo also recommends the collaboration between HEIs and employers on curriculum development to create a more relevant teaching-learning environment for student success. A year-long partnership between high school teachers and college first-year students on three content areas, in which they co-planned and implemented maths lessons, was successful for the development of content knowledge to high school teachers, and for the development of maths achievement to college students (Swanson & Coddington, 2016).

The post-admission interventions are also conducted to remedy low college and career readiness in various ways. For instance, a coaching framework that is designed and applied in universities to support the career and college readiness of underserved and students with disabilities (Knotek et.al, 2019) is one of the post-admission interventions. The curricular intervention approach, i.e., developmental education or remedial education that is implemented in the post-admission college campus is aimed at remediation of college readiness problems (Bailey, 2009).

The Ethiopian Preparatory curriculum and its implementation. Ethiopian Prep curriculum shares similarities with DE and AP programs. Like DE courses, the Prep courses are believed to be those former socialist regime college introductory courses that moved down to high school; while AP courses are high school courses prepared in the standards of college introductory courses. The problems related to Prep courses are that 1) lack of adequate theoretical and practical policy explanations behind moving these courses to high school; 2) The complete detachment of the Prep courses from college experiences when they are college preparatory courses. For example, DE courses are taught by college instructors in college context or they are taught by college instructors in high schools; 3) like college

courses' grading system, DE courses are assessed in course grading system while Prep course assessment is accomplished through continuous and summative classroom assessments and through marking out of 100% like high school courses. However, the UEE assessment format is all objective unlike the AP and IB that include essays and laboratory exam items; 4) The AP, DE, and the IB curriculum development process invites college instructors while the Ethiopian Prep's curriculum revision is accomplished by a team of curriculum experts at Ministry of Education; 5) There is no standardized career readiness curriculum, counseling services, early interventions and early warning systems on college and career readiness in lower grades and Prep schools; and the movement of the Prep courses to high school caused curriculum overload in grades 9 -12.

A curricular approach for college readiness building was attempted through the Prep program at grades 11 and 12 believing that the preparatory school curriculum promotes college readiness. However, this Prep program faced criticism. Prof. Tirussew and et.al (2018) reported that even the objective of moving the former university freshman courses down to grades 11 and 12 was not clear to society. Another study by World Bank (Joshi & Verspoor, 2013) reported that the move-down of the curriculum resulted in curriculum overload.

Historically, the ETP (1994) made significant reforms in Ethiopian education history compared to former educational systems. The former teacher-centered teaching-learning process changed to student-centered. The formerly content-based curriculum changed to an outcomes-based curriculum. Although the curriculum has undergone significant changes to deepen students' readiness for college and work, many local studies reported the gaps in the theories stated in the written curriculum and the practical teaching-learning process at schools. The problems lie in the gaps between policy and practice. The extent to which timely curriculum revisions and teaching-learning methods brought about changes in student-level learning mattered. The extent to which the curriculum and teaching-learning reforms enabled the achievement of 21st-century competencies determined the achievement quality in college readiness.

On the other hand, compared to the international trends, the Ethiopian college readiness activity is highly academic. Multiple supportive and early warning systems are rare. The schools, the students, and the families share responsibilities in preparing students for college. Although the admission policy takes into account some international trends in addressing equity and quality, the practices are less research-oriented and are a bit traditional.

Generally, ecological systems theory, developmental theory, social capital theory, need satisfaction theories, self-determination theory, career decision making and self-efficacy theory, information and choice theory, expectance-value motivational theory, and social-cognitive career theory are strongly related to building college readiness. Maintaining convergence between K-12 and HE has been discussed as a part of building college readiness. Also, the theory of reasoned action and instructional facilitation is related to monitoring student readiness through assessment and teaching, early warning, and awareness. Theories of racial contract and sense-making are related to the teachers' college expectations of students and the application of the equitability principle through the teaching-learning process in monitoring student progress towards college. The contemporary college readiness theories guide the practice of college readiness through curriculum design, teaching-learning process, research-based partnerships, interventions and counseling services, and formulation and practices of empirically grounded admission policies.

Seen through the lens of these, the Ethiopian college readiness seems more academic. College readiness is generally mal-defined in the Ethiopian education policy. Contexts are mal-organized and less-promoters of students' college readiness. These gaps are partially caused by shortages of resources in the schooling system. The maintenance of the three transition issues (i.e., meritocracy, equity, and quality) is not well empirically based.

Also, the re-formulation of the college readiness policy is highly needed from the ground. The international theoretical and practical college readiness and transition issues need to be seriously reconsidered by Ethiopian education policymakers, curriculum designers, and HEIs. The college readiness issue has to be given attention throughout k-12 education. The curriculum needs to emphasize narrowing gaps between theory and practice in order to promote college readiness. The high school-HE partnerships have to be formed in terms of curriculum development and teaching-learning. The high school curriculum needs to have a strong linkage with the college curriculum. Particularly, the grade 11 and 12 curricula should be designed in the college introductory curriculum standard or any means has to be created to prepare the students for college expectations and academic rigor.

Chapter Three: Methodology

3.1. Methods

Research paradigm. This study mixed both the post-positivist paradigm and interpretive (constructive interpretive) paradigm. Since the study used a combination of both of these paradigms, it took a pragmatist approach. A research paradigm is a broad philosophical approach to the world and the nature of research that a researcher conducts (Creswell, 2014). It is a worldview or a way of researching phenomena. It is a generally accepted view of knowing, researching, or working (Cohen et al, 2018; Mertens, 2009). Paradigms are ‘epistemologies’ and ‘ontologies’ (Crotty, 1998), or ‘broadly conceived research methodologies’ (Neuman, 2009).

Post-positivism represents thinking that followed positivism. It challenges the former thought of the absolute truth of knowledge concluding that nobody can be positive about his/her claims of knowledge when studying the behavior and actions of humans (Creswell, 2014; Cohen et al, 2018). This study is not limited to examining the relationship between college readiness and success through the lens of quantitative relationship. This study argues that quantitative relationships highly affected by qualitative factors such as the nature of college readiness curriculum, teaching learning process, and the ecological context. For this reason, the holistic understanding of the relationship between college readiness and success requires multidimensional understanding of the interactions between the variables discussed in the study.

Constructivist research relies on the participants’ views of the situation being studied. The research questions are formulated in broad statements so that the respondents will be able to construct the meaning of a situation being studied especially through being immersed in discussions or interactions with other people (Creswell & Creswell, 2017). The research questions are left open-ended to help the researcher listen carefully to what respondents say or do in their real-life settings. Then, the social and historical negotiation on these subjective meanings determines the outcome of the study. The meanings are not simply imposed on respondents; rather, they are created through interaction with the participants (social constructivism), and understanding and interpreting the historical and cultural norms that work in respondents’ lives (Creswell, 2014; Creswell & Creswell, 2017). Thus, constructivist theorists and researchers focus on the processes of interaction among people. They also emphasize the specific contexts in which individuals live or work to understand their historical and cultural settings. An investigator’s backgrounds affect his/her interpretation,

and they position themselves in the study to assure or acknowledge how their interpretation flows from their personal, cultural, and historical experiences. The researcher intends to interpret the meanings others conceive about the world (Creswell, 2014). In this study, how the participants constructed the meanings of college readiness through close understanding of their lived experiences.

Pragmatism comes from situations, actions, and consequences rather than antecedent conditions. The attention is paid to applications, i.e., what works best, and the solid solutions to problems (Patton, 1990). The research problem is emphasized rather than the method in pragmatism. It looks for all approaches available to understand the problem (Rossman & Wilson, 1985). Morgan (2007) and Tashakkori and Teddlie (2016), the advocators of mixed methods research, conveyed the mixed method's importance for emphasizing the research problem in social science study and then using pluralistic or multiple approaches to create knowledge about the problem concerned. Pragmatism does not categorize itself into any one system of philosophy or reality. Pragmatist investigators use freely both quantitative and qualitative assumptions when they conduct their study (Creswell, 2014). This study also used the pragmatist approach means that the problem of college readiness and success was observed from multidimensional aspects, such as the quantitative relationship between the variables, the ecological contexts as described by the participants, from the angles of different theories and practices around the world

The terms constructivism, social constructivism, and interpretivism are often used interchangeably as describing an approach to qualitative research. For social constructivists, individuals search for interpreting or understanding of the world in which they live or work. Researchers often search for subjective meanings of the individuals' experiences, i.e., varied and multiple meanings directed toward an object or a thing. Depending on these meanings, the researcher searches for the complexity of views rather than narrowing views or meanings into a few categories. The goal of the study is to rely on the participants' understandings of the situation under study (Mertens, 2009). Eventhough the terms constructivism, social constructivism, and interpretivism are used interchangeably in qualitative research, this study closely linked to interpretivism in the manner that it attempted to interpret how the participants constructed the meanings of college readiness in their lived experiences.

Mixed methods involve the collection and "mixing" or integration of both quantitative and qualitative data in a study (Creswell, 2014). The mixed-method involves the collection and analyses of quantitative and qualitative data. For the reason that it uses a mix of quantitative

and qualitative approaches, the logic of mixed methods inquiry may include the use of induction, deduction, and abduction. Although mixed methods studies are considered pragmatic, researchers should still be cautious when using the typology-based approach to mixed-methods research (Collins & O'Cathain, 2009). The mixed study is found appropriate for the reason the current views on the relationship between college readiness and success in beyond the quantitative academic achievement measures.

Interpretivism. Interpretivism looks for culturally grounded and historically contextualized understandings of the social life-world (Crotty, 1998). The direct, one-to-one relationship between ourselves (subjects) and the world (object) is not expected. The world is interpreted or studied through the classification schemas of the mind (Creswell and Creswell, 2017). Epistemologically, interpretivism has a close linkage to constructivism. For interpretivism, natural reality or the laws of science, and social reality have differences and they require different kinds of methods. Natural science looks for consistencies in the data opted to deduce 'laws' (nomothetic); social science often deals with the actions of the individuals (ideographic) (Crotty, 1998, Creswell and Creswell, 2017).

Phenomenology. The transcendental phenomenology was a qualitative research design used in this study. The phenomenological research design was used in this study because the study dealt with the lived college readiness experience of university graduates. Phenomenology refers to knowledge as it appears to consciousness, the scientific description of what one knows and senses, or knows in one's immediate awareness. The process leads to an unfolding of phenomenal consciousness through science and philosophy "toward the absolute knowledge of the Absolute" (Moustakas, 1994; Van Manen, 2017).

Data collection and analysis procedure in transcendental phenomenology highly considers some most important concepts. The first concept of *Epoche* refers to refraining from judgment or abstaining from the everyday, ordinary way of perceiving things. *Epoche* considers a new way of examining things; it requires that we learn *to see* what stands before our eyes, what we can distinguish and describe (Moustakas, 1994; Van Manen, 2017). The researcher also considered the concept of *Epoche* in the data collection and analysis procedure while he highly focused on lived experiences and feelings of the participants on the college readiness phenomenon bracketing one's own judgment. In order to keep himself on the intellectual track during the interpretation of the participants' experiences, the researcher guided his interpretations through the framework of the ecological views of the college readiness phenomenon.

Next to the concept of Epoche, the second essential process in the Transcendental-Phenomenology is the *Transcendental-Phenomenological Reduction*. Transcendental means it moves beyond the everyday to the pure ego in which the phenomenon is perceived freshly as if for the first time. ‘Reduction’ means that the process leads back to the source of the meaning and existence of the experienced world (Moustakas, 1994, Van Manen, 2017). In this case, this study used the OpenCode software to conduct the phenomenological reduction. During this process, self-reports of the participants were converted into texts and the reduction was carefully accomplished by themes and sub-themes.

The third process that is considered in transcendental phenomenology is *Imaginative Variation*. Imaginative Variation is aimed at grasping the structural essences of experience (Moran, 2017; Moustakas, 1994). For instance, after the phenomenological reduction of the texts into major themes in this study, the imaginative variation of the emergent themes was accomplished. This means that the detailed and critical description of the themes was done within the contexts of the participants.

Another concept that is considered in the phenomenological study is *Intersubjectivity*. Intersubjectivity considers the importance of the intersubjective, especially in connection with self-insights and subjective perceptions of what is real. In easier language, when someone experiences an object according to its experiential sense, others also experience the object in its experiential sense. Therefore, intersubjectivity considers the method through which the *other* becomes accessible to someone, i.e., empathy - a *thereness-for-someone* of others (Moran, 2017; Moustakas, 1994). In this study, the researcher was empathetic when he interpreted the college readiness experiences of the participants. In other words, the researcher was attentive to the experiences of participants. The empathetic interpretation of the participant’s experiences of the college readiness phenomenon including the author’s experience of the participants’ college readiness experiences was combined in the totality for understanding the college readiness phenomenon. Therefore, this study followed a naturalist-driven investigation that entailed a succinct description of the lived college readiness experience of participants with shared intersubjective college readiness experience.

Mixed methods design. Research design is defined as the conceptual structure or a blueprint for the research process, including data collection, measurement, and data analysis (Kothari, 2004; Morse, 2016). The parallel-databases design was used in this study. In the Parallel-Databases Design, the process is structured in such a way that quantitative (QUAN) and qualitative (QUAL) data are gathered separately at the same time (concurrently) but not

within the same measures (Edmonds & Kennedy, 2018). The concurrent data analyses were also accomplished. Then, by comparing and contrasting the data through one overall interpretive framework, the results were converged.

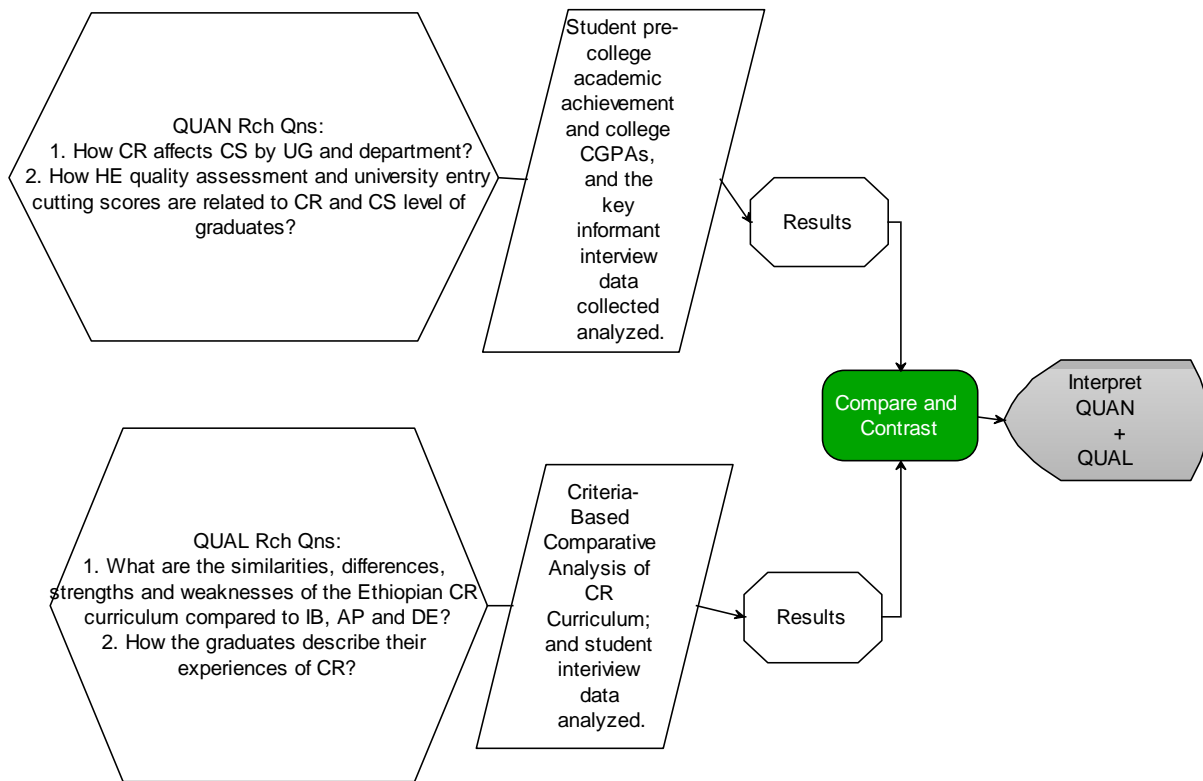


Figure 3: Parallel-databases Mixed Methods Design (Kennedy, 2018)

In this figure, the survey questionnaire is not included because the survey questionnaire collected the data for covariates such as students' SES and Students' Technology Use for Academic Purposes. These data were used to control these variables that correlated with the college readiness and success of the students.

The first research question is related to the other three research questions. This study argues that higher education quality assessment systems should take into account the effect of college readiness on college success to produce a comparative and comprehensive model of higher education quality assessment. As stated in the statement of the problem, some studies attempted to control the college readiness differences of the college entering students in their studies of the value-added approach to higher education quality (Coates, 2009; Cunha and Miller, 2014; Jackson and Kurlaender, 2014; Liu, 2011). Also, this study argues that, naturally, effective universities are precise in linking students' aptitudes while they heighten the probability of college success. Through the key informant interviews, how the effect of

college readiness on college success was considered by the Ethiopian higher education quality assessment system was explored. Through this interview, “whether the Ethiopian empirical research findings that related the continuous college readiness and success measures of affirmative action groups were considered in the determination process of cutting scores” was asked to understand how college readiness and success were empirically linked.

On the other hand, curricular and assessment innovations in building college readiness intend to heighten the effect of college readiness on college success. For instance, lower assignment to remediation in higher education is an indicator of strongly built college readiness and this reduces a burden from universities. In general, the higher effect of college readiness on college success is rooted in the pre-college curriculum; assessment, teaching and learning, and suitable and convergent ecological context. For this reason, using the empirical research findings that compared the effect of IB, AP, DE, and the Ethiopian Prep Curriculum on student college learning outcomes, particularly, college CGPA, this study provided the qualitative curriculum-based elaboration of the effect of college readiness on college success in the linking process of the quantitative and qualitative research findings.

Also, student college readiness and success is not only the function of how strongly the education system builds college readiness; it is also the function of how the elements of the ecology are well integrated or converged in hitting the target. Using the student interview, this study analyzed how proximal and distal factors integrated with strengthening the proximal processes at the student level, and how the student instigative characteristics helped the student to develop college readiness. This data also linked with the quantitative student college readiness and success data in different aspects. Firstly, the students’ mathematics and English language performance self-efficacy, their rate assignment to remediation, and the research skills they acquired in high school explained the extent that their resource and force characteristics impacted the effect of college readiness on college success. On the other hand, other elements of the ecosystem that the students raised in the interview, such as the school facilities and climate, teacher quality, the value given to education and the prevalence of employment were related to affecting the student college readiness and success level.

Explanatory correlational research design. In explanatory correlational research design, explanations on how one variable affects another variable are made by using more advanced statistical tests, such as regression and Analysis of Variance (Edmonds and Kenedy, 2018; Leavy, 2017). In this study, how college readiness explained college success

through UGs and departments was studied. A type of explanatory correlational research design, i.e., causal-comparative ex post facto design, was a research design of this study. In this design, the groups were those more college-ready and less college-ready participants as they have been grouped depending on the manipulation of the independent variable (i.e., UEE). The dependent variable was college success as measured by the college CGPA. The design also included moderating variables (UGs and Departments) and covariates (i.e., GSEE GPA, SES, and GTUAP). The logistic regression was used to predict the effects of college readiness on college success at the values of moderators controlling for covariates.

Population and participants. The first *population* of the study was all 2011 E.C./2019 G.C. undergraduate graduating students from first, second, and third-generation Ethiopian governmental HEIs. The population also included the MOE officers and the National Educational Assessments and Evaluations Agency (NEAEA) officers.

Sampling. It is stated in the theoretical framework of the study that students are placed in various departments (treatments) depending on the college entrance test results. It is assumed that the assignment of the groups to different categories and the manipulation of the variables to observe the effects had already been accomplished by other bodies (MOE and Universities) other than the researcher. For this reason, this study was an ex post facto experimental research in which already matched groups have been selected using a combination of probability and non-probability sampling design. For the reason that universities have significant diversities, the best approach to take a representative group was careful matching, inclusion, and exclusion of the already formed groups.

To this end, the sampling process followed this procedure: 1) the total 33 universities from the three UGs were listed; 2) depending on their similarities in terms of the faculties they consisted of, the total 30 UGs (nine 1st generation, eleven 2nd generation, and ten 3rd generation) were included in the study. The rest three universities, such as Ethiopian Defense University, Civil Service University, and Adama Science and Technology University were excluded from the study because they showed a significant difference from others; 3) The stratified sampling formula¹, $n_k = (n/N)N_k$, was used to calculate the number of universities should be selected from every three groups of universities (See Appendix C2); 4), After sample size determination and calculation, the total three UGs (i.e., one 1st, one 2nd, and one

¹ n_k = the sample size for k^{th} strata; N_k = the total population of k^{th} strata; N = the total population size; n = total sample size

3rd generation universities) were randomly selected from each of the three groups; 5) These three universities were compared depending on the faculties they consisted of, and the faculties that were not found in all three universities were excluded from the sample; 6) Three faculties (i.e., Business and Economics, Social Sciences and Humanities, and Natural and Computational Sciences) were randomly selected from the faculties that represent all three universities. In this case, for the reason that the three universities have the same type and number of faculties, the number of faculties that should be selected from each university was not calculated; 7) the departments in all three selected faculties were also matched. Then, departments that were not found in all three faculties were also excluded from the sample; 8) Three departments (i.e., accounting, psychology, and mathematics) were randomly selected from the departments that represent all three faculties; 9) all students in these three departments were included in the study. The 202 (Male = 128, Female = 74) participants from first generation; the 168 (Male = 91, Female = 77) participants from second generation; the 181 (Male = 107, Female = 74) participants from the third-generation university were included in the study. Due to time and financial constraints, only three departments were selected for the study. When all participants were added together, the total sample was 551. The total participants by UG, department and gender were calculated and annexed in Appendix C2.

Purposive sampling was also applied during the selection of MOE officers. The selection of participants depended on the availability of the participants. In this phase, the purposive sampling of the key informants from MOE for the interview was accomplished; one MOE officer and one NEAEA officer was interviewed. The officers were interviewed on two major key issues: 1) How HE quality assessment was related to the college readiness and success measures of students; and 2) The procedures of the UEE development and the HE entry cutting scores.

The researcher reduced his interview questionnaire of these officers to only these two major items because of some reasons. Firstly, the data concerning college preparatory policy issues and the Ethiopian Prep curriculum could be accessed through document analysis from MOE website and other empirical research reports. Secondly, from the pilot study visits to the MOE office, the researcher found that even the term ‘college readiness’ was new and unknown for the officers. In the Ethiopian context, college-going is just understood as going to a teachers’ training college or TVET College; while the terms college readiness, college-going and college choice refer to a move to university (Hughes, 2006; Paulsen & Perna,

2019). Also, the term *preparatory for Ethiopian HE* has been defined in policy documents as students' readiness for university-level education. Thirdly, for the reason that the education system is currently undergoing changes, there are changes in MOE staff. For these reasons, the researcher emphasized document analysis believing that shelves can tell him a lot. The Ethiopian Prep curriculum data, such as curriculum development process, contents, assessment and teachers' professional development could be accessed through document analysis.

In the second phase of sampling, the probability sampling design was applied to determine the number of graduate participants who should be selected for the interview from the total graduate participants of the study. The probability sampling followed the following steps:

Sample Size Determination among Strata and Selection Procedure for Interview. A total sample of 20 participants was selected for the interview. To decide the number of participants that should be selected from each stratum of UG, department, and gender, the stratified sample calculation formula was applied. After deciding the number of participants should be selected from each stratum, the participants were selected randomly by using the lottery system. The formula stated in footnote 1 was used in the determination of sample size for the interview by UG, department and gender. Also, the sampling calculation by UG, department and gender is annexed as Appendix C2.

Data collection tools. Besides, both primary and secondary data collection tools such as document analysis, interview, and survey questionnaire were used. In-depth interview and survey questionnaires were developed by the researcher depending on the theoretical models used in this study. Document analysis was used as a data-gathering tool for collecting pre-college and college grades of students from the registrars and some office documents in hard copy. The procedure followed in data collection is described below. Full raw data and other pieces of evidence are also annexed. Other documents, such as Ethiopian grade 11 and 12 syllabuses, college readiness curriculum policy documents, and research documents were also accessed both in hard copies from MOE offices and in softcopy from the internet.

Primary data: Surveys and in-depth interviews. The data on the students' histories and experiences of college readiness, interest in their major field of study, their perceptions of the quality of university education and the frequency of the assignment to remediation during their university study were gathered using both surveys and in-depth interviews. The 17 items

survey questionnaire (See Appendix A) and 14 items in-depth interview questionnaires (See Appendix B) were developed depending on the objectives and theoretical framework of the study.

Procedures of survey questionnaire development. The survey questionnaire selection and development was depended on the literature review of research findings. For instance, studies reported that technology use for academic purposes enhances college readiness of students. Specially, studies associated the use of computers and internet for academic purposes with stronger college readiness. Depending on these findings, the researcher developed the survey items on how the students used computer and internet during their Prep school. Also, studies associated the socio-economic status, particularly, the parental income and education level with stronger college readiness. Depending on these findings, the researcher developed the survey questionnaire items that measure the education level and the income level of the parents of the participants. After developing the items, the researcher checked the face validity with the advisor and peer doctoral students, and he also rechecked the content validity of the survey items to examine how they adequately measure the constructs. In addition, the researcher conducted factor analysis on the survey questionnaire to study whether the items load on the factor of interest. Then, the factors were correlated with the college readiness and success measures and those factors that significantly correlated with college readiness and success (i.e., the SES and the participants' technology use for academic purposes) included in the study as covariates. The Cronbach's Alpha internal consistency reliability was conducted for this survey's factor dimensions as it is presented in the pilot analysis section.

Procedures of survey interview questionnaire development. The interview questionnaire development was depended on the Urie Bronfenbrenner's Ecological Systems Theory of College Readiness. The components of college readiness, such as motivation, aspiration, academic skills, college knowledge, self-efficacy, academic preparation, the general proximal factors and distal factors were addressed in the interview questionnaire. For interview was very open, designed and conducted in such a way that the participants can freely describe their experiences. The content validity of the interview questionnaire was also rechecked against the components of ecological theory of college readiness.

The data collection procedure for surveys and interviews: The primary data collection process from the participants accomplished through the following procedure: 1) The researcher visited the academic vice president office of the sample universities and submitted

a formal letter from the researcher's university; 2) The academic vice presidents signed and sent the letter to the faculties and departments inviting them to cooperate with the researcher; 3) The faculty deans and department heads facilitated the situation by encouraging the classroom instructors and students to cooperate with the researcher in the data collection process; 4) After the clarification of the objectives and the confidentiality of the data, the researcher gave the survey questionnaire papers either to data collector students or to data collector instructors. Then, the data collectors distributed the questionnaires to the participants in the presence of the researcher, and collected and gave them back to the researcher. The researcher facilitated data collection by solving the language ambiguities and other problems that happened during the data collection process.

Following similar formal procedures to receive the formalization of data collection, the researcher randomly selected the participants for the interview from those participants who participated in the survey. The researcher scheduled his time and interviewed the participants.

Primary data: Student achievement data. The student achievement data used in this study are described in this section. The student achievement data, such as the GSEE GPA, the UEE Score, and the college CGPA are described depending on some criteria. The parameters used to describe the student achievement data are the subject tests of the achievement data, grade level, and the grading scales they used. A descriptive statistics summary for these three student achievement data is displayed in table 1 below. The full student achievement raw data are also displayed in Appendix Table F1, F2, and F3.

The GSEE GPA. The GSEE assesses the knowledge gained from the Ethiopian general secondary school (grades 9 and 10). The GSEE consists of 9 subject tests (Mathematics, English, Geography, History, Biology, Chemistry, Physics, General Academic Aptitude, Civics, and Ethical Education) which are commonly taken by all students in the country, whereas one subject test belongs to a local language of the students. Generally, the GSEE consists of 10 subjects (NEAEA, 2019; Trines, 2018).

Grading scales follow A-F norm-referenced scale. A cumulative GPA out of 4.00 is calculated for each of the exam takers. A minimum cumulative GPA that makes eligible for the Prep school entry is decided by the MOE.

The UEE Score. The Prep for HE lasts two years (grades 11 and 12). All grade-10 completers who hold sufficiently high grades of the GSEE are eligible to enter the Ethiopian Prep school for HE. Students can choose either a natural science track or a social science

track. These streams provide a common core curriculum, i.e., English, civics, information and communications technology, mathematics, physical education, and an elective language (Amharic or local languages), that makes up 60 % of the study load. The courses, such as Biology, Chemistry, Physics, and Technical Drawing are taught in natural science track whereas geography, history, economics, and business are covered by the social science track (NEAEA, 2019; Trines, 2018).

At the end of Prep education, students sit for the UEE. This exam tests the knowledge of the students in seven subjects for both of the streams. For example, the UEE for the social science stream consists of mathematics, English, civics, general academic aptitude, history, geography, and economics. Also, the UEE for the natural science stream includes the courses, such as mathematics, English, civics, general academic aptitude, biology, chemistry, and physics.

UEE achievement is graded on a numerical 0–100 point scale with a total possible score of 700 in the seven test subjects combined. The performance of students in each seven test subjects is converted to 100, and all of them are added and graded out of the total possible score of 700. It is a criterion-referenced assessment (NEAEA, 2019; Trines, 2018).

The college CGPA. Generally, the credit systems and grading scale that the Ethiopian HEIs use are similar to those found in the U.S. However, some first-generation universities recently began to use the European Credit Transfer and Accumulation System (ECTS). In most of the public HEIs including the sample universities for this study, one credit unit is defined as one contact hour per week taken over a span of 16 weeks. The common minimum credit requirement in most four-year bachelor's programs is 128 to 136 credits (i.e., 16 or 17 credits or 30 ECTS per semester). Also, a three-year degree can be completed with a minimum of 102 to 108 credits (i.e., 180 ECTS) (NEAEA, 2019; Trines, 2018). All sample departments that were included in this study graduated in three-year degrees.

Grading scales follow a standard A-F scale with some institutions using a simplified version without the “+” and “-” designations. For graduation from bachelor's programs, a minimum cumulative GPA of 2.0 (C) is required (NEAEA; Trines, 2018).

The data collection procedure for student achievement data. The data collection for the student achievement data was accomplished through the following procedure: 1) The researcher visited the academic vice president office of the sample universities and submitted a formal letter from the researcher's university; 2) The academic vice presidents signed and

sent the letter to the main registrars of the universities; 3) The heads of registrars at faculty and department levels gave formal instructions for technical registrar record officers to cooperate on the data collection process, and; 4) the record officers of the registrars made an appointment and deadline for completion of the data collection process. Some data had not been computerized and the data collectors were cooperated by collecting them from the registrar records. The researcher funded data collectors who collected the data from the registrar records. Those registrar officers, (e.g. from third-generation university), whose data were available online agreed to send to the researcher through email after weeks. Others were even willing to print the data and give it to the researcher without an appointment. Some of them at First-Generation University, e.g., accounting department, facilitated the situation for the researcher to collect the data himself from the records of students at the faculty registrar while others cooperated by printing, collecting, organizing, and giving the data to the researcher.

Secondary data. The literature concerning college readiness curriculum, models, programs, and research findings in different aspects of college readiness was collected through document analysis. This literature was used to make a comparative analysis of the Ethiopian college readiness curriculum with another world. The research findings were also used to describe the major theories and practices in building college readiness. Journal articles, dissertations and theses, books, and conference reports were collected in hardcopy from local libraries and in softcopy from online accredited sources. Especially, those journals subscribed by AAU, such as Science Direct sources, Springer Journal, Sage Journals, Taylor and Francis, and Emeralds were the major data sources for this study. Another methods used to search for credible literature were using international databases, such as Scimago Country and Journal Rank and SCOPUS, the Web of Science, Directory of Open Access Journals and Books, and Google Scholar. After randomly searching for relevant sources using keywords, the appropriate resources were purposively selected and reviewed.

Bases for the comparative curriculum analysis criteria development. This study used the college readiness curriculum comparison criteria used by some scholars such as Tobolowsky & Allen (2016) and Hughes (2006). These scholars frequently used the criteria such as setting for delivery, student learning outcomes, content development, assessment, instructional process, funding sources, and teacher preparation in the process of comparative study on the college readiness curricula. This study also used these criteria when it conducted a comparative analysis on the curricula under study.

Validity. The UEE scores, GSEE GPAs, and college CGPAs were collected from the faculty registrars at sample universities. A formal letter from the universities' academic vice presidents was sent to the main registrars. Then, the heads of the registrars formally assigned the letter to the technical registrar record officers. Some registrar officers, whose data were saved in the computer, printed the data for the researcher; some of them organized it in softcopy and sent it to the researcher by email, and others gave the data by flash disk. The picture of some formal letters and some data sent by email, given in printed hard copies, and hand-filled data are displayed in the Appendix H1, H2, H3, and H4. The full document score raw data (Appendix Table F1, F2, and F3) and the full qualitative raw data (Appendix Table G) are also annexed. The descriptive statistics summary for the three document score data are shown in table 1 as follows:

Table 1: Descriptive Statistics for Achievement Data

UG	Department	UEE Score			GSEE GPA			College CGPA		
		M	SD	N	M	SD	N	M	SD	N
1	Accounting	443.11	58.92	138	3.10	.44	138	2.89	.47	138
	Psychology	351.58	24.58	40	2.77	.26	40	2.75	.52	40
	Maths	393.83	25.66	24	3.01	.37	24	2.99	.49	24
	Total	419.13	62.76	202	3.03	.42	202	2.88	.49	202
2	Accounting	399.80	20.72	115	2.95	.41	115	2.84	.47	115
	Psychology	342.39	16.05	38	2.78	.43	38	2.74	.50	38
	Maths	361.27	16.96	15	2.90	.23	15	2.74	.40	15
	Total	383.38	31.40	168	2.91	.41	168	2.81	.47	168
3	Accounting	408.59	21.34	135	3.03	.31	135	2.88	.47	135
	Psychology	352.75	9.11	24	2.72	.23	24	2.92	.64	24
	Maths	363.32	15.91	22	2.81	.24	22	2.96	.57	22
	Total	395.69	29.63	181	2.96	.32	181	2.90	.50	181
Total	Accounting	418.26	43.21	388	3.03	.39	388	2.87	.47	388
	Psychology	348.43	19.20	102	2.76	.33	102	2.79	.55	102
	Maths	374.82	25.44	61	2.93	.31	61	2.92	.50	61
	Total	400.53	47.44	551	2.98	.39	551	2.86	.49	551

Note: UG = University Generation; M = Mean; SD = Standard Deviation

For the survey and interview questionnaires, the ambiguous items were rephrased and rewritten depending on the pilot study results. The problems that appeared were solved after

the questionnaires were distributed and collected in the pilot study. The face validity of the questionnaires was checked with experts and Ph.D. students at Addis Ababa University. The content validity of the questionnaire was checked against the theoretical frameworks from which they were derived.

The journal articles, books, dissertations and theses, government reports, and conference reports used for comparative and critical review were searched by using international databases, such as Scopus, Web of Science, Directory of Open Access Journals and Books, and Google Scholar. The researcher used some mechanisms to identify the credibility of online sources: 1) checking whether the resources have been indexed in the above-listed databases; 2) Searching them using APA machine to check it whether it is crossref or not; and 3) using some information about the credibility of scholarly works, such as Beal's lists and universities' accreditation and evaluation results of scholarly works.

Reliability. In order to analyze how the survey questionnaire was internally consistent and reliable, the Cronbach's Alpha internal consistency reliability analysis was conducted during the pilot study using the Statistical Package for Social Sciences (SPSS) software version 24.

Data analysis methods. As it is stated previously, the quantitative and qualitative data were analyzed independently and the results of both data analyses were compared (triangulated). These data analysis results were opted to answer the following research questions: A) what is the effect of college readiness on college success at the values of a UG, and field of study in Ethiopian Governmental HEIs? B) How are the HE quality assessment and university cutting scores related to college readiness level and college success level of graduates? C) What are the similarities, differences, strengths and weaknesses of the Ethiopian college readiness curriculum, assessment, theories, and practices compared to another world? And D) how graduates describe their experiences of college readiness?

Quantitative data analysis. Since this study follows the mixed-methods research approach, a mix of both quantitative and qualitative data analysis methods was used. Different quantitative data analysis methods such as Pearson Product Moment Correlation and binomial logistic regression were used to analyze the quantitative data.

The role of quantile regression in studying the relationship between secondary education student variables and student college outcomes is high (Paulsen, 2015). In order to observe the effect of college readiness on the college success of graduates at the values of the

moderators, binomial logistic regression was used. During this analysis, the UEE score was used as a continuous predictor variable; the UG (i.e., coded as UG1, UG2, and UG3), department (i.e., coded as Dpt1, Dpt2, and Dpt3) and gender were used as categorical moderators; and the GSEE, GTUAP, and SES were used as continuous covariates; and college CGPA (i.e., the college CGPA less than 2.75 was coded as ‘less successful’, and the college CGPA greater than or equal to 2.75 was coded as ‘more successful’) was used as a binary dependent variable. For this analysis, the Process Procedure for SPSS software version 3.4 was added to the SPSS software version 24 and used. In addition to analyzing the effect of college readiness on college success at the values of the moderators, the probability of college success by UG, and department, taking into account the contribution of the covariates, was investigated in this part of data analysis.

The assumption of linearity in logistic regression assumes that there should be a linear relationship between quantitative predictors and the logit of the outcome variable. This assumption was tested by analyzing the interaction term between the predictor (UEE score) and its log transformation, as well as the interaction term between all covariates and their log transformations and found that the interaction was not statistically significant in all cases, $p > .05$, (See Appendix I1). For this reason, the assumption of linearity was met in this study.

According to Menard (1995), tolerance values less than 0.1 show multicollinearity in the data for the regression analysis. In this study, the multicollinearity assumption was checked by running the multicollinearity test using linear regression analysis in SPSS. For the reason that the logistic regression does not have the multicollinearity analysis option, testing multicollinearity through linear regression for the logistic regression data is recommended (Field, 2018). All tolerance values for the independent variables are greater than 0.1 and all the VIF values are less than 10 (see Appendix I2), and this shows that there were no high correlations between independent variables.

Priori sample size determination for quantitative data analysis method. To check the adequacy of the sample for binomial logistic regression test, a priori type of power analysis was used in G-power software version 3.1.9.6 (2020). Using effect size input mode of probabilities and the Hsieh et al. (1998) procedure in G-power, and when the following input parameters were used: Tails = 2; $pr(y=1)(x=1)H1 = .6$; $pr(y=1)(x=1)Ho = .05$; alpha error probability = .05; power(1-beta error probability) = .95; R^2 other than $x = 0$; x distribution = normal; X parm population mean = 0; X standard population deviation = 1, the appropriate

sample size was 317. Also, the critical $z = 1.96$ and the *actual power* was also .95. Therefore, the total sample size ($n = 551$) of this study is more than adequate for binary logistic regression.

The data analysis followed three steps using the SPSS software. The first step was data entry. In this step, the raw data was coded and entered into SPSS. The second data analysis step in SPSS was data cleaning in which the data entered were checked for their fulfillment of assumptions, for example, checking for the missing data, the existence of outliers, fulfillment of normality assumptions, and other assumptions that are specific to a type of tests used, such as binary logistic regression and Pearson Product Moment Correlation. In this part, adjustments were made. For instance, the use of Analysis of Covariance (ANCOVA) was changed to binary logistic regression because the dependent variable violated the normality assumption. In the third step, after checking for assumptions, the data was transformed and analyzed.

Qualitative data analysis. The objective of this qualitative data analysis was: 1) to study how the graduates experienced college readiness. This means that understanding how the proximal and distal ecological variables were experienced by the participants in affecting the college readiness of the graduates. In this case, the researcher, firstly, focused on the individual instigative characteristics, such as the force characteristics (students' psychological characteristics), the demand characteristics (participant's type of interaction and elicitation of responses from others) and the resource characteristics (academic preparation, college knowledge and student economic and other supportive backgrounds). Secondly, the researcher interpreted the extent to which the participants experienced the proximal and distal factors as promoting their readiness for college. To achieve this objective, the researcher collected the data from the sample respondents' narration or description of their experiences of college readiness as related to their college success. Here, the participants described: a) How they prepared for college; b) What factors affected their preparation for college; c) How their motivation, self-efficacy, their ability, resources, interaction and cooperation with others helped them to be ready for college; d) What personal, social, and environmental factors affected their college readiness.

This qualitative data was collected from the graduates using an in-depth, semi-structured interview. The researcher also considered the concept of *epoche* in the data collection procedure while he highly focused on lived experiences of the participants bracketing the

college readiness phenomenon and allowing the *epoche*. In order to keep himself on the intellectual track during the interpretation of the participants' experiences, the researcher guided his interpretations through the framework of the ecological views of the college readiness phenomenon. After selecting the participants for interview from the total participants using a stratified sampling procedure, the researcher made an appointment with the participants. Then, he conducted an interview. The data was recorded in a notebook. After the data was collected and recorded, the researcher wrote the responses of each participant in MS word document of the computer following a sequence.

The phenomenological reduction of the qualitative textual data was accomplished using the Open Code Software. Firstly, the data were imported into the software (text). Secondly, the data were re-coded in the software resulting in (text 2). Thirdly, synthesis 1 and synthesis 2 were produced through further coding in which the data were further clustered towards more general themes depending on the specific codes. Finally, the memos were created depending on the general themes of the data analysis. Here, the memos related the themes to the theoretical assumptions of the ecological theory of college readiness. The description of the extent to which the students experienced the college readiness phenomenon was accomplished by themes through detailed thematic variations of the college readiness phenomenon. Also, the nature of the instigative characteristics of the students as promoting their readiness for college was interpreted from the self-report of student experiences. Additionally, how these proximal and distal factors were intensively interacted in promoting college readiness of the participants was interpreted from the graduate experiences. Also, the researcher took an empathetic approach towards the interpretations of the college readiness phenomenon in order to ensure the inter-subjectivity of the college readiness experience of the participants. In the interpretation process, the researcher immersed himself into the world of each participant in addition to keeping himself on the track of an intellectual *epoch* of interpretation.

Another qualitative data analysis was a descriptive, critical and comparative analysis of the existing local and international literature and trends in the world regarding college readiness theories, models, college readiness curriculum and assessment. This analysis was conducted in the form of a descriptive analysis of the literature in themes. A critical review of published resources and policy documents was conducted. Then, a critical analysis of the Ethiopian college readiness curriculum against the existing college readiness curricula in the world, especially, the AP, IB, and DE was conducted. The analysis was depended on the

parameters, such as the settings for delivery, student participation, the curriculum, the assessment, teacher preparation, the student learning outcomes, and the professional development.

The literary qualitative analysis also considered the three aspects of a critical literature review: thesis, antithesis, and synthesis. The researcher attempted to examine the supporting and contradicting findings on the major themes of the literature review. Then, the culling of the consistencies and inconsistencies from various sources were balanced in the mind of the researcher to come up with the general synthesis and understanding of the contemporary college readiness phenomenon as compared to the Ethiopian.

Triangular observation of the Ethiopian college readiness phenomenon. The quantitative and qualitative data analysis results were interpreted together, compared and contrasted. From the quantitative findings, it was mainly observed how linking student abilities guaranteed the probability of college success and the HE quality assurance. From the qualitative findings, two sides of the college readiness phenomena were interpreted: the curricular aspect and the ecological aspect. The Ethiopian Prep curriculum was compared and contrasted against the major college readiness curricula depending on the parameters, such as the setting for delivery, the curriculum, student participation, assessment, professional development, and student learning outcomes. The second aspect of qualitative findings observed is the graduates' lived experiences on college readiness and success. The extent to which the graduates' description of their college readiness supported their college success was observed. In this section, the general analysis and description of the relationship between Ethiopian college readiness and success was conducted depending on the quantitative data analysis results, the theoretical qualitative description of college readiness phenomenon and the comparative analysis of the curricula. The general impression of the relationship between these two phenomena was made.

In addition to the triangular observation of the Ethiopian college readiness phenomenon, the study observed the consistencies and inconsistencies between quantitative and qualitative research findings. For this purpose, the researcher randomly selected the 20 representative sample of students from the total 551 sample size of the participants. Using the interview data analysis, generally, the students' mathematics and English language learning self-efficacy, the percent of assignment to remediation, as well as the research skills acquired from high school were used to compare the quantitative description of the effect of college readiness on college success with the qualitative research findings on the relationship between college

readiness and success. The general understanding of college readiness experience reports and the students' understanding of college readiness and success was made. Secondly, from the MoE officials' interview response, the researcher described the gap existed in empirically linking student college readiness, higher education quality assessment and college student learning outcomes. From the comparative analysis of the curricula, the link between quantitative student precollege performances as related to college cumulative CGPA was understood. For instance, the findings of previous study reports on the effect of AP and IB course-taking on students' college academic performance was examined and compared.

Ethical considerations. The students and the university administrators were given adequate information regarding the objectives of the study and how the data collected from them would be used only for the research. Regarding the collection of student scores from the registrar, the university administration (i.e., the University Academic Vice President) was contacted to accept a formal permission. The confidentiality of the data collected from the participants was kept. The name of the universities was not used in the research report for purpose of ethical considerations. Instead, the labels UG1, UG2, and UG3 were used to name the generation of a university. The data from graduating students were collected after the discussion with them. These participants clearly understood the objective of the study and were convinced that there would be no risk of Ethical violations in the study.

The pilot study. The objective of the pilot study was to 1) Improve the quality of the instruments. This was accomplished by distributing the questionnaires to a small sample of participants; colleagues and experts; 2) gathering some preliminary information about the relationships between the variables in the study. This paved the way for the main study by choosing the best approaches depending on the results of the pilot study.

The pilot study procedures. After developing the survey questionnaire and interview questionnaire items, the researcher went to the sample universities and introduced himself and his study to the university administrators. After taking the agreement from university administrators, the researcher took the lists of all participants from the registrar in order to calculate the total sample size for the pilot study. Then, the researcher calculated the number of participants (Appendix C1) that should be selected from each stratum of UG, departments and gender by using a stratified sampling technique. Then, the survey questionnaires were distributed to the total 50 selected student participants (UG1 = 17; UG2 = 16; and UG3 = 17). From these 50 participants, 5 students were randomly selected for the pilot interview. In addition, both interview questionnaires and survey questionnaires were distributed to 3

experts in the field and 5 colleagues. These colleagues and experts critically commented on the design and content of the questionnaires during the pilot study.

The second pilot study visit was conducted at the MOE and the NEAEA offices. During this visit, the researcher conducted some unstructured interviews. Depending on the results of this visit, the researcher specified the final number of participants and data collection tools for the main study.

Data analysis for the pilot study. During the pilot study, quantitative and qualitative data analysis methods were used. The Cronbach's Alpha internal consistency item reliability analysis method, the Pearson's Product Moment correlation method, and the principal component analysis were among the quantitative data analysis methods used.

The data gathered through the interview were also carefully recorded in a notebook and the problems that appeared were solved. During the pilot interview, the researcher could catch the major problems that may hinder the effectiveness of the main study. The qualitative interpretation of what was going on through observation during the pilot study visits also paved the way for the success of the main study.

Quantitative pilot data analysis. The reliability analysis was conducted to total 11 items survey questionnaire. The total items' Cronbach's alpha internal consistency reliability for 11 items survey questionnaire was found to be .74. In addition, reliability analysis for subgroups of the items was conducted. In order to find the items' dimensions and subgroups, the factor analysis (Table 2) was conducted and the items formed four dimensions: SES; GTUAP; HE Quality Rating and Pre-college Academic status. A Kaiser-Meyer-Olkin value of .78 and a significant Bartlett's test of sphericity (approx. $\chi^2 = 2471.17$, $df = 78$, $p < .001$) showed that the data were acceptable for factor analysis. After the dimensions were identified, the Cronbach's Alpha reliability (i.e., for a factor dimension with the number of items greater than 1) and test-retest reliability (i.e., for a factor dimension with a single item) were conducted for these four-factor dimensions and shown in table 2:

Table 2: Reliability Analysis Results for the Factor Dimensions of the Survey Questionnaire

No	Factor Dimension	Reliability		No of Items
		Group Cronbach Alpha	Test-retest Cronbach Alpha	
1	Graduate's Parent Education and Income Level	.66		4
2	Graduate's Technology Use for Academic Purposes	.66		4
3	HE Quality Rating	.85		2
4	Interest-Major-Congruence		.91	1
Total				11

Table 3: The Correlations between Variables in the Study: N = 50

	UEE	GSEE	IMC	Gender	College CGPA	HEQR	SES	GTUAP
1	1							
2	.68**	1						
3	.34*	.12	1					
4	.16	.33*	.21	1				
5	.19	.47**	-.26	.20	1			
6	-.05	-.25	.02	-.42**	-.26	1		
7	.24	.28	.05	-.16	-.07	.28*	1	
8	.40**	.39**	.09	-.15	.28*	.35*	.53**	1

*. P < 0.01 level (2-tailed); **. P < 0.001 level (2-tailed)

Note: UEE = University Entrance Examination; GSEE = General Secondary Education Examination; CGPA= Cumulative Grade Point Average; IMC = Interest-Major-Congruence; HEQR = HE Quality Rating; SES = Socio-Economic Status; GTUAP = Graduates' Technology Use for Academic Purposes

Qualitative pilot data collection and analysis. In this phase, the researcher conducted an in-depth interview with 5 participants: 3 males and 2 females. The researcher used the language flexibly during the interview. He asked the most favorite language for each of the participants. Fortunately, all participants were fluent in the languages the researcher uses. The main important phrases and words were written down in a notebook to record the main points. After completion of the pilot interview, the researcher sat down and looked for

problems in the interview process: the problems that may affect the validity of the data. Depending on this, the interview questionnaire underwent some modifications. Some sensitive and problematic items were discarded. Some ambiguous items were rephrased.

The second pilot interview was the interview that was conducted with two MOE officers and one NEAEA officer. Depending on the situations encountered during the interview and the visit, the researcher adjusted the main tools and participants should be included in the main study. For instance, the researcher decided to use mainly document analysis to gather data from MOE and NEAEA. The main study interview was conducted to one MOE and one NEAEA officer.

Chapter Four: Results

4.1. Introduction

In this chapter, the data analysis results were organized and described in two major sections: The quantitative and the qualitative section. The quantitative section dealt with the first two research questions, ‘How college readiness affects college success at the values of UG, department, and gender?’ and ‘How are HE quality assessment and university entry cutting scores related to college readiness level and college success level of graduates?’ The second major sub-section of the chapter focused on organizing and presenting the qualitative data analysis results. This section of the chapter dealt with the two research questions of the study: 1) what are the similarities, differences, strengths, and weaknesses of the Ethiopian college readiness curriculum and assessment compared to another world? and 2) how do graduates describe their experiences of college readiness?

Restatement of the objective. The major objectives of this study were: 1) To examine the effect of college readiness on college success at the values of the moderators; 2) To analyze how university quality assessment and university entry cutting scores are related to college readiness and college success; 3) To compare and contrast the Ethiopian Prep curriculum with major college readiness curricula in the world; 4) To study how graduates experience college readiness. The data were collected from three Ethiopian governmental HEIs. The independent variables, the moderating variables, the covariates, and the dependent variables were clearly defined in this analysis. To test the hypothesis, “College readiness significantly affects college success at the values of moderators in the Ethiopian context,” the binary logistic regression analysis was conducted. This was to analyze the effect of college readiness on college success at the values of the moderators controlling for some significant correlates of college success measure. For this purpose, the Process Procedure for SPSS Version 3.4 software was added on the SPSS version 24, and used in the analysis. The UEE Score, i.e. college readiness measure, was used as a predictor variable. The moderators were the UG, department, and gender. The GSEE GPA, GTUAP and SES were covariates, and the college CGPA was a binary, dependent college success measure.

Also, the Process Procedure for SPSS was used to analyze the probability of college success by UGs, departments, and sexes at the values of college readiness levels and levels of the covariates such as GSEE Score, SES, and GTUAP. This is aimed at analyzing how college readiness is related to the probabilities of college success for UGs, sexes, and departments.

To answer the question, “How HE quality assessment and university cutting scores were related to college readiness level and college success level of graduates?” two analysis results were interpreted. Firstly, from the predictive binary logistic regression analysis, the effect of college readiness on college success at the values of UG, department, and gender controlling for the covariates could be determined. In this case, quality is interpreted from this relationship: the significance levels for the positive effects of college readiness on college success at the values of UG ‘X’ determined the extent to which UG ‘X’ linked the student aptitudes or promoted the effects of student abilities. In other words, those UGs which significantly promoted the effect of college readiness on college success have been interpreted as promoters of the effects of student abilities. This was interpreted as a strong aspect of UG performance.

Promoting the effects of student abilities is not sufficient. It is hypothesized that promoting the effects of student abilities should guarantee the probability of college success. For this purpose, the probability of college success by UG, department, and gender was analyzed. Then, the extent to which the UGs promoted the effect of college readiness on college success while enhancing the probability of college success determined the performance level of UGs.

In addition to quantitatively describing the relationship between college readiness and success of the graduates, the deeper qualitative analysis for the ecological roots of college readiness as related to college success was conducted to get a broader understanding of the nature of college readiness and college success relationship in the Ethiopian context. For this purpose, the semi-structured interview, which was depended on Bronfenbrenner’s Ecological Theory of college readiness (Arnold & et al, 2012; Bronfenbrenner, 1979; Leah O’Toole & Halpenny, 2017), guided the process of grounding the college readiness experience of graduates from the random and specific description of college readiness experiences to gradual clustering of the major nature of college readiness experiences. Then, these major clustered concepts were critically analyzed and compared against the concepts of the ecological model of college readiness.

The research questions of this study were spelled out as follows:

1. What is the effect of college readiness on college success at the values of the moderators?
2. How are HE quality assessment and university cutting scores related to college readiness level and college success level of graduates?

H0a: The effect of college readiness on college success is not significant.

H1a: There is a significant effect of college readiness on college success.

H0b: The conditional effect of college readiness on college success does not significantly differ by UGs and departments.

H1b: The conditional effect of college readiness on college success significantly differs by UGs and departments.

H0c: The probability of college success at a value of college readiness does not significantly vary by UGs and departments.

H1c: The probability of college success at a value of college readiness significantly varies by UGs and departments.

H0d: A UG with the highest total conditional effect of college readiness on college success has no highest average probability of college success

H1d: A UG with the highest total conditional effect of college readiness on college success has also the highest average probability of college success.

3. What are the similarities, differences, strengths, and weaknesses of the Ethiopian college readiness curriculum and assessment compared to another world?
4. How do graduates describe their experiences of college readiness?

4.1.1. Quantitative Data Analysis Results: The Relationship between College Readiness and College Success at the Values of the Moderators and Covariates

In this section, the effect of college readiness on college success at the values of the moderators was analyzed controlling for or taking into account the contribution of the covariates. Also, the probability of college success at the values of the moderators was observed controlling for the effect of some covariates. Additionally, the extent to which the effect of college readiness on college success guaranteed the probability of college success across three UGs was observed.

The effects of college readiness on college success at the values of the moderators and covariates. There is a generally accepted meritocratic assumption in any education system that college readiness significantly affects college success. In other words, well-ready students will successfully complete their college studies than less college-ready students. However, the degree of preserving this meritocratic principle in education for quality is highly affected by so many institutional and non-institutional moderating and confounding factors. In this section, the effect of college readiness (as measured by UEE score) on college success (as measured by the college CGPA) at the values of the moderators

(i.e., UGs, departments and gender) was observed controlling for the covariates (i.e., GSEE, GTUAP, and SES). For this purpose, The Process Procedure for SPSS was used.

Table 4: The Effect of College Readiness on College Success at the values of moderators:
N = 551

Coefficients	B(se)	LLCI	ULCI
Constant	-10.88***(1.68)	-14.18	-7.59
UEE Score	.02***(.01)	.01	.03
W1	-.44(3.16)	-6.63	5.75
W2	1.96(2.92)	-3.77	7.69
UEE Score x W1	.00(.01)	-.01	.02
UEE Score x W2	-.003(.01)	-.02	.01
Z1	-18.38**(6.63)	-31.37	-5.38
Z2	-4.79(6.56)	-17.64	8.07
UEE Score x Z1	.06***(.02)	.02	.09
UEE Score x Z2	.02(.02)	-.02	.05
GSEE	.85*(.36)	.15	1.55
GTUAP	-.08***(.03)	-.13	-.03
SES	.02***(.07)	.07	.34

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

ModelLL = 129.11; $df = 12$; $p < .001$

Nagelkerke $R^2 = .28$

W1 = UG2; **W2** = UG3; **Z1** = Department 2; **Z2** = Department 3

UEE = University Entrance Examination; **GSEE** = General Secondary Education Exam; **GTUAP** = Graduates' Technology Use for Academic Purposes; **SES** = Socio-Economic Status

As can be seen from Table 4, the model significantly predicted college success, Nagelkerke $R^2 = .28$, $p < .001$. In addition, the effect of college readiness (UEE Score) on college success (college CGPA), at the values of moderators and covariates, is statistically significant, $B = .02$, $Se = .02$, $p < .001$, $CI = .01 - .03$

The effects of college readiness on college success at the values of UG, and department. In this section, the effect of college readiness (UEE score) on college success (College CGPA) at the values of UG, and department was investigated. In order to achieve this objective, the Process Procedure for SPSS version 3.4 software was installed on SPSS version 24 and used. Also, using college success as a binary dependent variable and college readiness as a continuous independent variable; UG and department as categorical moderators; and including the continuous covariates such as SES, GTUAP, and GSEE score as covariates, the binary logistic regression was used in the analysis. Since more than two moderators cannot be entered at the same time in the process procedure for SPSS version 3.4, only UG and department were entered in this analysis excluding gender.

Table 5: Conditional Effects of the Focal Predictor at Values of the Moderators: N = 551

UG	Dpt	Effect(se)	Z	LLCI	ULCI	Effect scores	Total effects
1	1	.02***(.01)	4.31	.01	.03	3	
1	2	.08***(.02)	3.99	.04	.11	3	7
1	3	.04*(.02)	1.98	.00	.07	1	
2	1	.02** (.01)	2.71	.01	.04	2	
2	2	.08***(.02)	4.32	.04	.11	3	6
2	3	.04*(.02)	2.20	.00	.07	1	
3	1	.02*(.01)	2.06	.03	.11	1	
3	2	.07***(.02)	3.62	.00	.03	3	4
3	3	.03(.02)	1.84	-.002	.07	0	

Note: *p <.05; **p <.01; ***p<.001; *** = 3; ** = 2; * = 1

UG: University Generation; Dpt: Department

As can be seen from Table 5, the effect of college readiness (UEE score) on college success at the values of the moderators (UG and department) is visible in all UGs and their departments. For instance, the effect of college readiness on college success at the value of UG1, and in all of its three departments is statistically significant, $p < .001$ for the first two departments, and $p < .05$ for the third department. This means that the effect of college readiness on college success was significantly and positively promoted in all departments of UG1, $p < .001$ for departments 1 and 2, and $p < .05$ for department 3. All confidence intervals are outside negative value and this shows that the effect is positive. This means that placement to UG1 in these departments worked well for well college-ready graduates. How the graduates were college-ready significantly promoted their college success.

At the value of UG2 and at its three departments, the effect of college readiness on college success was statistically significant, $p < .01$, $p < .001$, and $p < 0.5$, respectively.

At the value of UG3 and department 1, the effect of college readiness on college success was statistically significant, $p < .01$. The effect was also statistically significant in UG3, department two, $p < .001$. However, the effect was not statistically significant at the value of UG3, department 3, $p > .05$. Generally, in the case of promoting the effect of student abilities,

UG1 can be the highest performer compared to the rest two UGs, Total effects for UG1 = 7, UG2 = 6, and UG3 = 4. This means that, relatively and statistically, student abilities were well linked at UG1.

Depending on this relationship, it can be understood that how these promoted effects differed from a UG to another. This can be an indicator of how the aptitude of learners was related across the time. For instance, compared to UG3, UG1 and UG2 were more successful in linking student abilities across the time. The quality of promoting the effects of college readiness on college success is not sufficient to be effective for a UG unless this promotion guarantees the probability of college success.

Table 6: The Probability of College Success at Value of UG and Department: N = 551

UEE Score	UG	Department	Z	Prob.	² P Level	Sum(p level)	Sum P Level Total
353.09	1	1	-1.27	.22	0		
400.53	1	1	-.34	.42	0	3	
447.97	1	1	.59	.64	3		
353.09	1	2	-.01	.50	1		16
400.53	1	2	3.55	.97	3	7	
447.97	1	2	7.11	1.00	3		
353.09	1	3	-.30	.43	0		
400.53	1	3	1.40	.80	3	6	
447.97	1	3	3.09	.96	3		
353.09	2	1	-.67	.34	0		
400.53	2	1	.40	.60	1	4	
447.97	2	1	1.46	.81	3		
353.09	2	2	.58	.64	2		19
400.53	2	2	4.29	.99	3	8	
447.97	2	2	7.99	1.00	3		
353.09	2	3	.29	.57	1		
400.53	2	3	2.13	.89	3	7	
447.97	2	3	3.97	.98	3		
353.09	3	1	-.54	.37	0		
400.53	3	1	.22	.56	1	3	
447.97	3	1	.98	.73	2		
353.09	3	2	.71	.67	2		18
400.53	3	2	4.11	.98	3	8	
447.97	3	2	7.51	1.00	3		
353.09	3	3	.42	.60	1		
400.53	3	3	1.96	.88	3	7	
447.97	3	3	3.49	.97	3		

Note: If prob < .50, P level = 0; If .50<=prob.< .61, P level = 1; If .61 <= prob > .75, P level = 2; If prob >= .75, P level = 3

² Refers to the probability level of college success

Note: **UG** = University Generation; UEE Score= Ethiopian HE Entrance Examination score; **prob** = probability of college success.

Table 6 depicts the probability of college success at the values of UG, department, and college readiness levels taking into account the effects of the covariates too. The software standardized the values of the UEE score for comparing the groups in their probability of success. In this case, the probability of college success at 16th, 50th, and 84th percentile values of the UEE score was used to compare/estimate the probability of college success at the values of the moderators. For example, it is opted to answer the question, “If I join university ‘X’ or department ‘X’ having an UEE score, what will my probability of earning the college CGPA of 2.75 and above college?”

For instance, when the probability of college success for department two graduates who earned 353.09 in their UEE in three UGs is observed, graduates who were from (UG1, department 2) had the lowest probability of college success (prob = .50) compared to the rest two, who had the probability of college success, prob = .64 and prob = .67, respectively.

Also, those students who join department two in UG1 have the lowest probability of college success (sum p level = 7) compared to those who join department two in UG2 and UG 3 (sum p level = 8 for both). Here, those applicants who want a high college CGPA in this field may choose to join department two at UG 2 and UG3.

Also, UG1, department 3 graduates (sum p level = 6) have the lowest probability of college success when they are compared with those department 3 graduates from UG 2 and UG 3 (sum p level = 7 for both).

In addition, when the probability of college success is compared at UG level, UG 1 has the lowest probability of college success (sum p level total = 16) compared to UG 2 (sum p level total = 19), and UG 3 (sum p level total = 18). In other words, those applicants who want to earn the highest college CGPA at the value of the UEE score may choose to join UG 2 and UG 3 to UG1.

Contrary to the results from the effects’ table 5 above, UG1 lagged behind others in enhancing graduates’ probability of college success at the values of UEE score compared to UG2 and UG3. However, from its overall effect in promoting the relationship between college readiness and college success, it is interpreted in this study that UG1 is the best in linking the effect of college readiness on college success. Generally, it is assumed that, for a

UG to be a high performer, promoting the effect of college readiness on college success should guarantee the probability of college success.

Determining cutting points for university entry: Current practices in Ethiopia.

According to the interview with an NEAEA officer, the cutting scores for university entry are determined depending on multiple factors. One of these factors is the availability of resources (both human and material) in universities. The available capacities of universities contribute to determining cutting scores. The officer stated that before the determination of the cut scores, the universities are asked to report their spaces and capacities to accept the students. The reports of universities are used as input to decide the cutting scores.

Other factors that determine the university entry cutting scores are special needs, the gender, and regions of applicants. Depending on the data collected from different regions in the country, the NEAEA calculates the number of applicants with special needs and the number of students from developing regions. For the reason of affirmative action, the cutting score is lowered for females, special needs and students from developing regions of the country.

Another factor that determines the cutting score is the policy of the country. The country's policy to advance technology for purpose of accelerating economic growth forced college entry decision-makers to decide different cutting scores for natural and social science streams. Seventy percent of the total university applicants are assumed to be natural science students. The total of these factors determines the university entry cutting scores by gender, special needs, streams, and regions of students.

However, according to the responses of NEAEA officers to the interview, there is no scientific input-process-outcome relationship research in determining university entry cutting scores. For instance, the females', the special needs', the regions' and the streams' previous college entry points, (college readiness measures) in this study, can be scientifically related to the college learning outcomes of these groups to get more information on how these groups might be selected and perform at college or after college. More importantly, missing the student learning outcomes in this process is the problem. This study related some college readiness, process, and outcome factors to give some scientific information on the side effects of non-scientific admission and placement process, student university outcomes and may be in the labor market. The admission process should balance the transition issues: meritocracy, equity and quality to get expected outcomes from education in general and from HE in

particular. The finding of this study shows that the determination of university entry cutting scores can be interpreted depending on the probability of college success for the universities, and departments.

Determining cutting points depending on the probability of college success.

The finding of this study shows that, statistically, the probability of college success at a value of college readiness differs from university to university as well as from department to department. This implies that the cutting score can vary from a university to a university and from a department to a department the students are placed to. If the consideration of the relationship between college readiness and success at the values of the moderators and other covariates is found to be important in determining cutting scores for university entry, it can be used by the decision-makers as one of the multiple methods.

For instance, as can be seen from table 6, the cutting score for those students who join UG one department one (Sum p. levels = 3) may be different from those students who join UG two department one (Sum p. levels = 4). This means that the lower cutting score may not fit the conservative UGs because the outcome of the cutting score with a lower probability of college success may result in student failures and resource wastages.

HE quality assessment: The relationship between college readiness and success. In this case, the extent to which universities and departments positively promoted the effect of college readiness on college success is interpreted as a quality indicator for universities and departments. For this reason, the role of the universities in promoting the positive effect of students' college readiness on college success can be interpreted as a quality measure for the universities or departments. For example, UG one had a total positive significant effect (Total effects score = 7) on college success compared to UG three (Total effects score = 4). For the third generation university, it can be concluded that, for unknown reasons, the student aptitudes are not connected well. Since the major aim of HE is playing a significant role in building on college readiness to help students achieve readiness for the job, these two factors, according to decision theory, are positively and significantly correlated. A lack of association between these two factors is unnatural. It happens only when there is a problem somewhere in the education system. However, in order to be relatively effective compared to the peer UGs, promoting the effect of college readiness on college success should guarantee the probability of college success.

Table 7: Performance: Total conditional Effects and Average Probability of College-success

UG	Department	Total conditional effects	Average probability of college success	Performance
	1			
1	2	7	5.3	12.3
	3			
	1			
2	2	6	6.3	12.3
	3			
	1			
3	2	4	6	10
	3			

Note: Average Prob. of College success = Sum p level Total for a UG / 3; Performance = Total Conditional Effect + Average Probability of College

According to the current practice in Ethiopia, the college CGPA that equals to or greater than 2.75 is the most acceptable in the job market. As can be seen from Table 7, the probability of being recruited (i.e. 5.3) for UG1 in the job market is lower than those who graduated from UG2 and UG3 (i.e., 6.3 and 6.0 respectively). This result shows that even though UG1 graduates were well-prepared for college and their ability significantly affected their college CGPA, on average, their probability of being employed is less than the others. Most probably, this happens when the UGs (e.g., UG1) focus on a conservative approach in guiding student learning and assessment regardless of utilizing supportive approaches to different groups of students to raise their college CGPA. Or, this can happen in the effort of UGs (e.g. UG 3) to increase student college CGPAs at the expense of promoting effect of abilities for the sake of remaining privileged. For this reason, it can be concluded from this study that promoting the effect of college readiness on college success did not guarantee the probability of college success. On the other hand, the sum of the Total conditional effects and the Average probability of college success indicate that UG1 and UG2 have equal performance. In other words, on average, these two UGs equally promoted the effect of

college readiness on college success while they guaranteed the probability of being employed. In general, this study concludes a) promoting the effect of college readiness on college success should guarantee the probability of college success and vice versa; b) The average quality of a UG (i.e., performance) should be gauged from the sum of the total conditional effects of college readiness on college success and the average probability of college success.

4.1.2. The Qualitative Data Analysis: The Ecological and Curricular Aspects of College Readiness

In this section, the data related to the qualitative determinants of college readiness, such as the ecological factors and the curricular factors were gathered and analyzed qualitatively in two ways: 1) The data collected through interview questionnaire were written on the computer MS document, then the text was entered into OpenCode 4.0 software and QDA lite software and analyzed; 2) A critical and comparative analysis of the college readiness programs, the curriculum literature from the world, and the Ethiopian Prep curriculum was conducted.

4.1.2.1. Graduate Experiences of CR

The ecological model of college readiness assumes that the extent to which students are exposed to the influencing factors and the way students respond to challenges that face them in their way to college within their social environment share the largest part in instigating college readiness. The way a student behaves also determines the way others respond to him/her. Generally, the students' internal forces, the way the students interact with others and students' own general preparation, students' knowledge about college, and time factors that are related to the individual student, education system and college-going culture interact in the making of real college readiness (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 2006; Thiessen & Cook-Sather, 2007). Understanding real college readiness is impossible without understanding the experiences of individual students in their real contexts. For this reason, pragmatic multiple approaches that take into account both the quantitative and qualitative or cognitive and non-cognitive measures of college readiness are warranted to be considered. In support of this idea, Athill (2019) reported that the need to focus more on the subjective experience of individuals within the context of their environment takes the upper hand in determining college readiness. The real readiness is an individual's psychological factor (his/her own motives, values, self-efficacy, critical thinking and reasoning ability, etc.) and physical conditions of the individual on one hand and the environment (the family, the

school, the society, the natural environment) on the other hand; and the process, the manner in which these factors combine and help the student develop real college readiness. College readiness is multidimensional: it is academic, more subjective, environmental, and economic. These dimensions should be handled at every level of education in different ways. The way an education system skillfully and wisely manages these factors from the early years determines the type of readiness outcomes.

In this section, a semi-structured interview was conducted to 20 selected graduates from sample universities. The objective of the interview was to observe and critically interpret the graduate experiences of college readiness. The interview questionnaire guided the interview process but the participants were allowed to mention any setback that hindered their college readiness from a pool of individual, social, economic, and environmental factors.

After recording, organizing, and changing the responses into a text by writing in the computer MS word, the data were entered into Open Code software and Qualitative Data Analysis (QDA) lite software. Then, the phenomenological reduction of the data was accomplished in Open Code software through four steps: text 2, synthesis 1, synthesis 2, and memos. In addition, the same main text was entered into QDA lite, and the coding process was accomplished for 20 cases. Firstly, the 20 cases and the variables were coded in the software, and then the phenomenological reduction of the data was accomplished through thematic and hierarchical coding procedure. The frequency of the times the issue was stated by participants, the number of cases participated in responding and their percentage and the total themes emerged from the data was analyzed.

As can be seen from the tables below and Appendix table H, the factors were clustered into the major themes, sub-major themes, and specific responses. The first interpretation was accomplished in terms of the individual factors or characteristics as related to their immediate environment (microsystem). Secondly, the microsystemic factors that were related to students' readiness were discussed. In this case, how microsystems of the respondents reinforced the college readiness of the participants was interpreted. Thirdly, the effects of mesosystemic issues raised by the participants were summarized. Here, the extent to which the relationships between the microsystems of the participants and their intensity meaningfully reinforced the college readiness of the participants was interpreted. On the other hand, how these relationships had been juggled together in such a way that they promote participants' learning was interpreted. At the fourth level, the more distant exosystemic factors that indirectly affected participants' college readiness were discussed. In addition, the role of ideology,

values, and culture in affecting college readiness as reported by the participants was interpreted and summarized as macrosystemic issues. Finally, the roles of chronosystem in promoting and creating paradigm shifts in students' college readiness at the student level and Ethiopian college readiness at the national level were discussed.

The individual factors experienced as affecting college readiness. In this part, the individual factors (i.e., personal characteristics that affect college readiness) were interpreted.

The socio-economic status (a resource characteristic): This factor is a resource characteristic that significantly affects college readiness. As can be seen from table 8, the socioeconomic factor was among the major factors that the participants experienced as affecting their college readiness. The problem was stated 13 times by 11 cases (55%) in the analysis. The experience of the factor was reported in different ways: direct financial problems encountered during participants' school days and other indirect effects such as distance from school, malnutrition, and shortage of health treatment were reported by participants. The participants reported that economic problems also caused psychological problems in their learning.

Table 8: General Factors Affecting College Readiness: N = 20

Factors	Coding frequency	Number of cases	Percent of cases
Decreased value of a degree	5	3	15
Economic factors	13	11	55
Environmental Factors	3	3	15
Health Problems	3	3	15
Joblessness	4	4	20
Psychological Factors	2	2	2
School climate	3	2	2
School factors	17	12	60
Social and family factors	15	11	55
Addiction	2	1	5

Academic preparation experience (a resource characteristic). Academic preparation experience has been observed in this section in three ways: use of the language of instruction, assignment to remediation, and maths and English language learning experiences of respondents.

Since the level of their performance determined their future academic success, the graduates reported that academic preparation played a key role in their preparation for college. For instance, a graduate reported that starting his school from KG highly supported him to successfully join college. On the other hand, some of the participants reported that lack of attention and focus during their elementary education highly affected their academic preparation. This was due to a shortage of guidance from adults. They reported that they did not know well the value of studying hard at that time and this affected them in their journey to college. These graduates stated the importance of critical thinking and reasoning to be successful in education. On other hand, the graduates reported the most hindrance to their academic preparation during high school was the problem of the language of instruction. They reported that they needed a dictionary to understand what they learned in the class and read outside the class. They reported language as a key for academic preparation.

One of the academic preparation indicators is the *problem of the language of instruction*. As can be seen from table 9, 50% of the participants stated the English language proficiency problem affected their college readiness. On the other hand, 45% of the participants appreciated learning in the mother tongue during elementary school.

Table 9: Language of Instruction Related Problems Affected College Readiness Reported by the participants: N = 20

Responses	Sign(-; +)
I did not get adequate English language knowledge. This affected my both college readiness and success (12, 10, 50%)	-
I was disadvantaged in learning in second language (2, 2, 10%)	-
It was helpful to me to learn in mother tongue in elementary school (9, 9, 45%)	+
Language has marginalized me (4, 2, 10%)	-
Learning English from KG prepared me well (1, 1, 5%).	+
Serious language problem (2, 2, 10%)	-
Total positive and negative coding frequency, total cases and total percent of cases	[(20-, 16, 80%); (10+, 10, 50%)]

Note: (Coding Frequency, N of Cases, percent of cases);

[(total negative coding, N of cases, P of cases); (total positive coding, N of cases, P of cases)]

As can be seen from the table 9, the total percent of cases reported negative experiences about their language use in learning is 80 %; while the total 50 % of cases positively reported.

Assignment to *remediation* is another indicator of academic preparation used in this study. The term remediation has forms of definitions in different contexts. The remedial class is a class taken on a college campus that is below the college level. In remedial education of some countries, students pay tuition and can use financial aid for remedial courses, but they do not receive college credit.

In the Ethiopian context and in this study, remediation is defined as a support given by an instructor of a course to students who fail in their continuous assessment during learning in their undergraduate classes. The students are taught again the credit-bearing course and given another test so that they can pass the test. But definitions given by above-mentioned studies stated that remediation means taking high school level courses being in college to get prepared enough for college learning. This is the opposite definition of college readiness, i.e., taking college-level courses in high school for the sake of being college-ready. In this interview, the academic preparation level was observed from the participants' self-report of the average number of times they took remediation in university. The analysis result shows that 60 percent of the participants (table 10) received high average remediation during their study at college. This indicates that the academic preparation for college was lower than average.

Table 10: Average Number of Remediation the Participants Received During their Undergraduate Classes: N = 20

Responses	Coding Frequency	Number of Cases	Percent of cases
Received high average remediation	12	12	60
Received low medium remediation	4	4	20
Received medium no remediation	4	4	20

In addition, the self-report on Maths and English language performance was used as an indicator of academic preparation. Around the world, Mathematics and English language ability is taken as a strong predictor of college success. In the Ethiopian context, these subjects are also used as compulsory subjects in college admission. For this reason, in this study, the academic preparation experience of the participants was studied by asking them how they worked on maths and English courses during high school (Table 11). Among the responses coded, two major responses from participants were, “Both Maths and English were difficult to understand (6, 4, 20%)”; ‘Maths was so difficult and time-consuming to learn (7,6,

30%).” ‘Both maths and English language were difficult to understand’ stated 6 times by 4 or 20% of participants whereas ‘Maths was so difficult and time-consuming to learn’ was stated 7 times by 6 or 30% of the participants. The response ‘I was a high achiever in English (6,3, 15%)’ has got 6 times’ frequency of being stated by 3 or 15% of the participants indicating that the graduates were more prepared in the English language than in maths.

Table 11: Maths and English Experiences and Self-Efficacy of the Participants: N = 20

Responses	Signs of coding (-,+)
Both Maths and English were difficult to understand (6*, 4**, 20%***)	-
Both Maths and English were my favorites (2,2, 10%)	+
I was high achiever in English (6,3, 15%)	+
I was high achiever in maths (1,1, 5%)	+
I was a medium achiever in both maths and English (4,4, 20%)	both
I was very interested in English (4,4, 20%)	+
I started learning maths and English from KG (1,1, 5%)	+
I was less interested in English (1,1, 5%)	-
I was low achiever in maths (3,3, 15%)	-
Maths needs longer time expenditure (1,1, 5%)	-
Maths was so difficult and time consuming to learn (7,6, 30%)	-
I was medium achiever in English (4,4, 20%)	medium
I was a medium achiever in maths (5,5, 25%)	medium
Achievement depended on my commitment to read (1,1, 5%)	+
Total	[(29.5-, 28, 140%); (21.5+, 19, 95%)]

Note: (*Coding frequency, **Number of cases, ***Percent of Cases)

[(total negative coding, N of cases, P of cases); (total positive coding, N of cases, P of cases)]
 Generally, when the ‘total negative Maths and English self-efficacy’ and the ‘total positive Maths and English self-efficacy’ of the participants were compared depending on their responses, the ‘total negative Maths and English self-efficacy’ was higher (with the total negative coding frequency of 29.5, and the total cases for negative coding of 28; and the total percentage for negative coding 140%) than the total positive Maths and English self-efficacy (with the total positive coding frequency of 21.5; and the total cases for positive coding of 19; and the total percentage for positive coding of 95%). This finding indicates that the participants were highly affected by negative maths and English language self-efficacy.

Another indicator of academic preparation used in this study was *developing research skills in high school*. Research in high school is mostly practiced through inquiry learning-based projects in high schools. However, all participants reported that they gained no research skills from high school.

Perseverance (a force characteristic). The participants were asked how their persistence or perseverance to reach college affected their preparation for college. Perseverance has got 19 frequencies of coding, 15 numbers of cases (75%) of the participants (Table 12). ‘College was my dream’ was stated 3 times, by two cases (10%) of the participants. The analysis shows that most of the participants were strongly persevered to join college. On the other hand, some participants reported they were in a shortage of motivation in learning. They stated the joblessness and the decreased value of a university degree as a reason for demotivation. This showed how higher-order ecological contexts indirectly but highly affect students’ motivation to go to college.

Table 12: Sources and Indicators of Motivation to Reach College as Reported by

Participants:

N = 20

Responses	Coding Frequency	Number of Cases	percent of cases
College was my dream	3	2	10
Family inspired me	1	1	5
God was my strength	1	1	5
Reported high perseverance	19	15	75

Academic habits (resource characteristic). Depending on the reports of the graduates, the frequencies of the academic habits stated during the interview were summarized into good and poor academic habits (Table 13 A and B).

Table 13A: Academic Habits of the Participants: N = 20

Good Academic habits (Coding frequency, number of cases, percent of cases)
Being free from internal and external distractors (1, 1, 5%)
Good time management (12, 8, 40%)
Used good study place (26, 14, 70%)
Used study techniques (note taking and abbreviations) (34, 18, 90%)
Total (73, 41, 205%)

Table 13 B: Academic Habits of the Participants: N = 20

Poor Academic Habits (Coding frequency, number of cases, percent of cases)		
Using alcohol and chat during study	(3, 3,	15%)
Cramming for exams	(7,7,	35%)
Internal distractors affected	(2, 2,	10%)
Managed study time by mood	(1, 1,	5%)
Poor reading skill	(6, 6,	30%)
Poor study time management	(10, 9,	45%)
Procrastinated/ wasted time	(2, 1,	5%)
Sitting style affected effectiveness of study	(4, 2,	10%)
Used external distractors during study	(5,4,	20%)
Total	(40, 35,	175%)

The ‘total percent of cases reported poor academic skills’ during their college readiness was 175% whereas the ‘total percentage of cases reported good academic habits’ was 205%. The study revealed that although poor academic habits are existed among the students the percentage of utilizing these good academic habits is higher.

Self-efficacy (a force characteristic). As can be seen from table 14, the total positive academic self-efficacy coding was found to be (14, 70%) whereas the total negative academic self-efficacy coding was found to be (7, 35%). The participants reported higher general positive academic self-efficacy (70%) compared to the general negative self-efficacy (35%).

Table 14: Indicators of Academic Self-Efficacy Reported by the Respondents: N = 20

Indicators	Coding Frequency	Sign(+,-)
I am a medium learner	1	+ -
Any possible means could be used	2	+
Was free from internal and external distractors	1	+
Blamed resources	1	+
Blamed the conditions of life and learning	1	+
Confidence strengthened me	1	+
Explored and found his/her own major of interest	1	+
Favored one of them (maths or English)	1	-
Naturally, I am high achiever	4	+
Individual psychological readiness mattered	1	+

I was not good in learning	4	-
Maths anxiety report	1	-
His/her psycho-social skills enhanced college readiness	1	+
Self-confidence and psychological strength empowered	1	+
Total	21*	(**14) (***)7

Note: *Total coding frequency; **Total positive self-efficacy coding frequency, ***Total negative self-efficacy coding frequency

Table 15: Major Factors Underlying the College Knowledge as Reported by Participants:

N = 20

Indicators	Count
Individual psychological readiness mattered	1
Job opportunity and employability affected	6
Value attached to education mattered	1
Total	8

College knowledge (resource characteristic). From the total 8 coding frequencies (table 15) for the factors underlying the college knowledge variable stated by the participants, 6 coding frequencies belonged to job opportunity and employability-related factors. A participant stated that whenever anything is asked about a college and fields of study, the first question is, ‘How the field of study is important in the job market and how the university is qualified enough to prepare the students for the job?’ In addition, a participant stated that college knowledge is a matter of individual psychological strength. He said that “if anybody has confidence, he/she can learn and earn important knowledge that makes them competent at college. So, college-knowledge depends on one’s confidence.” A participant also said that the value he owed to learning and the significance of a degree for change in his life largely affected his preparation for college.

Table 16: Major Reported Underlying Factors of College Aspiration: N = 20

Indicators	Count
Achievement affected by interest in a course	2
Any possible means could be used	2
Interest in learning and achievement related	3
Strong perseverance to join college	3
Using time effectively	1
Work-learn-college-readiness	2

College Aspiration (a force characteristic). The graduates expressed their aspirations to join a college in different ways (Table 16). Among the total direct and indirect indicators of college aspiration, strong perseverance to join college (count = 3) and interest in learning (count = 3) got high coding frequency. Other factors, such as interest in a course (c = 2), the ability to use different chances and alternatives (c = 2), effective use of time (c = 1) and the ability to work and learn (c = 2) were reported as important indicators of college aspiration.

Gender: Six times (see table 17 below) mentioned that gender-based violence at school and house cores imposed on females were the main factors that affected their readiness for college.

Microsystemic effects. A microsystem of a student is a part of the environment that the student directly interacts with his/her daily teaching-learning activities. These microsystems include school, teacher, peers, counselor, family, and others.

Table 17: The Major School-Related Factors that Impacted College Readiness of the Participant: N = 20

Indicators	Count
Class size affected	5
Distance from school affected	3
Gender-based violence at school	6
Research course missed create gaps	1
School climate affected	3
School facility problems affected	5
Schools and teachers quality mattered	1
Total	26

School factors. As can be seen from table 17, about seven major school-related problems affected their preparation for college. Among these factors, gender-based violence at school (count = 6), school facility problems (count = 5), and large class size (count = 5) have been most frequently reported by the participants.

Counselor. During the interview, the role of school counselors in supporting the graduate's college readiness was assessed. As it is depicted in table 18 the role of the

counselor in supporting students' college readiness was found to be low (coding frequency =16, Number of cases=16, % of cases = 80%).

Table 18: Descriptions of Major Factors Related to College Major Choice: N = 20

Family supported me in major choice (4*, 4**, 20% **).
My friends influenced me in my major choice (2, 2, 10%).
I joined my first choice and I did not have lack of knowledge in college major choice (7, 7, 35%)
Informally, I learned which field was best for me from experiences of others (1, 1, 5%)
I was less aware of my college major (1, 1, 5%)
Reported low counsellor role (16, 16, 80%)
I did not like to get consultation on my major choice (2, 2, 10%)
I did not join my first choice (1, 1, 5%)

Note: (*Coding Frequency, **Number of Cases, ***percent of cases)

Teacher. The participants reported that teachers affected their college readiness in different ways both positively and negatively. It is reported three times by the respondents (table 19) that teachers' behavior towards them highly affected their learning. In addition, some of the participants reported that teachers' language proficiency problems and teachers' readiness to support students highly affected their learning.

Table 19: Teacher Related Factors Affecting College Readiness: N = 20

Responses	Count
Low English proficiency due to teachers affected	1
Teachers' behaviour affected	3
Teachers' readiness to help students affected	1
Total	5

Job. It is mentioned two times (see table 16 above) by the respondents that having a job while preparing for college affected their college readiness positively. They stated that their job helped them to get ready for college. They supported themselves by working after school. These participants were highly motivated to go to college that they persevered in learning in order to make themselves ready for college.

Peers. It is mentioned by the respondents that peers affected their preparation for college in different ways. Peers affected their college readiness through working cooperatively during the study and by exerting their influence during college major choice (see tables 21 and 24).

Family. The way their family affected their college readiness either negatively or positively was expressed in different ways by the participants as can be seen from table 20. Firstly, two times reported that a family member who graduated from a college has a role in supporting his/her family member's ambition to get access to college. Secondly, it was stated two times that being the first to go to college in the family negatively impacts college readiness as there is nobody in the family who transfers information and support about college life and learning. Thirdly, the family income level (c =2) also negatively affects college readiness according to the respondents. The family also inspires college readiness (c = 2), and the family helps in college major choice (c= 1).

Table 20: The Role of Family in Affecting College Readiness of the Participants: N = 20

Responses	Coding frequency
Being helped by previously graduated brother/sister	2
Being the first in family to go to college affected	2
Family income level affected college readiness	2
Family influenced in major choice	1
Family inspired for college readiness	2
Total	9

Mesosystemic factors. Mesosystem is the interaction between microsystems of the participants that indirectly affects the learning process of students. For instance, the parental style a student experiences at home affects the way he/she interacts in a cooperative learning activity in the class with teachers and students. The relationship between parental style and parents' work conditions are self-juggling in their relationship with the student's college readiness.

Teacher-student and student-student interaction. The mesosystemic factor emphasized during the interview was both negative and positive teacher-student and student-student interaction (table 21). These interactions and their effects on graduates' college readiness were summarized as follows:

Table 21: The Description of the Nature of Cooperative Learning at students' Mesosystem: N = 20

Responses	Coding frequency
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Cooperation affected my readiness to learn	1
Cooperation with peers and teachers helped	2
Language difference in group affected	1
Low English proficiency due to teachers affected	1
Students' behaviour affected cooperation	1
Teachers' behaviour affected cooperation	2
Teachers' readiness to help students affected	1
Misuse of the cooperative learning methods	1
Total	10

The participants generally reported that the interaction between teachers and students in the teaching-learning process as well as the interactions between students was supportive and effective when: 1) both teachers and students were ready to learn in cooperating with others; 2) the communication channels were smooth (i.e., free from language barriers and misunderstandings); 3) cooperation was free from misbehaviors and group cohesion was high, and 4) teachers were well trained and applied the methods of cooperative learning effectively.

Social and cultural capital. From the reports of graduates, the researcher interpreted that some effects of cultural differences among societies in encouraging and supporting college-going culture are significant. One of the participants reported that in his ethnic group, education is less valued. This participant reported that his relatives discouraged him during his preparation for college telling him to do his business and help his mother. In addition, being belonged to a well-off society makes one more accessible to schooling and university. The effect of social reproduction in education is apparent. Although there is no study concerning the difference between the so-called well-off families and poor families in Ethiopia in educating their children as far as the knowledge of the researcher is concerned, as it can be seen from the sample students who enter university, the difference is significant in opportunities after high school and college. The graduates from well-off families tend to take a shorter path and time to find or create their own job whereas those from poor families are often seen spending a long time without a job.

Interaction of high school with college. According to ecological theory, unless the exosystems and macrosystems of the students, which are distant from the student's microsystem, are filtered down to the student's microsystem and experienced well by the

student, real college readiness cannot happen. For this reason, the experiences from different countries indicate that exposing students to a college teaching-learning environment when they are in high school is the main mechanism of taking the college to the proximal process of students. This is done through a curricular approach (making students take college-level courses when they are still at high school), badging college readiness (awarding college credit for students before college), and deepening academic rigor. This issue is further discussed in the next section.

The cooperation of parents, counselors, and teachers in preparation programs. This mesosystem is very weak according to the responses of participants. There was no organization of these groups created for the purpose of making students ready for college while they were at high school. The graduates reported the disorganized role of counselors and teachers in supporting students to get college-ready.

Exosystemic factors. This environment does not have a direct effect on the students' learning. Its effect is indirect. Exosystems are the relationships between microsystems of the students that have an indirect influence on student learning. The ways these microsystems interact at distance from a student significantly affect the learning of the student. A group of experienced professionals from schools developed a good curriculum that promoted the student's learning in the class. Here, the curriculum is the exosystem of the student.

In the Ethiopian schools' context, the major exosystems that affect college readiness are the disconnected trend of the school curriculum from the real-life conditions such as industry and job environment. Other exosystems are the continuous professional development (CPD) provided to the teachers at schools, and the way teachers were trained to be teachers are all highly affecting exosystems. The living conditions of teachers are also another exosystem.

Government and politics. It was seven times stated that socio-political climate highly affected the participants' college readiness. The participants reported that the instability of the country as a result of the political and social controversies highly disturbed their study. One of the participants stated that it was a despairing situation for preparing himself for the future when the situation of the country was at its worst.

Another exosystemic effect a graduate reported was the positive impact of NGO (Non-governmental Organization) on his college readiness. The role of NGOs in supporting, especially students with special needs and poor families, is high in society.

Although it is far from the microsystem of the students, the exosystem consists of the *education policy*, the *curriculum*, the *finance*, and other major factors that significantly affect how students experience learning at their microsystem. It is the way the curriculum is designed at the exosystem level that determines how the students experience the curriculum in the school context. It is how the budget of the country is wisely allocated to the education system that affects the school facilities and resources that directly affect students' college readiness.

Macrosystemic Factors. Macrosystem is a more distant part of the environment than the exosystem. This environment consists of the culture and the value of the society that indirectly but significantly affects the college readiness of students.

Culture. The culture, the way the participants are accustomed to working towards achieving their ambitions to reach college, was carefully interpreted in this study (Table 22). The participants were asked to report any negative or positive ways of learning or studying they were accustomed to working on their journey for college.

Table 22: Cultures that Molded the College Readiness of Participants: N = 20

Expressions	Coding frequency and signs of effect
Any possible means was used to get ready	2+
Being free from internal and external distractors	1+
Cooperation with peers and teachers	2+
Cramming for exams	2-
Drinking and chewing chat during study	2-
Gender-based violence at school	6-
Managed my study time properly	2+
I worked hard and that was helpful to me	1+
Language difference in group affected	1-
Managed study time by mood	1-
Poor reading skill	2-
Poor study time management	1-
Procrastinated/ wasted time	1-
My relatives affected my readiness	2+-
Siting style during reading affected effectiveness of my study	5-
Students' behavior affected cooperation	1+-
Teachers' behavior affected cooperation	2+-

Used external distractors	3-
Used good study place	8+
Used study techniques	2+
Using time effectively	1+
Value attached to education mattered	1+-
Work-learn-college-ready	2+
Early school preparation	1+
God causes human success	2
Total (+,-,+)	(23+,24-,6+-)

Note: + positively affecting culture; - Negatively affecting culture; +- Affects negatively or positively

As can be seen from table 22, the positively affecting cultures were reported 23 times whereas the negatively impacting cultures were mentioned 24 times during the interview. On the other hand, the participants mentioned 6 times the non-directional cultures as affecting their college readiness either negatively or positively. In general, the positively impacting and negatively impacting cultures were reported by the participants in almost equal frequencies (23+, 24-). The college-going culture differed from family to family as well as from society to society. The college-going culture has a direct relationship with the value given to education.

Value. The government (exosystemic factor) gives great emphasis to education in the Ethiopian context. Even though the government gives great value to the education sector, the value of college-level degrees has started to fall since years ago. This is due to the decreasing trend in the quality of education in general. The declining worth of a degree, however, did not have a direct relationship with the declining trend of quality of education. For instance, the prevalence of unemployment may have resulted from retarded job creation opportunities in the country. If the total jobs created per year do not match the total university graduates per year, education must not be blamed. The availability of facilities and previous exposure of graduates to industry and practice through education is one of the determinants for self-employment.

Chronosystem. The time factor is the main variable for effectiveness measures in any education system. A cohort of students' average age level is always related to school effectiveness assessment. The effect of the chronosystem was interpreted from the responses of the graduates and from the historical document analysis. Firstly, the school and learning time of students was studied in the chronosystem. Chronosystem was viewed as the time in

which students are required to utilize their resources to make themselves college-ready. From the graduates' responses and narrations of their school life, the researcher observed the wastage of school and learning time as a major problem. For instance, only one student reported that he attended KG school. The graduates also reported the poor management of their study time. The wastage of study time and instructional time losses for different reasons, such as holidays, procrastination, and other problems are also other chronosystemic problems.

Additionally, the extents to which an education system of a country effectively responds to the changes that come with the global effects determine its development. The education system responds to these global changes through the curriculum. For instance, the way Ethiopia responded to COVID 19 effects may differ from other nations. Also, the education system should have developed an effective mechanism to adjust itself to the current ethnic turmoil. Generally, the more developed the education system, the more effective in responding to these chronosystemic effects appropriately.

The time effect on the tracks of changes in college readiness is the main important issue left unstudied in the Ethiopian context. It can be defined as an ecological lens of time series that clearly shows the streams of changes in a phenomenon, the college readiness in this study. Using this highest level of ecological theory, the tracks of changes in college readiness from pre-19th century Ethiopia and post-19th century Ethiopia were attempted to be briefly summarized. This is believed that studying these changes in college readiness shows something to learn in history that may have caused success or failure and helps to get ready for the future depending on the lessons that may be learned. For this purpose, historical studies on Ethiopian education were briefly reviewed.

The historical context of college readiness in Ethiopia. In the earlier traditional, religious education system of Ethiopia, higher learning deserved the elite group of students who were assumed to be graduated as *Debtera*. The students had to take the advanced courses that were delivered in only northern Ethiopia's special centers. Students had to memorize each lesson without flaws to advance. The students were specialized in three areas, such as *music, poetry, and written texts*. They experienced severe, simple, and demanding life conditions in the monasteries- awakened at the dawn each day to get ready for the religious service. Surrounded by respecting and admiring learners, the master sat on an elevated platform. The learners recited the previous lesson and started memorizing and rehearsing the day's lesson. In the late afternoon, the classes were ended. They had their dinner and then

went out collecting firewood (StateEducation.com). This showed that students were very committed and motivated to get advanced knowledge of religion. Readiness was energized by strong motivation and perseverance. This also shows that indigenous writing science and competence was one of the ancient heritages of Ethiopia.

In the earlier traditional model of Education, the content of learning was religious and most of the competencies expected were also religious: acquiring the ability to serve God, cleaning the society from sins and evils and preparing the society for everlasting life after the world; inculcating good values in the society may have also been an objective of education at that time. For instance, the graduates received the qualification of *Deacon* in Christianity and *Sheik* in Muslim. They also used religion as a basis for their kingdom. At that time, readiness was triggered by religious ambitions and the objective of the study was also religious. It was believed that the problems were solved not scientifically; rather, they are in the hands of God, the almighty. Politically, it was believed that a king is anointed by God.

At the beginning of the 20th century, the religious traditional education system's failure to meet the needs of people involved in statecraft, diplomacy, commerce, and industry led to the introduction of government-sponsored secular education. The Ecole Imperiale Menelik II, the first modern school, was opened in October 1908. The education between 1908 and 1935 was aimed at mastering the knowledge of different foreign languages: For this reason, in addition to religion, mathematics, law, and calligraphy courses, the curriculum was dominated by language courses such as French, Italian, Geez, Arabic and Amharic. In this era, the most important competence expected shifted from religious competence to language competence. For this reason, a well-ready student was one who mastered the alien languages (Prof. Bishaw and Lasser, 2012)

At that time, regardless of its importance level in terms of modernity and its change factor to development compared to the former, the curriculum was most distant from the proximal process and microsystem of students. The teachers were foreigners (French and Egyptians), the curriculum was imported from France, and the students in most schools were required to sit for the French Government Examination of Competence, FGEC (Zewdie, 2000). Compared to the previous traditional one, readiness seemed to be distant from the proximal experience of students. Readiness in traditional education was closer to the experience of students for the reason that the students learned in their own language and taught by their native teachers. Regardless of its distance from the experience of the learners, the introduction of the new foreign curriculum heralded the country's opening of its gates for

science and opened the curriculum for the global response. The problem was how the curriculum was contextualized to the local contexts and cultures of the society.

After the 1930s, some schools prepared pupils for technical and professional works through courses related to production. For instance, Lycee Haile Selassie School offered courses in mathematics, physics, chemistry, civil engineering, veterinary science, and modern languages. Menen Girls' School also offered courses in dressmaking, drawing, home management, and physical training (Prof. Bishaw and Lasser, 2012). This time was the time when the modern way of preparation for life (readiness) through vocational education was started. For this reason, scientific readiness was conceived and at its infant stage in Ethiopia at this time. For Ethiopian girls, readiness was defined as the preparation for becoming a good wife.

During the Italian occupation (1935-1941), the major aim of education was to create citizens that would be loyal to Italy. The curriculum emphasized reading, writing, and arithmetic, semi-vocational training, and inculcating fascist values to advance loyalty to the Italian regime. Moreover, major languages, such as Amharic, Afan Oromo, and Tigrigna were assumed to replace the unified national languages of Ethiopia, which were used for classroom instruction (Dr. Tesera, 1993). During this period, Ethiopians were allowed to learn only until grade 4. Even though using native languages for instruction was a positive move to take education closer to the experiences of learners, the reality was far from that: text contents and textbooks were written in Italian languages (Prof. Bishaw and Lasser, 2012). No Ethiopian was allowed to be educated above grade 4; a motive for keeping Ethiopians distant from consciousness – readiness was disallowed.

After independence, during the time of reconstruction (1941-1955), the modernization of education continued. The first written curriculum, developed by a group including foreigners and Ethiopians, was published in 1947/1948. Human resource development was the main objective. The curriculum underwent seven revisions between 1948 and 1968. In 1947, the first official elementary school curriculum for grades 1-6 was published. This curriculum was improved in 1949 and was extended to include grades 7 and 8. The secondary school curriculum was published in the same year. The subjects like Amharic, English, science, art, geography, history, arithmetic, music, handicraft, and physical education were taught at this grade level (Prof. Bishaw and Lasser, 2012)

For the first and second grades, the medium of instruction was Amharic. English was used as a medium of instruction for teaching art, science, physical training, handicraft, music, geography, history, and arithmetic in third and fourth grades. In grades five and six, all subjects except Amharic were taught in English. Then, the high school curriculum was built on the London School Leaving Certificate Examination (LSLCE). From the mid-1940s and throughout the 1950s, students were expected to sit for the LSLCE of Great Britain. This practice declined with the gradual growth of the Addis Ababa University in 1951. The ESLCE became the only valid diploma in the mid-1960s (Tekeste, 1990).

Generally, although attempts have been made to modernize Ethiopia through Education, the curriculum did not depend on the needs of the Ethiopian society. In addition, even though the country was set free from the yoke of Italian colonial subjugation, the educational system was dependent on the foreigners or colonized. However, great improvements have been made regarding readiness criteria. LSLCE was gradually replaced by ESLCE. The foreign curriculum developers were gradually replaced by Ethiopians.

Over-dependence on foreigners, especially in education, exposed the country to another form of colonization although the role of these foreign countries for Ethiopian education development is recognizable. The less Ethiopianization of the curriculum was a problem. For instance, Egypt affected the country for centuries through religious education. After Egypt, France dominated the Ethiopian education system. Even though no longer successful in colonizing the country, Italy robbed the Axumite obelisks being interested in destructing the country's indigenous knowledge and culture. Although Great Britain's role in the development of Ethiopian education was also highly recognizable, the copy of textbooks from England and Ethiopians' preparation for their national examination may reflect one of the then Europeans' mechanisms to colonize Africans through the curriculum.

During the Socialist regime, education served as an important tool to secure political power. As a result, the politics course was openly included in the curriculum (Tekeste, 1990). The then major aim of education was to "cultivate Marxist-Leninist ideology" in the young generation, to develop knowledge in science and technology, as well as in the new culture and arts, and to combine research with production (Tekeste, 1990).

Along with its weakness, the Socialist regime had a significant change in student enrollment, increasing literacy rate, school expansion, etc. The problems of education at this period were shortages of quality, lack of equity, and unresponsiveness of the curriculum to

the development of the country that finally resulted in widespread unemployment. The government attempted a curriculum revision to solve these problems, but the plan was failed (Prof. Bishaw and Lasser, 2012).

When it is seen through the ecological lens, the curriculum during the Socialist Regime was disconnected from the experience of the citizens. The curriculum contents and teaching-learning experiences did not represent the reality of society. At the elementary school, the children were forced to learn in the second language undermining the real readiness of the children to the worst. As a result, the majority jumped the elementary school grades unready without achieving the required basic literacy and numeracy skills. The basic college readiness instigators, such as the force characteristics (motivation, self-efficacy, college-going culture), the demand characteristics (the way children influence and be influenced by others) and resource characteristics (academic preparation including use of language of instruction, the teaching-learning resources, economic status, family education status, etc.) work normally when children experience learning activities in their own cultural and linguistic environment.

The college readiness program during the Socialist Derg regime was known as Freshman Program (FP). Students experienced college just being in college. K-12 education was generally assumed as a period in which students complete general education, choose their broad stream of education and prepare themselves for college entry qualification examination known as the ESLCE.

The former socialist regime’s freshman introductory courses moved down to grades 11 and 12 (Prep school). The Ethiopian Prep curriculum included specialized courses, common courses, and electives categorized by stream after grade 10 (Table 23). It was assumed that students would be more college-ready if they take college-level introductory courses before college entry in grades 11 and 12. It was a move to bring the college readiness closer to the microsystem of students.

Table 23: The Ethiopian Prep Curriculum

Stream	Specialized Courses	Common Courses	Electives
Natural Sciences	Biology	English	Mother Tongue and Amharic
	Chemistry	Civics	
	Physics	Physical Education	
	Technical Drawing	Mathematics	
Social Sciences	Geography	ICT	
	History		
	Economics		
	General Business		

Source: MOE, 2009

A weakness of FP was that the curriculum missed some courses relevant to the preparation of the young for the job. For example, the ICT course which was a very important course at the time was missing. Regarding curriculum contents, the Prep included some new courses that fit the time (e.g., ICT and technical drawing). The contents and teaching-learning experiences of Prep program changed to more applied than its predecessor. For this reason, in terms of academic rigor, there were some improvements. In the case of FP, the teaching-learning process was highly teacher-centered. The curriculum was content-based; the coverage of the content was emphasized than mastery and competency-oriented learning. The assessment was norm-referenced. The strong side of FP was that students had ample time to prepare for college. The curriculum was not overloaded. Students took long time before university entry to read and prepare academically. After university entry, students also worked for one year to achieve college and career readiness. At this time, students took some important credit-bearing courses that helped them to think about their future career direction.

Another strong side of FP was the fact that it standardized the college readiness level itself. Students entered a university after fierce competition and had another opportunity to get prepared at the same university with their peers. Students passed some purely filtering pipelines before choosing a college major. This had some advantages. Economically, students who come from different economic backgrounds would enter the same university and would have an almost equal chance to prepare themselves for a college major. For economically disadvantaged students, preparation before university entry is more difficult than preparation after entry. Moreover, for developing nations like Ethiopia, where students' college readiness is highly affected by different factors before college, spending one extra year at college before college major choice may be one of the best mechanisms to promote college readiness. The trend of developmental education for less college-ready students in college over the world supports this assumption. However, currently, there are trends in moving developmental education to high school in some countries.

Internationally, building college readiness is 1) accomplished through exposing students to college-level academic rigor, experience, and expectations before college entry. The curricular approaches, such as the AP, DE, and IB are the programs created for this purpose; 2) through the implementation of empirically-based early warning interventions, supports, and monitoring of students' college readiness development; and 3) The provision of remedial education (i.e., developmental education) at college for students who are not well prepared for college. Beyond these activities, the current college readiness building has become a

societal mandate, and different society-based initiatives and partnerships are being created to support student preparedness for HE.

Among the factors that probably affected students' readiness for college during the Prep education period was the curriculum overload; once college-level courses during the former Socialist Regime were moved down to grades 11 and 12, and those in grades 11 and 12 during the former regime were moved down to grades 9 and 10. This caused the curriculum overload that did not follow the appropriate, vertically, and horizontally organized outcomes-based curriculum. The second factor probably affected college readiness was believed to be a widened gap between the written or intended curriculum and the practiced curriculum. This caused the disconnection of the curriculum from the experiences of learners. The mismatch between the theories, the methodologies, and the teaching-learning approaches stated in the curriculum document and the practiced curriculum in the school context also signaled a disconnected curriculum. The shortage of teaching-learning resources and problems related to qualified teachers exacerbated the problems of quality in education and the non-responsiveness of the curriculum to the country's change and development.

Regarding the efforts made to connect the teaching-learning process to students' real-life conditions and the industry, the MOE has recently made some efforts. The shift from a content-based curriculum to an outcomes-based curriculum was a great change to the Ethiopian Prep Curriculum (MOE, 2009). The introduction of student-centered teaching-learning methodology and the application of ICT in Education were some strong sides of the Prep curriculum. The problem lies in the practice at the school context: the shortage of resources, the decline of student and teacher motivation, shortage of trained teachers, and others.

Compared to the FP period, the Prep period's uncontrollability of academic cheating both in lower grades and national examination sessions was one of the headaches of college readiness. The problem of accountability in education was obvious. The overcrowded classrooms and the high student-teacher ratio made it almost impossible for teachers to control cheating. The arrival of technology such as mobile phones and the internet also agglomerated the problem instead of appropriate utilization of technology for learning. The objective national examination format also encouraged cheating, lack of validity and reliability, and unfairness in examination results. The national examination needs to include subjective items.

The student-centered college readiness paradigm assumes that the student has the ability and the potential as a human being to grow successful. The teacher is an inspirer and a facilitator. The schools and other resources are microsystems. However, if a student cannot experience the inputs for college readiness through proximal processes in microsystems through the connected curriculum, college readiness resides outside the life world of the student. Three factors interact in bringing about a real college readiness: The *person* (the student) who has a motive, a potential, an attitude, a personality, etc., to act in some way to earn college readiness; the *context* which constitutes the resources (the teacher, school, parent, relative, peers, neighbor, curriculum, books, and other media, the government, the society, etc); and the *process* in which these things interact with each other and with the student to promote real college readiness. Anyway, the student is an active role player and his own change manager. The manner in which these components of the ecosystem positively interact and promote the student's learning determines the college readiness level.

During the Prep period, both the role of the student and the teacher were misinterpreted by the politicians and the practitioners that assumed the student as a king on one hand and as a dull person that can be molded by the teacher on the other hand. This was reflected in the Amharic word 'Mabkat'. In the Ethiopian Prep's and lower school's curriculum document (MOE, 2009), the student is assumed as an active person with his or her own attributes and the potential. For this reason, the teacher is assumed as a facilitator. Contrary to this, the 'Mabkat' emanated from the slogan that 'every student should be promoted.' This slogan interfered in the teaching-learning process. The role of the teacher was misinterpreted as a servant. For this reason, what was stated in theory was not well combined with practice.

4.1.2.2. Curricular Approaches in Building College Readiness

College readiness of students is one of the determinants of college success and HE student learning outcomes (An & Taylor, 2019). Attention to college readiness has sparked reforms to students' transitions from high school to HE (Domina & Ruzek, 2013). The two great innovations to promote college readiness took curricular reform approaches and college readiness assessment approaches (Kolluri & Tierney, 2020; Tierney & Duncheon, 2015; Tierney & Garcia, 2011; Venezia & Voloch, 2012). The curricular innovations intend to expose students to a college preparatory curriculum. A college preparatory curriculum involves minimum coursework in core academic subjects (e.g., four years of English language and at least three years of math) that make students eligible for HE entrance (Venezia & Jaeger, 2013). Traditionally, underrepresented students have been less likely than

their higher-income counterparts to be ushered into the college preparatory track and more likely to be steered into vocational courses.

Recently, policymakers have aimed to challenge this trend and started cultivating college-going culture by implementing stricter curricular requirements and reforms (Venezia & Jaeger, 2013). The recent reforms aim to ensure that all high school graduates meet the course-taking requirements for entrance into HEIs. Studies reported that schools whose students take college preparatory coursework achieve better in HE and have more equitable learning opportunities for low-income students (Lee & et al, 1997).

The accelerated learning programs, e.g., DE and AP expose high school students to college-level academics and the opportunity to earn college credits. Studies comparing the outcomes of AP or DE course-takers to non-course-takers reveal that participation in college-level classes increases the probability that students will enroll and succeed in a HEI (Iatarola & et al, 2011).

Even though recent college-readiness policy encourages the participation of all students in college preparatory programs, recent study reports raise criticisms. Firstly, the critics stated that the higher over-restrictions based on course-taking requirements highly reduce the number of degree holders the future job openings need. Also, by mandating course-taking patterns required for entering selective institutions, current reforms de-emphasize educational and vocational alternatives and potentially disadvantage students geared for non-selective colleges (Barnes & Slate, 2013). Rather, enabling students to pursue multiple postsecondary pathways is recommended. In addition, opponents of tracking indicate that different paths result in the marginalization of traditionally underrepresented youth, which is a legitimate concern. To solve these problems, the current transition conversations are focused on aligning college readiness standards and college expectations in terms of both quality and equity (Brown, 2015; Harklau, 2001; Musoba, 2011; Savage & et al., 2014).

Even though the countries have embarked on developing the college readiness of students, studies reported that the number of students who need remediation after college access has increased than before (An & Taylor, 2019; Kallison, 2017). Also, the issue of student dropouts has remained a problem (Dinsdale, 2016). Inappropriate high school curriculum reform resulted in high student drop out (Görlitz & Gravert, 2016)

The current college readiness curriculum also emphasized the configuration of non-cognitive and career skills (Savitz-Romer & Rowan-Kenyon, 2020). The major college

cognitive and non-cognitive readiness factors are integrated into the school curriculum from lower grades (Allen et al, 2019). The college readiness innovation also includes schools' counseling services and co-curricular activities that promote the development of college readiness skills and attitudes (Martinez et al, 2017).

The Ethiopian education system has also implemented education policies to deal with college readiness. These attempts were reflected in 1) curricular changes; for example, implementation of Prep Program that is aimed at exposing students to the college experience through the curriculum; 2) addressing equity issues in the transition to HE, e.g., applying Affirmative Action, use of mother tongue as a language of instruction in Elementary schools. Although numerous international trends are reflected in the Ethiopian college readiness program, a number of factors widened the gap between theory and practice. Ethiopia's Prep curriculum shares similarities with other college readiness curricular innovations, such as DE, AP, and IB that award college credit transfer (i.e., college readiness badging) even though it does not badge college readiness. These curricula deal with the objectives of both badging and building college readiness.

Theoretical frameworks in college readiness building. Urie Bronfenbrenner's ecological theory of human development is also known as the Process-Person-Context-Time (PPCT) model (Bronfenbrenner and Morris, 2006; Kitchen et.al 2019; Williams, 2016) is a prominent college readiness model. Ecological college readiness theory considers the role of student individual characteristics and personal agency; the characteristics of multiple, interacting levels of context; the effects of chronological and historical time, and the processes through which all these elements bring about change in students (Arnold et al., 2012; Williams 2016). Real college readiness occurs through a reciprocal relationship between the student and the context. Being in the heart of the environment, the individual student interacts with the proximal contexts (microsystems such as teachers, peers, parents, and others) that play their direct interactions with the student, and the development of college readiness is realized through what Arnold et al (2012) call the proximal processes that happen as a result of these natural interactions. Through DE experience in a college, the student has a chance to experience the college environment and teaching-learning process that allows the student to bring the college to his/her microsystem where real experiences can occur. Generally, studies used ecological systems theory to study how contexts and environments affect the different aspects of college readiness including the teaching-learning process of college-going students (Hines et.al. 2014; Williams, 2016).

The second popular model for college readiness building, Astin's input–environment–outcomes (I–E–O) model, considers institutional characteristics and student characteristics on student development. Taking into account characteristics and qualities the students bring to university as inputs, and the experiences students develop when they are in college as environments, I-E-O model describes outcomes as the developmental endpoints that occur for students as a result of their experiences with the environment (Astin & Antonio, 2012; Mukhopadhyay & Tambyah, 2019). A fundamental purpose of the I–E–O model is to allow HE researchers to examine a less biased estimate of the effects of environments on an outcome after the researcher accounts for differences in characteristics students bring to college (Astin & Antonio, 2012; Pike et al, 2014). Therefore, studies assume that dual-enrolled students have prior exposure to curricula, teaching-learning experiences, communications with lecturers and college students, and the physical factors around the DE programs in college (Kim & Bragg, 2008; Pike & et al, 2014).

Also, the role and socialization theory has gained attraction in DE research as an explanation of how DE prepares students for college beyond academic preparation. According to role theory, individuals inhabit roles or positions within a social structure. These roles reflect patterns of behaviors and attitudes that provide actors a strategy to deal with recurrent sets of situations (Turner, 1990). Students gather information on the roles of the university community, such as faculty and peers during the interaction period. They use this information to predict the expectations others hold for them (Lile et al, 2017). These studies revealed that role-based identities become integrated into individuals' self-concepts, which helps college-goers shape their future actions and interactions with others.

Roles are dynamic, and they may change over time (An & Taylor, 2019; Turner, 1990). During their transition to HE, students' social structures change. Therefore, students will be in a position to adjust their cultural repertoires and how they behave and understand the university environment and teaching-learning circumstances. The problem is that this process is not immediate and it may require a trial period in which the students may need to adjust and conform to the normative expectations (An & Taylor, 2019). Studies state that DE program works as a socialization organization in which students get rid of their inappropriate understanding of the college environment and teaching-learning experience by providing students with a transition period in which they learn the normative rules and behaviors of being a university student (An & Taylor, 2019). Also, DE allows students to develop skills

and coping strategies, such as critical thinking and help-seeking that are important for college success (An & Taylor, 2019; Kanny, 2015).

The major three primary curricular innovations to promote college readiness are AP, IB, and DE. These curricular approaches are the most utilized innovations (National Research Council, 2002; Tobolowsky & Allen, 2016). Studies discussed contributions of curricular approaches in promoting college readiness on one hand and indicated their demerits on the other hand. The major objectives of these curricular approaches are: 1) preparing students for college so that they will require less remediation, taking a shorter time to a degree, hence reducing costs, and being more competitive in the global economy; 2) In addition, college readiness programs are aimed at providing realistic information about the skills that students will need to succeed in college, increasing students' motivation, and; 3) building relationships between high schools and colleges (Hemelt et al, 2019; Jenkins, 2018). The programs accomplish two general activities: badging college readiness and bridging transitions to HE.

The Advanced Placement. AP programs offer college-level courses to high-achieving students in high school (Geiser & Santelices, 2007; Lewis, 2011). Normally, students take the course, and they may choose to take an exam, which is developed and is administered by the College Board (CB). The student has to earn at least three out of five on their high school AP course exam to count toward their college course requirements, and to be placed in more advanced college courses (Lea, 2016; Tobolowsky & Allen, 2016; Warne et al, 2015). Some researchers have noted that even though these courses are considered to be quite rigorous, they are taught in a high school setting by high school teachers. For this reason, they do not introduce the students to college-level work or the college environment (Lea, 2016; Lewis, 2011). Tinto (1993) and Kuh et al (2005) found that students who have a more realistic understanding of the campus atmosphere are more likely to have a successful adjustment to college. This shows a lack of giving important exposure to the college campus as one of AP's demerits.

Even though numerous studies support the effect of AP on college readiness, there are mixed results on who gains from the AP experience and the value of these courses in promoting students' success in college. AP has fewer benefits for college entering students and its GPA has non-significant correlations with college GPAs (Warne & et al, 2015). Jenkins (2018) lists the weaknesses of AP courses: 1) the determination of the course content by the high school, and college administrators' reluctance regarding the rigor of the AP

courses, and 2) the fact that instructors for AP courses are all high school teachers. The CB lacks clearly defined selection criteria for selecting and recruiting AP teachers.

International Baccalaureate. IB offers a complete curriculum structured around a set of ideas that are both academic and philosophical, unlike the AP which offers students the opportunity to take specific advanced coursework (Hughes, 2006; Jenkins, 2018; Rehm, 2014; Tobolowsky & Allen, 2016). The goal of IB is to develop true global citizens who are academically strong, principled, open-minded, and caring individuals who want to create a more just and peaceful world. Although IB was designed for high school seniors years ago, today, there are the Middle Years, Primary Years, and Career-related Programmes in addition to the Diploma Programme. Thousands of schools in many countries around the world offer IB programs (Caine & Wimmer, 2014; Jenkins, 2018; Tobolowsky & Allen, 2016). Like AP, IB Diploma Programme targets high achieving students and helps them get college-ready by providing a standardized curriculum and tests, which assure colleges and universities of their academic excellence (Hughes, 2006; Caine & Wimmer, 2014).

In receiving an IB diploma, students require to complete studies in six subjects: foreign language, literature, the arts, mathematics, experimental sciences, and computer sciences. In addition, students need to submit an essay of 4,000 words, should complete the extracurricular of the 150 hours and community services. Then, students are examined in the core courses on a 7-point scale. To graduate with an IB diploma, students should attain a minimum score of 24 so that they can be eligible to receive college credit for introductory-level college courses (Jenkins, 2018; Suldo et al, 2018).

The Dual Enrollment. DE is used interchangeably with initiatives such as concurrent enrollment, joint enrollment, or dual credit. Accelerated learning options or credit-based transition courses, the more general terms that show the curricular approaches for college readiness, often include DE. DE was defined as courses high school students take where they earn both high school and college credit simultaneously without having to take a standardized test to gain the credit (An & Taylor, 2019; Tobolowsky & Allen, 2016). College credit courses fall into two different categories: A) Advanced College Credit courses (ACC courses) that have been approved by various local colleges/universities; and, B) AP courses designated by the CB. ACC/AP courses are transferable to most colleges/universities. Students are advised to check with a college's counselors on all ACC/AP courses available or needed (Suldo & et al, 2018; National Research Council, 2002).

The differences of DE from AP and IB are 1) Unlike AP and IB, which are college-level courses or preparatory courses, DE is a college course; 2) DE courses are often more accessible in colleges in rural areas while AP and IB courses are not offered in the rural area; 3) DE courses are flexible and easily accessible that they can be taken at a high school or in university campuses; 4) While DE is based on a course grade, earning college credit with AP is based on standardized exams (Jenkins, 2018; Suldo & et al, 2018). The DE, unlike AP and IB which target high achieving students, targets a wide range of students. However, DE's quality is lower compared to AP and IB (Hughes, 2006; Tobolowsky & Allen, 2016).

DE courses can be individual courses or a complete high school curriculum. They can be taken at high schools, colleges, universities, and online. These courses differ by rigor, content, instruction, structure, and design within and between countries. The variability of its offerings is its major characteristics (Hughes, 2006; Rowett, 2012).

The benefits of DE are: 1) It is purported to reduce the cost of college and the time-to-degree; 2) When courses are offered at a college campus, DE also serves as an introduction to the full college experience, which assists students in their college adjustment when they transfer to HE (Rowett, 2012; Tobolowsky & Allen, 2016). Regarding student benefits, it is well-known for its tangible benefits. For instance, research suggests that first-for-college students in their families and students from low-income backgrounds seem to get greater advantages than students whose parents did earn a college degree or come from a higher income background (An & Taylor, 2019; Tobolowsky & Allen, 2016).

Because of quality problems, some institutions will not accept all (or any) DE. To alleviate this problem, an optimum number of courses that offers a maximum benefit to students is required; as well as an introduction to the college environment and rigor was suggested (Tobolowsky & Allen, 2016).

Areas of variability for DE. DE programs are possibly the most unique of the credit-based transition programs mentioned here. These courses have a difference not only with the other pre-college initiatives but also between each other in terms of delivery, funding, student participation, instructor eligibility, and course content. For this reason, DE looks quite different (An & Taylor, 2019; Hughes, 2006; Tobolowsky & Allen, 2016).

The first area of variability is the *setting for delivery*. Most of the time, these courses are offered in a larger part of academic settings. They are often taken in traditional high schools, online, at universities, or in unique high schools such as Early College High Schools that are

focused on offering a DE curriculum starting from late junior ninth grades (Karp & et al, 2004). Criticisms state that courses offered at high school may lack college-level standards. Also, courses offered at universities may lack rigor. In some cases, some colleges use DE courses for attracting high achieving students to apply to their colleges after high school graduation to increase the college retention rate (Hunter & Wilson, 2018). However, the lack of quality in some course contents has resulted in universities' refusal to accept some DEs after students matriculate as freshman college students (Borden & et al, 2013). Therefore, issues of course quality and course transferability are associated with the variability in course content and the course setting (Hughes, 2006; Tobolowsky & Allen, 2016).

Funding is the second area of variability. Funding sources for these courses vary. In some cases, the cost of one or all DE courses is paid by the government and, in other instances, there may be reduced or waived fees for some courses (Tobolowsky & Allen, 2016). Both the high school and the college can receive government funds to cover the cost of these courses (Karp & et al, 2004). In some instances, the students are responsible for the entire cost of the courses (Tobolowsky & Allen, 2016).

The third area of variability is *student participation*. As the primary purpose of DE coursework is to promote the success of the high achieving high school students (Edwards & et al, 2011), there are still limited studies that argue all students (for instance, underrepresented populations, medium and low achieving, low-income, remedial students) benefit from taking these courses (Bailey & Karp, 2003).

Participation in DE programs is stated by the admission criteria set by the HEI or the high school (Hughes, 2006). Most DE programs have eligibility requirements. The minimum scores on SAT or ACT, grade level, class rank, and/or high school GPAs are among the requirements needed. In some cases, letters of recommendation are required (Tobolowsky & Allen, 2016). Borden and associates (2013) also stated that some institutions offering DE courses had requirements that were not identified. Generally, great variability in student eligibility has been indicated (Tobolowsky & Allen, 2016).

Some studies question the assumption that students who qualify for these courses are ready to enroll, especially when these courses are taught on a university campus (Tinberg & Nadeau, 2013). Some researchers found that students may have the academic preparation to enroll in these courses but may lack sufficient maturity to manage in the less structured college environment (Ferguson et al, 2015). Although studies show that participation in DE

courses is traditionally biased for high-achieving students, Whites, and peoples with higher SES and the problem tends to continue, countries have been implementing different measures to make the participation more inclusive (An & Taylor, 2019)

As the fourth area of variability, *instructor eligibility* is also used to compare the programs. One of the most controversial issues with DE courses is the lack of uniform quality assurance practices and policies in place regarding the quality of instruction (Hughes, 2006; Tobolowsky & Allen, 2016). Policies regarding teacher selection, training, and credentials for these courses should be there (Borden et al, 2013), and there should be national standards. These criteria should require the high school instructors to meet the same standards as adjunct community college faculty, including a master's degree and expertise in the subject (Borden & et al, 2013).

When the fifth area of variability, *course content*, is observed, states determine which courses should be offered for DE in some countries (Karp et.al, 2004). Most of the time, a college or a high school will approve the course syllabus, textbooks, and/or exams. However, on some occasions, the responsibility of approving the syllabi is left to the state (Tobolowsky & Allen, 2016). Because the course content is not standardized, it may not guaranty that students take the same subject or they cover similar material.

For the reason that DE course content can vary significantly depending on the nature of the DE program, and the students it is opted to serve, there is no standard content. Some specific DE courses target medium to low achieving students and others are related to vocational students. Although initially many of the offerings were designed to provide college-level content to high-achieving high school students, this is not always true (Golann & Hughes, 2008).

Witkowsky and Clayton (2019) supported the significance of DE for promoting college readiness while they also emphasized the high contribution of high school counselors in mediating the success of DE students. Also, DE significantly increases student retention at college (Hunter & Wilson, 2018). Lile et al. (2017) reported that participation in DE increases the clarity of college student roles. On the contrary, Lawrence and King (2018) revealed that students who participated in the DE program were less likely to complete the Associate of Arts and Associate of Applied Science degrees. Additionally, a lack of quality control concerning DE courses leads to problems with the transferability of course credit. Modarelli (2014), who studied the transfer of credits from DE programs, found that

“competitive” and “highly competitive” universities were 78% likely to accept associate degree credits from other institutions whose degrees are non-DE whereas the probability of acceptance for the degrees earned from DE programs is (19%). The more competitive the institution, the less likely they were to accept the credits (Tobolowsky & Allen, 2016). When compared with other accelerated learning options, AP credits were more likely to be accepted by the most competitive institutions (70%) followed by IB (59%) and then DE (33%) (Tobolowsky & Allen, 2016). Generally, the authors stated that this was a puzzle for students who want to be admitted to universities they want and for policymakers.

Understanding that policies and implementations of DE have varieties across counties, An and Taylor (2019) illustrated some commonalities and convergences that have emerged in the literature as best practices to facilitate the success of DE. These are leadership, partnerships, funding and finance, structure, and stakeholder perceptions. These authors identified the effective leadership approaches, namely, visionary, progressive, strategic, and reflective. Helping students to develop a sense of purpose and value, and transforming the school culture to a college-going culture (e.g., which includes early assessment for DE eligibility and hiring more bilingual teachers for core curriculum) were some of the characteristics of progressive leadership. Partnerships between schools, colleges, and other significant members of the community on the implementation of DE are indicated as some of the key factors for the success of the DE program. Also, inadequate funding created differences in participation in DE courses between the rich and the poor. The problems of qualified teachers to teach DE in high schools and differences in stakeholders’ perceptions and support for DE are discussed as some factors that impact the implementation of DE. The environmental factors (staff, counselors, school type, and the college type) have also been associated with the success of DE program (Witkowsky & Clayton, 2019). The challenge of increasing equitable college access while increasing effectiveness through the application of AP, DE, and IB programs has remained a problem. This is partially caused by the challenge to make the courses more inclusive (Gagnon & Mattingly, 2016; Kolluri, 2018).

Studies also used *student learning outcomes* to compare these curricular innovations. Studies reported findings on the relationship between DE and student outcomes such as college matriculation, college academic performance, college persistence, degree completion, time to degree completion (Evans, 2018; Witkowsky & Clayton, 2019). To begin with, a significant number of studies associate a significant relationship between participation in DE and college matriculation as a degree-seeking student. The largest evidence on the effect of

participation in DE and student outcomes is evident in the relationship between participation in DE and student college academic performance. The most important point for policy-makers is the effect of participating in DE on degree completion or degree attainment. In this case, similar to DE's effect on college academic performance, studies confirmed that participation in DE was also found to have a significant effect on degree attainment. Also, a significant number of empirical works reported that participation in DE reduces time to degree through the accumulation of college credits before college entry (Evans, 2018).

Another advantage of the DE is the fact that it reduces the need for remediation at college. Studies revealed that students who participate in DE are less likely to participate in remedial education in college than students who did not participate in DE (Kolluri & Tierney, 2020). For this reason, it is believed that participation in DE primarily tackles the college readiness problem of college-entering students. Studies also associate participation in DE and motivation. Studies show that students who participate in DE tend to be more motivated and persevered in their school work than those who are not dually enrolled.

Studies also reported the effect of DE by course type. Although all DE courses have a significant effect on college student outcomes, Mathematics DE course has the strongest effect. Scholars also studied the DE course effects depending on course differences based on academic and Career and Technical Focus courses. Indicating the recent curriculum emphasis on Career and Technical Education, studies show a significant effect of Tech Prep courses on college outcomes than academic DE courses.

Studies also compared the difference between the DE and AP in affecting student college outcomes. Generally, the largest number of studies reported that AP students are more likely successful at college than DE students. Overall interest in increasing AP course taking emerged from the urge to promote college readiness particularly in the fields of science, technology, engineering, and mathematics (Judson, 2017; Warne et al, 2019).

The Ethiopian Prep curriculum. The Ethiopian Prep curriculum has evolved from the former Socialist Regime's 6-2-4 structure, in which the middle two years were the lower secondary program. The 1994 ETP revised the curriculum to become an 8-2-2 structure. Then, grades 11 and 12 were reserved for the preparatory schooling program that prepares students for a three-year university undergraduate program. Following this change, many topics previously taught in the first year of undergraduate programs were moved down to grades 11–12, and consequently, topics from grades 11–12 were moved down to grades 9–10.

This change resulted in the overall difficulty of grades 9 -12 curricula (Joshi & Verspoor, 2013).

The grades 11 and 12 curricula have been categorized into 2 major streams: social science and natural science. The social science curriculum includes major courses, such as Geography, History, Economics, and General Business whereas the natural science curriculum consists of major courses, such as Biology, Chemistry, Physics, and Technical Drawing. The English language, Civics, Physical Education, Mathematics and ICT are the common courses that are taken by both of the streams. The Mother Tongue and Amharic are electives (Joshi & Verspoor, 2013; MOE, 2009).

Areas of variability for the Ethiopian Prep curriculum. Compared to the major DE courses in terms of delivery, funding, student participation, instructor eligibility, and course content, the Ethiopian preparatory for University curriculum has differences from others.

Regarding the *settings for delivery*, unlike the other DE courses that can be delivered in a traditional high school setting, online, at a college or university, or in a unique high school setting, Ethiopian prep courses can only be taught in recognized private or governmental preparatory schools. There is no university interference in prep course delivery. This is one difference from the other DE programs. Therefore, the course setting has no significant variety compared to the other DE courses. However, the difference in quality of course delivery may be observed between types of schools (private, governmental, rural, and urban, etc.).

The government *funds* the governmental preparatory schools. Governmental Prep schools make free delivery of the courses for all regular students who formally attend the governmental schools. The private for-profit preparatory schools, however, receive money from families of students for their service. Not-for-profit NGO schools also provide free education. There is also uniformity in funding compared to the international trends in funding DE courses.

When *student participation* is observed, the eligible students to join preparatory schools are only those who score greater than or equal to a cutting score of the GSEE. This cutting score is lowered for females, students from the remotest regions of the country whose families live on rearing cattle only, and students with special needs. Although the ministry applies affirmative action to include gender, minorities, and special needs in the admission process, enrollment to preparatory education is very low compared to the other peer

countries. Compared to the peer countries such as Kenya, Tanzania, Uganda, and Burundi, enrollment to upper secondary school is very low (17.7 for Ethiopia, and 31.2 for Peer countries) (Donnenfeld et al, 2019; Joshi & Verspoor, 2013).

The *eligible instructors* for Prep school are those who trained at universities for three years in a major field and obtain a bachelor's degree. They also have to take an additional one year of professional teacher training to receive an additional Post-Graduate Diploma in Teaching (PGDT). PGDT consists of training in educational foundations, pedagogy, and school-based practicum experience. Besides, teachers take additional CPD. English teachers have also to receive additional language training. Aimed at raising the qualification of preparatory school teachers to Master's Degree (Masters for Preparatory School Teachers), the MOE has already been training prep teachers during the summer times since previous 6 years ago. Therefore, the objective is to make all preparatory school teachers Master's Degree holders (Joshi & Verspoor, 2013; MOE, 2009).

When it is compared with the international college readiness trends, Ethiopia's prep school instructor eligibility system is unique. In another world, instructors are either assigned from university faculties or assigned from high school teachers to teach the courses. In the case of Ethiopia, preparatory teachers are the only teachers for preparatory schools. Since the prep courses were moved down from university to prep schools, the invitation of university instructors would have been mandatory. This may have been a demerit. In one or another way, the university-prep-school partnerships are important.

The preparatory school course *contents* are prepared by MOE. The courses are three types: the major courses, common courses, and electives. All prep schools, both private and governmental, teach similar courses that are prepared by MOE in order to eligibly prepare students for college. In the case of other international DE college readiness courses, the approval of the syllabus revolves around the state, the college, and the school. For this reason, there is a similarity and differences in quality among the courses (Tobolowsky & Allen, 2016).

Generally, the Ethiopian Prep program is more similar to DE courses. Firstly, in terms of course content, like some DE courses, the Ethiopian Prep courses are believed to be college freshman introductory courses. Secondly, the Ethiopian Prep uses both continuous classroom course assessment and the nationally prepared national testing assessment without awarding college credit. However, DE courses use course grading assessments that award college

credit. Similar to Ethiopian Prep courses, DE courses are more prescriptive and the role of teachers is low in course development.

When it is compared with AP courses, the Ethiopian Prep courses have many differences. For example, firstly, unlike the Ethiopian Prep courses, AP courses are not university courses. AP courses are prepared by CB in collaboration with high school teachers while Ethiopian Prep courses are prepared by MOE participating teachers also. Also, the role of the teacher in course development is very high for AP courses than the Ethiopian Prep course which is more prescriptive and has low teacher participation in course development. In the case of AP, the exams are standardized examinations, unlike Ethiopian Prep exams that are nationally prepared by MOE.

Similar to IB, the Ethiopian Prep courses are a fully-fledged curriculum. Unlike IB, Ethiopian Prep courses are local. IB is an internationally prepared and recognized curriculum. Also, the IB curriculum is so broad that it is designed for elementary school, junior school, and secondary schools while the Ethiopian Prep curriculum is prepared only for grade 11 and 12 students. Compared to Prep, the IB curriculum is challenging. IB courses have college credits, unlike Prep courses. Also, the assessment system for IB uses standardized testing while Prep is not. The role of teachers in curriculum development is very high for IB compared to Ethiopian Prep.

The effect of the Ethiopian Prep curriculum on *students' learning outcomes* is also studied by some studies in Ethiopia. Since the Ethiopian Prep for HE curriculum has been applied in Ethiopia, very few studies conducted on its effect on student preparedness for college. These studies reported controversial findings on its rigor in preparing ready students for college compared to the former Socialist system's FPC. For example, Regassa (2005) compared the reading ability of the former freshman students and preparatory complete students and found that former freshman students outperformed preparatory complete students in reading comprehension. Demewoz et al (2005) also conducted a comparative study on the PPC and FPC students on their self-efficacy and academic achievement and reported that PPC and FPC students differed to a statistically significant extent in academic self-concept and academic achievement in favor of the latter.

The assessment. The *AP's exam development procedure* was observed in this study. The content specifications are determined for the courses during the development of AP courses. Deciding the general content of the examination and the ability level to be tested for each AP

course is the responsibility of the test Development Committee (DC). The examination is constructed by being guided by the topic percentages from the AP course descriptions for the distribution of questions. The representative committees from secondary schools, college, and university level teachers work in cooperation with Educational Testing System (ETS), content specialists, and psychometricians to validate that the exam scores are meaningful from year to year and student to student (Hughes, 2006; National Research Council, 2002).

The validity studies are conducted for the AP curriculum to validate the AP courses for college credit by measuring the comparability of content knowledge and processes required for the students to master the introductory-level college courses. The multiple-choice tests are constructed and pre-tested by DC in university classes to obtain some measure of the difficulty level and comparability with university courses. The AP's DC works to design a multiple-choice section such that the average raw score is between 40 and 60 percent of the maximum possible raw score. During test development, test items with varying levels of difficulty are included in the examination. To make it clear that distinctions will be made between students earning grades of 2 and 3 on the one hand, and 3 and 4 on the other, many questions of medium difficulty are used (Hughes, 2006; National Research Council, 2002).

In order to create a linkage between the current form of the examination and the previous forms, a few previously administered test items are included. This is also aimed at maintaining reliability from year to year and examination to examination. The committee writes, selects, reviews, and refines free-response questions (Hughes, 2006; National Research Council, 2002).

AP's DC members work with AP content experts and ETS statisticians to determine which item type and format is best for assessing a given topic or skill area. As questions are being written and refined, the DC proposes preliminary scoring standards that are based on consistent criteria from year to year. In addition, the committees develop a formula for assigning composite scores based on differential weights for the multiple-choice and free-response questions (Hughes, 2006; National Research Council, 2002).

Another issue discussed in AP's assessment is *scoring AP examinations*. During scoring, the number of correct and incorrect answers in the multiple-choice section of the AP exam is identified. A correction for guessing is also applied. During AP readings, usually held at college campuses, faculty consultants score the free-response questions. The creation of detailed scoring guidelines is given due attention to ensure a consistent scoring system for

free-response items. All faculty consultants are trained for this purpose, and various ‘checks and balances’ are applied throughout the AP reading. Composite scores are created using formulas developed by each DC. A five-point scale for awarding final grades on the examinations is used in AP assessment. Those who earn a score of 3, 4, or 5 are described as qualified for credit and/or enrollment in advanced courses at colleges and universities. Boundaries for awarding AP grades, however, are reset annually at a grade-setting session for each examination (Hughes, 2006; National Research Council, 2002).

The *IB’s assessment procedure* is also studied. The written external assessment is administered globally in May of each year. The external examination opts to assess core knowledge and optional contents. The teacher’s formative assessment of the student’s practical skills (i.e., laboratory works in science subjects and portfolios in mathematics subjects) is analyzed against established assessment criteria. The teachers conduct the formative assessments during the teaching-learning process at schools being externally moderated by the IB Organization (IBO). The external and internal assessments are 76% and 24% of the final exam mark, respectively, in the experimental sciences. The IB teachers submit both internal assessment marks and a predicted final examination grade of all students they teach. The internal assessment component covers skills that cannot be demonstrated satisfactorily within the context of a written examination (Hughes, 2006; National Research Council, 2002).

An issue discussed in the IB assessment procedure is *developing IB assessments*. Exams for all IB courses are written by chief examiners and deputies and are checked and approved by the exam board. Within a situation that is organized and managed by IBO academic staff, examination teams prepare the exams for each of the administrations. For Standard Level (SL) and Higher Level (HL) courses in a subject area, separate exams are prepared. Single senior examiners normally write individual exam questions. These exam questions are directly linked throughout the exam development process to the assessment and the objectives to be measured as outlined in the program guides for each subject (National Research Council, 2002). For some reasons, such as the difficulty of finding an appropriate trial group of test-takers without the probability of compromising security, the test questions are not field-tested. Rather, new test questions are written for each examination period. The test items are not banked, and for this reason, the examination team plans to prepare a different form of examination for each session of exams. Also, the new examination needs to be the same standard of demand as in previous sessions. Both the CB and the IBO do not

make use of systematic validly studies on the cognitive characteristics of the exams. The IB curriculum team specifies and describes the internal assessment criteria as a part of the curriculum development and review process in each subject. The examiners in each subject periodically meet to develop common understandings on how to assess each of the criteria. Through program materials and training, the IBO describes the assessment procedures to teachers and moderators in each subject (Hughes, 2006; National Research Council, 2002).

Periodically, the assessment structure for each subject is reviewed as a part of an overall curriculum review. The Curriculum Review Committees (CRC) also develop proposals for revisions of the assessments following a procedure similar to that is stated for curriculum review. Then, the proposals are reviewed by the Diploma Review Committee (DRC). The chief examiners representing each subject group and senior academic staff from the IBO are members of DRC. After each exam session, students' responses are analyzed to determine that they fit expectations for each question. In addition, all IB teachers are asked to complete feedback forms after the examinations. They answer question items about both the emphases of the exam and the content and form of individual items. Emphasis is given to teachers' feedbacks on the appropriateness of exam papers in hitting the intended objectives. The information gained in this way contributes to the exam development process for future sessions (Hughes, 2006; National Research Council, 2002).

The second issue raised under IB assessment procedure is *scoring IB assessments*. The IB follows a criterion-referenced grading system. Each test taker's performance is measured depending on seven grade descriptors. These grade descriptors are prepared in the form of levels of achievement that students are required to achieve. The levels of achievement are strongly related to the objectives of the course and are specified for experimental sciences and mathematics areas. The descriptors apply in the same manner to both HL and SL exams. Grade descriptors are, for example, 7 (excellent performance), 4 (satisfactory performance), and 1 (poor performance) for the experimental sciences are used (Hughes, 2006; National Research Council, 2002).

Reporting IB examination results is the third issue discussed under the IB assessment procedure. The IB Curriculum and Assessment Centre (IBCA) sends exam results directly to secondary schools. The schools ensure the communication of the test results to students. Also, the IB Organization office of a country communicates the results to colleges and universities. A profile of students' grades is also available to schools for each examination period. The profile is available only for candidates whose examinations are entered by a

corresponding school and includes predicted grades; examination grades, including marks for each paper; and internal assessment grades, showing any adjustments made. Twenty-four hours after the testing date, teachers are allowed to use all sections of the exam in their classrooms (Hughes, 2006; National Research Council, 2002).

Assessments in the Ethiopian Prep program were also compared with others. The grade 11 and 12 classroom assessment is accomplished in two ways. Firstly, the continuous assessment that monitors students' learning throughout a semester is applied in the class. This assessment accounts for 60% of all classroom assessments. The final exam (i.e., 40%) is also administered at the end of the semester. For grades 11 and 12, these procedures of formative and summative assessments are applied to make up the final preparatory school transcript of the students (MOE, 2009).

The second exam is prepared by the National Assessments and Evaluations Agency at the end of grade 12. This assessment is aimed at screening the students for HE entry. When it is compared to AP and IB, the UEE has differences. Firstly, the UEE is all objective type examination, unlike AP in which 50 percent of the mark is given for essay items. Secondly, UEE is centrally prepared. In the case of IB's experimental sciences, however, the external and internal assessments make up 76 percent and 24 percent of the final exam mark, respectively.

The process of developing the UEE is also discussed in the assessment procedure in the Ethiopian Prep program. The UEE is prepared by The National Assessment and Evaluation Agency (NEAEA). The two directors, Exam Preparation and Placement Directorates monitored by NEAEA's Vice Director are accountable for UEE preparation, validation, administration, and scoring and placement decision. A committee consisting of the test preparation specialists, subject specialists, curriculum specialists, and experienced teachers prepares UEE. The test items are constructed depending on the objectives of courses and content sampling using the table of specifications. In addition, the percentage of the items with their difficulty level is, for instance. (30 % easier items, 50% items with medium difficulty level, and 20% of items with high item difficulty index) are included in the examination. Before administration, the items are pilot tested and item analysis is conducted in order to maintain the test quality. During the item analysis, the test experts and the experienced teachers in each subject carefully observe the quality of the items (NEAEA, 2009; MOE, 2009).

Unlike IB, AP, and Ethiopian Prep courses, the assessment of DE courses is through course grading that is accomplished by the instructors. This is because the DE courses are college courses. As college courses, Ethiopian prep courses' assessment process must also have any relation with colleges like DE courses. However, it is completely disconnected from its ties with the college experience. The Ethiopian Prep curriculum reviews that have been conducted in five years interval, did not describe any criteria by which the college standard of these courses have been maintained.

The *UEE test administration* process was also discussed. The administration process is accomplished by selected coordinators and invigilators assigned to every school in the country. After administration, the answer sheets are collected and categorized by the type of exam taker, subject type, and by booklet code and packed by the invigilators. Then, the carefully packed answer sheets are submitted to NEAEA (NEAEA, 2009).

The *scoring system* in the Ethiopian UEE is accomplished through a computerized system. The Optical Mark Reader assists the scoring system. The *evaluation* is, like IB, a criterion-referenced. In UEE's case, rather than calculating the Cumulative Grade Point Average for each examinee, the total percentages of marks earned from each subject are added, converted to percent for each of the courses, and added up to become the final score. Then, the cutting score is determined depending on the intake capacity of universities, resource availabilities, gender, special need students, and the minorities by region (NEAEA, 2009).

Instructional process. When the *instructional process in the AP program* is studied, what to teach and how to teach is decided by teachers every day. Many factors influence these decisions: teaching philosophies; experience; the teacher's educational background and familiarity with various topics in the discipline; and student outcomes (Hughes, 2006; National Research Council, 2002).

The *AP's course descriptions and teachers' guides* are unique when they are compared with others. The *AP course description* prepares content outlines and the descriptions of course objectives, while still encourages teachers to flexibly develop their own lesson plans, syllabi, and then bring their creativity to the AP classroom. The guidelines given to the DC for AP science courses include a charge to assess knowledge about laboratories and experimentation. For instance, one of the free-response questions on each AP science examination will be a laboratory question (Hughes, 2006; National Research Council, 2002).

The *instructional process in the IB program* is also studied. The instructional process differs from classroom to classroom concerning what is taught in an IB course, how much of the topic list is covered, how much time is budgeted to different topics in IB courses, and what instructional methodologies are used. However, the detail provided in the IB guide in terms of expected student outcomes directs teachers toward the use of specific instructional strategies. Whenever possible, teachers are made responsible for building internal assessment tasks into classroom teaching. Internal assessment activities ought to form a part of the learning experience of the learners and should not be regarded as additional to the teaching schedule (Hughes, 2006; National Research Council, 2002).

The *IB Program guides and teaching notes* are used by IB teachers in teaching. The general guidance on instruction is given by IB program guides but the guides also offer detailed suggestions about instructional strategies. The objectives for students are listed in the program guides. Notes for teaching each topic in all subjects offer suggestions for teachers while underlining that it is not a must that these suggestions be accurately followed. The use of action verbs in the science assessment statements informs teachers about the depth of treatment required. Depending on that, teachers make decisions about the best way to prepare their students for the required outcomes (Hughes, 2006; National Research Council, 2002).

In specifying aspects of a subject to be assessed, the IB internal assessment criteria require that teachers should structure the classroom and laboratory environment so that students have the chance to acquire and practice the skills needed (Hughes, 2006; National Research Council, 2002).

When the *instructional process in Ethiopian Prep is compared with others*, unlike AP and IB courses, encouraging the teachers' decision-making is minimal in prep instructional guides. The teachers follow the prescribed curriculum. They do not have anything to add to the context of students' learning. The rigidity of the prep curriculum made the teachers the followers of the prescribed curriculum and the teaching-learning process non-adjustable to the pace of student learning.

Teachers have two guides that use during their preparation for a class: the Plasma TV Teacher Guide and students' textbook teacher guide. Using these guides and other references, teachers prepare themselves for the class depending on the lesson objectives and contents of the day. The teachers also have to prepare their lesson plan that corresponds to the plasma TV lesson or they can prepare their lesson plan and teach without plasma TV.

The Ethiopian prep curriculum follows the student-centered outcomes-based philosophy. The minimum expected competencies for each topic are stated in the syllabus. The teachers are expected to skillfully organize their teaching towards enabling the students to meet these minimum learning standards or outcomes. The assessment process is stated to be a continuous assessment with a percentage of assessment to be shared by a summative final test.

One of the strong sides of the plasma TV is that it demonstrates some teaching experiences that may not be accessible to the teachers. Some laboratory experiences and other learning experiences that cannot be presented in the class by the teacher are demonstrated by plasma TV teachers.

The weakness is that the plasma TV learning experiences are rigid and not adjustable to the pace of student learning. For this reason, the students are always felt boring because they skip many plasma lessons without understanding well. On the other hand, the English language proficiency of the students also highly determined the extent to which the students understand what is taught by the plasma TV teachers.

Conclusion. The Ethiopian Prep curriculum was compared with other college readiness curricula depending on the criteria such as the curriculum, settings for delivery, student participation, instructor eligibility and training, course content, assessment, and instructional process.

When these college readiness curricula are compared depending on their *theories of curriculum*, the shift from the traditional content-based curriculum theory to the modern holistic approach to curriculum development is reflected in all of them including the Ethiopian Prep curriculum. Regarding this, Gray et al. (2014) stated that most of the curriculum reforms emphasize assessment-driven, goal-directed, competency, and fact-based forms of learning. All of the accelerating programs are also gradually transforming from elite to more inclusive.

In order to prepare young people for the changing needs of adult and working life, an increasing emphasis is now given to “key” skills and knowledge. Approaches to ensure that the “essential” elements are included in school curricula include student entitlement, establishing compulsory requirements, and mobilizing consumer pressure (Hughes 2006). In Ethiopia, the curriculum revision (MOE, 2009) was guided by the identification of the core

competencies, curriculum standards, deriving of the contents, and assessment from these standards depending on the minimum competencies that should be achieved.

The researcher also tried to observe the breadth of high school curriculum maps in some high schools over the world compared to the Ethiopian prep curriculum contents. The general interpretation shows the researcher that the breadth and depth of the curriculum contents show variety from country to country. For instance, one of the curricula observed was china's current holistic competency-based curriculum (Wang, 2019) in which the breath of the curriculum touches almost all holistic nature of modern human development. In addition to the breadth of the curriculum, china's curriculum highly emphasizes closing the gaps between theory and practice. For instance, high school students take a long time in practicum. Gray et al. (2014) also stated that most developed countries around the world give great emphasis to Language (Literacy), Mathematics, and Science. This is also true in the Ethiopian case, although the depth, breadth, and level of experiencing these courses may be affected by so many contextual factors. Compared to other programs, the IB, in addition to its emphasis on Language (Literacy), Mathematics and Science, is specifically opted to produce inquiring, knowledgeable and the young who cares for people and who creates a suitable, more peaceful world through intercultural respect and understanding.

Regarding the breadth and depth, the Ethiopian Prep curriculum shows problems. For instance, some contents such as theology, music, and fine arts are very important ones that are missed. The depth of the curriculum is not to the expected standard. For instance, regardless of their high importance for students, the depth of technology courses such as IT, and computer science is not adequate in the Ethiopian Prep curriculum. This is also partially caused by the shortage of resources. For these gaps, schools and universities are facing problems in responding to the effect of COVID-19 in their teaching-learning at this time. It is found so difficult to train teachers and students to use technology at this time. For these reasons, as a holistic competency-based curriculum, the Ethiopian prep curriculum did not reach an expected breadth and depth; and it is not in the standard of closing the gap between theory and practice.

Another big problem in Ethiopian Prep curriculum theory is observed in its role of exposing students to the college experience. Compared to the other three curricular innovations for college readiness, the Ethiopian Prep is completely detached from the college experience. Although the Prep courses moved down to grades 11 and 12 with the intent that

they expose students to college academic rigor and expectations, in practice, they are completely disconnected from the college experience.

As a *curriculum*, the Ethiopian Prep is a fully-fledged curriculum like IB, and unlike AP and other DE courses. Unlike the AP and IB courses that are developed by CB and IB Organization (IBO) respectively, the Ethiopian Prep courses are assumed to be the former university introductory freshman courses. Also, the AP and IB courses have pre-requisite courses in grades 9 and 10 (e.g., AP Math for grades 9 and 10) whereas the Ethiopian Prep has no such pre-requisite similar courses in the lower grades. Also, AP and IB courses have another significant difference from Ethiopian Prep curriculum design and implementation. Guided by clear objectives, content outlines, and assessment processes, the schools implement, add, and reshape the curriculum in their local context during the implementation. For these reasons, for IB and AP, the curriculum may show differences across schools.

Although the curriculum can show differences in design and implementation, the IB and AP standardized assessment is centrally prepared depending on the objectives of the curriculum contents. The central development of the objectives, the course contents, and assessment criteria is updated year to year depending on the timely inputs from local schools' contexts. In the case of the Ethiopian Prep, the curriculum revision is conducted once within five-year time interval and the revision is less frequently conducted compared to the IB and AP. For these reasons, the IB and AP curriculum is highly flexible and adaptable to the local contexts compared to the Ethiopian Prep curriculum. The vertical design of the IB and AP curriculum is also very strong compared to the Ethiopian Prep curriculum. The Ethiopian Prep curriculum seems weakly built on its pre-requisites since the curriculum is said to be migrated down to grades 11 and 12 from college. Almost all responsibility of the curriculum revision is rested on the shoulder of the MOE and the teachers have low contributions in curriculum development, unlike the IB and AP courses in which the teachers have the highest role in curriculum design and implementation. Ethiopian Prep curriculum is a more prescribed one compared to the others.

The *setting for the delivery* of the courses is also another factor that differentiates these courses. For instance, DE courses are college courses that can be delivered either in college or in high school settings. Similarly, the Ethiopian Prep courses are college courses that migrated down to grades 11 and 12 and are taught by high school teachers. The IB and AP courses, like Ethiopian Prep courses, are taught by high school teachers. However, DE courses are taught either by college instructors on college campuses or taught by college

instructors in high schools. The critics on AP and IB courses are also there on their potential to expose the students to the college experience. The critics stated that, firstly, the courses are taught in high schools by high school teachers. In addition, although the courses are believed to be rigorous enough and equivalent to college courses, some critics doubt these courses' role as preparing the students for college.

The DE courses, however, expose students to the college experience for the reason that they are delivered in college or high schools by college instructors, though they may lack a vertical design. In Ethiopia's case, the Prep courses have a disconnected nature from the college experience, although the courses are said to be moved down from college to high school. Moving the college introductory courses down to high school by itself did not warrant the exposure of students to the college experience. These are due to 1) the courses are not horizontally designed depending on their pre-requisites; 2) the students are taught by high school teachers although the courses are believed to be college courses; 3) unlike IB and AP, and DE, there are no partnerships between Prep schools, MOE and universities in terms of curriculum development and test development. To cover this gap, the teachers of these courses should be either trained in college teaching qualification level or they should be the college instructors themselves. The former Ethiopian Socialist regime's FP curriculum allowed the students to take these migrated courses in college by college instructors. Also, the students stayed in college experiencing college for one year before choosing their fields of study. They also had enough time and adequate information to think about and choose their fields that correspond to their career interests.

Another parameter by which the Ethiopian Prep is compared with other college readiness programs is the *student participation or eligibility criteria*. Regarding student eligibility and participation criteria, the Ethiopian Prep has homogeneous criteria for all schools. The eligibility for Prep school entrance is set by the MOE for all schools depending on the gender, region, and special need. Depending on these criteria, the MOE decides the cutting scores of the GSEE for these groups. However, the IB and AP course participation and eligibility criteria are targeted to high achieving students. One of the weaknesses of the Ethiopian Prep program is its sole focus on affirmative action that targeted lowering college entry scores to support the underrepresented and disadvantaged group's college access. The modern models of college readiness, however, in addition to using empirically developed affirmative action models, focus on research-oriented early warning intervention systems and multidimensional, organized support systems to make these groups college-ready (Bragg &

Taylor, 2014; Gansemer-Topf et al, 2018). School-based college readiness building activity is now highly supported by other supplementary and interventionist models of students' development in this era.

The IB and AP programs are often criticized for their bias to elite groups and high achieving students (Lakes & Donovan, 2018). Compared to AP and IB, DE courses are well known for participating low-achieving and disadvantaged groups in college prep experiences. To cover the discrimination nature of IB and AP against low achieving and disadvantaged groups, the enhanced comprehensive DE programs, such as middle and early college high schools have been established (Edmunds & et al, 2010). These schools are targeted on the inclusive tendency in exposing all members of citizens to the college experience. They take on a holistic approach to support students to experience college. On the contrary, although early college students graduate from high school at a higher rate than those students from traditional schools, they are generally considered similarly prepared for HE with students from traditional high schools (Edmunds et al, 2017).

In addition, the *instructor eligibility and training* was taken as one of the criteria by which these college readiness programs have been compared in this study. For IB schools, the profile of teachers is taken along with the schools' profiles at the time when these IB schools apply to become IB schools for IBO. For this reason, the IBO assumes that these schools have competent teachers to teach IB courses. However, before teaching these courses, IB teachers must take a '3-to-5 days' workshop at IBO. Generally, IBO depends on the quality of the schools that deliver IB courses in determining the competency level of teachers to teach the courses. Also, CB does not certify teachers to teach AP courses. CB delivers some 1-2 days' workshops to teachers, counselors, and administrators on the rudiments of AP courses' teaching. Also, the AP teachers attend summer institutes to receive some training on the pedagogy of AP courses.

The Ethiopian Prep teachers are normally those who are graduated with a three-year Bachelor's degree in teaching. The Ethiopian Prep teachers are not assigned to Prep classes as soon as they graduate. The teachers need some experience in teaching and a one-year PGDT diploma in teaching before teaching Prep courses. The English language teachers also need some training in language and language teaching before teaching Prep English language courses. Years ago, the Ethiopian MOE also started upgrading the Prep teachers' qualification to MA and this is good progress in the professional development of Prep teachers. This move aligns with the assumption that if the Prep courses are college-level

courses, the teachers should be either college instructors or those teachers who have got college-level qualifications.

The *course content development* also varies across these programs. Regarding the AP program, the course description and topic outline for each of the contents is prepared by the curriculum DC that is summoned by CB. The major AP course topics on the outline are accompanied by percentages. The subtopics are listed and provided for each major topic. The objective of the topic outlining is to indicate the scope of the course; however, the depth of contents and the orders in which the courses are taught are balanced and achieved by the teachers. Depending on these outlines and other guides, the teachers take a major role in shaping and implementing the curriculum. The major areas of emphasis are given for teachers in the AP course development process especially in percentages. The percentage of the items included in the examination also depends on this emphasis and percentage.

Internationally selected CRC takes responsibility for developing, implementing and achieving a vision in each subject. The primary responsibility for curriculum development is also is rested on the shoulder of the IBCA. During curriculum reviews, IBCA staff works with the IB teachers who are selected from IB member schools from around the world. The committees for all subjects in a discipline meet jointly at IBCA. CRC identifies topics to be included, reviews the assessment structure, and writes the assessment statements for each topic. A major feature of IB curriculum review is the systematic participation of subject classroom teachers in a consultative process. The teachers' responses to questionnaires start IB's curriculum review process. In the questionnaire, the teachers are asked about the instructional time spent on each topic in the syllabus and on laboratory work for each topic, as well as about the technology resources accessible and available to them. The curriculum committees in all subjects make revisions to the diploma guides for each subject. The revised versions of the curriculum guides are posted on a password-protected Website for further teacher review and comment before being published.

Generally, the Ethiopian Prep curriculum revision follows four major steps: Needs assessment; curriculum development, or writing the curriculum; implementation; monitoring, and evaluation. During the needs assessment, firstly, the task force that will conduct and oversee the curriculum development is established. Secondly, this group will conduct a situational analysis through desk research. Thirdly, this group conducts the needs analysis and identifies the gaps to be filled in the new curriculum revision or development (MOE 2009). The process of writing or developing the curriculum includes tasks such as developing

the national curriculum framework; determining minimum learning competencies, flow charts, and syllabuses for each subject; and developing textbooks and teacher guides. The activities accomplished during the implementation stage are delivering training of the trainers (TOT) workshops to introduce the curriculum framework and the new curricular materials. Monitoring and evaluation include the activities, such as conducting formative evaluations of the curriculum and invitation of external evaluators for summative curriculum evaluation.

Regarding the assessment process, the AP exam allocates 50 percent of the total time to multiple-choice questions and the rest to free-response, essay, or problem-solving questions. Students elect the colleges to which their AP scores can be reported for future admission. This exam makes students show mastery of the concepts and skills learned in the course, enabling some students to continue, as freshmen, second-year work in the sequence at their institution. They can also be registered for courses in other fields of study for which the general course is a prerequisite.

Another criterion by which the programs were compared was the *assessment* process. In the test development process, the AP test DC consists of university instructors whereas the Ethiopian Prep test development committee does not include college instructors. The AP course content is strictly matched against the college introductory courses during development. The AP tests are also pilot-tested and validated on university campuses. Other than the assumption that the Ethiopian Prep courses are college introductory-level courses, there are no evidences and practices that show the alignment of Prep courses with college introductory courses during the Ethiopian Prep curriculum review. Also, both AP and IB standardized assessment formats have percentages for objective and subjective items whereas UEE is all objective type.

The DE courses, which are college courses like Ethiopian Prep courses, have also a significant difference from the Ethiopian Prep program in their assessment system. DE courses do not have an identity crisis in their belongingness. This means that they are college courses as they are said to be; they are taught by university instructors, and their assessment is completed through instructor course grading.

Regarding the instructional process, the AP and IB give the highest responsibility for teachers to shape, adjust, and implement the curriculum in the classroom settings. The teachers are given general guidelines that include objectives, lists of contents, methods of teaching, and assessment suggestions leaving the largest job to teachers. Compared to these

programs, the Ethiopian Prep follows a more prescriptive instructional process where teachers' role in reshaping and contextualizing the curriculum is minimal.

The college readiness phenomenon was analyzed from three angles in this study. Firstly, the effect of college readiness on college success was studied to observe how the student abilities are related. This is emanated from the meritocratic principle that student aptitudes are highly correlated across time when things go right. Secondly, college readiness was analyzed from the first-hand experiences of the graduates. This was also to understand the nature of the nexus between ecological contexts and the individual factors in promoting college readiness. The third aspect of college readiness was studied from the nature of the curriculum. For this purpose, the Ethiopian Prep curriculum was observed through the lens of international criteria.

In summary, the effect of college readiness (as measured by the current Ethiopian college entrance eligibility measure, i.e., UEE) on college success (as measured by College CGPA), controlling for some covariates, is found to be statistically significant in this study. However, this effect significantly differed across UGs, and departments. For instance, the effect is stronger in UG one than the others. On the contrary, the probability of college success at a value of college readiness level is found to be lower for the 'UG one' graduates. This shows that there is a tendency of maintaining a higher conditional effect of college readiness on college success at a lower probability of college success.

Generally, there is an established assumption by decision-makers in the selection, admission, and placement system around the world that those students who are screened for college learning through appropriate processes and placed in fields of study that match their interest and ability will also successfully complete their college learning and training. The contemporary decision theory in education also tends to take a pragmatic approach and mixes the assumption of all decision theories in addition to test-based decision making process in practice.

In order to test this assumption in the Ethiopian context, this study tested the assumption that 'college readiness affects college success.' Although this study failed to reject this assumption, the model accounted for only 28 percent of the variance in college success. This means that 72 percent of the variance in college success is explained by other factors. The objective of this study was not only to study how college readiness affects college success; rather, the study was aimed at the meanings of these effects in the applied comparative sense.

Firstly, when the conditional effect of college readiness on college success was compared across UGs and departments, a significant difference was observed. Secondly, the study found that the probability of college success at a value of college readiness significantly varied across UGs and departments. Thirdly, in a UG with the highest conditional effect of college readiness on college success, the lowest probability of college success at a value of college readiness is observed. This shows that maintaining a higher effect of college readiness on college success alone may not guarantee the effectiveness of a UG unless the UG simultaneously heightens the probability of college success and vice versa.

The study also analyzed how this can be related to the quality of HE. Firstly, the study revealed that a UG which significantly promoted the effect of college readiness on college success is relatively more conservative and accurate in managing student learning. Secondly, awarding the highest College CGPA at the lowest conditional effect may show the poor quality of a UG. Also, maintaining a higher conditional effect of college readiness on college success without simultaneously promoting the probability of college success at a value of college readiness ends in poor performance of a UG. Therefore, maintaining a higher conditional effect of college readiness on college success while simultaneously heightening the probability of college success at a value of college readiness is a characteristic of high-performing UG.

Also, this study argued that the college admission and placement decisions should have their bases on the empirical relationship between college readiness and success measures. Two things should simultaneously be studied during college entrance cutting score determination, i.e., the extent that a student earns higher grades at a university he/she joins and the extent that the student attains what he/she should attain to be competent.

This study also made a comparative discussion on the college readiness curricula. The study compared the Ethiopian college readiness curriculum with some college readiness curricula around the world depending on some parameters. Depending on these comparisons, the study attempted to identify some weaknesses and strengths of the Ethiopian college readiness curriculum. The general comparative analysis result shows that: 1) the current Ethiopian Prep courses faced an identity crisis being named as college introductory courses on one hand and preparatory courses for high education on the other hand. The comparison criteria put them in an identity crisis; 2) Compared to others, the courses have been detached from the college experience; and 3) the courses show a significant difference in the areas of

curriculum development and revision, assessment, and instruction, the teachers' role in curriculum development and implementation.

Chapter Five: Discussion and Summary

5.1. Introduction

As it is mentioned in the previous chapters, the major research questions of this study were: 1) What is the effect of college readiness on college success at the values of the moderators? 2) How are HE quality assessment and university cutting scores related to college readiness level and college success level of graduates? 3) What are the similarities, differences, strengths, and weaknesses of the Ethiopian college readiness curriculum and assessment compared to another world? 4) How do graduates describe their experiences of college readiness?

In this chapter, the findings of this study were discussed in line with the local and international research findings on the issues. The first part of this chapter discussed the research findings regarding the effects of college readiness on college success in line with the finding of this study. The second part compared and contrasted the findings of this study with the studies that relate college readiness and success measures to assess HE quality. The third section of this chapter made comparative discussions on the general characteristics and research findings that are related to the Ethiopian Prep curriculum and the major college readiness curricula in the other parts of the world. Next, the participants' experience of the college readiness phenomenon was discussed in line with the ecological theory of college readiness. Finally, the general characteristic of the Ethiopian college readiness was observed and discussed depending on the results of the study. Here, the tri-side of the Ethiopian college readiness, i.e., its curricular aspects, the convergence or the effect, and the ecological grounds were discussed.

5.2. The Effect of College Readiness on College Success

In order to study the effect of college readiness on college success by UG, (i.e. a group of Ethiopian Universities with approximately the same time of establishment) and the fields of study, the sole Ethiopian college readiness and success measures (UEE and College CGPA respectively) were related controlling for the effect of SES, GTUAP, and GSEE score. In order to include the HE quality difference as covariate between college readiness and success, the participants' rating of HE quality as measured by the management quality, the service quality, and teaching-learning quality ratings of the participants was collected and correlated with the college CGPA of the graduates. However, for the reason that the correlations between HE quality rating and the college CGPA of the participants were not significant, the researcher did not use them as covariates or mediators in the study. The Process Procedure

for SPSS software was used during the analysis. The binary logistic regression analysis result revealed that the effect of college readiness on the college success of the graduates was statistically significant, though the strength of the effect differed across UGs and the fields of study. For instance, the highest effect is observed at the UG1.

A large number of previous studies in the Ethiopian context studied how the pre-college academic performance measures, such as UEE, GSEE, and high school transcript scores had been related to the first-year college GPA. The studies left some gaps in the way they had been conducted. Firstly, they were mostly over-concerned with the predictive validity of these measures giving less attention to a large number of variables that are considered by contemporary studies on the area. Also, the traditional prediction of the validity of the standardized college readiness measures has gradually been replaced by the curriculum-based college and career readiness standards assessment and benchmarking as related to student college success outcomes (Atkinson & Geiser, 2009). This is because the share of the variance accounted for these standardized tests in predicting college success could not jump 30 % and the largest portion of the variance in college success is explained by non-score variables. On the other hand, overdependence on purely academic, standardized tests has no longer guaranteed comprehensiveness of college readiness and equity in college access (Musoba, 2011). Secondly, the studies failed to use the appropriate designs in which the moderators and the mediators can be carefully included. For instance, while they related these measures, the studies ignored to relate how these input variables, such as the students' college readiness levels (i.e., academic rigor, course-taking, attendance, assignment to remediation) can be related to the assessment of HE learning outcomes. The studies also emphasized first-year college GPA giving less attention to other quantitative measures of college success (i.e., graduate college CGPA, university completion rates, and other college outcomes). Additionally, the studies lacked practicality to approach the relationship between college readiness and college success. On the other hand, although some studies outside Ethiopia covered some gaps observed in Ethiopia's case, the studies failed to produce a comparative model on the effect of college readiness on college success to study how institutions and fields of study differ in linking student aptitudes and heightening the probability of college success.

Prof. Fantu et al (1996) studied whether the High School score, Differential Aptitude Test score, and ESLCE to be differently weighted for the different higher learning institutions using first-year freshman GPA; whether there is a significant difference between the two

sexes on these predictors; and whether the above potential predictors were influenced by the place (Urban or Rural) at which the high school was attended. These three precollege alternative assessment results had a significant predictive power with varying weights across, the two sexes, faculties, and the place high school was attended. This study was conducted during the Socialist Regime when the ESLCE was used as a qualification criterion for the national higher learning institution entry. The high school scores, the ESLCE score, and aptitude test scores could be used as independent predictors at that time and Prof. Fantu et.al (1996) study did this way. In the Ethiopian Prep period, the grade 10 national exam score cannot be used as the main independent predictor with UEE; rather it can be used as a covariate.

Prof. Fantu et.al's (1996) study predicted first-year GPA and also did not control or consider other confounding variables with pre-college academic measures they used. These covariates can distort the prediction of first-year success difference between Urban and Rural students as well as between males and females. For example, the difference between male and female first-year college success is highly affected by non-academic variables in the Ethiopian context. Besides, the difference between Addis Ababa students' and rural students' precollege performance affects their first-year college, and matching of students' pre-college ability was needed. The study must have used an ex-post-facto design in which some variables could have been controlled. On the other hand, the study should have included some variables as covariates in a regression analysis.

Also, as previously stated, studies repeatedly confirmed that the variance that is accounted for academic pre-college measures in college success could not jump above 30%. The largest variance is accounted for non-academic variables. For these reasons, as has been stated previously, the current college readiness and success relationship studies take a comprehensive, multi-dimensional approach to model the relationship between college readiness and success. Similarly, the student selection decision processes for HE admission are mixing both qualitative and quantitative measures than ever before.

Numerous studies (Alamiraw, 2006; Bekele, 2013; Gelane, 2014; Olani, 2007; Yosef, 2014; Zebdewos, Nasir, and Fisiha, 2015) conducted in Ethiopia found that the UEE score significantly predicted the first-year college GPA of the students. On the other hand, Kebede (1991) stated that neither ESLCE GPA nor ESLCE Maths results significantly contributed to predicting college performance; however, the ESLCE English language test result produced significant correlations with the GPA of the students. Another study found less contribution

of UEE scores than high school average transcript in predicting first-year college GPA (Silabat, 2017). Generally, most of the Ethiopian studies on this area reported that high school academic records significantly predict college performance. Studies that relate the standard of the preparatory school curriculum, the quality of Prep school teachers and the teaching-learning process, and the fulfillment of resources with college student learning outcomes are minimal. Similar to the findings in Ethiopia, Cromwell et al (2013) stated that strong High School GPAs have been connected to other high school achievements, SAT scores, and ACT scores, and correlated to many HE learning outcomes, retention, credits earned, second-year GPA, cumulative college GPA, and college completion.

On the other hand, some scholars asserted that measures of academic performance may fail to fully capture the developmental process required for all young people to complete high school and enter, succeed in, and graduate from postsecondary education and training (Tierney and Duncheon, 2015). Academic performance measures measure college eligibility, but they are so limited to measure college readiness (Conley, 2012; Atkinson and Geiser; 2009). Generally, there are scholarly criticisms and inconsistencies on the validity of both indicators of college readiness measures and college outcome measures. The significance of predicting college performance from college admission tests is minimum and not substantial (Niu & Tienda, 2010). Norm-referenced scores reflect how students are compared to other test-takers rather than what content they have mastered (Atkinson & Geiser, 2009). Standardized test results conflate students' examination performance with students' real learning; students achieve well on a test without mastering the content in advance or without acquiring advanced skills and knowledge (Kim & Sunderman, 2005; Nichols et al, 2006). College admission tests are largely associated with socioeconomic status – high-income families provide their children with supplemental test preparation (Lehman, 1999; Rattani, 2016). A study conducted by Wariyo and Kelbago (2020) correlated the students' first semester GPA and the students' UEE aptitude test score and found a non-significant correlation between first-year college GPA and aptitude test scores. Despite the criticisms over standardized tests and other tests as a measurement of college readiness and prediction of student college outcomes, the utilization of these tests to predict the relative college student outcomes and value-added to student learning has persisted to be used in the HEIs in the world (Fina, 2014). These quantitative measures of college readiness and success are also considered as direct measures of student learning outcomes.

A comprehensive study by Hein et al (2013) reported the following indicators of college readiness: participating in early assessment system; registering 10 % absences from learning classroom; no more than one failure in ninth-grade subjects; completing the Algebra II (in 9th grade), geometry (in 10th grade), Algebra III and trigonometry or higher (in 11th grade), precalculus and calculus (in 12th grade); achieving 3.0+ High School GPA; scoring 3 or higher in AP Exam; achieving 4 or higher in IB Exam; participating in DE; passing national assessment or state exams meeting the appropriate benchmarks on any national assessments; participating in summer bridge programs; and participating in college knowledge target outreach programs, such as multiyear college-readiness programs, embedded college counseling, and college-readiness lessons.

Generally, this study is not limited to examining how college readiness measure in Ethiopia is related to the college success of the graduates. Further, this study opted to examine: 1) how these measures are meaningfully and practically used through empirical research to build and bridge the high school to HE transitions of students; 2) how student college readiness levels, other covariates, and student learning outcomes can be taken into account when assessing HE quality. As was previously stated, the findings of Ethiopian studies on this issue are rarely used to bridge students' high school to HE transitions. For instance, beyond predicting college academic performance, studies ignored conducting a comparative study on the effect of maths performance on college success as measured by college CGPA and even employment and income levels. In other words, the effect of readiness on success has not been empirically studied in an applied context. As a result, the assurance of meritocracy in education was under question. The Ethiopian and other studies on this issue are expected to go beyond the statistical prediction of college success from students' quantitative college readiness measures. Firstly, the studies need to control for a number of variables in their predictive study. Secondly, the studies need to focus on filling the gaps and they should be concerned with using practical contributions of the results to bridging high school to college transitions of the students. While doing these, these studies should be able to elicit the appropriate responses from the learners, high school community, and college community regarding college readiness and success of students in building the high school to college transitions of the students. Also, the HE quality assessment studies need to take into account the college-readiness level of the college students as covariates in assessing the impact of a university faculty or instructors on college students' learning outcomes.

5.3. The Relationship between HE Quality Assessment, College Readiness Level, and College Success Level of Graduates

One of the objectives of this study was to analyze how the Ethiopian college readiness measure has been meaningfully and strongly related to the HE quality assessment and the graduate outcomes beyond serving as a threshold to measure eligibility for HE entry. Studies outside the Ethiopia, for example, studies by Coates (2009), Liu (2011), and Jackson and Kurlaender (2013) have taken into account students' college admission scores and other pre-college variables as covariates in analyzing the value-added to students' progress at college from year-level to year-level, and college completion. However, these studies failed to come up with a standardized, comprehensive, and comparative HE quality assessment model that incorporates the college readiness measures and covariates, the mediating and the moderating factors and the students' pre-college and college learning outcomes. Although these studies recommended and utilized direct student learning outcome measures to assess the HE quality, they failed to come up with a comprehensive model of direct HE quality assessment.

Depending on the weaknesses of the previous studies, this study used some college readiness indicators as lagging variables (covariates) when it analyzed the conditional effects of college readiness on college success at the values of the UGs and departments. The finding of this study revealed that the conditional effect of college readiness on college success varies by UGs and the fields of study. Those UGs with higher total effects were interpreted as those who most positively linked the student college readiness aptitudes and a student college outcome. Depending on the assumptions of decision theory, it is interpreted that the accuracy in linking student college readiness aptitudes and college learning outcomes is a trait of high-performing UG. Although linking student aptitudes to higher education graduate outcome is an indicator of the quality of higher education, this is not adequate if the institution fails to heighten the probability college success. In other words, the probability of being competent in the job market and being recruited should be heightened also. Therefore, this study concluded that linking student aptitudes to higher education student learning outcomes while simultaneously heightening the probability of college success is a trait of high-performing institution.

This study also discussed the processes in determining cutting scores for university entry in Ethiopia. The study attempted to discuss some weaknesses and strengths of this decision-making process compared with some international approaches. This study compared UEE cutting score with AP, IB, and DE programs' college entry score decision processes. The

UEE college entry cutting score varies by sex, students' region, and special need. However, AP, IB, and DE college entry points are the same for all groups. Instead of lowering the college entry cutting scores for disadvantaged groups, the advanced forms of these programs, like early colleges, take the research-oriented early warning and supportive approaches to enable these groups to perform equally with other groups. Besides, these programs enable the groups who cannot eligible to take college credit-bearing courses through developmental education at college.

Instead of developmental education, the Ethiopian universities support students who fail in continuous assessment at university through tutorials and make-ups. These supports are given by course instructors after the students start taking credit-bearing college courses. These supports do not hit the objectives of enabling students for college academic rigor. This is because, firstly, just from its definition, remediation implies identifying students' learning problems and giving appropriate remedies that target enabling students to become competitive and self-standing learners. For this reason, remedial education attempts to solve the students' learning problems before students start to take credit-bearing university courses. The scarcity of the studies that targeted these disadvantaged groups' college readiness and success relationships also made the decisions on cutting scores less scientific in the Ethiopian context.

Previous studies also failed to use college readiness and success measures to study these two aspects of higher education quality. Firstly, they failed to model a probability of college success at a college readiness level to meaningfully study how institutions differ in terms of the mean average of employable graduates. Secondly, they failed to model the comparative measurement of the expected differences in cutting scores across the institutions and fields of study depending on the comparative measurement of the probability of college success at a college readiness level. In other words, the cutting score depends on the probability of being succeeded and the success level at a cutting score point may vary by institutions and fields of study. For this reason, a standardized comparative measure of the probability of success measure should determine a cutting score for an institution or a field of study. To deal with this issue, this study discussed the probability of college success at the values of university entry cutting scores controlling for the covariates to estimate how the cutting scores may vary by UG and the department the graduates attended. Generally, this study revealed that the probability of college success at a value of university cutting score differs from a UG to the other; as well as from a department to a department. This finding implies that, if these

variables are taken into consideration during the college access decision-making process, for one or another reason, a group of students who are placed to a UG or a department tends to have a higher probability of college success than the other. If the cutting scores are needed to be scientifically determined, they should be dependent on a comparative analysis of the probability of college success.

For this reason, this study informs the decision-makers to consider the difference between universities and fields of study in promoting the probability of college success at a value of a university entry cutting score in the university entry cutting score decisions. The factors that contribute to these differences ought to be identified. The question, ‘Why some universities enhance the probability of college success at a certain value of university entry cutting scores than the others?’ needs further study. This may be due to the strong student supports at some universities than the others. Negatively, it can also be caused by the differences in student assessment and grade inflation across universities and fields of studies, as well as it can be caused by the universities’ lust to generate their incomes and privilege.

Generally, this study compared the relationship between the college readiness measure and college success measure in two ways. The study relied on the strength of the effect the college readiness measures had on college success measure at universities and the enhancement of the probability of college success at the values of the college readiness measure. Generally, those universities or fields of studies that maintained the higher effect of college readiness measure on college success measure while they ensured the enhancement of college success at the values of college readiness measure were assumed as high performers.

5.4. The Ethiopian Preparatory Curriculum as Compared to the International College Readiness Curricula (IB, AP and DE)

While simultaneously recognizes that education is a local activity, the comparative approach to education is viewed as a response to the internationalization of education policy (Wahlström, Alvunger, & Wermke, 2018). The linkage between college readiness curriculum and college teaching-learning experiences; as well as the depth and the number of high school’s course work, and the development of high school students’ college identity are consistently predicted student college success (Briggs & Clark, 2012; Woods, et.al., 2018). The Ethiopian Prep curriculum was compared with other college readiness curricula depending on the criteria such as the curriculum, settings for delivery, student participation, instructor eligibility and training, course content, assessment, learning outcomes, and instructional process.

Curriculum theory and design. When these college readiness curricula are compared depending on their theories of curriculum, the shift from the traditional content-based curriculum theory to the modern holistic approach to curriculum development is reflected in all college readiness curricula including the Ethiopian Prep curriculum. Regarding this, Gray et al (2014) stated that most of the curriculum reforms emphasize assessment-driven, goal-directed, competency, and fact-based forms of learning.

There is now an increasing emphasis on new “key” skills and knowledge, to prepare young people for the changing needs of adult and working life. Approaches to ensure that the “essential” elements are included in school curricula include student entitlement, establishing compulsory requirements, and mobilizing consumer pressure (Hughes, 2006). In Ethiopia, the curriculum revision (MOE, 2009) was guided by the identification of the core competencies, curriculum standards, deriving of the contents, and assessment from these standards depending on the minimum competencies that should be achieved.

The researcher also tried to observe the breadth of high school curriculum maps in some high schools over the world compared to the Ethiopian prep curriculum contents. The general interpretation shows the researcher that the breadth and depth of the curriculum contents show variety from country to country. For instance, one of the curricula observed was china’s current holistic competency-based curriculum (Wang, 2019) in which the breath of the curriculum touches almost all holistic nature of modern human development. In addition to the breadth of the curriculum, china’s curriculum highly emphasizes closing the gaps between theory and practice. For instance, high school students take a long time in practicum. Gray et al (2014) also stated that most developed countries around the world give great emphasis to Language (Literacy), Mathematics, and Science. This is also true in the Ethiopian case, although the depth, breadth, and level of experiencing these courses may be affected by so many factors. Compared to other programs, the IB, in addition to its emphasis on Language (Literacy), Mathematics and Science, is specifically opted to produce inquiring, knowledgeable and the young who cares for people and who creates a suitable, more peaceful world through intercultural respect and understanding.

Regarding the breadth and depth, the Ethiopian Prep curriculum shows problems. For instance, some contents such as theology, music, and fine arts are very important ones that are missed. The depth of the curriculum is not to the expected standard. For instance, regardless of their high importance for students, the depth of technology courses such as IT, and computer science is not adequate in the Ethiopian prep curriculum. This is also partially

caused by the shortage of resources. For these gaps, schools and universities are facing problems in responding to the effect of COVID-19 in their teaching-learning at this time. It is found so difficult to train teachers and students to use technology at this time. For these reasons, as a holistic competency-based curriculum, the Ethiopian prep curriculum did not reach an expected breadth and depth; and it is not effective in closing the gap between theory and practice. On the other hand, the reports of Federal MOE (2015) and the INEE and Ethiopia Education Cluster (2013) showed that the curriculum contents and standards differ by economic regions of the country. For this reason, the Ethiopian Prep curriculum may have a difference from the first-world countries' college readiness curriculum in its content standards as well as in narrowing the gap between theory and practice.

As a *curriculum*, the Ethiopian Prep is a fully-fledged curriculum like IB, and unlike AP and other DE courses. Unlike the AP and IB courses that are developed by CB and IBO respectively, the Ethiopian Prep courses are assumed to be the former university introductory freshman courses. Also, the AP and IB courses have pre-requisite courses in grades 9 and 10 (e.g., AP Math for grades 9 and 10) whereas the Ethiopian Prep courses have no such pre-requisite similar courses in the lower grades. Also, AP and IB courses have another significant difference from Ethiopian Prep curriculum design and implementation. In IB's and AP's case, the schools and the teachers have an upper hand in curriculum development and implementation. Guided by clear objectives, content outlines, and assessment processes, the IB and AP delivering schools implement the curriculum in their local context. For these reasons, for IB and AP, the curriculum may show differences across schools. Compared to these programs, the Ethiopian Prep curriculum is more prescribed and the role of teachers is a minimal in curriculum development and implementation. Specially, the use of Plasma TV made the implementation more rigid and inadaptible to the pace of student learning although it had its own positive sides for Ethiopian school context.

Although the curriculum can show differences in design and implementation, the IB and AP standardized assessment is centrally prepared depending on the objectives of the curriculum contents. The central development of the objectives, the course contents, and assessment criteria is updated year to year depending on the timely inputs from local schools' contexts. For these reasons, the curriculum is highly flexible and adaptable to the local contexts compared to the Ethiopian Prep curriculum. The vertical design of the IB and AP curriculum is also very strong compared to the Ethiopian Prep curriculum. The Ethiopian Prep curriculum seems weakly built on its pre-requisites since the curriculum is said to be

migrated down to grades 11 and 12 from college. Almost all responsibility of the curriculum revision is rested on the shoulder of the Ministry of Education (MOE) and the teachers have low contributions in curriculum development, unlike the IB and AP courses in which the teachers have the highest role in curriculum design and implementation. Ethiopian Prep curriculum is a more prescribed one compared to the others.

The *setting for the delivery* of the courses is also another factor that differentiates these courses. For instance, DE courses are college courses that can be delivered either in college or in high school settings. However, the Ethiopian Pep courses are college courses that migrated down to grades 11 and 12 and are taught by high school teachers. The IB and AP courses, like Ethiopian Prep courses, are taught by high school teachers. However, DE courses are taught either by college instructors on college campuses or taught by college instructors in high schools. The critics of AP and IB courses are also there on their potential to expose the students to the college experience. The critics stated that, firstly, the courses are taught in high schools by high school teachers. In addition, although the courses are believed to be rigorous enough and equivalent to college courses, some critics doubt these courses' role as preparing the students for college.

The DE courses, however, expose students to the college experience for the reason that they are delivered in college or high schools by college instructors, though they may lack a vertical design. The Ethiopian Prep courses have a disconnected nature from the college experience, although the courses are said to be moved down from college to high school. Moving the college introductory courses down to high school by itself did not guarantee the exposure of students to the college experience. These are due to 1) the courses are not horizontally designed depending on their pre-requisites; 2) the students are taught by high school teachers although the courses are believed to be college courses; 3) unlike IB and AP, and DE, the partnership between Prep schools, MOE and universities in terms of curriculum development and curriculum pilot testing is weak. To cover this gap, the teachers of these courses should be either trained in college teaching qualification level or they should be the college instructors themselves. For this reason, the former Socialist regime curriculum seemed to be better in exposing students to the college experience. This is because the students took these migrated courses in college by college instructors. Also, the students stay in college experiencing college for one year before choosing their fields of study. They also had enough time and adequate information to think about and choose their fields that correspond to their career interests.

Another parameter by which the Ethiopian Prep is compared with other college readiness programs is the *student participation or eligibility criteria*. Regarding student eligibility and participation criteria, the Ethiopian Prep has homogeneous criteria for all schools. The eligibility criteria for Prep school entrance are set by the MOE for all schools depending on the gender, region, and special need. Depending on these criteria, the MOE determines the cutting scores of the GSEE GPA for these groups. However, the IB and AP course participation and eligibility criteria are targeted to high achieving students. One of the weaknesses of the Ethiopian Prep program is its sole focus on affirmative action that targeted lowering college entry scores to support the underrepresented and disadvantaged group's college access. The modern models of college readiness, however, focus on research-oriented early warning intervention systems and multidimensional, organized support systems to make these groups college-ready in addition to using affirmative action (Bragg & Taylor, 2014; Gansemer-Topf et al 2018). The model of affirmative action used in Ethiopia is not clearly stated in the policy documents.

The IB and AP programs are often criticized for their bias toward elite groups and high achieving students (Lakes & Donovan, 2018). Compared to AP and IB, DE courses are well known for participating low-achieving and disadvantaged groups in college prep experiences. To cover the discrimination nature of IB and AP against low achieving and disadvantaged groups, the enhanced comprehensive dual credit programs, such as middle and early college high schools have been established (Edmunds et al, 2010). These schools are targeted on the inclusive tendency in exposing all members of citizens to the college experience. They take on a holistic approach to support students to experience college. On the contrary, although early college students graduate from high school at a higher rate than those students from traditional schools, they are generally considered similarly prepared for HE with students from traditional high schools (Edmunds et.al, 2017).

In addition, the '*instructor eligibility and training*' was taken as one of the criteria by which these college readiness programs have been compared in this study. For IB schools, the profile of teachers is taken along with the schools' profiles at the time when these IB schools apply to become IB schools for IBO. For this reason, the IBO assumes that these schools have competent teachers to teach IB courses. However, before teaching these courses, IB teachers must take a 3-to-5 days' workshop at IBO. Generally, IBO depends on the quality of the schools that deliver IB courses in determining the competency level of teachers to teach the courses. Also, CB does not certify teachers to teach AP courses. CB delivers some 1 or 2

day's workshop to teachers, counselors, and administrators on the rudiments of AP courses' teaching. Also, the AP teachers attend summer institutes to receive some training on the pedagogy of AP courses.

The Ethiopian Prep teachers are normally those who are graduated with a three-year Bachelor's degree in teaching. The Ethiopian Prep teachers are not assigned to Prep classes as soon as they are graduated. The teachers need some experience in teaching and a one-year PGDT diploma in teaching before teaching Prep courses. The English language teachers also need some training in language and language teaching before teaching Prep English language courses. Years ago, the Ethiopian MOE also started upgrading the Prep teachers' qualification to MA and this is good progress in the professional development of Prep teachers. This move aligns with the assumption that if the Prep courses are college-level courses, the teachers should be either college instructors or those teachers who have got college-level qualifications. However, the teachers have to attend at least 4 summers to complete their MA, and this created dissatisfaction among the teachers. Some teachers speculate that, in addition to upgrading teachers' profession, this policy is mainly aimed at deterring teachers' turnover.

The *course content development* also varies across these programs. Regarding the AP program, the course description and topic outline for each of the contents is prepared by the curriculum DC that is summoned by CB. The major AP course topics on the outline are accompanied by percentages. The subtopics are listed and provided for each major topic. The objective of the topic outlining is to indicate the scope of the course; however, the depth of contents and the orders in which the courses are taught are balanced and achieved by the teachers. Depending on these outlines and other guides, the teachers take a major role in shaping and implementing the curriculum. The major areas of emphasis are given for teachers in the AP course development process especially in percentages. The percentage of the items included in the examination also depends on this emphasis and percentage.

The international IB CRC carries responsibility for developing the curriculum, implementing the curriculum and the achievement of the objectives in each subject. The primary responsibility for curriculum development is also rested on the shoulder of the IBCA. During curriculum reviews, IBCA staff works with the IB teachers who are selected from IB member schools from around the world. The committees for all subjects in a discipline meet jointly at IBCA. CRC identifies topics to be included, reviews the assessment structure, and writes the assessment statements for each topic. During the IB curriculum review process,

subject teachers highly participate in the consultative process. The teachers' responses to questionnaires start IB's curriculum review process. In the questionnaire, the teachers are asked about the instructional time spent on each topic in the syllabus and on laboratory work for each topic, as well as about the technology resources accessible and available to them. The curriculum committees in all subjects make revisions to the diploma guides for each subject. The revised curriculum guides are posted on a password-protected website for another further teachers' review before getting published.

The Ethiopian prep curriculum revision follows four major steps: Needs assessment, curriculum development or writing the curriculum, implementation, monitoring and evaluation. During the needs assessment, firstly, the task force that will conduct and oversee the curriculum revision is established. Secondly, this group will conduct a situational analysis through desk research. Thirdly, this group conducts the needs analysis and identifies the gaps to be filled in the new curriculum revision or development (MOE, 2009). The process of writing or developing the curriculum includes tasks such as developing the national curriculum framework; determining minimum learning competencies, flow charts, and syllabuses for each subject; and developing textbooks and teacher guides. The activities accomplished during the implementation stage are delivering TOT workshops to introduce the curriculum framework and the new curricular materials. Monitoring and evaluation include the activities, such as conducting formative evaluations of the curriculum and invitation of external evaluators for summative curriculum evaluation. When it is compared to others, the Ethiopian Prep schools and teachers take a minor role in curriculum development for the reason that all details of teaching-learning experiences are prescribed and less adaptable to the paces of students learning in schools context.

Regarding the assessment process, the AP exam allocates 50 percent of the total time to multiple-choice questions and the rest to free-response, essay, or problem-solving questions. Students elect the colleges to which their AP scores can be reported for future admission. This exam makes students show mastery of the concepts and skills learned in the course, enabling some students to continue, as freshmen, second-year work in the sequence at their institution. They can also be registered for courses in other fields of study for which the general course is a prerequisite.

Another criterion by which the programs were compared was the *assessment* process. In the test development process, the AP test DC consists of university instructors whereas the Ethiopian PP CRC does not include college instructors. The AP course content is strictly

matched against the college introductory courses during development. The AP tests are also pilot-tested and validated on the university campuses. Other than the assumption that the Ethiopian Prep courses are college introductory-level courses, there are no tracks that show the alignment of Prep courses with college introductory courses during the Ethiopian Prep curriculum review. Also, both AP and IB standardized assessment formats have percentages for objective and subjective items whereas UEE is all objective type.

The DE courses are college courses like Ethiopian Prep courses, and they have also a significant difference from the Ethiopian Prep program in their assessment system. DE courses do not have an identity crisis in their belongingness. This means that they are college courses as they are said to be; they are taught by university instructors, and their assessment is completed through instructor course grading.

Regarding the instructional process, the AP and IB give the highest responsibility for teachers to shape, adjust, and implement the curriculum in the classroom settings. The teachers are given general guidelines that include objectives, lists of contents, methods of teaching, and assessment suggestions leaving the largest job to teachers. Compared to these programs, the Ethiopian Prep follows a more prescriptive instructional process where teachers' role in reshaping and contextualizing the curriculum is low.

Challenges on college curriculum and assessment programs. Studies revealed that both “curricular approaches for college readiness” and “college readiness assessment” programs have faced their own challenges. These challenges affected the practical effectiveness of these programs in enhancing the college readiness of students.

Challenges on college readiness curriculum. Although mandating high curricular standards may broaden access to college preparation, studies have raised some concerns about placing all students on a college-bound track (Barnes & Slate, 2013; Glass & Nygreen, 2011). For instance, Carnevale et al (2010) reported that of the 47 million job openings projected by 2018, more than two-thirds will require some postsecondary education. Nearly half of the jobs requiring attainment beyond high school would demand workers with an associate's degree or occupational certificate (Barton, 2008). Mandating course-taking requirements for four-year institutions entry, the contemporary reforms de-emphasized vocational and educational alternatives and disadvantaged students geared for community colleges (Barnes & Slate, 2013). The curricular approach for college readiness is confusing and deceptive for many youths who planned for college entry in spite of their pre-college

performance level and their personal goals. For this reason, enabling students to pursue multiple postsecondary pathways is recommended (Symonds et al, 2011). On the other hand, opponents of tracking indicate that different paths result in the marginalization of traditionally underrepresented youth (Oakes, 2005; Spring, 2000), which is a legitimate concern.

Balfanz (2012) also argued that college for all policies also raise the stakes for students and may create particular challenges for underserved youth. Academic achievement rates and course-taking patterns are previously stratified by race and class (Ashtiani & Feliciano, 2012). The probability of meeting these requirements also varied significantly across schools, with students in low-performing schools significantly less likely to complete college preparatory courses. Also, different learners have different chances to achieve similar standards, and the individuals' inability to meet these standards, for instance, inability to graduate from high school, may fall disproportionately on the most marginalized youth (Rosenbaum & Becker, 2011).

As a result, curricular approaches for college readiness may disadvantage and push underserved students out of the K-12 system (Rosenbaum et al, 2010). Studies on dropouts found that students who leave high school early are often struggling academically (Balfanz, 2012). Dropout rates run as high as 50% in districts that serve primarily low-income students (Balfanz & Legters, 2004). In schools that mandated the preparatory for HE coursework, low-achieving learners registered lower GPAs and their probability of failing in ninth-grade courses was higher after the reform (Mazzeo, 2010). High school graduation and postsecondary enrollment rates also lowered. On another hand, Allensworth et al (2009) found that mandatory college preparatory curriculum did not exacerbate the dropout rate in schools; however, Algebra I failure rates among low ability students increased. Symonds et al (2011) recommend providing additional academic support imperative to ensure that underserved high school students can succeed.

Another problem is that completing a college preparatory curriculum does not guarantee readiness as evidenced by high rates of remediation in four-year institutions (Howell, 2011). For example, racial and economic disparities widened in the fourth year of high school because the first-for-college students in their families did not know well the significance and the importance of advanced course-taking for college-going. Even after completing course requirements, students can remain ineligible for four-year institution entry if they do not take the SAT or complete other admissions requirements (Tierney & Duncheon, 2015).

Studies have also found that high school courses with advanced labels may be only nominally rigorous, especially in low-performing schools (Achieve, 2012). Students may, therefore, earn high grades in advanced classes without having mastered rigorous coursework. For these reasons, these researchers recommend that mandating college preparatory curriculum and/or encouraging participation in accelerated learning programs must be accompanied by additional strategies, such as delivering challenging coursework, giving extra support for struggling learners, making sure that all students meet the non-course-related requirements for admission.

Assessments for College-readiness. While aligning high school assessments with college readiness indicators has sparked improvements, testing alone does not enhance students' college preparedness (Mokher & Leeds, 2018). The assumption that underlies college readiness assessments is that students who know they are behind will take the necessary steps to improve their skills. However, some research suggests that information does not always awaken or enable students to act (Tierney & Garcia, 2010). For the reason that the program does not force the students to take the preparatory courses, Tierney and Duncheon (2015) recommended the need to enhance students' responsiveness to their GPAs. Tierney and Garcia (2010) emphasized the importance of conveying testing information to students in a way that is meaningful and accessible, effectively delivering academic supports, and strengthening secondary-postsecondary partnerships.

Studies report that teacher professional development promotes the improvement of students' college readiness and learning improvement (Knudson et al., 2008; Venezia & Jaeger, 2013). Since teachers are responsible for delivering the supplemental curriculum, they play a key role in enabling the success of early assessment programs (Knudson et al, 2008). Darling-Hammond (2007) has reported that teachers need curricular resources and training to align their instructional practices with higher-level skills and content. It is obvious that if teachers are unsure of how to align their instruction with postsecondary standards, high school students that learn they are not ready cannot access the support they need.

Another challenge is the timing of the tests. Many of these college readiness assessments are administered during students' junior year, but scholars have stated that 11th grade may be too late for students to learn they are not ready for college-level work (Venezia & Voloch, 2012). Researchers have expressed concerns regarding the feasibility, validity and reliability of college readiness assessments (Arnold et al, 2012). These researchers advocated for including teachers in scoring processes and better integrating formative and summative

assessments. They argue that without thoughtful integration of curriculum, assessment, and professional development, college-and career-ready assessment systems are unlikely to motivate improved teaching and learning.

Another problem the researchers raised is that assessment efforts and their accompanying interventions tend to focus exclusively on academic preparation (Venezia & Voloch, 2012). While obtaining information on students' math and English performance is crucial, meeting proficiency benchmarks is only one part of postsecondary readiness (Zhao, 2009). According to Hooker & Brand (2010), although non-cognitive competencies such as acquiring college knowledge are crucial to college readiness, students who participate in college readiness assessment programs do not necessarily receive additional forms of college-going support (e.g., college counseling). College readiness requires that school personnel help students understand both the academic and non-academic facets of college (Barnes, Slate, & Rojas-LeBouef, 2010).

5.5. Understanding the College Readiness Experiences of the Participants

As Ethiopia is a country of many nations and nationalities, the ecological climate of college readiness has a significant impact on the college success of the students. The Ecological model assumes that individuals affect; and are affected by their environment and the context. Similarly, student development, in which college readiness is a part, happens in two-way inter-woven interactions (proximal processes) in the contexts (Bronfenbrenner, 1979). The intensity of these proximal processes determines to how much extent the students experience the readiness aspects for college academic rigor and expectations.

Individual factors, such as the effort of the individual student and preparedness to go to college, his/her motivation, the income level, and others significantly affect the college readiness of the student. The individual responses to the challenges that hinder his/her movement to college also matter. The effect of the ecological characteristics on the college readiness of the individuals is obvious at a family and school level. The extent to which the children experience education in the family environment prepares them for school learning. The mother tongue of a child determines the extent to which he/she easily understands what is taught at school. The proximity level of school experiences to the student's experiences determines to how much extent the students learn.

In addition, the interactions between the elements of the microsystem such as parents and schools, the teacher, and the counselor interact with the type of proximal processes for learning or college readiness levels the student experience. How these interactions are

skillfully and wisely juggled by the students determines the enhancement of college readiness. The teachers' qualification level, curriculum design, education policy, and others positively or negatively affect how the students undergo the proximal processes of college readiness in the schools' context. The cultural factors, the national and global political climate, and the value of the society at large for college education also make the distal influences on the college readiness of the individual students at schools. The micro-time of each student also counts. The age at which the student starts his/her school; how the student wisely invests his/her time resource on college readiness activities, the school's time management systems, and others have direct impacts on the level of readiness.

The country's educational cultures and schooling histories have also a direct effect on the current college readiness activities of the learners. The effect of the past schooling history on the individuals' life and the country's economy has an indirect effect on the current college readiness culture of students. Generally, the effective complex interaction of the proximal and the distal environments to the students' college readiness proximal processes produces strong college readiness.

In this study, the characteristic of these distal and proximal environments as they relate to student college readiness experiences was studied. How the college readiness phenomenon is rooted in these ecological elements was studied from the graduates' self-reports on their college readiness histories. The holistic view of the college readiness phenomenon, in which college readiness has been considered as a big tree that extends its roots deep in the ecological grounds, has guided this study.

At the individual level, the student's resource characteristics, demand characteristics, and force characteristics were observed to understand the extent to which the individual factors of the student indirectly enhanced or instigated his/her college readiness mission.

The general interpretation of the individual factors that impacted the college readiness of the participants indicated that, from the three characteristics, the force and the resource characteristics were reported by the participants as highly impacting factors. This interpretation resulted from a semi structured interview reports of the participants. The semi-structured interview guided the interview process allowing the participants to randomly state the factors as they come to their mind.

Among the individual resource characteristics reported by the participants, the socioeconomic status, academic preparation (i.e., use of the language of instruction,

assignment to remediation, and maths and English language learning experiences of respondents), academic habits, research skills, and college knowledge have been associated with the college readiness experiences of the participants.

Consistent with numerous studies around the world (Goldrick-Rab & Pfeffer, 2009; OECD, 2016; Özdemir et al., 2014; Sirin, 2005), a larger percentage of the participants of this study reported that their college readiness had been affected by socio-economic status. Even though gaps in economic status among individuals show a larger difference among societies or countries, the smaller difference with some even no-significant difference in some cases in Ethiopia, SES has a profound effect on college readiness and success. For instance, the SES gap between individuals in the USA and Ethiopia is not similar. In the general ecological view, the totality of how the individuals experience school life and their encouragement towards college is highly dependent on the SES of the individuals.

However, the effect of SES on college readiness has been neglected to be studied in Ethiopia because of the speculation that there is no significant SES difference between individuals in the Ethiopian context. Regarding this, one of my dissertation proposal examiners told me during the defense of my proposal that the reason why the effect of SES on academic performance has got less attention in Ethiopia was that there is no SES among peoples in Ethiopia. Despite this, the participants of this study repeatedly reported the impact of SES on their schooling and their college readiness endeavor while some others reported that there were no financial problems in their school life.

In this study, the participants' academic preparation and their effects on their college readiness were interpreted from their general reports on their school history, specifically, on their engagement history from early grades, from their use of the language of instruction, their reports on Maths and English language learning histories, and the history on assignment to remediation in college. Generally, the students' self-reports on their school history revealed that delayed starting of their school, the shortage of adult guidance, and lack of engagement in their learning resulted in low academic performance. In addition, the participants emphasized the positive impact of language of instruction in their school life, especially, use of the mother tongue. Also, the participants reported that lower English language proficiency, maths performance, maths anxiety, lower expectations, and self-efficacy on maths achievement negatively impacted their college readiness.

Numerous research findings have also reported a significant contribution of academic preparation to the college readiness of students. Maths self-efficacy has been confirmed to be significantly associated with academic performance (Bonne & Lawes, 2016; Canto et al, 2012; Gao, 2019). On the other hand, Maths achievement is negatively correlated with Maths anxiety (Spaniol, 2017). Also, Empirical studies reported that language of instruction significantly predicts the academic performance of students and adjustment to university life (Andrade, 2009; García-Vázquez et al, 1997; Ulibarri et al, 1981). Numerous studies reported that academic preparation experience is one of the major factors affecting college readiness (Porter & Polikoff, 2012; Reid & Moore; 2008; Woods et al, 2018) while other studies reported a significant contribution of non-cognitive factors to college readiness (Conley, 2012; Hooker & Brand, 2010; Porter & Polikoff, 2012). Generally, the current college readiness phenomenon has been described by the studies as more holistic and that goes farther than the academic preparation compared to the former.

Also, their history of the assignment to remediation in college indicated that a larger percentage of participants lacked academic preparation. Numerous studies also reported assignment to remediation in college as low academic preparation (Kane et.al, 2019; Martorell & MacFarlin, 2011; Perna & Jones, 2013; Boroch et.al; 2010).

Studies also discussed the significance of developmental education or remedial education for less college-ready students in college. They stated that students below the threshold college readiness level are assigned to non-credit-bearing remedial education in college. Providing remedial or developmental education is a way universities deal with students who lack the academic preparation required to be successful in college-level courses (Hawley & Chiang, 2016; Kane et.al, 2019; Martorell and MacFarlin, 2011; Perna & Jones, 2013). Boroch et.al (2010) also defined developmental or remedial education as courses or services provided for underprepared college students to help them attain their academic goals.

Depending on these studies, it is found that remediation has lost its appropriate definition and application in the Ethiopian context. In Ethiopian schools and colleges, remediation is defined as academic support given to students who fail in their continuous assessment tests just after they fail in their tests. These supports are given in the form of tutorials. Other than these supports, there is no developmental or remedial education system for these groups of students in college or before college. In the critical eyes, the implementation of developmental education in college can be a wastage of time and wastage of resources for a

country like Ethiopia. Being assigned to a remedial education also may have a psychological impact on students. The placement to alternative pathways, such as technical and vocational schools may work best for these groups in the Ethiopian context. The main solution for reducing the number of students that are assigned to remediation is utilizing research-oriented early warning, supportive interventions, and partnerships throughout k-12 education (Arnauld, 2006; Kim, 2012; Lane et al, 2020; Morgan et al, 2015; West et.al, 2018).

On the other hand, underdevelopment of research skills through discovery learning in high schools was reported as a gap. The participants of this study also reported a lack of these skills. Research skill has been one of the indicators of college readiness (Conley, 2007, Meerah & Arsad, 2010). In the Ethiopian context, there is no study conducted on this issue.

Success in education, in general, is to a large extent is the function of individuals' readiness to challenge themselves through adversities that come on the way to college. The individual's response to these challenges and the psychological strength and efforts he/she exerts is translated into an amount of perseverance to achieve college access. Numerous studies around the world reported perseverance as an indicator of college readiness (Bowman et al, 2018; Demir & Yildirim Doner, 2019; Kim et al, 2018; National Research Council and the Institute of Medicine, 2004). Most of the participants of this study reported that they strongly persevered to reach college. However, the participants reported that incentives after the long run strengthen or initiate strong perseverance in college. The loss of incentives such as jobs and other dignities for educated people strongly weakened their perseverance indicating that how distal ecological system significantly affects an individual's college readiness endeavor. It is not amazing to see high school students procrastinating when degree holders lounge here and there as a result of unemployment.

Taking other facilities of the environment as constant, the tendencies and innate differences between individuals in all aspects of performance including academic performance create statuses between peoples. The argument is that human beings have their own innate tendencies and potential to create their own livelihood, and the environment should be suitable for the individuals and should promote their urge to grow to their potential. For this reason, this study is concerned both about the interactions between the individuals and the environment in producing college readiness. In this case, even if the environment is suitable for them, the individuals may be reluctant to use their potential to grow and develop

and they may be blamed for the failure. A rich father can do nothing for his son if he is not ready for change.

On the other hand, as resource characteristics, individual academic habits and skills have been discussed by a myriad of studies as strong predictors of college readiness (Chitkara et al, 2014; Chellamani, 2013; Crede & Kuncel, 2008; Jansen & Suhre, 2010; Moreira, 2017; Onwuegbuzie et al, 2001). Through the open interview, the participants were allowed to describe their academic habits in high school. The researcher categorized academic habits as poor and good. The analysis indicated that although there are good academic habits reported by the participants, poor academic habits dominated the experience of the participants. These poor study habits reported by the participants were the use of alcohol and chewing chat during the study; cramming for exams rather than the use of distributed learning; lack of controlling internal and external distractors during the study; poor study time management; poor reading skill; procrastination; bad sitting style during the study and use of inappropriate study places. Although study skill in school is usually used as a hidden curriculum, on the other hand, the study skill supports are directly given to students through counseling services in schools. Generally, as is presented in the previous chapter, a modern approach to remedy the academic skill problems is through college readiness partnerships, guidance and counseling services, and college readiness curriculum implementation.

Dominant individual force characteristics that the participants highly associated with their college readiness reports were perseverance, academic self-efficacy, and college aspiration. Through a semi-structured open interview, the participants' 'I can' spirit was analyzed. From the reports of the participants, the researcher interpreted how the participants were confident about their performance or not. Generally, a larger percentage of coding frequency belonged to the positive academic self-efficacy of the participants. In most cases, the participants blamed the situations for the failures in the school (i.e., shortage of resources, lack of confidence, unsuitable conditions of life). Most of the participants did not deny the innate ability to succeed as human beings if they were psychologically ready and the conditions of life and environment were encouraging for them. Specifically, most of the participants accepted their potential to succeed in education.

Studies also reported that academic self-efficacy is the major affecting factor of college readiness (Chemers et al, 2001; Turner et al, 2009; Bonne & Lawes, 2016). Another study by Farruggia et.al (2016) found that academic perseverance, academic mindsets, learning skills, social skills, and academic behaviors significantly predicted academic success. What matters

is the extent to which the individuals understand, find and accept the positive side of their natural tendency and how they strongly work to reach their maximum potential whatever difficulties they encounter on the way to college. In the current Ethiopian context, the psychological characteristics that promote college readiness can be affected by so many proximal and distal factors.

The college knowledge, general skills secondary school students need to successfully experience college life, learning, and application process including the skills to apply for scholarships, is found to be one of the college readiness indicators by studies around the world (Conley, 2006; Cowen & Kazamias, 2009; Keeves & Watanabe, 2003). Although the participants of this study did not show the seriousness of college knowledge as an important factor in their college readiness, they reported that having a graduate family member or a relative has supported them in their journey for college and at college. The participants also stated that those college-goers who are from an educated family environment and non-educated families have differences in getting adequate awareness about college life and learning. To close this awareness gap early awareness and readiness programs are practiced in some countries (Sondergeld, et.al, 2013). Giani and Walling (2020) also found that students from low-income family backgrounds join under-matching fields of study even though they can join highly reputed fields of study.

Also, college aspiration is the energy that strengthens and pushes students for college-level education. It is students' motives and strong interests in college-going (Conley, 2006; Cuy & Salinas, 2019; Ikeda, 1969; Martinez et al 2017; National Research Council and the Institute of Medicine, 2004; Othman et.al, 2013).

Additionally, the individual demand characteristics were reported by the participants. For instance, the participants associated the behavior of their peers and their teachers with their college readiness histories. Also, they reported how the relatives and family members affected their college readiness activities and how they responded to the negative attitudes of their family members and relatives towards their college readiness activities. Generally, the way these social environments successfully promoted the participants' college readiness endeavor and the participants' appropriate responses and adaptations to the opportunities and challenges that come from these social environments contributed to the success and health of their college readiness history.

Next to the individual forces that determine the participants' college readiness nature, the microsystem of the participants is a social environment that the participants directly experience to grow their college readiness life. The *microsystem* consists of the immediate social and physical environment, including the people, places, objects, symbols, and activities that an individual experiences directly. It is the life-world of everyday affairs, where people attend to the business of living (Arnold et al, 2012). This environment is a place in which the participants' proximal processes of college readiness undergo. College readiness is nurtured by this environment. Even the distal factors should be filtered down to this phase of the environment and be experienced by the learners to build real college readiness. The theories stated in the curriculum cannot contribute to the college readiness life of the learners unless they are practiced by the students through the microsystem. In this study, the major microsystem factors listed by the participants as related to their college readiness histories are school factors (i.e., teacher factors, counselor factors, class size, the distance of the school from their homes, gender-based violence at school, school climate, school resources, and facilities), peers and family.

One of the school factors that highly impact college readiness, as discussed by scholars, is the high school counseling service (Bryan et al, 2015; Gilfillan, 2018). School compositions, such as socioeconomic status, race, minority, majority; school support services; and teachers quality are the major school factors predicting college readiness (Herberger, 2016; Herberger et al, 2019; National Research Council and the Institute of Medicine, 2004; Paul, 2016). School composition such as schools' mean Algebra performance level and school percent retention significantly affected college readiness (Subedi & Powell, 2016). The role of the counselor in supporting students' college readiness endeavors was reported in many studies (Bryan et al, 2015; Gilfillan, 2018). For instance, Fitzpatrick & Costantini (2011) published a college readiness counseling curriculum for grades 9 to 12.

The teachers' qualifications and behavior were stated by the participants as an impacting factor in their college readiness histories. The participants described the bad and good histories of their teachers as related to their college readiness journey. This study also revealed that lower counselor support was reported by the participants during their preparation for college. Also, the participants described the large class sizes, the distance of the school, gender-based violence that comes from peers and teachers at school, some negative school social climates, and shortages of resources for learning as hindrances to their

college readiness. Also, the positive cooperation with peers in school history and the family supports were also stated as positively enhancing factors for college readiness.

While student development occurs through direct experience in immediate settings, each of the individuals experiences many settings, activities, and roles. *Mesosystem* interactions are interactions across microsystems (Arnold et al, 2012). The mesosystem is a crucial phase of the ecological environment in which multiplicity and multiculturalism negatively or positively interact with the college readiness activities of the learners. In Ethiopian multi-ethnic society, this environment has a significant effect on schooling. It needs intelligent jugglers where the wise interpretation of the social backgrounds and the needs of the individual learners are managed to bring about a healthy and fitting learning environment at the microsystem level. On the other hand, naturally self-juggled complex mesosystems need the adaptive skill of the individual learners. The student should not blame his underachievement at school on the social life problems of his/her teachers. The language and the social background of the teacher also affect how the students are taught at school. The major mesosystem factors that the participants associated with their college readiness history were the bond between their family and relatives, the two-way interactions between teachers and students at school, the place of their social and cultural capital, the interaction between their job and school activities, the interaction between their high school and the nearby colleges, the cooperative relationships between parents, schools, and teachers.

The participants stated that the bond between their families and relatives positively affected their preparation for college through the relatives' supportive hands. On the other hand, some of them reported that relatives discouraged their preparation for college because of their negative attitudes towards a college education. The participants also strongly related their college readiness success level with the relationship types they experienced with peers and teachers at schools. The participants' reports also clearly showed that the impact of their socio-economic backgrounds had a significant impact on college readiness and success, as well as success beyond college. The participants reported that work-learn college readiness was supportive of their college readiness endeavor. Cultural capital has been defined by Bourdieu and Passeron (1979) as inherited habits and dispositions from one's family or social class position that mold one's culture of living and learning.

The weak relationship between high schools, and nearby colleges; the unorganized role of teachers, parents and counselors in helping students' college readiness activities has also been stated by the participants as a major problem. Regarding this, Duncheon (2020) and

Rippner (2017) found in their study that the partnerships between K-12 schools and colleges in supporting college readiness of disadvantaged and underrepresented students significantly promote these groups' college readiness. Continuous summer supports given for students significantly predicted the college readiness of the students (Ring, 2016; Sablan & Tierney, 2016). The effectiveness of these continuous supports is also confirmed through a partnership between universities (Wilson & Lowry, 2017). Watt, Huerta & Alkan (2011) also studied the college success of disadvantaged graduates who participated in a college readiness intervention named Advancement Via Individual Determination (AVID) during their high school years and found that AVID support significantly contributed to these group's college transition. A study by Yavuz, Parzych, and Generali (2017) also reported that the cooperation among school leaders, educators, and counselors in student counseling and support services is a significant promoter of college readiness and the success of students. High school students' participation in a Florida College and Career Readiness Initiative (FCCRI) significantly reduced college students' probability of assignment to remediation (Mokher, Leeds & Harris, 2017). Also, the significance of the integration of the high school curriculum with college and career readiness curriculum has been confirmed by studies as one of the methods for decreasing high school dropout and making the learning more motivating and purposeful for adolescents (Perry et al, 2016).

In the *exosystem*, the third phase of the ecosystem, individuals are not physically present but events that occur indirectly affect processes in their immediate settings. According to ecological theory (Bronfenbrenner and Morris, 2006), unless the exosystems and macrosystems of the students, which are distant from the student's microsystem, filtered down to the student's microsystem and experienced well by the student, real college readiness cannot happen. The interactions between microsystems at a distant level create an exosystem of the student. Unlike the direct effect of the interactions between microsystems in the mesosystem on student learning, the effect of the interactions between microsystems in the exosystem is indirect. For instance, the effect of the relationship between parents and teachers at school is more direct than the effect of the curriculum designers and policymakers at the exosystem level; what matters is how they are filtered down to the school context and experienced by the students.

The historical interpretation of curriculum documents in Ethiopia shows that the detachment of curriculum contents and learning experiences from the cultural and proximal processes of learners is a centuries-long problem. Scholars, such as Dr. Woube (2013) and

Prof. Amare (1998) have clearly cited this problem. These scholars indicated how the multiplicity of the Ethiopian culture and the numerous contextual factors created a difficult job for curriculum specialists and practitioners in designing and implementing the curriculum.

In this study, the major exosystems that were reported by the participants as affecting their college readiness are the socio-political climate and the existence of supportive organizations such as NGOs, and the existence of a job. According to the participants, the conditions of the socio-political climate of the country have significantly and negatively affected the way they prepared for college. On the other hand, the supportive hands of NGOs were also reported as positively affecting their college readiness endeavor. The increased number of unemployed graduates also negatively affected how the participants were prepared for college.

The remotest level of the ecological environment is the *macrosystem*, comprising ideology, culture, government, religion, and the economy (Hertler, 2018). This study mainly focused on the value and the culture of the society at large and the government in education, as well as the culture of the individuals in which they have been accustomed to working towards college. For the reason that the philosophy, aims, and objectives of education should address and fit the elements of this ecological environment, the careful interpretation of these elements as related to the implementations at school contexts is highly important.

As Ethiopia is a multi-ethnic society, the value and culture of educating their children differ across ethnic groups. Even it differs by clans. For instance, a participant of this study stated that within his ethnic group, education is less valued; he reported that it is taken as wastage of the age of the children. For this reason, he stated, he encountered challenges on his way to college. In addition, the culture of educating girls is also significantly different across ethnic groups. For example, in an Ethiopian Ethnic group, a woman is believed to be born to serve the home and the interest of her husband. Her religion is serving the house and the interest of her husband. Her husband's religion is her religion and she has no own religion; she has to be converted to her husband's religion soon after their wedding. For this reason, the culture does not allow her to go to school. In another Ethiopian ethnic group, it is believed that women are not allowed to go to school because it is believed that if the wife is educated, her husband dies. Affected by these cultural backgrounds, female participants of this study reported the indirect effects of these cultures. For instance, they reported the effect of house cores on their study time in high school and before high school; they reported the

violence they faced at school from the male peers and teachers who are endowed with the spirit of husband.

Although the government of Ethiopia put great value in education, the value of the society for education and college-going has been hurt as a result of the fluctuating impact of education on the life of citizens. The participants of this study described this problem as related to the prevalence of unemployment and joblessness of degree holders. They reported that this problem also demotivated them to go to college. The impact of education on the life of individuals in particular and the economy of the country, in general, should be realized. After 1994's educational reform in Ethiopia, the education system highly focused on the expansion of schools, universities and colleges to all regions of the country and increasing the literacy rate of the country. Generally what this study recommends as a solution is consolidating the praxis, and rebuilding living schools. It should start at home and should be built in the society at large. A dramatic shift in the culture of learning and living is needed.

Individually, there are also cultures the individual learners are accustomed to working towards college. These cultures are the academic habits that directly affect their day-to-day activities of college readiness. Depending on the self-report of the participants, these habits have been categorized into good and bad habits. Being free from internal and external distractors during the study; the effective cooperation with peers, teachers, and relatives to get helped to succeed; managing one's study time properly; helping one's learning by working and learning; using good study places; working hard; using study techniques have been reported as good study cultures. The bad academic habits listed by the participants were cramming for exams than using distributed learning during their study; managing study time by mood; drinking and chewing chat during the study; poor reading skills; procrastination; sitting style, e.g., lying in bed during reading; using external distractors during the study, such as listening to a radio, and talking with friends during the study.

The shape of college readiness within the Chronosystem. The *chronosystem* is the farthest phase of the ecosystem that affects all levels of the ecosystem, and how individuals interact with their ecosystem. The metaphor of "pathway" or "pipeline" dominates the college readiness conversation, suggesting that college access and success is a longitudinal process requiring steps that must be achieved at particular times and in a particular order (Cabrera & La Nasa, 2001). This is the remotest phase of the ecological system. Chronosystem is the time factor that imposes the inevitable effects on the college readiness culture of the individuals. The changes that follow the tracks of time passages may positively

promote or negatively affect the college readiness nature and culture of the learners. The sources of these changes that follow the footsteps of time can be global, national, or local. The extent to which the education system, the schools, the teachers, and the learners adapt to these changes determines the sustainability of success.

The time effect can be analyzed within the time use of individuals and schools. The effect of the current changes in curriculum and teaching-learning processes on the college readiness of the participants, compared to the past ones depending on the participants' responses and the document analysis was examined. Especially, how the current changes contributed to the real college readiness development of the participants were studied. This means that how the changes in the curriculum elicited the expected changes to student learning. Regarding this, the major college readiness problems observed from the self-report of the participants and the interpretations of documents were discussed. The major factors listed were the wastage of schooling time and learning time that resulted in the poor management of learning time and time losses for different reasons, such as holidays, procrastination, and other problems. In addition, the mismatches between the curriculum and teaching-learning experiences and the age of the learners are some of the time-related factors that affected the effectiveness of the college readiness of the participants. Also, student dropouts from school and the repetitions of grades indicated these effects.

Historically, a move to the traditional HE in Ethiopia was going to monasteries for further study in religion. For this reason, the traditional and ancient Ethiopia's college readiness phenomenon was examined within the context of the traditional religious education philosophy and methods for HE entry. The traditional college readiness practice in traditional education is highly focused on rote memorization of religious contents, followed by the indigenous and religious practices related to practical services in the church and the community. Readiness for HE was accompanied by stronger motivation and perseverance in that time. This was because the teachers, the teaching-learning philosophy, the language of instruction, and the methods of learning were indigenous,.

The first weakness of the traditional college readiness was the fact that it was firmly based on religion and it was closed to the innovations outside the country. The church strongly opposed modern education for many centuries in Ethiopian history. This resulted in the disconnection of the education system from developments and innovations in the world.

However, the interest of the country in modernization started in Zemene Messafint, although the early 20thC was the time for the introduction of modern education in the country.

The introduction of modern education was accompanied by new ways of readiness for life and HE. The shift of the expected competencies from religion-based practices to the modern expected competencies, e.g., mastering foreign languages, using newly arrived technologies, particularly, through technical and vocational education dominated the early Ethiopian modern education curriculum. Thence, the curriculum, the teachers and other teaching-learning materials were imported. Although the education system once closed to the world opened its gate to the globe, it took a long time to Ethiopianize the curriculum. For the reason that modern education was highly based on the foreign education philosophy for a long time, college readiness remained the memorization of the contents for a long time.

Despite the significant policy changes made in 1994, the country faced hardships to produce living schools. The theories, the teaching methodologies, and the innovations that had been stated in the curriculum could not be effectively practiced in the school context. The shifts in the culture of teaching and learning to the student-centered, outcomes-based, and practice-oriented approach remained very difficult. These gaps in curriculum theory and practice partially resulted from the shallowness of the curriculum in terms of its depth of roots in cultures of the nations and nationalities (Prof. Amare, 1998). This cultural unrepresentativeness of the curriculum is also largely caused by the unrepresentativeness of stakeholders in curriculum development (Melese & Tadege, 2019).

In addition, factors, such as lack of trained teachers; shortage of resources; failure to achieve basic literacy and numeracy skills timely; poorly and loosely aligned, and overloaded curriculum; misuse of technology, plasma TV, for example, that did not fit the learning pace of a large number of students; the misinterpretation of the role of teachers and students in the teaching-learning process. These and other factors contributed to the unexpected readiness level of university students.

Even though Ethiopia's focus on Science and technology evidenced the country's effort to pull the educational processes to the proximal process of learners, this has not been properly achieved because of the college readiness problems. Singaporeans' experience shows that their focus and value to technical and vocational education enabled them to pull curriculum contents to the proximal process of student learning that resulted in economic

development and educational responsiveness of the education to change (Yek & Penney, 2006). Ethiopia's expansion of technical and vocational education institutions was one of the strong sides of the education system; although this faced similar problems to general education.

Particularly, the similar problems related to Prep program, for example, 1) the curriculum overload; 2) the misalignment of the written curriculum and the practiced curriculum; 3) shortage of resources and trained teachers to implement the curriculum effectively; 4) the movement of the former college courses down to the high school that did not fulfill the objective of experiencing the college or help students' readiness for college to the expected standard; 5) Shortage of remedial education curriculum and inappropriate definition and utilization of remediation, and shortage of academic breadth, depth and rigor highly contributed to the low college readiness level.

5.6. Observing the Tri-sides of Ethiopian College Readiness Model: The Convergence, The Curriculum, and the Context

The first side of college readiness was studied in the way it converged to the college experience. Quantitatively, convergence was studied in the way the academic preparedness of the participants was meaningfully related to college success. In this case, the effect of college readiness on college success and the probability of college success at the values of college readiness were studied; how these effects and probabilities differed across UGs and departments was examined, and the implications for HE quality assessment were forwarded. Generally, the result of this study revealed that there is a tendency of heightening the probability of college success at the lower effect of college readiness on college success. Promoting the effect of college readiness on college success while heightening the probability of college success was interpreted as a trait of high-performing UG. Also, the summation of the total effect of college readiness on college success and the average probability of college success was recommended to be used as a performance measure that considers the relationship between college readiness measure, success measure, and the relative variety of institutions.

To supplement the nature of quantitative relationship between college readiness and success, the qualitative key informant interview data was used to observe how the effect of college readiness on college success was empirically linked and how the quality assessment system considered the college readiness factor of the students. Generally, the interview

response revealed both strong and weak sides in maintaining the linkage between college readiness and success. The strong side is that fact that the university placement system considers equity and other local differences in opportunities beyond the sole dependence on quantitative cutting scores. The weak side is the fact that the process of determining the cutting scores for university entry less considered the continuous empirical research findings on the affirmative action groups' college readiness and success relationship. Also, the affirmative action model used in Ethiopia is not clearly defined although it is similar to the open affirmative model and the quota model. However, the researcher understands that the actuarial model that is mainly based on the counseling science may be better for current Ethiopia.

In addition to examining how the quantitative effect of college readiness on college success was empirically managed, this study also analyzed how student level and other phases of the ecosystem affected the nature of college readiness on college success. Generally, the finding of this study revealed that the intensity of the proximal processes at the school level and the nature of student's instigative characteristics are highly affected by the higher phases of the ecosystem in the Ethiopian context. The interview data analysis revealed that, generally, the students' mathematics and English language learning self-efficacy tend to be negative; and also the percent of assignment to remediation was high as well as the research skills acquired from high school was found to be lower. This finding indicates that although the quantitative relationship between college readiness and success shows a significant effect of college readiness on college success, the higher percentage of assignment to remediation, the negative maths and English language learning self-efficacy and lower research skills gained from high school contradict this effect.

On the other hand, the findings of comparative analysis of the curriculum were linked to the quantitative effect of college readiness on college success. Studies comparing the outcomes of AP and DE course-takers to non-course-takers reveal that participation in college-level classes increases the probability that students will enroll and achieve college success (Evans, 2018; Iatarola et al, 2011; Witkowsky & Clayton, 2019). In the Ethiopian context, studies compared the former Ethiopian Freshman Complete Program college students' college performance with the latter Prep Program college students' college performance. Despite the fact that this curricular approach to preparing the students for college has been applied in Ethiopia since decades ago, some studies have reported controversial findings on the preparatory curriculum's rigor in preparing ready students for

college compared to the former Socialist system. For example, Regassa (2005) compared the reading ability of the former freshman students and preparatory complete students and found that former freshman students outperformed preparatory complete students in reading comprehension. Demewoz, Mehadi and Prof. Tesfaye (2005) also conducted a comparative study on the Preparatory Program Complete (PPC) and Freshman Program Complete (FPC) students on their self-efficacy and academic achievement and reported that FPC and PPC students differed to a statistically significant extent in academic self-concept and academic achievement in favor of the former.

The Ethiopian Prep college readiness model is purely academic and traditional, unlike the modern college readiness models that take a holistic approach in bridging high school to college transitions of students. The Ethiopian college readiness model is purely academic means that, although the curriculum theory pretends to be dependent on the holistic competency-based approach, it is highly concerned with developing the academic performance of students through the classroom teaching-learning process. Research-oriented, comprehensive early warning and supports for different groups of students that are targeted on enabling students to be college-ready depending on the whole aspect development of students, have not been practiced in the Ethiopian college readiness model. The current comprehensive college readiness models use multidimensional early interventions and supports, in addition to school-based academic interventions to guide students' holistic readiness for college.

When its curricular aspect is observed, the Ethiopian college readiness model also shows some inconsistencies. Firstly, there are no clearly stated objectives of moving the former college introductory courses to high school. Although the Ethiopian Prep courses show similarity with DE courses, they have completely been detached from college experiences, and as a result, they lost the objective of exposing students to college academic rigor and environment. For this reason, they did not have a significant difference from high school courses. There is also the absence of guiding curriculum review principles that guide the curriculum review team to align the Ethiopian Prep courses with college-level introductory courses. For these reasons, the integration of the college readiness curriculum with HE expectations and experiences is weak even though the purpose of moving college courses down to preparatory schools seems integration. In addition, the five-year interval of Prep curriculum revision is very slow compared to the IB and AP programs.

Regarding breadth and depth, as a holistic competency-based curriculum, the Ethiopian Pre curriculum also has problems. Some contents such as theology, music, and fine arts are missing. The depth of some important courses such as IT and computer science is not to the expected level. For these reasons, the curriculum has limitations in narrowing the gap between theory and practice. Also, the curriculum revision process lacks representativeness in terms of stakeholders from different HEIs and regions.

Another point at which the Ethiopian Prep program shows a wide deviation from other models is its assessment system. During test development, the IB and AP models invite university staff, and they conduct validity tests on a university campus. The DE courses follow their college course status through college instructor teaching and instructor course assessment process while the Ethiopian Prep courses completely detach themselves from college experiences while they still pretend to be college preparatory courses. Unlike other college readiness models, the Ethiopian college readiness assessment has little role in empirically bridging high school to college transitions. The college readiness level of the students has not been empirically considered during HE quality assessment. The IB and AP standardized exams have essay-type items whereas the UEE is all objective type.

Also, in the Ethiopian college readiness model, the term remediation is not clearly defined. Remediation is only applied in the form of tutorials and make-up classes after students fail in continuous college credit-bearing course assessments. There is no remedial (developmental) education to prepare students for college-level credit-bearing courses.

Like university courses, the IB, AP, and DE course design and implementation processes are largely mandated to the teachers. Teachers play a great role in contextualizing the curriculum to the schools' and learners' conditions. In this case, the Ethiopian Prep curriculum is highly prescribed and centrally developed. The teachers have little role in reshaping and contextualizing the curriculum implementation.

When it is seen through the ecological lens, the Ethiopian college readiness model is not firmly rooted in the Ecological environment. As it is stated previously, this problem has also been the problem of IB and AP programs; although these programs have been continuously reshaping and updating themselves in these cases. The current comprehensive college readiness models address different aspects of students' readiness for college from early times. These models orient the multiple aspects of students' readiness through empirical studies and take different mechanisms and interventions to deal with the problems. They also take an

inclusive approach in addressing the college readiness problems of all students from early times. There are also little microsystem and mesosystem interactions in developing the college readiness of students in the Ethiopian Prep case. The partnerships between schools, counselors, and parents targeted at advancing the college readiness of students are not well organized. Also, the high school-HE partnerships in terms of curriculum, teaching-learning, and student support systems are minimal in the Ethiopian model. The on-track monitoring of student learning and research-oriented interventions are also totally left to MOE.

This study also conducted a narrative analysis of the historical ecological tracks of college readiness in Ethiopia. The general interpretation of documents shows that the way the country responded to external and internal influences shaped the current readiness style of the citizens for life in general and the nature of college readiness in particular. The researcher argues that no country can live without being influenced by global ecological conditions as if it is on Mars. The multi-ethnicity is also a beauty if it is recognized. The argument is that how the game is played determines the winner; an appropriate response and adaptation to the former and intelligent management of internal diversities with regards to the latter.

Changes that followed the internal and global turmoil during the colonization era allowed another form of readiness for life. The culture of college readiness cannot take its originality unless the educational theories, objectives, curriculum contents, teaching-learning methods, and teaching-learning experiences touch the cultures and life experiences of the citizens. The 1994 reform, however, attempted to heal these injures. The healing and normalization of these deteriorations took a long time for the country and remained a puzzle for curriculum specialists and practitioners.

Chapter Six: Conclusion and Recommendation

6.1. Conclusion

Generally, this study examined the college readiness phenomenon from three angles. Firstly, college readiness was examined in terms of its relationship with college success. In this case, three aspects of this relationship were studied: 1) the main and the conditional effect of college readiness on college success was analyzed; 2) the probability of college success at the value of college readiness and the moderators was studied; 3) the extent to which the effect of college readiness on college success guaranteed the probability of college success was examined. Then, the general performance of a UG was estimated from the extent that it promoted the effect of student abilities while it enhanced the probability of college success. Secondly, the study conducted a comparative analysis of college readiness curricula using some criteria. Thirdly, this study explored the college readiness experience of the graduates. The participants reported how they experienced the role of the individual, proximal and distal factors as affecting their college readiness. In this case, the study mainly focused on the interactive role of the individual instigative characteristics with the context in promoting college readiness. Finally, the study produced the general linkage between the quantitative and qualitative research findings and ended up with the recommendation of a general model of college readiness for the current Ethiopia.

Numerous HE quality assessment models highly emphasized the indirect approach to HE quality assessment, such as service quality, teaching-learning quality, quality of infrastructure. On the other hand, some studies used direct HE assessment data, such as college CGPA, college completion, time-to-degree, employment, and income levels when they assessed HE quality. As previously stated, quality is relative, comparative, and is highly affected by time and context, and the gaps in the previous studies are: 1) they are over concerned on indirect HE quality assessment approach; 2) the studies failed to utilize a comprehensive and comparative model for HE quality assessment. To fill this gap, this study used direct college readiness measures and college success measures to examine the HE quality variable in an applied comparative sense.

When the effect of college readiness (i.e., as measured by UEE score) on college success (i.e., as measured by graduates' college CGPA) using UG (i.e., UG1, 2 and 3) and department (i.e., department 1, 2 and 3) as moderators, and controlling for the covariates (i.e., GSEE score, SES, and GTUAP), the effect is statistically significant. The finding on the relationship between college readiness of the participants generally revealed that the effect of college

readiness on college success was statistically significant. In any education system, there is a meritocratic assumption that the readiness level of the students significantly affects the college success status of the graduates. Studies also confirmed that student aptitudes correlate across times. Although this established assumption guides education systems, the definitions and contents of college readiness and success show significant differences across education systems. For some education systems, readiness can be merely defined as academic performance as can be measured by classroom tests. In other societies, readiness may be defined as a mastery of skills and competencies required from a modern person in an academic area. Unlike the former, the latter definition puts readiness in the context of current relative expectations. It comparatively observes readiness through the lens of expected skills and competencies required from the current person in the academic area. The way the educational systems define and build college readiness determines the contents and the intensity of readiness for HE. Additionally, readiness is relative and is highly time and context-dependent.

Generally, the finding of this study reveals that the total conditional effect of college readiness on college success varies by UG. In other words, the extent that the college readiness level of the participants affected the college success of the participants at the values of the UGs, controlling for some above-mentioned covariates, differed across UGs and departments. In this relationship, the extent that a UG and a department moderated this effect has another implication. Depending on the theoretical assumption that the “college readiness level of students positively affects college success of the graduates”, the extent that a UG positively moderated this effect was interpreted as a quality of a UG. As previously stated, although there is an established assumption that student aptitudes positively relate across time, previous studies did not examine this relationship in HE studies.

Promoting the effects of student abilities is not sufficient. Promoting the effect of student abilities should guarantee the probability of college success at a value of college readiness level. Using the previously stated combination of variables, the probability of college success (i.e., the average probability of achieving equal to or greater than 2.75 in college CGPA) at a value of UEE score differed across UGs and departments. In any education system, the first-hand HE outcome measure is college success of the graduates. The first-hand college success measure in the Ethiopian context is college CGPA. Even if UGs promote the effect of college readiness on college success, they would not be effective if they could not relatively heighten the probability of college success. As a result, this in-congruence, for instance, even though

some institutions are highly reputed in teaching-learning, their graduates are less successful in the job market compared to the others. In this case, this study revealed that the stronger effect of college readiness on college success did not guarantee a higher probability of college success. In other words, there is a tendency for lower total conditional effects while heightening the probability of college success.

If this is so, “how these differences can be compromised in the quality assessment system?” is the main question this study attempted to answer. To deal with this question, this study comparatively examined the extent that UGs promoted the effects of college readiness on college success while heightening the probability of college success at the value of college readiness level. While doing this, this study used the summation or added value of the total conditional effects of college readiness on college success and the average probability of college success to compare the relative performance of UGs. Therefore, the highest value for the summation of the total conditional effects and the average probability of college success is interpreted as an indicator of the highest university performance in this study.

Although there is a significant effect of college readiness on college success in this study, the college readiness factor only accounted for 28 percent of the variance in college success. Also, the qualitative data showed that the higher percentage of assignment to remediation, students’ general negative maths and English language learning self-efficacy, and students’ lower research skills gained from high school evidenced the lower effect of college readiness on college success. Additionally, the key informant interview data revealed that the empirical research findings between college readiness and college success was not used in the process of determining cutting scores and the quality assessment process. Beyond lowering cutting scores for affirmative groups, there is lack of research-based interventions and early warning systems focused on identifying and supporting the progress of these groups before college.

Also, this study observed how the cutting scores can be estimated from the relationship between college readiness and success. This study found that the university entry cutting scores should be based on the probability of college success in addition to the current consideration of the contextual situations, such as the capacity of universities and resource availability. The probability of college success also differs from an area of study to another. However, the current practice in the Ethiopian context shows that the cutting scores are generally decided at the streams of the social science and science level. This study

recommends the scientific procedures of cutting scores for specific fields of study. For this purpose, this study recommends the design and the procedure used in this study.

A comparative analysis of the Ethiopian Prep curriculum against some international college readiness curricula was also conducted. This was aimed at, firstly, identifying the weaknesses and strengths that may be revealed in all curricular approaches in building college readiness, and secondly, producing constructive recommendations for improvement of the Ethiopian college readiness curriculum. The comparative analysis was based on some major criteria: setting for delivery, student participation, instructor eligibility, course content and curriculum development, student learning outcomes, assessment, and instructional process.

The setting for delivery is differed across the programs depending on the sources of the courses. For instance, the IB and the AP courses are normally developed in high schools for high school students and they are delivered in high schools by high school teachers while the DE courses are the college courses and they can be delivered in high school or in college for high school students by university instructors. However, the Ethiopian Prep courses have contradictions regarding the sources of the courses, the setting for delivery, and the teachers who teach the courses; they are college courses and are delivered in high schools by high school teachers. For this reason, it can be concluded that the setting for delivery and the teachers for the Ethiopian Prep courses have contradictions when they are observed through the lens of international practices.

Regarding student participation, the Ethiopian Prep school participation depends on the GSEE results. Studies reported that participation in IB, AP and DE have historically been highly privileged for the high achieving students, and students from higher SES. However, recent studies show that the programs have been gradually developing inclusiveness. Compared with them in this regard, the Ethiopian Prep can be more inclusive in the ground that 1) it uses single exam results for all participants as a criterion for Prep school entrance; 2) it implements affirmative action to participate the females, the students from developing regions in the country, and for students with special needs. However, compared to some peer countries in East Africa, the rate of student participation is low.

The teacher training and professional development is also a criterion used to compare the programs. This study reveals that the teachers' training and professional development in all programs have their own weak and strong sides. Teacher's professional development in the

IB program is criticized for measuring teachers' quality against the schools' IB membership. Professional development of the IB teachers is the responsibility of the IB schools and the IBO is less concerned. Similarly, AP teachers are assigned by the schools that deliver AP courses and CB has less attention for AP teacher quality. For this reason, the AP and IB programs are criticized for their reluctance on teachers' quality.

Unlike IB and AP teachers, the DE teachers are college instructors, and the DE program is less criticized in the case of teachers' quality. The contradicting role of teachers is observed in the Ethiopian Prep program. The fact that the courses are college courses like DE courses and the teachers are the high school teachers in the Ethiopian Prep program creates a teacher-course role conflict in the Ethiopian Prep program. Although the Ethiopian Prep program gives great attention to teachers' professional development, the Ethiopian teachers have a minor role in curriculum development, and in reshaping the curriculum depending on the contexts as professional teachers. For the reason that the teachers are the backbones of the quality of student learning, the skill of teachers to develop, modify and implement the curriculum depending on the contexts of schools and students is found to be highly important in this study.

When the programs are compared based on the nature of the courses, IB and the Ethiopian Prep curricula are fully-fledged ones whereas the AP and DE are courses. The IB and AP curriculum development and revision processes are highly concerned with maintaining the college-level standard and rigor of these courses. For this reason, these programs make a strong relationship with universities in curriculum development and revisions as well as in test development. The DE courses are developed by colleges themselves and delivered to the high school students either in college or in high school; they maintain the college exposure and experience for the students. Compared with these programs, the Ethiopian Prep program has a weaker relationship with universities in curriculum revisions and test development. This made the Prep courses disconnected from the college experience. The role of the teacher in course development is very high for AP and IB courses than the teacher's role in the Ethiopian Prep course development. Another way these three programs build the college readiness of the students is college badging, that is, awarding college credit. The Ethiopian Prep course differs from all three courses on the ground that it does not have college credit. For the reason that the teachers have a higher contribution in curriculum development and implementation in IB and AP programs, the curriculum shows variety and flexibility across schools. Regardless of the variety and

flexibility of the curricula, the teachers play a great role in monitoring student learning towards achieving similar objectives for all learners in these programs. Unlike these courses, the Ethiopian Prep courses are more rigid and prescriptive; the teachers play a minor role in modifying the curriculum depending on the contexts.

The student learning outcome is another criterion by which these programs were compared. Degree completion, college academic performance, career success, college matriculation, college persistence, and time to degree completion are the major student learning outcomes associated with these programs. Generally, AP, IB and DE programs are more associated with higher student learning outcomes. When these three programs are compared, however, the AP and IB are more associated with these student learning outcomes than DE. In the case of the Ethiopian Prep, few Ethiopian studies compared the former Freshman Program students and the later Ethiopian Prep students on their first-year college academic performance. Generally, these studies supported the former Freshman Program in promoting student learning outcomes than the later Prep Program. However, as stated in the introduction section of this study, the studies that associated Prep program with student learning outcomes are highly focused on college first-year academic performance. The studies ignored to associate the other very important student learning outcomes with the Prep program. For this reason, there is a wider gap in the empirical building of the high school to HE transitions.

These programs have also differences in the assessment procedure. The IB maintains the validity of the assessment procedure using some unique mechanisms. Firstly, the IB's test DC is composed of internationally selected professionals in different areas. Secondly, the IB's final assessment considers the teachers' continuous classroom student evaluation results in addition to the IB's internationally prepared exam score. In addition, the IB's examination is composed of both objective and subjective items. The AP also has its own mechanism to maintain the validity of the test development process and results. For instance, the AP gives the higher chance to teachers to enrich and align student learning with the demands of the contexts of the time. AP also highly cooperates with the college instructors in test development in cooperation with internationally selected professionals. The AP exam items are validated in college to maintain college standards. The AP exam items are composed of both objective and subjective items. For the reason that the DE courses are college courses, their assessment is accomplished through instructor course grading. Although the Ethiopian Prep exam (i.e., UEE) development process participates professionals including Prep

teachers, it gives less attention to maintaining the college experience as a college introductory course. The test development and validation processes are completely detached from college experience compared to the three programs. The fact that the UEE is all objective is another weakness. For this reason, the UEE is highly exposed to exam mal-practice.

When these programs are compared in terms of the instructional process, the main difference is observed in the case of the teachers' ownership of the curriculum implementation. The IB and AP teachers are allowed to demonstrate and utilize their creativity in adjusting the curriculum to the contexts of schools, culture, and student diversities. For this reason, teachers carry great accountability and responsibility in curriculum implementation. Compared to these programs, the Ethiopian Prep instructional process is more prescriptive and rigid. The teachers have lower chances to reshape the curriculum depending on the contexts. For instance, the Plasma TV teaching has not been in harmony with students' pace of learning and it highly lowered the teachers' contribution in curriculum implementation depending on contexts.

Generally, the major weaknesses of the Ethiopian Prep program are A) Complete detachment and separation of the Prep courses from college experience in terms of curriculum reviews, test development, and validation, and other Prep school-college partnerships in teaching-learning and student supports; B) Exclusion of subjective items from UEE. This exposed the UEE to contamination of validity in its results and shallowness of its assessment; C) Unrepresentativeness of stakeholders in curriculum review; D) Minor role of teachers in curriculum development, contextualization, and implementation; E) The fact that it is narrow in width, for example, the credit given to technology courses such as IT and computer science, theology, fine arts and music not to the expected level. F) The wide gap between theory and practice in the teaching-learning process; G) Miss-definition of remedial education and miss-use of remediation in college. Also, the absence of remedial education and curriculum is also a weakness. H) Lack of research-based explanations on the reason for moving former university freshman courses to high school.

The third aspect of college readiness examined in this study is the relationship between the individual students' efforts and the contexts. For the reason that Ethiopia is a multiethnic society, ecological context as related to promoting college readiness and success is highly important. All previously discussed issues, such as measurement of college readiness and success in the way that guarantees education quality, and the responsiveness of the

curriculum to economic development through ensuring college readiness and success are strongly related to the ecological context. For this reason, this study examined the college readiness experiences of the sample graduates. In doing this, the researcher analyzed how the individual instigative characteristics (i.e., force characteristics, resource characteristics and demand characteristics) of the participants were integrated with both proximal and distal contexts, and how this integration indirectly instigated the college readiness of the participants.

The self-report of the graduates revealed that the major resource characteristics related to college readiness are academic preparation. The dimensions of academic preparation reported by the participants were the use of the language of instruction, Mathematics and English language learning, assignment to remediation, development of research skills, college knowledge, and academic habits of the respondents.

The participants reported the language of instruction issue as both a local and global factor in affecting academic success when they critically emphasized the problem of the English language in high school and HE. Concerning this issue, the participants stated the role of school, teachers and other resources as determinants for the development of the English language and the predicaments for the English language performance. In addition to the students' self-reports, studies around the world reported language ability as a key for academic success. For this reason, the necessity of paradigm shifts in English language learning in all levels of the education system is found to be highly important in the Ethiopian education system to boost college readiness and the success of the students. For the reason that language learning is a more contextual and ecological factor, the paradigm shift in language learning should be focused on building the language curriculum and the teaching-learning process within the contexts that allow implementing the natural principles and processes of language learning. The curriculum should be based on how the students read it, write it, speak it, and listen to it in a more natural and applied context. A withdrawal from context and an adherence to a content-oriented form of learning in which the language rules are memorized and rehearsed is wasteful.

Also, Maths learning is strongly associated with the college readiness experiences of the graduates. Currently, like the trends around the world, the Ethiopian MOE has given great attention to STEM learning. However, the report of the participants indicated that Maths anxiety experience dominated the report of the participants. The interpretation of the

participants' reports generally reveals that the participants' misinterpretation of Maths learning and underestimation of their ability and potential as learners. Like English language learning, Maths learning is highly context-dependent. However, language learning is more dependent on the social environment while Maths learning is more dependent on the natural applied environment. Generally, Mathematics learning is more accelerated when it is thoroughly practiced within the contextual representations; just when its learning process is integrated with the immediate life and natural context. However, self-reports of the participants show that Maths content was more distant from their experiences and more dependent on the theories.

Compared to the trends of remediation practices in HEs around the world, the practice of remediation in Ethiopian HE is significantly different. For example, in the international universities, students who show below a threshold college readiness level are allocated to a non-credit-bearing remedial education in HE for purpose of enabling the students. In Ethiopia, instead of assignment to non-credit-bearing remedial courses, students are admitted to college credit-bearing courses and are given tutorial supports when they fail in continuous tests during college credit-bearing course delivery. This kind of remediation is not effective because 1) the instructors have hardly any time to give adequate tutorials for students in need of continuous remediation; 2) remediation, just from its definition, refers to making students able learners or enabling the students who show difficulties to join credit-bearing courses to achieve the adequate standard. However, applying remediation after the students join a credit-bearing course implies an inappropriate utilization of remediation.

The literature review findings of this study revealed that various affirmative action models are broadly used around the world, e.g., open affirmative action model, actuarial affirmative action model, and dual affirmative model. Although it is not clearly stated in the education policy, the affirmative action model used in Ethiopia seems an open affirmative action model in the way it mainly uses the level of students' UEE score for affirmative action decisions. The open affirmative action model, firstly, sets a criterion for college admission for all students and widens a chance to affirmative action groups who fulfill the minimum criteria. Generally, recent trends around the world vitally focused on early identification of these groups, conducting continuous research-based interventions and supports to enable them to use their potential before college admission. This study also recommends the utilization of recent approaches to support these groups to use their maximum potential rather than the sole use of the traditional affirmative action model.

Although recent definitions of college readiness include the development of research skills before college entry, the results of this study revealed a shortage of research skills acquired during the Prep education. The pre-college curriculum needs to integrate the research skills to develop students' competency in research. Student teaching methodology should highly consider problem-based and project-based learning to enhance the development of research skills.

Studies found that college knowledge significantly affects the future success of college-going students. College knowledge refers to information should the college-goers acquire before college entry to be successful in their transfer to college and college learning. The students are endowed with their own tendencies and life interests and they want to realize their ambitions through precise decisions during the transfer to HE, and during their study in HE. The students also need to get adequate information to fully use their potential to be successful. They need scaffolding especially during their journey to HE. For this reason, counseling science is highly applied in high schools around the world. In this study, although the participants did not report any serious problem in college knowledge, the researcher understands from the practice in schools that developing students' college knowledge through counseling services in the Ethiopian high schools is very poor.

In addition, academic skills are the parts of college readiness. Academic skills are nothing but the smart ways of learning or studying to maximize one's competence in academic subjects. These academic skills are always created and used by the learners; they are not often taught in schools but they are used. For this reason, they are parts of a hidden curriculum. In this study, the participants reported some inappropriate study habits, such as inappropriate use of study places (e.g., reading in noisy places, reading by lying in bed and others), problems in time management (e.g., cramming for exams rather than using distributed learning) and procrastination, use of inappropriate study methods, lack of controlling internal and external distractors, use of 'chat', alcohol drinks, and cigarettes during the study. The absence of previous local studies on how these study habits are affecting students' academic success in the Ethiopian context is found to be another problem in this study. To improve the academic skills of the students to support students' successful transition to HE, the counseling curriculum have been developed and implemented in high schools in the USA. This is also recommendable in the Ethiopian context.

The second group of instigative characteristics that were associated with the college readiness of the graduates was force characteristics. These force characteristics that were repeatedly mentioned by the participants were perseverance, academic self-efficacy, and college aspiration.

The individual students, as human beings, have their own motives, interests, beliefs, tendencies, and visions for change and development. In contemporary schooling, the mechanistic view on the nature of human development and learning has a minor place. For this reason, inspiration is more preferred than teaching. Although the participants of this study reported high perseverance in their journey to college, indirectly, they were not skeptical to mention some ecological factors that hurt their perseverance, motivation and aspiration, such as unemployment, and the lower responsiveness of education and degrees to individual change and development, and socio-political climate of the country. Generally, the individuals have their own definitions and interpretations for college readiness phenomenon and the way they view college-going has a profound impact on the extent that they persevere to reach college. The role of family, counselors, and teachers is very high in molding their understanding about college-going and fueling motivation and aspiration.

In addition, academic self-efficacy is one of the force characteristics that fuel students' college-going. Studies reported that academic self-efficacy is conceived from early education years. Students discover their tendencies and abilities from early education years and their academic self-efficacy grows as they successfully promote to their higher level grades. The interactive ecological role of the context is important in cultivating the academic self-efficacy of the learners. Particularly, the role of students' positive interaction with educated family members, the teachers, and the students is very important. The participants of this study reported positive and negative academic self-efficacy almost equally on average. In order to improve students' academic self-efficacy, the k-12 curriculum development should be firmly built on the ownership of learning, and practice-based learning. The curriculum should represent the students' cultural backgrounds, the language and learning styles. The teachers have higher contributions in promoting the development of students' academic self-efficacy.

The demand characteristic of the students was generally observed from the participants' self-reports on the bilateral interaction with teachers, peers, family members and relatives to get helped in their movement to HE. The assumption is that the behaviors and actions of the individual learners elicit either a positive or a negative response from the microsystem. This

means that the manner an individual student interacts with the microsystems contributes to the intensity of proximal processes. Especially, the demand characteristic of the students has a serious impact on student learning in a multicultural society like Ethiopia. For this reason, the curriculum design and the teaching-learning process should be organized in such a way that they strengthen the bond between the learners and the significant microsystems.

Although the impact of SES on academic performance has attracted less attention by Ethiopian studies, studies around the world strongly associated academic performance and college success with SES. In the Ethiopian case, this issue has got less attention due to the general assumption that there is no significant SES difference across families and societies. However, the finding of this study revealed that SES has a significant relationship with the college readiness level of the participants. The literature review findings of this study show that SES gives the opportunities to the rich in two ways: 1) helping them to use all their potential to educate themselves under the meritocratic umbrella; 2) Helping them to utilize an unattainable opportunity to the poor under a non-meritocratic umbrella. For this reason, the studies reported SES as a tool to use the maximum potential to achieve college success on one hand and as a threat to meritocracy and equity in college access on the other hand.

To deal with the effects of SES and other opportunities in college readiness and access, the policies have been formulated and implemented. For instance, implementation of affirmative action on one hand and delivering continuous supports and interventions for Affirmative Action groups on the other hand. The contemporary interventions and supports are highly aimed at enabling these groups to use their maximum potential to achieve success in college access. However, Affirmative Action in the Ethiopian education system is less accompanied by research-oriented early interventions, supports, monitoring and follow-ups. These Affirmative Action groups should be identified and research-oriented supports and interventions should monitor their journey to college to help these groups use their innate potential to succeed in college and life.

Microsystems of students such as school facilities, teachers, peers and families are significant role players in the successful learning of students. The microsystemic factors that dominated graduates' college readiness experience were the school-related factors, e.g., class size, distance from school, gender-based violence, school climate, school facilities, and teachers' quality. A policy that is formulated at the distal level must be implemented by microsystems of the individual students if real readiness is to be expected. Also, the

individuals must perform appropriate actions within the proximal processes of these microsystems. However, in the Ethiopian context, the major problem is not policy formulation; the problem resides in the implementation and the nature of the proximal processes in the microsystem. In the overcrowded classrooms with a high teacher-student ratio and within the schools with shortages of facilities and teaching-learning resources, the intensity of proximal processes is very low.

In any multicultural society, the school ecosystem is a key for higher student learning outcomes. The schools must be suitable places in which the three individual instigative characteristics are promoted and function in an effective manner. Any multicultural school curriculum and school facilities must be targeted on cultivating and promoting the normal functioning of these three instigative characteristics of the learners. On the contrary, the reports of the participants revealed that the school climate and the teachers' characteristics work against these principles. Gender-based violence, the teachers' impudence towards the learners and rough relationships between these microsystems are predicaments for a healthy proximal process.

Recent studies revealed that the role of counseling services is very high in building college readiness (Hines & et.al, 2020; Walden and et al, 2020; Williams; 2016). Beyond its significant role in bridging the high school to HE transition process, the counseling service also plays a major role in monitoring healthy student progress and advancement to higher-level grades. Generally, the utilization of counseling sciences dominated the contemporary college readiness building practices. When we come to Ethiopia, the role of counseling services in building college readiness and transition to HE is taken as a minor one. The current counselors in Ethiopian schools are not well equipped and prepared to deliver research-oriented continuous supports, interventions, and services to students. The experience of the graduates also revealed this truth. Research-oriented counseling service that supplement the day-to-day progress of student learning in schools are lacking in Ethiopian schools. For instance, the supports of counseling services in the college major choice of the participants and the delivery of continuous research-oriented interventions and supports for affirmative action groups are rare.

As stated in the literature reviews and comparative curriculum analysis, studies revealed that teachers play a great role in building college readiness. The teachers are the moderators and the facilitators of student academic growth. They are curriculum designers, enactors and

practitioners. They adjust the curriculum and the teaching-learning process to the contexts of student learning. They are the key persons in building equitable college readiness of all students in a multicultural classroom. The participants of this study, however, stated the dominance of teachers' misbehavior in the classroom; especially, the teachers' behavior towards female students. For the reason that teachers are the pillars of education quality, the education system should focus on teachers' training and CPD. However, the teachers are seen as minors in the Ethiopian education system and this may be one of the main causes for a fall in education quality. Also, low teacher salary, bad attitudes and images of the society towards teachers reflect the problem.

The existence of jobs is also another distal factor that affected the motive of the participants. The incentive motivational theory assumes that the efforts of the students to achieve a long-term goal are strengthened when the incentives are strong. Students also compare the value of earning a degree in some field of specialization with returns they gain after graduation. The exacerbation of unemployment was described as a source of desperation by the participants. The problem is, however, the participants limited the value of education with winning bread or getting a job. Rather, education should be seen as a tool to create one's livelihood; on other hand, it should be considered as a part of human development even in the absence of jobs. Generally, the participants seemed to wrongly perceive the value of education. To increase the probability of job creation, the role of technical and vocational education, as well as the role of advances in science and technology found to be high in Ethiopia and other world. The effectiveness of the Ethiopian technical and vocational education in decreasing unemployment and the extent it produced the job creators, as well as the major factors that affected its effectiveness ought to have received great attention from the studies. The culture and attitudes towards college-going had their own effects on college readiness and college-going endeavor of the graduates. If the individual, the family, and the society's attitudes are not healthy towards education, schooling remains unhealthy.

Studies and trends around the globe showed that the interaction of high schools and colleges in all aspects of building the college readiness of the students is found to be important. As it is broadly discussed in the literature reviews, these multilateral partnerships between microsystems significantly affect students' readiness for college. In the Ethiopian context, this interaction is weaker. Horizontally, the cooperation of parents, counselors, and teachers in all aspects of building college readiness is also weaker in the Ethiopian context.

The intensity of this phase of the ecosystem creates suitable conditions for students' learning and development.

The government and politics, and the climate of the country have been reported as significant distal factors that indirectly affect individual students' visions for college-going. Although this ecosystem indirectly and significantly affects student readiness, in the Ethiopian context, the major sources for contamination of education quality reside in this phase of the ecosystem. For instance, the political and ethnic turmoil that existed across universities significantly affected the motivation and perseverance in college-going students. The idea is that these instabilities are natural and occur everywhere in the world for good or for bad. This means that the outcome of the turmoil should be constructive and need to bring about the equilibrium in the microsystems of the learners.

The macrosystem highly determines how the individuals are prepared for life and college. Cultures that molded the college readiness of participants were caught from self-reports of the participants. Generally, both positively affecting and negatively affecting cultures were almost equally reported. The researcher understands that the culture of individuals and society towards life is a source of change and growth. Culture is the source of creativity. In addition, the value we attached to education and learning is the source of motivation and perseverance. The curriculum also should adequately respond to the global demands of society. College readiness should also comparatively and relatively be defined in the education policy. The way the contents and competencies should college-goers master have to be critically analyzed in the contemporary global context. Although there is an attempt to update the Prep curriculum through five-year interval curriculum reviews, the changes could not be adequate for the reason that there were still problems regarding the adequacy of the contents, and in the appropriateness of the practice and the training.

The chronosystem inevitably determines the conditions of other lower-level phases of the environment. At the micro-chronosystemic level, school-age and instructional time losses are among the problems reported. The strongest effect of the chronosystem follows the historical tracks of the education system. For example, the massification of HE, and the effect of COVID 19 on education are some of the major chronosystemic effects. Within this dynamic effect of chronosystem on the education system, the changes to college readiness phenomenon were examined in this study. In the Ethiopian context, unemployment, fall in the

quality of education, and national instability were some major chronosystemic factors that indirectly affected the college readiness phenomenon.

Generally, the interpretation of the histories of college readiness in Ethiopia was conducted in terms of the college readiness culture of the education system. The way the education system prepared its stakeholders for HE was examined. The extent to which the college readiness activities clearly evidenced the intensity of the proximal processes of the students was the criteria of the analysis. In other words, the timely evidence that witnessed student experiences of college readiness and competencies were attempted to be reviewed.

Depending on the literature, the college readiness phenomenon was examined in two periods: the traditional Ethiopian education period and the modern Ethiopian education period. The college readiness phenomenon during the traditional education period was described in the literature review as the preparation for higher-level religious education in monasteries. The monasteries prepared the citizens for both the religious and public services in the community. The college readiness activity was characterized as indigenous. The students learned in their own mother tongue; the teachers were Ethiopians; the students were highly motivated and persevered; the graduates or Debteras could effectively apply the religious rules and laws in the society. However, the traditional education curriculum in Ethiopia was religious and the curriculum was not open to the new innovations in the globe. The church was highly resistant to new developments in science and technology for centuries. For this reason, readiness was not holistic and inclusive.

Introduction of the modern education in the 20th century introduced a new way for HE. Although the education system was dominated by foreigners, the opening of the country to innovations in the globe heralded the introduction of modern education, ways of life and readiness for college. The opening of the former Haile Sellassie I University (Addis Ababa University) and the gradual Ethiopianization of the curriculum resulted in the replacement of the LSLCE by the ESLCE.

Generally, the nature of the education system, the curriculum, the teaching-learning process, assessment, and evaluation determined the nature of readiness for college. Until 1994, the curriculum was content-based; and the teaching-learning process was teacher-dominated. The problems related to the language of instruction in the multiethnic community and the unrepresentativeness of the curriculum allowed the dominance of some groups in college-going. Even though the literacy rate was highly improved during the socialist regime,

college readiness was very difficult and highly competitive for the reason that the number of HEIs was very small. College readiness was also highly academic and content-oriented. The college-goers have to memorize contents to perform best in the ESLCE. The objective format of ESLCE contaminated the validity of its results.

The 1994 education reform improved some aspects of education on one hand and worsened some aspects on the other hand. Some improvements were reflected in the ecological aspects of college readiness. The consideration of mother tongue in schooling, the implementation of inclusiveness in education and college-going are some ecological aspects of college readiness considered in the reform. The changes to the competency-based curriculum and the emphasis on the student-centered approach in the teaching-learning process were some positive aspects of the reforms. Application of the continuous assessment in the teaching-learning process and the implementation of the criterion-referenced assessment in UEE are other positive aspects. However, these changes that were produced in the higher-order ecological context rarely filtered down to the microsystems and less immersed into the practice through the proximal processes of the lowest phase of the ecosystem.

The migration of university introductory courses to high school without adequate theoretical, practical, and empirical explanations resulted in curriculum overload. The reforms in the education system could not effectively combine with the practice. For instance, the student-centered approach faced implementation problems due to teachers' and students' lack of skills to implement the methods; teachers' resistance, the shortage of resources, such as problems of class size, small salaries for teachers; and lack of motivation towards cooperative learning. Also, the implementation of some newly arrived technologies, plasma TV for example, in education was not effective for the reason that it could not be adjusted with the pace of diverse student learning. Compared to the international trends, the college readiness activities in the Ethiopian context were highly academic. Academic means that it was totally depended on schools, teachers and the students' efforts on the one hand and it is highly disconnected from the practice and training on the other hand. The contemporary college readiness building is firmly rooted in society at large. There are different initiatives, NGOs, and programs targeted at supporting student growth. These community organizations, other than the ministry of education and the government, provide research-oriented supports on various aspects of student learning. The traditional college readiness is more academic, less inclusive, and less meritocratic. In general, in a holistic college readiness and

ecologically grounded college readiness building, the three issues (i.e., meritocracy, equity and quality) in transition to HE are balanced and maintained.

6.2. Recommendation

Depending on the major results, critical literature reviews, and conclusions, the major recommendations are given as follows:

In order to ensure the strong effect of college readiness on college success, the researcher recommends that the education system needs to reconsider the depth, breadth, and the type of college readiness curriculum approaches and college readiness assessment systems that goes beyond quantitative examinations to build a strong high school to college transitions. To achieve this: i) The college readiness curriculum should be redesigned following the vertical progressions, the college expectations, and standards rather than course migrations from college to high school. This means that Grade 11 and 12 curricula should be redesigned in college-level introductory courses depending on the lower grades' vertical progressions and college expectations. The grade 11 and 12 curriculum design and review process should invite college instructors and should use the input of stakeholders, such as employers, college students, and graduates. The researcher does not recommend college-badging like in the case of DE, IB, and AP courses in the current Ethiopian context; ii) The national college entrance examination should include an essay and short-answer items; iii) The contents of the UEE should be highly dependent on the key competency standards of the curriculum; iv) depending on the gaps in student learning, the developmental education curriculum should be designed either at the college level or before college. This is the curricular approach to mend the breaks of college readiness; v) Grade 11 and 12 teachers should be highly trained teachers; vi) in order to build a strong high school to HE transitions through the curriculum, the college readiness curriculum should deeply extend its roots in the multiple cultures and realities of the nations and nationalities through lower grades' curricula.

In the process, the researcher also recommends that college readiness should highly reconsider the tendencies, interests, and objectives of the students when it guides the students to choose their educational pipelines. The researcher finds that the former grade 10 completion and openings of vocational training institutions follow the international trends that diversify the educational pipelines to fit the diversity of interests and ability levels. Also, the production of middle-level human power through vocational education, modularization of learning, and recognition of prior learning fit the needs of current Ethiopia.

Additionally, the selection and admission system should work on identifying, supporting, and enabling affirmative action groups before they take national college entry examinations and before taking credit-bearing college courses. If they fail to be competent to get into university, other pipelines that fit their ability should be prepared for these groups. The university entrants should be highly self-standing and confident learners. In building a strong high school to HE transitions, the student selection and admission system should be highly guided by empirical studies. In this regard, the HE quality assessment also should take into account the college-readiness level of students as a covariate. The result of this study revealed that the empirically devised and standardized mechanism that takes into account the nexus between college readiness levels of graduates, and the HE learning assessment result, to make a fair comparison of graduates for employment, is highly important. Also, to remain competitive, universities should be able to ensure the stronger conditional effect of college readiness on college success while heightening the probability of college success at values of college readiness. This study recommends this model to conduct a natural, simple, and economical method of HE quality assessment.

Moreover, the early warning assessment and remediation systems should guide student progression to college; the international trend shows that the university instructors and employers now turned their faces from blaming students for their incompetence. The sources of the problems lie in the ecology. The students themselves and the members of the community should take responsibility. The issue of student development should not be left only to the education system. Different organizations warrant to be created and stand in harmony to support student growth. The high school-college-partnerships need to be strong in all aspects of building the high school to HE transitions.

Also, this study recommends a clear and measurable definition of college readiness at the policy level. The measurable indicator systems for all areas of studies should be clearly listed at the policy level, at school level and at the individual level, and they should guide the teaching-learning, research and interventions, supports, and quality assurance.

Furthermore, the researcher shows the directions for future researchers in this area. Firstly, when studying the relationship between college readiness and success is the case, future studies may take into account the contribution of other variables as independent variables, dependent variables, covariates, mediators, and moderators that could not be included in this study's model to come up with stronger results. This study also recommends more meaningful and applied research in which the direct and tangible student learning

outcomes are used to model the nature of the existing relationship between college readiness and success. Future studies also should highly focus on experimental interventions and qualitative firsthand data in lower grades to high schools in all aspects of building college readiness including the aspects of college readiness examined in this study.

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Appendices

Appendix A: Graduate Survey Questionnaire

Addis Ababa University, College of Education, Department of Curriculum and Instruction, Graduate Survey

Congratulations on your impending graduation! The objective of this questionnaire is to gather information to explore the relationship between students' college readiness and college success. I honestly tell you that any data collected will be kept confidential and will be used only for purpose of this study. Since the success of this study depends on your genuine responses, I kindly invite you to give your responses with integrity.

Thank you very much for your help with this important experience!

1. Your Name

(optional):.....email:.....

2. Your phone number:.....

3. Name of your University:.....

Department:.....

Student ID Number (optional).....

4. Name of your preparatory

school:.....Region:.....

5. Ethiopian Higher Education Entrance Examination (preparatory school) score:.....

6. Ethiopian General Education School Leaving Certificate Examination (Grade 10)

GPA:.....

For Items number 7 to 17, please read the items carefully and respond by putting (v) in the blank space that corresponds to your response.

7. Sex:Male;Female

8. Your current field of study was your:

..... First choice;Second choice; Third choice

9. Would you please rate your satisfaction in the teaching-learning quality of the university?

Very low.....1;.....2;.....3;.....4;.....5;.....6;.....7;.....8;9;10 very high

10. Would you please rate the quality of management and service quality of the university?

Very low.....1;.....2;.....3;.....4;.....5;.....6;.....7;.....8;9;10 very high

11. Would you please rate your monthly family income level in Ethiopian Birr?

.....< 4000;.....4000-6000;.....6001-10, 000;.....10001-15000;.....15001-20000;> 20000

12. Your parents' level of education is:

Father:Grade 10 complete;Diploma;Bachelor Degree;Masters;Ph.D

Mother:Grade 10 complete;Diploma;Bachelor Degree;Masters;Ph.D

13. To how much extent do you think your financial problems have affected your college academic achievement?

.....Less affected;.....Moderately affected;.....Highly affected;.....I had no financial problem

14. Did you own a computer or had an easy access to one during preparatory education?

.....No;Yes

15. Did you have easy access to a high-speed internet connection during your preparatory education?

.....No;Yes

16. How proficient were you in your computer skills?

.....Very good;Average;Not so good;Had never used it

17. How often did you use the internet to help you with school work?

.....Never;Rarely;Sometimes;Often

Appendix B: Graduate Interview

Addis Ababa University, College of Education, department of Curriculum and Instruction Graduate Interview Questionnaire

Congratulations on your impending graduation! The objective of this interview is to gather information to explore the relationship between students' college readiness and college success. I honestly tell you that any data collected will be kept confidential and will be used only for purpose of this study.

Thank you very much for your help with this important experience!

1. Would you briefly describe your academic history- from elementary education to college?
Your academic successes and problems?
2. What was your achievement in maths and English?
3. Would you please describe your self-appraisal of your academic abilities and confidence and how it affected your pre-college and college performance?
4. Would you please describe the strength of your perseverance in problems in your education to reach your academic destination?
5. Would you tell me major problems you encountered during your preparation to college?
6. How did you manage to solve these problems?
7. Did you enjoy actively interacting with your teachers and peers to get help from others during your preparatory education? If so, how it contributed to your success at college?

8. Do you describe how your research knowledge you gained from preparatory education supported your learning and researching in college?
9. Do you think that your language of instruction and mother tongue language of your teachers affected your college readiness and learning? Did this affect your college success?
10. How do you describe your academic skills such as study skills and time management during your preparation to college? How these skills supported you to successfully achieve in preparatory education and college education?
11. Are you the first person in your family to go to college?
12. Would you please describe your desires to attend college from your early life and how the family and your social environment affected your desire to go to college?
13. Did you face any problem in choosing your college and field of study?
14. Have you ever taken remedial test? If yes, how many times per semester in average?

Appendix C1. Calculation for the allocation of sample size by strata for Pilot study

First Generation = $(50/551)*188 = 17$; Accounting = $(17/202)*138 = 12$; Psychology = $(17/202)*40 = 3$; Maths = $(17/202)*24 = 2$
 Second Generation = $(50/551)168 = 16$; Accounting = $(16/168)*115 = 11$; Psychology = $(16/168)*38 = 4$; Maths = $(16/168)*15 = 1$
 Third Generation = $(50/551)*181 = 17$; Accounting = $(17/181)*135 = 13$; Psychology = $(17/181)*24 = 2$; Maths = $(17/181)*22 = 2$

Appendix C2. Calculation for the allocation of sample size by strata for main Study

First Generation = $(20/551)202 = 7$; Accounting = $(7/202)138 = 5$; Psychology = $(7/202)40 = 1$; Maths = $(7/202)24 = 1$
 Second Generation = $(20/551)168 = 6$; Accounting = $(6/168)115 = 4$; Psychology = $(6/168)38 = 1$; Maths = $(6/168)15 = 1$
 Third Generation = $(20/551)181 = 7$; Accounting = $(7/181)135 = 5$; Psychology = $(7/181)24 = 1$; Maths = $(7/181)22 = 1$

Appendix Table D: Descriptive Statistics of the Document Score Data by UG, Department and Gender

UG	Dpt	Gender	UEE			GSEE			College CGPA		
			M	SD	N	M	SD	N	M	SD	N
UG1	Acc	F	432.75	64.20	36	3.00	.49	36	2.71	.53	36
		M	446.76	56.83	102	3.13	.41	102	2.95	.44	102
		Total	443.11	58.92	138	3.10	.44	138	2.89	.47	138
	Psyc	F	350.18	24.68	22	2.74	.25	22	2.73	.53	22
		M	353.28	25.06	18	2.81	.28	18	2.77	.54	18
		Total	351.58	24.58	40	2.77	.26	40	2.75	.52	40
	Math	F	387.50	10.72	16	2.88	.23	16	2.86	.50	16
		M	406.50	40.55	8	3.38	.36	8	3.25	.37	8
		Total	393.83	25.66	24	3.05	.37	24	2.99	.49	27
	Total	F	398.42	59.02	74	2.90	.40	74	2.75	.52	74
		M	431.10	61.94	128	3.10	.41	128	2.95	.46	128
		Total	419.13	62.76	202	3.03	.42	202	2.88	.49	202
UG2	Acc.	F	390.74	18.92	46	2.90	.46	46	2.78	.51	46
		M	405.84	19.76	69	2.99	.37	69	2.88	.44	69

	Total		399.80	20.72	115	2.95	.41	115	2.84	.41	115
Psyc	F		341.39	16.18	31	2.70	.41	31	2.65	.43	31
	M		346.86	15.83	7	3.13	.36	7	3.14	.64	7
	Total		342.39	16.05	38	2.78	.43	38	2.74	.50	38
Math	M		361.27	16.96	15	2.90	.23	15	2.74	.40	15
	Total		361.27	16.96	15	2.90	.23	15	2.74	.40	15
Total	F		370.87	30.15	77	2.81	.45	77	2.73	.48	77
	M		393.96	28.55	91	2.98	.35	91	2.87	.46	91
	Total		383.38	31.40	168	2.91	.41	168	2.81	.41	168
UG3	Acc.	F	401.83	20.25	41	2.90	.31	41	2.60	.39	41
		M	411.54	21.23	94	3.08	.30	94	3.00	.44	94
		Total	408.59	21.34	135	3.03	.31	135	2.88	.47	135
Psyc	F		351.38	2.50	16	2.66	.20	16	2.91	.64	16
	M		355.50	15.70	8	2.83	.23	8	2.94	.68	8
	Total		352.75	9.11	24	2.72	.23	24	2.92	.64	24
Math	F		358.53	11.00	17	2.77	.26	17	2.98	.58	17
	M		379.60	20.38	5	2.95	.07	5	2.91	.59	5
	Total		363.32	15.91	22	2.81	.24	22	2.96	.57	22

Note: UG = University Generation; Dpt = Department

Appendix Table E: Factor Dimensions for the Survey Questionnaire

Items	Rotated Component Matrix ^a			
	Component			
	1	2	3	4
Father' Educational Status	.87			
Mothers' Educational Status	.86			
Participant's Family Income Level Per-month in ETB	.66			
Participant's rating of Effect of Income on his/her Preparatory Exam Performance	.51			
Did the participant own a computer or had access to one during his/her preparatory education?		.75		
Did the participant have high internet access during his/her preparatory education?		.69		
Participant's computer proficiency level		.62		
Participant's frequency of using internet for academic purposes during his preparatory education		.52		
Higher Education Management and Service Quality Rating Score			.92	
Higher Education Teaching-Learning Quality Rating Score			.91	
Ethiopian Higher Education Entrance Exam Score				.90
Ethiopian General Education School Leaving Examination Score				.82

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.^a

a. Rotation converged in 5 iterations.

Appendix Table F1: Full Raw Score Data for University Generation 1 Graduates

UG	DP	DT	Participants													
			1	2*	3	4	5*	6*	7*	8*	9	10*	11*	12	13	14
1	1	G12	493	334	407	415	431	541	447	380	498	495	362	375	384	397
		G10	3.60	2.40	2.82	3.00	3.10	4.00	2.90	2.53	3.10	3.30	2.50	2.60	2.53	2.78
		CGP	3.00	2.23	2.57	2.63	2.28	3.81	2.31	2.62	3.49	3.43	2.14	2.29	2.45	2.35
			15	16*	17*	18*	19*	20	21	22	23	24	25	26	27	28
		G12	414	397	396	316	423	442	407	420	467	513	367	389	416	407
		G10	3.05	2.60	2.50	2.40	3.00	2.90	2.77	2.95	3.23	3.50	2.67	2.88	3.00	2.73
		CGP	2.86	2.50	2.57	3.33	2.41	3.04	3.27	2.88	2.28	3.54	2.24	2.81	2.99	2.58
			29	30	31	32	33*	34	35	36*	37*	38	39	40	41	42
		G12	418	455	430	436	439	342	497	483	479	369	406	396	454	375
		G10	2.90	3.08	2.90	3.20	3.30	2.45	3.56	3.72	3.55	2.62	2.81	2.50	3.20	2.71
		CGP	2.84	3.70	3.22	2.71	2.26	2.94	3.20	3.60	3.29	2.50	2.63	2.34	2.48	3.00
			43	44	45	46	47	48	49	50	51	52*	53	54	55	56
		G12	378	415	480	388	489	436	494	416	483	428	512	509	495	506
		G10	2.60	3.00	3.60	2.66	3.45	3.30	3.60	2.96	3.50	3.00	4.00	3.86	3.20	3.55
		CGP	2.44	2.95	2.66	2.46	2.91	2.75	3.19	2.64	3.46	2.15	3.44	3.41	3.74	3.33
			57	58	59	60*	61	62	63	64	65	66	67	68	69	70*
		G12	518	423	519	365	401	493	529	502	514	383	393	411	517	389
		G10	3.62	2.99	3.90	2.45	2.70	2.90	3.20	3.64	370	2.60	2.80	3.00	3.88	2.65
		CGP	3.34	2.48	3.36	2.61	2.47	2.96	3.60	2.60	3.42	3.07	2.47	2.78	3.37	2.39
			71*	72	73	74*	75	76*	77	78	79	80	81*	82	83	84
		G12	392	410	379	553	516	383	513	428	542	450	486	493	380	496
		G10	2.53	3.00	2.99	3.66	3.70	2.60	4.00	3.10	3.90	3.00	3.16	3.10	2.66	3.30
		CGP	2.42	2.89	2.41	3.62	3.77	2.33	2.99	3.16	3.70	3.10	2.86	3.48	3.02	3.26
			85*	86*	87	88	89	90*	91	92*	93	94	95*	96	97	98
		G12	502	454	405	480	407	365	404	365	451	3.45	376	375	3.66	406
		G10	3.88	3.12	2.95	3.40	2.88	2.44	2.79	2.59	3.40	2.61	2.53	2.68	2.70	2.99
		CGP	3.16	2.27	2.32	2.89	2.69	2.43	2.69	2.25	2.96	2.91	2.28	2.90	2.79	2.48
			99	100	101*	102	103	104	105	106	107	108	109	110	111	112
					*	*										
G12	360	495	482	403	338	527	404	494	401	493	452	388	416	529		
G10	2.64	3.04	3.28	3.09	2.41	3.76	2.92	3.00	2.88	3.30	2.84	2.60	2.97	3.66		
CGP	2.54	3.23	2.94	2.53	2.67	2.45	2.76	3.29	2.39	3.36	2.79	2.50	2.42	3.78		
	113	114	115	116	117	118	119	120	121	122	123*	124	125	126*		
	*	*						*	*							
G12	479	482	510	440	433	533	368	393	477	511	520	496	375	492		
G10	3.15	3.24	3.59	3.36	2.94	3.77	2.55	2.91	3.00	3.52	3.90	3.22	2.81	3.16		
CGP	2.50	3.30	3.25	3.02	2.40	3.09	2.51	2.27	3.45	3.46	3.76	3.61	2.22	3.09		
	127	128	129	130	131	132	133	134	135	136	137	138	139	140		
		*														
G12	369	378	500	526	522	497	522	563	395	489	514	533				
G10	2.60	2.64	3.80	3.60	3.70	3.15	3.58	4.00	2.64	3.08	3.61	3.65				
CGP	2.39	2.14	2.78	3.57	3.56	3.19	3.63	3.61	2.53	3.10	3.80	3.51				
2			1	2	3*	4*	5*	6	7	8*	9	10	11	12	13	14*
		G12	345	366	386	377	315	375	320	330	340	346	375	382	370	381
		G10	2.50	2.70	2.81	3.00	2.41	2.66	2.50	2.61	2.90	2.77	3.10	2.94	3.20	3.05
		CGP	2.79	2.75	3.72	3.26	2.39	2.86	2.08	2.27	2.31	2.25	3.03	3.66	3.56	3.13
			15	16	17*	18*	19	20*	21	22	23*	24*	25*	26*	27*	28*
		G12	389	315	361	320	342	335	342	379	360	346	357	325	377	350
		G10	3.30	2.56	2.80	2.40	2.74	2.59	2.60	3.10	2.88	2.63	2.70	2.44	3.06	2.62
		CGP	3.62	2.29	3.19	2.07	2.62	2.37	2.10	3.33	2.98	2.65	2.82	2.01	2.84	2.58

		29*	30*	31	32	33*	34	35*	36	37*	38*	39*	40*		
	G12	387	369	332	390	325	331	384	320	322	342	332	323		
	G10	3.29	3.00	2.61	3.30	2.41	2.61	3.02	2.50	2.61	2.59	2.70	2.69		
	CGP	3.55	3.44	2.48	3.34	2.63	2.52	3.34	2.29	2.01	2.36	2.15	2.38		
3		1*	2*	3*	4*	5*	6*	7*	8	9	10*	11	12	13*	14*
	G12	389	396	392	400	381	377	383	386	382	405	495	409	381	394
	G10	3.28	2.80	2.45	3.00	3.00	2.55	2.60	2.90	3.57	3.01	3.85	3.55	2.71	3.14
	CGP	2.42	3.19	3.20	3.23	3.83	2.81	2.11	3.28	2.95	2.11	3.86	3.40	2.30	2.90
		15	16*	17*	18*	19*	20	21	22	23*	24*				
	G12	360	385	387	382	398	415	389	416	390	360				
	G10	2.90	3.00	3.00	2.80	3.10	3.43	3.14	370	2.95	2.65				
	CGP	3.16	2.82	3.12	3.09	3.48	3.63	2.90	2.83	2.85	2.37				

Note: UG = University Generation; DPT = Department; G12 = Ethiopian Higher Education Entrance Exam Score; G10 = Ethiopian General Education School Leaving Certificate Exam Score; CGP = College Cumulative Grade Point Average; DT = Data; *Female

Appendix Table F2: Full Raw Score Data for University Generation 2 Graduates

UG	DPT	DT	Participants														
			1	2*	3	4	5	6	7	8*	9	10*	11	12*	13*	14	
2	1	G12	405	390	399	413	393	402	418	382	399	378	409	374	369	462	
		G10	3.20	3.14	3.20	2.96	3.42	3.00	3.00	3.00	2.82	2.43	3.00	3.43	2.50	3.80	
		CGP	3.40	2.70	3.31	3.01	3.07	3.14	3.06	2.50	2.80	2.62	3.05	3.21	3.08	3.55	
			15*	16	17*	18*	19	20*	21*	22*	23*	24*	25*	26*	27*	28	
		G12	406	445	397	375	401	379	396	380	375	386	378	423	387	409	
		G10	3.14	2.90	2.40	3.10	3.03	2.40	3.56	3.43	3.00	2.60	2.80	3.22	2.14	3.00	
	CGP	2.81	3.06	3.59	2.67	2.59	3.61	2.83	2.08	2.38	3.48	2.82	2.24	2.54	3.19		
		29	30*	31*	32	33	34	35*	36	37	38	39	40	418	42		
	G12	395	377	369	411	419	3.95	338	391	412	414	392	426	400	407		
	G10	2.60	2.50	2.80	3.30	3.57	3.00	2.57	2.95	3.20	3.57	3.30	3.14	2.43	3.28		
	CGP	2.68	2.85	3.02	3.78	2.58	2.85	2.01	3.21	2.81	3.43	2.31	2.88	2.02	2.60		
		43	44	45	46	47	48*	49	50	51	52	53	54	55*	56		
	G12	411	394	440	465	424	414	391	400	419	371	402	388	403	392		
	G10	2.81	2.60	2.71	3.00	2.75	3.00	3.50	3.50	2.71	3.40	2.80	2.72	3.43	3.40		
	CGP	2.90	2.16	2.45	2.89	2.86	2.02	2.54	2.90	3.21	2.54	2.76	2.27	3.29	2.81		
		57*	58	59	60*	61	62*	63	64	65*	66	67*	68*	69	70		
	G12	377	398	396	370	392	383	411	399	401	400	378	388	391	410		
	G10	3.57	3.00	2.85	2.48	2.70	3.00	3.00	2.70	2.71	3.57	2.50	2.14	2.50	3.74		
	CGP	3.52	3.00	2.66	2.12	3.12	2.32	3.13	3.01	2.96	2.55	3.60	3.09	2.83	3.00		
		71	72	73	74	75	76*	77*	78*	79*	80*	81	82*	83	84		
G12	395	405	391	403	402	430	376	393	396	385	433	374	383	407			
G10	3.40	3.57	2.70	2.79	2.57	3.80	2.14	3.70	2.70	2.57	3.57	3.74	2.70	2.71			
CGP	2.31	2.17	3.48	2.01	2.21	3.51	2.36	2.62	2.09	3.03	3.79	2.95	2.49	3.06			
	85*	86	87	88*	89	90	91	92	93	94*	95	96	97	98*			
G12	371	392	398	397	391	407	419	410	392	430	390	395	396	400			
G10	3.43	3.00	2.86	2.50	2.71	2.70	2.60	2.70	2.65	3.60	2.00	2.30	2.80	2.75			
CGP	3.62	2.30	2.89	2.27	2.40	2.80	2.52	2.50	3.30	3.00	2.50	3.00	3.82	2.72			
	99	100*	101	102	103*	104*	105	106	107*	108	109	110*	111	112*			
G12	393	390	416	493	396	410	384	390	404	391	420	405	395	425			
G10	3.80	2.60	3.00	3.00	3.14	3.00	2.60	2.81	2.62	2.71	3.00	2.62	2.87	3.00			
CGP	3.32	2.24	2.40	2.83	3.52	2.90	2.29	2.13	2.08	3.30	3.51	3.15	3.00	3.00			
	113*	114*	115														
	G12	430	389	411													
	G10	3.30	2.56	3.00													
	CGP	2.62	2.06	3.13													
2	2		1*	2*	3*	4	5*	6*	7*	8*	9*	10*	11*	12*	13	14*	
		G12	305	339	343	346	339	346	306	338	330	346	341	340	360	334	
		G10	2.43	2.29	2.43	3.71	2.74	2.40	2.30	2.80	2.70	3.85	2.60	2.57	2.90	3.12	
		CGP	3.01	2.41	3.11	3.72	2.21	2.11	2.50	2.65	2.64	3.71	2.90	2.70	2.50	3.00	
			15*	16	17	18*	19*	20*	21*	22*	23	24*	25*	26*	27*	28*	
		G12	334	314	358	351	335	334	346	350	358	333	343	366	378	351	
	G10	3.14	2.66	3.14	2.57	2.50	3.28	2.30	2.50	3.50	2.14	3.60	2.55	2.62	2.40		
	CGP	2.68	2.06	3.61	2.89	2.01	2.02	2.56	2.78	3.52	2.21	3.19	2.37	2.76	2.62		
		29*	30*	31*	32*	33	34*	35*	36*	37*	38						
	G12	333	340	390	343	346	334	344	334	337	346						
	G10	3.20	2.14	2.45	2.57	3.00	3.10	3.00	2.40	2.87	3.00						
	CGP	2.43	2.23	2.11	2.90	3.56	3.02	3.61	2.18	2.74	3.00						
	3			1	2	3	4	5	6	7	8	9	10	11	12	13	14
			G12	350	404	357	360	360	354	352	3.71	370	392	348	341	351	352
G10			2.51	3.00	3.00	3.00	2.99	2.85	3.10	2.90	2.68	3.00	3.14	2.66	2.43	3.20	
CGP			2.62	3.20	2.90	2.76	3.64	2.62	2.25	2.89	2.21	3.06	2.21	2.34	2.67	3.01	

	15
G12	357
G10	3.00
CGP	2.68

Note: UG = University Generation; DPT = Department; G12 = Ethiopian Higher Education Entrance Exam Score; G10 = Ethiopian General Education School Leaving Certificate Exam Score; CGP = College Cumulative Grade Point Average; DT = Data; *Female

Appendix Table F3: Full Raw Score Data for University Generation 3 Graduates

UG	DPT	DT	Participants															
			1*	2	3	4	5	6	7	8	9	10	11	12	13	14		
3	1	G12	389	422	405	418	410	409	407	435	413	404	400	408	400	465		
		G10	2.68	3.00	2.99	3.00	3.20	2.87	3.10	3.45	3.12	3.30	2.89	3.02	2.72	3.44		
		CGP	2.29	2.34	2.30	3.03	3.78	2.93	2.50	3.80	2.68	3.62	2.84	3.06	2.46	2.89		
			15	16	17	18	19*	20*	21	22	23*	24*	25	26	27	28*		
		G12	419	3.99	401	412	416	463	412	378	406	400	402	405	400	398		
		G10	3.16	2.78	2.91	3.20	2.73	3.44	3.07	2.79	3.01	2.82	2.90	3.26	3.12	2.61		
		CGP	3.66	3.27	3.21	3.84	2.26	3.21	3.57	3.08	2.52	2.08	3.01	2.51	2.97	2.21		
			29	30	31	32	33	34	35*	36	37*	38	39*	40*	41	42		
		G12	430	423	410	451	410	409	405	404	397	439	399	399	463	420		
		G10	2.89	3.36	2.96	3.07	2.72	3.02	2.88	2.61	2.51	332	2.60	2.52	3.30	2.98		
		CGP	3.55	2.60	3.15	3.53	3.51	3.26	2.49	3.56	2.21	2.75	2.82	2.99	3.30	2.75		
			43	44	45	46	47*	48*	49	50	51	52	53	54	55	56		
		G12	451	395	399	412	400	404	428	499	377	400	397	435	441	399		
		G10	3.22	2.66	2.73	3.30	3.05	2.74	2.89	3.41	2.69	2.80	2.94	3.10	3.21	2.76		
	CGP	2.75	3.29	3.81	2.98	2.65	2.99	2.90	3.70	2.53	2.98	2.36	3.29	2.68	3.11			
		57*	58*	59	60	61*	62	63	64	65	66	67*	68*	69*	70*			
	G12	401	395	415	405	401	406	398	398	404	450	450	417	402	413			
	G10	3.07	2.90	2.99	2.70	3.00	2.77	3.03	2.88	3.00	3.25	3.40	3.06	3.11	2.75			
	CGP	2.28	2.78	2.53	2.97	2.31	3.55	2.66	3.23	2.35	3.55	2.49	2.33	2.34	2.10			
		71	72	73*	74*	75	76	77	78	79	80	81	82	83	84			
	G12	404	404	398	431	400	401	395	403	360	371	398	420	436	409			
	G10	2.68	3.01	2.51	3.09	2.76	2.51	2.80	3.00	2.69	3.01	2.90	3.42	3.60	3.19			
	CGP	2.55	3.51	2.34	3.19	2.21	2.84	3.47	3.50	2.59	2.50	2.23	2.96	3.18	2.61			
		85*	86	87	88	89	90*	91*	92*	93	94*	95*	96	97	98			
	G12	399	413	422	435	409	427	394	392	421	401	399	406	425	401			
	G10	2.80	3.00	3.60	3.66	3.00	3.60	2.68	3.00	3.55	3.00	2.78	3.20	3.80	2.90			
	CGP	3.13	2.26	2.80	2.26	2.74	3.13	2.98	2.28	2.72	3.42	2.77	2.62	2.42	2.45			
		99*	100*	101	102	103	104	105	106	107	108	109*	110	111*	112			
	G12	403	432	413	370	431	449	411	410	401	421	398	440	421	408			
	G10	3.30	3.80	3.54	2.65	3.20	3.90	3.55	3.20	3.12	3.44	2.89	3.00	3.40	3.00			
	CGP	2.30	2.34	3.64	2.82	3.26	3.00	3.04	3.18	3.71	3.04	3.55	2.94	2.20	3.14			
		113	114	115	116	117	118	119	120*	121	122	123	124*	125*	126*			
	G12	399	407	409	416	402	394	400	392	355	400	398	373	360	399			
	G10	2.94	3.30	3.29	3.40	3.50	2.73	3.00	2.66	2.77	3.16	2.98	2.54	2.60	3.00			
	CGP	3.73	3.66	2.61	3.00	2.90	2.55	3.33	2.81	3.07	3.50	2.52	2.25	2.43	3.07			
		127*	128*	129*	130	131*	132*	133	134*	135								
	G12	400	366	398	454	374	360	408	403	390								
	G10	3.00	2.56	2.90	3.60	2.59	2.60	3.57	2.87	2.57								
	CGP	2.64	2.41	2.82	3.20	2.07	2.46	3.10	2.85	2.50								
	2	2		1*	2	3*	4	5*	6*	7	8	9*	10*	11*	12	13*	14*	
			G12	354	354	349	353	349	3.55	354	353	355	354	355	357	350	349	
			G10	2.45	2.90	2.55	2.60	2.84	2.65	3.12	3.23	2.41	2.66	2.99	2.61	2.55	2.40	
CGP			3.01	3.85	3.51	2.61	3.33	2.17	2.89	3.71	2.03	2.15	2.68	2.59	2.35	3.25		
			15	16	17	18*	19*	20*	21*	22*	23*	24*						
G12			330	388	355	349	351	353	349	349	350	351						
G10			2.51	3.00	2.67	2.83	3.07	2.73	2.66	2.46	2.62	2.77						
CGP			2.01	3.55	2.32	3.81	2.28	3.56	3.15	2.18	3.29	3.85						
3			3		1*	2*	3*	4*	5*	6	7	8*	9*	10*	11*	12*	13*	14*
				G12	360	361	361	362	370	380	371	360	362	360	369	361	361	361
				G10	2.69	2.80	2.56	2.71	3.40	2.94	3.00	2.60	2.81	2.78	3.00	2.65	3.09	2.55
				CGP	3.16	2.95	2.85	3.04	3.83	2.89	2.66	2.12	3.66	2.90	3.85	2.81	3.12	2.11
					15*	16*	17*	18*	19	20	21	22*						
				G12	333	361	360	328	414	361	372	365						
G10	2.42	3.00	2.99	2.44	2.85	3.02	2.94	2.68										
CGP	2.33	3.52	2.09	3.51	2.07	3.52	3.41	2.78										

Note: UG = University Generation; DPT = Department; G12 = Ethiopian Higher Education Entrance Exam Score; G10 = Ethiopian General Education School Leaving Certificate Exam Score; CGP = College Cumulative Grade Point Average; DT = Data; *Female

Appendix Table G: The Cluster of Factors Related to College Readiness and Success

Synthesis 2	Synthesis 1	Codes
Culture	Culture	Alcohol and chat /Not supported study habit I used any possible means to join college Being free from internal and external distractors used as a method Cooperation with peers and teachers helped me Cramming /poor study habit reported Decision making ability critical thinking problems Family relationship affected my preparation Gender-based violence at school affected Good time management/ good study habit helped Hard working determined readiness Internal distractors affected my study Job opportunity and employability affected readiness Language difference in group affected Managed study time by mood/ bad study habit Poor reading skill Poor study time management Procrastinated/ wasted time Psycho-social skills enhanced my college readiness Relatives affected college readiness Selective attention enhanced my study Self-confidence and psychological strength Siting style affected effectiveness of study Students' behavior affected cooperation Teachers' behavior affects cooperation Underutilizing cooperative learning principle reported as factor affecting readiness Used external distractors/ poor study habit Used good study place/ Good study habit Used study techniques/ good study habit

		Used time effectively
		Value attached to education mattered
		Work-learn-college-ready worked best for some
	Early school academic preparation	Early school preparation helped
	Religion	God caused my success
Demand	Family effected	Being helped by previously graduated brother
Characteristics		Being the first in family to go to college affected
		Family income level affected college readiness
		Family influence in major choice
		Family inspired for college readiness
	Gender-based violence	Gender-based violence at school
	School climate	School climate affected
	Teacher-student and student-student cooperation	Cooperation affected by readiness to learn
		Cooperation with peers and teachers helped
		Language difference in group affected
		Low English proficiency due to teachers
		Students' behavior affected cooperation
		Teachers' behaviors affected cooperation
		Teachers' personality affected cooperation
		Teachers' readiness to help students affected
		Underutilizing cooperative learning principles reported
Force	Academics self-efficacy and confidence reports	Described himself a mediocre/average learner
Characteristics		He/she used any possible means that helped them to reach college
		Being free from internal and external distractors
		Blamed resources
		Blamed the conditions of life and learning
		Confidence strengthened
		Explored and found his/her own major of interest

		Favored math or English than both of them / interest in a course affected
		High academic self-efficacy reported
		Individual psychological readiness mattered
		Low academic self-efficacy reported
		Maths anxiety reported
		Psycho-social skills enhanced college readiness
		Self-confidence and psychological strength
	College Aspirations	Achievement affected by interest in a course
		Any possible means used to reach college
		Interest and achievement related
		Strongly persevered to join college
		Used time effectively
		Work-learn-college-ready helped readiness
Natural factors	Natural factors affecting college readiness	Weather condition and natural disaster affected
Resource characteristics	Academic preparation	Achievement level determined college major choice
		College readiness affected by goals and visions
		Decision making ability critical thinking affected
		Early school preparation supported
		Language of instruction difficulty in high school
		Poor reading skill
	College knowledge	Individual psychological readiness mattered
		Job opportunity and employability affected
		Value attached to education mattered
	Reported study habits	Being free from internal and external distractors
		Good time management/ good study habit
		Used good study place/ Good study habit
		Used study techniques/ good study habit
		Alcohol and chat /Not supported study habit
		Cramming /poor study habit
		Internal distractors affected
		Managed study time by mood/ bad study habit

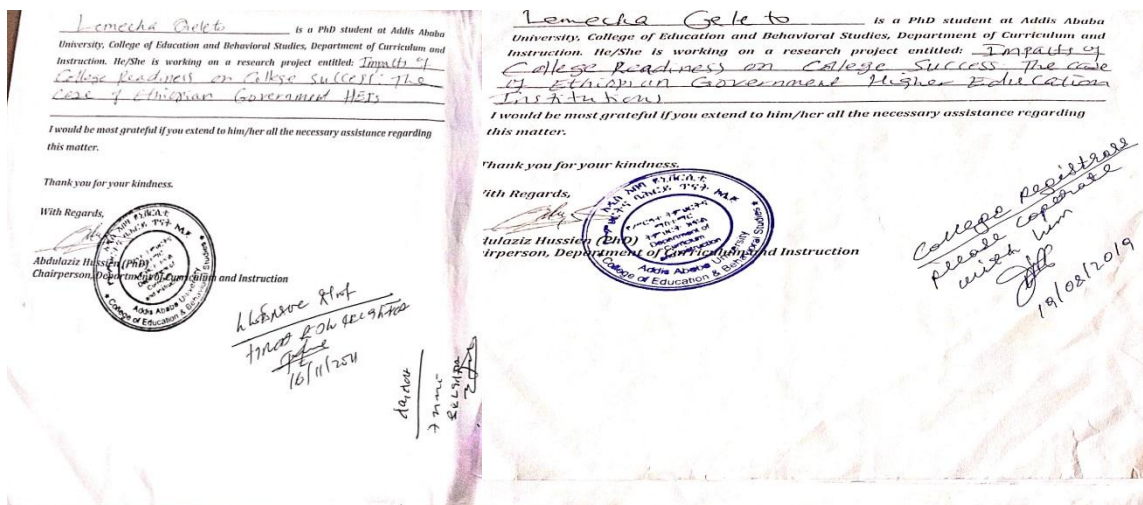
Socio-political forces

School factors affected college readiness

Socio-Political factors affecting readiness

- Maths anxiety
- Poor reading skill
- Poor study time management
- Procrastinated/ wasted time
- Siting style affected effectiveness of study
- Use external distractors/ poor study habit
- Class size affected
- Distance from school affected
- Gender-based violence at school
- Research course missed create gaps
- School climate affected
- School facilities affected
- Schools and teachers quality mattered
- Economical and living conditions affected
- Health problems affected
- NGOs contributed in making us ready for college
- Socio-political climate affected college readiness
- Teachers' readiness to help students affected

Appendix H1: Official Formal Letter from Researcher's University Office Signed by a University Academic Vice President and Head of a Registrar



Appendix H2: Some of the Documents Sent by email

Sex	CGPA	EHIEE(G-12) Result
Female	2.49	
Female	2.34	
Female	2.3	422
Female	2.86	405
Female	3.78	410
Female	2.93	409
Female	2.5	407
Female	3.8	433
Female	2.68	433
Female	3.37	434
Female	2.84	436
Female	3.06	438
Female	2.46	400
Female	2.69	441
Female	3.22	439
Female	3.27	444
Female	3.21	401
Female	3.69	422
Female	3.25	418
Female	3.21	411
Female	3.57	411
Female	3.08	444

No	Admission Number	Program
1		BER 469 09
2	526049	BER 002 09
3	691360	BER 004 09
4	616885	BER 010 09
5	654016	BER 011 09
6	723925	BER 023 09
7	708757	BER 025 09
8	648699	BER 031 09
9	526076	BER 036 09
10	578807	BER 038 09
11	578843	BER 040 09
12	724478	BER 042 09
13	695198	BER 043 09
14	691325	BER 050 09
15	697406	BER 053 09
16	648732	BER 054 09
17	695207	BER 062 09
18	616887	BER 065 09
19	616888	BER 067 09
20	616889	BER 069 09
21	616890	BER 070 09
22	616891	BER 088 09

Appendix H3: Some of the Printed Documents

Major: 127				Overall: 184	
Sex	Major	Minor	Overall	Major	Minor
F	127	-	184	3.35	-
F	127	-	184	3.25	-
F	127	-	184	3.20	-
F	127	-	184	3.25	-
F	127	-	184	3.43	-
F	127	-	184	2.62	-
M	127	-	184	2.18	-
M	127	-	184	3.42	-
F	127	-	184	2.29	-
M	127	-	184	2.32	-
M	127	-	184	3.81	-
F	127	-	184	3.37	-
F	127	-	184	2.73	-
M	127	-	184	2.81	-
F	127	-	184	3.31	-
F	127	-	184	3.22	-
F	127	-	184	3.22	-
F	127	-	184	3.24	-
F	127	-	184	3.09	-
M	127	-	184	3.51	-
M	127	-	184	3.77	-
M	127	-	184	2.78	-
F	127	-	184	2.75	-
F	127	-	184	2.35	-
F	127	-	184	2.76	-
F	127	-	184	2.34	-

Major: 134				Overall: 181	
Sex	Major	Minor	Overall	Major	Minor
M	134	-	181	2.79	-

Sex	Overall	Remark
F	2.42	
F	3.19	
F	3.20	
F	3.23	
F	3.35	Distinction
F	2.63	
F	2.11	
F	3.28	Distinction
F	2.26	
F	2.43	
F	3.73	Great Distinction
F	3.40	Distinction
F	2.65	
F	2.69	
F	3.16	
F	3.24	
F	3.12	
F	3.09	
M	3.48	Distinction
M	3.63	
M	2.78	
F	2.43	
F	2.76	
F	2.37	

Sex	Overall
F	2.42
M	2.90
M	2.78
M	3.36
M	2.39
M	3.25
M	2.76
F	2.45
F	2.87
M	2.53
M	2.55
F	2.94
M	3.23
M	2.54
M	2.48
M	2.75
M	2.90
F	2.28
M	2.91
M	2.96
F	2.25
M	2.69
F	2.43
M	2.67
F	2.89
M	2.32
F	2.27
M	3.25
M	3.02
M	3.46
F	2.88
F	3.16
M	3.10
M	3.70
M	3.16
F	2.99
F	2.33
M	3.77

Appendix H4. Some of Handwritten Data Collections

Data Collection format

Student No.	Sex	University	Department	UEE Score	EGESECE Score	University Cumulative GPA (CGPA)	Comment
1	M	1	1	473	3.60	3.00	
2	M	1	1	332	2.40	2.23	
3	M	1	1	402	2.82	2.57	
4	M	1	1	411	3.00	2.63	
5	F	1	1	431	3.20	2.28	
6	F	1	1	541	4.20	3.81	
7	F	1	1	441	2.90	2.31	
8	F	1	1	380	2.53	2.60	
9	M	1	1	478	3.10	3.49	
10	F	1	1	491	3.30	3.43	
11	F	1	1	302	2.50	2.14	
12	M	1	1	375	2.60	2.29	
13	M	1	1	324	2.53	2.45	
14	M	1	1	397	2.78	2.35	
15	M	1	1	414	3.05	2.56	
16	F	1	1	347	2.60	2.50	
17	F	1	1	396	2.50	2.57	
18	F	1	1	316	2.40	3.33	
19	F	1	1	423	3.00	2.41	
20	M	1	1	442	2.90	3.04	
21	M	1	1	402	2.77	3.27	
22	M	1	1	420	2.95	2.88	
23	M	1	1	467	3.23	2.28	
24	M	1	1	513	3.50	3.54	
25	M	1	1	367	2.67	2.24	
26	M	1	1	389	2.88	2.81	
27	M	1	1	416	3.00	2.99	
28	M	1	1	402	2.73	2.58	
29	M	1	1	410	2.90	2.84	
30	M	1	1	455	3.08	3.70	
31	M	1	1	430	2.90	3.20	
32	M	1	1	436	3.20	2.71	
33	F	1	1	439	3.30	2.26	
34	M	1	1	342	2.45	2.94	
35	M	1	1	497	3.56	3.20	
36	F	1	1	483	3.72	3.60	
37	F	1	1	479	3.55	3.29	
38	M	1	1	369	2.60	2.50	
39	M	1	1	406	2.81	2.63	

Appendix Table II: Linearity Assumption Checking

		B	S.E.	df	Sig.
Step 1 ^a	UEE	-.21	.23	1	.36
	GSEE	12.23	8.28	1	.14
	SES	-.03	.33	1	.93
	GTUAP	.16	.64	1	.81
	UEE by Log Transformation for UEE	.03	.03	1	.34
	GSEE by Log Transformation for GSEE	-5.26	3.94	1	.18
	SES by Log Transformation for SES	-.02	.10	1	.87
	LnGTUAP by GTUAP	.02	.25	1	.93
	Constant	-10.37	14.20	1	.47

a. Variable(s) entered on step 1: UEE, GSEE, SES, GTUAP, UEE * Log Transformation for UEE , GSEE * Log Transformation for GSEE , SES * Log Transformation for SES , LnGTUAP * GTUAP .

Appendix Table I2: Multicollinearity Assumption Checking

Model		Unstandardized		Collinearity	
		Coefficients		Statistics	
		B	S.E	Tolerance	VIF
1	(Constant)	-1.66	.24		
	UEE Score	.00	.00	.41	2.43
	GSEE GPA	.20	.07	.52	1.91
	SES	-.02	.06	.66	1.51
	GTUAP	.04	.01	.64	1.57
	UG	.06	.02	.91	1.09
	Dpt	.14	.03	.71	1.40

Table H: Qualitative Raw Data and its coding

Category	Code	Description	Count	% Codes	Cases	% Cases
Ability in Maths and English	A mother tongue speaker must teach English to learn it well	G10: A mother tongue speaker of English should have taught me to learn English well.	1	0.2%	1	5.0%
Ability in Maths and English	Achievement depended on my commitment to read	G18: My success in a subject depended on my commitment to read and work. For this reason, when I worked hard I achieved high, when I did not read I achieved low. G19: It was not the matter of being more intelligent or less; it was the matter of your effort to learn and read.	1	0.2%	1	5.0%
Ability in Maths and English	Both Maths and English were difficult to understand	G2: Both English language and maths are difficult for me. G8: I am not successful in maths. I am not also good in English. G9: Both Maths and English were difficult for me. Maths was my favorite but it was difficult for me. G12: I was not high achiever in math and English. Some subjects were my favorites.	6	1.0%	4	20.0%
Ability in Maths and English	Both Maths and English were my favorites	G14: Both maths and English were my favorite subjects. G13: Both subjects are my favorites.	2	0.3%	2	10.0%
Ability in Maths and English	I started learning maths and English from KG	G13: I started learning maths and English from KG. Both subjects are my favorites. All subjects require your attention but maths needs longest time and effort to be successful in it. I am high achiever in both of them.	1	0.2%	1	5.0%
Ability in Maths	I was Less interested	G6: I am less interested in English even though both courses are equally	1	0.2%	1	5.0%

and English	in English	important. I spent longer time in math than English.				
Ability in Maths and English	I was a medium achiever in both maths and English	G10: I am medium achiever in both maths and English. G11: My favorite subject was English not maths. I am medium achiever in both of them however.	4	0.7%	4	20.0%
Ability in Maths and English	I was a medium achiever in maths	G3: I am a medium achiever in maths. G6: Maths is my favorite subject. However, I am a medium achiever in it. G14: However, I was medium achiever in both of them. G17: Both English and maths were my favorite subjects. However, I am a medium achiever in both of them. G20: I was a medium achiever in maths. My achievement in English was also medium but it was better than Maths. Some contents of maths were also very difficult to me to understand.	5	0.8%	5	25.0%
Ability in Maths and English	I was high achiever in English	G1: I perform better in English than maths but I have also some problems because of lack of books and time to develop my language skills. G4: I adore English language. English language is more interesting than maths for me. It is the language of the world and language of instruction. I am a high achiever in English I earned A in grade 10. G13: I am high achiever in both of them.	6	1.0%	3	15.0%
Ability in Maths and English	I was high achiever in maths	G13: I am high achiever in both of them.	1	0.2%	1	5.0%
Ability in Maths and English	I was low achiever in maths	G1: I was not good in maths. The reason is it is difficult to understand. G4: I hate maths. The reason is that it betrays me on the exam day. G7: I was less interested in maths.	3	0.5%	3	15.0%
Ability in Maths and English	I was medium achiever in English	G5: I am very interested in English language than maths. I am a medium achiever in English. G5: I am a medium achiever in English. G14: However, I was medium achiever in both of them. G17: Both English and maths were my favorite subjects. However, I am a medium achiever in both of them. G20: I was a medium achiever in maths. My achievement in English was also medium but it was better than Maths. Some contents of maths were also very difficult to me to understand.	4	0.7%	4	20.0%
Ability in Maths	I was very interested	G2: However, I am interested English language than Maths. G3: I am very	4	0.7%	4	20.0%

and English	in English	interested in it I earned my B in grade 10. G5: I am interested in English language than maths. G7: I was interested in English.				
Ability in Maths and English	Maths needs longer time expenditure	G13: All subjects require your attention but maths needs longest time and effort to be successful in it. G16: Maths killed my time. I spent long time studying it but I scored C in it.	1	0.2%	1	5.0%
Ability in Maths and English	Maths was so difficult and time consuming to learn	G1: The reason was maths was difficult to understand. G4: You need longer time to calculate and be effective in it. G5: Maths is a difficult subject. My lowest high school score is maths. G10: The maths was so difficult and time-consuming to learn. G11: Maths was a difficult subject to understand. G15: I was not good in maths. I takes long time understand.	7	1.2%	6	30.0%
Academic and study skills	Gave longer time for maths and English	G3: I gave longer time to maths and English. G5: However, I gave much time to maths and English.	3	0.5%	3	15.0%
Academic and study skills	I managed my time properly	G7: Studied from first class to the end. G8: Start reading from start of the class to the end of the class. G10: Used study time schedule. I read from start of the class until final exam. G12: I used note taking and abbreviations. I used study schedule giving longer time to subjects like maths and English. I study from the start to the final exam. G13: I used study schedules in effectively. I focused my attention to my study from the start of classes to the end of classes. G15: I used note-taking and abbreviation. G18: I did not use schedules. I started reading from beginning of the class to the end. G19: I used study schedules properly. I always read from the beginning to the end. G20: I used study schedules. I did not procrastinate.	12	2.0%	8	40.0%
Academic and study skills	I procrastinated	G4: However, I procrastinate sometimes around holidays. I lost a mood to read at those times.	2	0.3%	1	5.0%
Academic and study skills	I was affected by internal distractors	G9: I free my mind from internal and external distractors. G17: I invited bad memories into my mind sometimes. For this reason, my attention was diverted sometimes.	2	0.3%	2	10.0%
Academic and study skills	Reported cramming	G4: I study hard when the final exam approaches. G5: I started studying from the beginning of the class but I stayed	7	1.2%	7	35.0%

longer time on studying when exam approaches. G6: Most of the time, I study started to study when the exam approaches. G9: I read when exams approached. G11: I depended on the convenience of the time for study and the exam time. I study long time around the exam period. G15: However, mostly I do not read starting from early beginning of the class. G16: I started to study half-way between exam time and class beginning.

Academic and study skills	Reported reading skill	poor	G2: I do not know what is skimming and scanning. G3: I used silent places to study anytime specially library. I liked taking my suitable chair during my study. I did not like listening to a radio or music during my study. G7: No skimming and scanning; G9: I do not know skimming and scanning. G11: No skimming and scanning.	6	1.0%	6	30.0%
Academic and study skills	Reported poor study time management		G1: I managed my time but I did not use study schedule. G2: I did not follow schedules when study. I randomly use my time prioritizing what should be first. G4: I did not use study schedule. G5: I do not use any schedule. G6: I depend on the situation (on the mood) not on the time. I do not use study schedule; I gave the priority to courses depending on the criteria. G7: Did not use study schedule. G8: I do not use study schedule. G9: No, I did not use study schedules. G16: I started to study half-way between exam time and class beginning.	10	1.7%	9	45.0%
Academic and study skills	Studied chewing chat		G14: I study chewing chat.	1	0.2%	1	5.0%
Academic and study skills	Used good study methods		G1: I mostly used note-taking and abbreviations. I took notes from books. G2: I took notes from books, read and reread for exams. G3: I used note-taking and abbreviations during my study. G4: Most of the time, I take notes in my exercise when I study. I use abbreviations. G5: Most of the time, I take notes from books and other resources. I use abbreviations. G6: I often used note-taking from books. I use abbreviations. G7: Used note-taking and abbreviations. G8: I use note-taking and used abbreviation. G10: I used note-taking and abbreviations. I skim and scan in reading. G12: I used note-taking and abbreviations. G13: I often used note-taking and abbreviations. I skim and scan in reading process. G14: I took notes and	34	5.7%	18	90.0%

		abbreviations. G15: I used note-taking and abbreviation. G17: I used note-taking and abbreviations. G18: I took notes. G19: I used note-taking. G20: I used note-taking and abbreviations. I skimmed and scanned.				
Academic and study skills	Used good study place with noises	G2: From elementary school through high school, I had my own reading room in our compound. I liked to study playing music. For this reason, I made my radio or GPAZ on when I study. But this is not always. G8: Studies at silent places free from noises. G15: I used silent places for study. I usually had my sit and table. G16: I usually studied at silent places. But I could not stay for long time in a silent place a lone and for this reason, I called on a friend to study with me. G18: I had my own reading room from elementary to high school. I liked reading at silent room with my friends. Yes, sometimes we talk and disturb. I could not read alone. We chew chat when we read and drink lying in bed.	5	0.8%	4	20.0%
Academic and study skills	Used good study places such as library	G1: Most of the time, I studied at silent places. G2: From elementary school through high school, I had my own reading room in our compound. G4: Most of the time, I liked reading in silent places. Library was my best study place. I adore listening to radio and music. I leave music playing when I study at home in high school. G5: I often use places such as libraries which were silent and suitable to study. I liked to take a chair during my study than lying in bed. I did not like playing music or listening radio when I study. G6: Most of the time, I studied at library and space. I did not like listening to radio or playing music when I study. I did not read lying in bed. I liked taking a chair when I read. G7: Studied at silent places. Did not use music. G10: I always liked to study at silent places such as libraries. I did not like lying in bed when I read. No, I did not like playing music or listening to radio during my study. G11: I liked silent places for my study. I did not play music or radio during my study. No, I did not like lying in bed when I study. G12: I liked library for study. I did not use any noises in my study place. G13: I used silent places for my study. I neither played music nor listened to radio when I study. I took my chair and table when I	26	4.3%	14	70.0%

			study. G17: Library was my best study place. G20: I studied at silent places. I did not like lying or sitting on bed when I study.				
Academic and study skills	Used good study places with sitting problems		G1: I did not like playing music and radio at my study place. G9: When I study, I choose silent places free out of any distractors. I free my mind from internal and external distractors. I lied in bed only to sleep. G19: I usually studied at silent places. I lay in bed when I read at home. I did not use radio or music.	4	0.7%	2	10.0%
Academic and study skills	Used inappropriate study places		G1: I played music when I study at home or in dormitory. I lay in bed when study at home or dormitory. G4: I like to read lying in bed at home. G7: Studied lying in bed. G8: I like sitting in bed when I study. G11: I usually lie in bed and read when I am at home. G14: I liked studying in my bedroom lying in bed. I did not like sitting in a library. I couldn't stay even an hour. G15: I usually had my sit and table but I also read in bed sometimes. G16: I lay in bed when I read at home.	10	1.7%	9	45.0%
College Success level	Distinction		G1: The participant's college performance is a distinction. G14: 3.49	2	0.3%	2	10.0%
College Success level	Greater than or equal to 2.75		G1: The participant made a medium preparation as his average CGPA is 3.10; G3: My CGPA was good enough to be competent. I scored above 3.31; G4: The participant has earned 3.01 in his college performance. G6: My CGA was 3.14; G18: 2.86	5	0.8%	5	25.0%
College Success level	The graduate earned below 2.75		G2: The participant registered 2.70 CGPA and it is pass grade. G7: Scored 2.50; G8: Score 2.62; G9: The college CGPA was 2.23; G10: 2.57; G11: Scored CGPA of 2.63; G12: Scored 2.28; G15: 2.29; G16: 2.45; G19: 2.29; G20: 2.34	11	1.8%	11	55.0%
College Success level	Very Distinction	Great	G13: 3.81	1	0.2%	1	5.0%
Confidence about his ability	Attributed externally	failure	G18: I am naturally high performer, but I could not achieve as I planned because of different problems in life.	1	0.2%	1	5.0%
Confidence about his ability	I was high achiever in some subjects		G9: I am high achiever in some subjects such Amharic. I was not good in other subjects. As English language is a foreign language, we needed to work hard to use it. G14: I was achieving high in some subjects and not in others. For this reason, I would like to say that it	2	0.3%	2	10.0%

depends. G20: I was good in some subjects but in not in all subjects. Some courses were easy to me to understand and some were difficult.

Confidence about his ability	Reported as he was highly confident	G1: I was dreaming to join university from my elementary education and I exerted all my efforts to achieve it. I was confident in myself to join university. G3: I am self-confident in my education. I hate cheating. This confidence helped me to well prepare myself to go to college. I enjoy reading all the time. Anyway I enjoy earning my true scores in school. G4: My confidence in learning helped me to stay at school from elementary level to college. G5: I believe that all my successes are resulted of my efforts and confidence in my ability. I went through many ups and downs to reach college. G6: I felt very confident in my ability to join college and earn good grades. G10: I was confident in myself academically. I never cheated. G13: My confidence in joining college increased as I continued to achieve well from my early school life.	7	1.2%	6	30.0%
Confidence about his ability	reported nothing	G2: The participant was not willing to report about his/her confident in at school. G7: I am afraid of reporting about my confidence. G8: I cannot report about my ability. G11: I can't judge my ability for that. G15: I can't report about my ability. G16: I cannot respond to this question. G17: I cannot respond to this. G19: I cannot report about my ability or motivation. You cannot go to school without motivation.	8	1.3%	8	40.0%
Cooperation with students and teachers to gain support	Cooperation did not help me	G16: I was working with classmates on group works and I do not think that was helped me for my preparation for college. Because the high achieving group leader did the assignments. We submitted the assignments without understanding what was done. Teachers had hardly any time to answer our question. They were so busy with large classes.	4	0.7%	1	5.0%
Cooperation with students and teachers to gain support	Cooperation significantly helped me in preparation for college	G1: I highly cooperated with all. This was another factor that prospered me throughout my school. I never hesitated to ask my teacher any question. I cooperated effectively with my classmates. G8: Cooperation helped me. G9: I adored working in a team. I ask questions freely in the class or outside the class. Working in groups helped me a lot	10	1.7%	6	30.0%

in my preparation to college. G13: I believed that many minds work best. Something that was difficult for one was easy for the other and we could help each other. G15: I cooperatively worked with my friends at school in my preparation to college entrance examination. I asked questions in the class. Cooperation helped me in my preparation to college. G18: I benefitted from learning and reading with my friends.

Cooperation with students and teachers to gain support	Cooperation was effective for me when I worked with equally ready to learn students	G13: However, this was realized when a friend of mine was ready. Some of my friends attended the school because their parents/families sent them to school. It was not successful to group together somebody who was ready and not ready. Education is psychological.	2	0.3%	1	5.0%
Cooperation with students and teachers to gain support	Elementary school teachers were cooperative than high school teachers	G10: Our teachers were friendly at Elementary school. At high school, the most teachers were not cooperative and they had hardly any time to answer a question. For this reason, I was not motivated to ask them a question.	3	0.5%	1	5.0%
Cooperation with students and teachers to gain support	I am not sure how cooperation helped me in preparation for college.	G12: I am very cooperated with students. But I am not sure how it helped me for my preparation. Some teachers were cooperative and others not. For this reason, I was interested in asking teachers who were open to be asked.	1	0.2%	1	5.0%
Cooperation with students and teachers to gain support	I enjoyed studying with students. I was reluctant to ask a teacher something unclear. Some teachers harass females	G2: Cooperation with my friends at school helped me a lot to reach college. However, cooperation with teachers is not good for me; because some teachers harass female students for their needs. G5: I liked studying with my friends. I was reluctant to ask a teacher anything unclear to me. G7: I enjoyed working with students. High school teachers liked to attack female students. G17: Cooperative learning helped me a lot. My friends helped me in my preparation to college. I was not interested in asking a teacher any question. G8: I enjoyed group works. I am afraid of asking my teacher any question. G10: I cooperated effectively during group works only. G19: I cooperated in group assignments effectively. I usually did not like asking my teachers anything. G11: Teachers were not friendly most of the time in high school. They considered you are trying to belittle them when you try to ask them a question.	10	1.7%	7	35.0%

Cooperation with students and teachers to gain support	I liked neither cooperating with students nor with teachers.	G3: I liked doing my assignments myself. I am an individualistic learner. I am afraid of asking my teacher a question. I did not value working in groups. G4: Most of the time, I was effective when I did things alone. I did group assignments with a team but I was not interested in being depended on others academically. I did not like asking a teacher any question. I read books to find the answer instead. G6:	5	0.8%	3	15.0%
Cooperation with students and teachers to gain support	Language affected my cooperation with others	I cooperated with some students effectively but not with some of them. G20: I was a lonely person. I participated in group works given by teachers but I was less interested in working with others. This is because the group members could not speak my language. For this reason, I could not communicate with them properly.	2	0.3%	2	10.0%
Frequency of remediation at college	Received high average remediation	G1: In average I took 6 remedial exams during first and second years at college. G7: I received 6 average times of remediation approximately. G8: 7 average number of remediation at college. G9: Average 10 times remediation. G10: 7 average remediation. G11: I took average remediation of three times. G12: 6 average remediation. G15: I received 6 times remediation. G17: Received 6 times remediation. G19: I received 8 times remediation. G20: I took 6 times remediation.	12	2.0%	12	60.0%
Frequency of remediation at college	Received low average remediation	G1: I received no remediation. G3: I did not take any remediation in college. G4: I did not take any remediation at college. G13: No remediation I received in college.	4	0.7%	4	20.0%
Frequency of remediation at college	Received medium average remediation	G5: I received remediation two times. G6: I received one remediation. G14: I received remediation two times. G18: I took remediation two times.	4	0.7%	4	20.0%
Gender	Female	G2: Female; G7: Female; G8: Female; G9: Female	10	1.7%	10	50.0%
Gender	Male	G1: Male; G3: male; G4: Male; G5: Male; G6: Male; G10: Male; G11: Male; G15: Male; G18: Male; G20: Male	10	1.7%	10	50.0%
Language of	I did not learn	G1: However, the problem of language	12	2.0%	10	50.0%

instruction	English language well from lower grades. This affected my success at college	became serious to me in high school where I had to learn in English language. G2: However, I faced language problem when I started learning all subjects in English. G3: English language problem was also challenging me in high school. G4: Language problem occurred from high school where I had to learn the subjects in English. This was not a serious problem however. It is very important to learn English language very well from the early years in school. G5: Language problem is not only my problem; most of my friends find it difficult to use English language. G6: However, I believe that I did not acquire adequate knowledge in English. Because, most of the time, I had to consult my dictionary to understand what I learn in English. Sometimes, I did not understand what a teacher said in the class. G7: The problem lies in learning with English. G8: I faced problems in learning in English. G9: Language is a key for education. Learning in my mother tongue language benefitted me a lot. However, unless we learn it properly and timely, we cannot be benefitted from it. That means, we waste time without understanding well what we learn. We have to learn it in-depth from early years. I believe that I did not get adequate English language knowledge and I did not use it to the standard. G11: I needed high knowledge of English language to effectively prepare for university in high school. G19: But I was not good in English language and this was my problem.				
Language of instruction	I was disadvantaged in learning in second language	Learning in mother tongue was good but I learned in second language. I was disadvantaged. My grade was highly affected. I rarely hear what the teachers teach in the class. Learning in all subjects would have been better for me from grade 1. G20: It was difficult for me to learn with those students who learn in their own language. I had to study for long time to understand while it was easy as ABC for them.	2	0.3%	2	10.0%
Language of instruction	It was good to learn in mother tongue in elementary school	G4: Using my mother tongue to attend elementary education was very helpful for me. G5: Unfortunately, my language of instruction was my second language in Elementary school and foreign language (English) in high school. Some teachers	9	1.5%	9	45.0%

can't speak our language. For this reason, I am afraid of asking any question. G6: Learning in my mother tongue in elementary education highly helped me. It built my base. G8: My first language helped me in elementary education. G11: It was helpful to learn in my mother tongue until grade 8. G15: Learning in my language was helpful but I wanted to get advanced skill in English language. But this was difficult in our country. G16: The encountered no language problem in learning in elementary school. Learning and understanding thoroughly what I learned was challenging for me i English at high school. G18: I did not attend all my education in my mother tongue language. I wish I did. I was good in English but I have improvements to make. I would like to learn it again in future.

Language of instruction	Language marginalized me	has	G14: Language has marginalized me. I was forced to learn in a second language in elementary school with students who learn in their own language. I should have learned in English from grade 1 to 12. G20: It was difficult for me to learn with those students who learn in their own language. I had to study for long time to understand while it was easy as ABC for them.	4	0.7%	2	10.0%
Language of instruction	Learning from KG me well.	English prepared	G13: The key for success at school is the language of instruction. My parents gave attention to my English language skills from KG.	1	0.2%	1	5.0%
Language of instruction	Serious problem	language	G12: Language problem was a problem for me. G17: However, English language was difficult for me.	2	0.3%	2	10.0%
Language of instruction	Used language in Elementary	second in	G3: I speak both Amharic and Guragigna. I used second language in elementary school. G5: Unfortunately, my language of instruction was second language. Some teachers can't speak our language. For this reason, I am afraid of asking any question. G7: My language of instruction was not my mother tongue but I did not face problem in understand it. I did not affect my study. G20: I attended elementary school in my second language. It was difficult for me to learn with those students who learn in their own language	6	1.0%	4	20.0%
Major Problems	Decreased value of a		G13: The diminished value of a degree and a degraded status of degree holder	5	0.8%	3	15.0%

in his school	degree		negatively affect your preparation to college. G20: The situation of my previously graduated brothers was also discouraged me. My brothers were searching for a job for 2 years.				
Major Problems in his school	Drinking chat	chewing	G18: I liked drinking alcohol and chewing chat. This habit exposed me to wastage of money and time. I cannot study unless I chew and drink.	2	0.3%	1	5.0%
Major Problems in his school	Economical		G1. Economical factor is the main problem. G3: The economic factors highly affected my study. I dropped from school three times in my school life due to shortage of money. G4: My first problem was economical. I am from poor family who live in a town. Most of the time I worked after school time to help myself.G5: The main problem affecting my study was lack of support financially. My families make their livelihood through farming. There is shortage of farmland in our area. The harvest cannot feed all family year to year. G6: My family is poor. For this reason, I worked hard to support myself at school. I did it. G8: I had financial problems. G11: Poverty was the main problem. I had to leave school and work to earn some money to get back to school. G12: Financially affected because my family were not helping me except my mother. G14: The problems were financial problems. G15: Financial problems were the main problems. G17: Economical problems were major problems. Distance from the school. School facilities such as books, teachers, etc. G20: Economical problems were main problems for me.	13	2.2%	11	55.0%
Major Problems in his school	Environmental		G3: Drought was a common problem in our area. This caused shortage of food and I left my school some times. G6: I faced shortage of food when drought occurred. For this reason, I left school sometimes. G10: We were always under fear of flooding in our town even in school. This highly affected my learning.	3	0.5%	3	15.0%
Major Problems in his school	Health		G3: Sometimes, malaria was affecting my health. G4: Health problem also affected my learning sometimes.G20: I Sometimes, I faced health problems such as malaria. I dropped out of school for one year because of health.	3	0.5%	3	15.0%
Major Problems	Jobless Graduates		G1: Joblessness of my brother after graduation did not create good feeling in	4	0.7%	4	20.0%

in his school		me. G11: joblessness of graduates are discouraging factors. G13: The diminished value of a degree and a degraded status of degree holder negatively affect your preparation to college. G20: The situation of my previously graduated brothers was also discouraged me. My brothers were searching for a job for 2 years.				
Major Problems in his school	Psychological	G10: I am from a single parent family and this was psychologically disturbing for me. This highly affected both in elementary education and high school. I did not have financial problem. G12: However, I was psychologically and financially affected because my family was not helping me except my mother.	2	0.3%	2	10.0%
Major Problems in his school	School climate	G2: school climate and the behavior of teachers and students highly affected my study; harassment and gender-based violence at school discourage female students like me. Psychologically, these problems I told you can affect you. G9: The school climate was bad for me. Teachers bias depending ethnicity. Harassment was a temptation.	3	0.5%	2	10.0%
Major Problems in his school	School factors	G1: There was shortage of books in library. The classes were overcrowded. Teachers did have hardly any time to help all students. G2: Harassment and gender based violence at school discourage female students like me. G3: There was shortage of books in the library. There was shortage of English language teachers in our school most of the time. G4: Shortage of enough materials to read also affected my achievement. The books in the library did not match the number of students who need the books. Class size was also a big problem in our area. It created difficult situation to follow the teacher in the class. G5: Schools have some problems such as shortage of books to read, teachers and other facilities. G6: The facilities in the schools such as books and computers must have been adequately provided. There was a shortage, however. G7: Large class size affected. Shortage of books in library. G8: Distance from school was another problem. Shortage of teachers and books. G11: School facilities were not satisfying. The teaching and learning materials such as books and computers were in shortage at my schools. G14: The school problems such as shortage of	17	2.8%	12	60.0%

teachers and reading materials. Distance from school was my main problem in high school. G15: The school resources were not fulfilled in our schools. The class size was large. G17: Distance from the school. school facilities such as books, teachers, etc.

Major Problems in his school	Social and family factors	G1: The social and political environment I heard about situations in universities discouraged me in my preparation. G2: Some community related problems such as political environment, school climate and the behavior of teachers and students highly affected my study. G3: My father and mother were divorced when I was 11 years old. My mother brought me up as a single parent. Large class size affected our learning in high school; G6: At country level, the political unrest and unemployment occurred in our area, highly discouraged my preparation study. G7: Harassment and gender-based attacks at high school. House cores; no time to read. G8: Family relationship affected me. Gender-based attacks hurt my performance. G9: The political and ethnic conflicts in university discouraged me to go to college. But my family encouraged me. G11: The social circumstances in our country, i.e., ethnic conflicts at university. G12: My parents were interested in marrying me before I complete my study. The man whom my parents wanted to marry me was following me for long time. However, nobody could stop me from joining college.G13: The current prevalence of joblessness and the political and social circumstances in the country were major memories that were coming to my mind. G19: The problem was shortage of time to read because of house cores. I had to help my mom sometimes.	15	2.5%	11	55.0%
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Mechanisms to reduce the effects the reported problems	Believing that education is the best of all	G6: I understood that I have to go to college not to find a job but to acquire the knowledge and skill to create a job. I learned that education is the base for job creation it. G9: I determined joining university was my best choice for my future. G11: In order to raise my motivation, I had to believe that learning/education is the best in life whatever happens. I changed my mind even after dropping out of school. G13: My parents and brothers advised me that education is the foundation for all	9	1.5%	5	25.0%
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		development. What is needed for human being is knowledge, and we find knowledge from learning. If you have knowledge and skill you will acquire a potential to create job, even to innovate, invent or discover. Education prepares you for these. What matters is also how you learn or gain the knowledge and skills at school. How you learn also the outcome of your readiness and motivation to gain it; the brilliant teachers at school; the availability of resources that help you to learn; the encouraging social and environmental situations, etc. G20: No body advised me. I advised myself. Some friends of mine left school because these discouraging problems, but I decided that whatever happens education is better than non-education.				
Mechanisms to reduce the effects the reported problems	Bought books to help my learning	G1: I bought learning materials to prepare myself rather than depending on the school and teachers only. G4: I bought some books for myself in high school and used them to prepare for national exams.G6: In order to solve these problems faced me in preparation to college, I used different mechanisms. For example, I worked in different organizations in spare times to earn some money to support myself. G6: I bought different supportive books and read it day and night.	3	0.5%	3	15.0%
Mechanisms to reduce the effects the reported problems	Convinced myself	G10: I convinced myself that I could not get my father back and focused my mind on studying hard. G16: At high school, I changed my mind about learning and started to work hard. I focused my attention on my study. Then, I could join university. G20: No body advised me. I advised myself. Some friends of mine left school because these discouraging problems, but I decided that whatever happens education is better than non-education.	4	0.7%	2	10.0%
Mechanisms to reduce the effects the reported problems	Cooperating with families and relatives to get support	G1: I made a strong relationship with my relatives in towns. G2: I made friendly cooperation with my friends in school. G5: I had to seek a support from my relatives sometimes. G6: I also sought the support of my relatives sometimes. G7: Convinced my family I should study hard. G18: I had to discuss with my parents about the problem. G19: I had to discuss with my parents about the	7	1.2%	6	30.0%

		problem.				
Mechanisms to reduce the effects the reported problems	Hard working	G1: I worked hard to support myself. G2: In order to improve my achievement and join college, I always worked hard ignoring unnecessary distractions in my surroundings. G3: When I dropped from school, I had to plough the farm land and help myself for school. I did not stop reading when I was outside of school. I bought different supportive books and read anywhere I go. I strongly decided to join college anytime. G4: Most of the time I worked after school time to help myself. G5: I worked hard day and night at weekend to support myself. G8: Studied hard. G11: I worked hard to help myself at school. G15: I studied hard to join university. I read supportive reading materials to strengthen my knowledge and prepared myself to higher education. G17: I had to work and support myself in spare times.	13	2.2%	10	50.0%
Mechanisms to reduce the effects the reported problems	I could not wait for school or teachers to spoon-feed me.	G14: I did not wait for teachers or schools to feed me knowledge. I used all my efforts to equip myself with reading materials/resources and prepared myself for entrance exam.	1	0.2%	1	5.0%
Mechanisms to reduce the effects the reported problems	I took care of the way I lived with others.	G9: I decided to take care of myself in my relationship with students and teachers. The way I responded to the challenges determined the level of effect it brought on my education. If we take care of the way we live with others, we can influence the people around us and the society at large.	1	0.2%	1	5.0%
Mechanisms to reduce the effects the reported problems	Independence in deciding my future	G12: It was helpful to me to be independent in deciding my future.	1	0.2%	1	5.0%
Mechanisms to reduce the effects the reported problems	Praying	G2: I always go to church and pray to God.	1	0.2%	1	5.0%
Mechanisms to reduce the effects the reported problems	Said no to attacks	G7: Said no to harassment and violence.	1	0.2%	1	5.0%
Mechanisms to reduce the effects the reported problems	Taking social conflicts are natural and inevitable	G11: The participant stated that conflicts are inevitable and he decided that he cannot stop it but he/she can play his part.	1	0.2%	1	5.0%

Mechanisms to reduce the effects the reported problems	Used my time properly	G7: Used my time effectively. G18: To reduce the effects of drinking on my time to read. I decided to buy and drink in my reading room rather than going out to a grocery.	2	0.3%	2	10.0%
Perseverance	College was my dream	G14: I was dreaming about going to a university and I was successful. G17: I was very motivated to reach college. For this reason, I studied hard day and night. G20: Joining university was my objective.	3	0.5%	2	10.0%
Perseverance	Family inspired me	G2: My family inspired me to go to college.	1	0.2%	1	5.0%
Perseverance	God was my strength	G9: I was not my strength it is the support of God. Thanks to God.	1	0.2%	1	5.0%
Perseverance	His/her perseverance was high in high school and preparatory school	G10: I worked hard specially in high school and preparatory school. However, I did not understand well the value of learning and joining college form Elementary school; I was procrastinating. G15: In the early years of my school life, I did not understand the value of learning well. Later on, I started giving emphasis to my education. I studied hard to qualify for college entry.	5	0.8%	3	15.0%
Perseverance	reported high perseverance	G1: I am very motivated to reach college. G2: I was strongly persevered through all grade levels to arrive at college; G3: I strongly persevered in my study. I did not like even missing a class. I tried to read for longer time in the evening. I spent my Saturdays at library. G5: I persevered without any give-up to problems. G6: Although I faced some tragedies in my journey to college, I never failed to persevere. I studied hard day and night. G7: I did my best. I read day and night. G8: I studied hard day and night. G11: I was highly motivated and worked day and night to get access to university. I was successful in it also. G12: I did my best: studied hard, used my time properly. G13: My parents were the sources of my inspiration in education. I was highly motivated to reach college. I read for long time in the library. I read and reread until I understand thoroughly. G14: I was highly motivated and reading day and night. G18: I was highly motivated to join college. For this reason, I did my best to study hard and prepare myself. G19: I read a lot achieve high in all grades. I was dreaming to join university. G20: Joining university was	19	3.2%	15	75.0%

my objective. For this reason, I studied hard day and night.

Precollege performance level	High performance	G13: 4; G14: 3.55	2	0.3%	2	10.0%
Precollege performance level	Less prepared	G2: The participant registered 2.57 average GPA in his pre-college performance. G7: Scored 2.50; G8: Scored 2.22; G9: Average 1.7; G15: 2.30; G16: 2.26; G19: 2.34	7	1.2%	7	35.0%
Precollege performance level	Medium preparation	G3: I earned 2.60 (medium) average pre-college GPA; G4: The graduate scored 2.98 average precollege GPA. G6: I earned 3.00; G10: 2.91; G11: Scored 3.0; G12: Scored 2.28; G18: 3.03; G20: 3.0	11	1.8%	10	50.0%
Research skill	Gained good research knowledge during preparatory school					
Research skill	No access of research at high school	G1: I did not have any research skill. No research course I did take. G2: I did not learn about research in high school. G3: No research course I took in the in high school. I did not have any research skill in the high school and preparatory school. G4: I did not have any idea about research until after the completion of my preparatory education. G5: I did not take any research course in high school. G6: I did not learn anything about research before college. G7: I gained no research skill at school. G8: No research skill. G9: I took no research course at high school. G15: I did not learn about research i high school.	20	3.3%	20	100.0 %
Social and family support	Low support gained from social and familiar environment	G3: I am the oldest son for my mother. I am also the first son from three children. My mother played a great role in supporting me to reach college. I did not get any advice from other relatives regarding my education. Some of them were even discouraging me from school. They advised me to leave school and help my mother. G14: No body supported me as I was a married man who has two children. I had to support myself and my family. G17: I was the first person to college in my family. My family was in economic problem and could not fulfill my school needs.	4	0.7%	3	15.0%
Social and family support	Medium support gained from social and familiar	G16: I am the first person to college. All my brothers and sisters have completed high school but they did not join high school. My parents were role players in	1	0.2%	1	5.0%

	environment.	supporting me to join college. G20: My parents did everything to me as they could. But they were poor and could not fulfill my school needs. No. How they can help me? My brothers employed in this year when I graduated. They were psychologically hurt than me.				
Social and family support	My psychological preparation took upper hand	G5: However, I believe that the most role player in your way to college is yourself. If you are not psychologically ready, a family's support can do nothing for you.	1	0.2%	1	5.0%
Social and family support	Religious organization supported	G6: I got support from religious institutions. G7: Church supported me a lot. G10: My families were less role players in my education. I brought up and educated by a religious organization from grade 1-12. G11: Mostly, I was supported by a religious organization in my preparation for college	4	0.7%	4	20.0%
Social and family support	Reported good social and family support to go to college	G2: The role of family to help me to join college was very high. I am the third person in my family to go to college. They guided me throughout my education. G5: I am not the first person in my family to join college. My older brother gave me both financial and counseling support during my preparation to college. G7: Not first in family to go to college. My parents significantly supported me. My elder sister supported me a lot. G8: My family played significant role in my education. G9: My family was very supportive for me. Family role is very high in preparation to college. The society helps through agents such as charity organizations, religious organizations and different NGOs. G13: I highly cooperated with families and relatives in my journey to college. I received contributions from them. G18: I depended on my family. G19: My family was always with me.	11	1.8%	8	40.0%
Social and family support	Society and family encourage or discouraged my preparation for college	G1: The political and social conflicts sometimes occurred had a negative impact in my preparation to college. My family is uneducated. I am the first person to join college; G3: I did not get any advice from other relatives regarding my education. Some of them were even discouraging me from school. They advised me to leave school and help my mother. G4:I am the first person to join university in my family. My older brother has completed grade 12; he did not join university. Being the first person to join	6	1.0%	4	20.0%

college affected my success to college economically. If my brother had joined a university and earned a degree before me, he would have supported me both financially and academically. Family and social environment highly affected how you prepared for college. Sometimes, people in discourage you in different ways; sometimes they motivate you. G15: I am the third person to college in my family. My brothers supported me during my preparation to college and in college also.

UG and department	Department	G1: department of accounting. G2: department of accounting. G3: I am from department of accounting. G4: I am from department of accounting. G5: From accounting department. G6: I am from accounting. G7: From accounting department. G8: From accounting department. G9: Accounting department; G10: Accounting; G11: I graduated in accounting. G12: Department of accounting; G12: Accounting; G13: Accounting; G15: Accounting; G18: Accounting. G20: Accounting	20	3.3%	20	100.0 %
UG and department	UG	G1: second generation. G2: The participant is from second generation university; G3: I am from second generation university. G4: I am from second generation university. G5: The graduate was from second generation university. G6: I am from second generation. G7: From second generation. G8: From Second Generation. G9: First Generation; G10: First generation. G11: I am from a first generation university. G12: From first generation university; G13: First Generation; G15: First Generation; G18: First Generation. G20: Third Generation	20	3.3%	20	100.0 %
choosing a major	Family supported me in major choice	G7: Family advised me in major choice. G8: I consulted my family and wanted to join management. G9: My family advised me in college major choice. Accounting was my first choice. G13: My parents advised me to join Engineering.	4	0.7%	4	20.0%
choosing a major	I did not join my first choice	G4: However, I received a message about studying Engineering informally from experiences of others. However, I could not join my first choice. G8: I did not join	1	0.2%	1	5.0%

		my first choice. I consulted my family and wanted to join management. However, I was not successful. G13: My parents advised me to join Engineering. But I was not successful in joining it.				
choosing a major	I did not like to get consultation on my major choice	I was my own decision maker in college major choice. I did not like discuss it with anybody. Accounting was my first choice. G19: I decided my choice myself. I did not consult a friend or a counselor.	2	0.3%	2	10.0%
choosing a major	I joined my first choice and I did not have lack of knowledge in college major choice	G2: I was aware of my college major choice from grade 9. My parents and friends supported me. G3: I also did not face any problem in choosing my college major. I got my first choice. G4: I did not face any problem in my major choice. G10: I decided myself. I joined my first choice. G11: I myself decided, not a friend of a family member. The got my first choice department and university.G12: I knew my best and I myself decide it. G13: My parents advised me to join Law. But it was not my field of interest. Accounting was my first choice. G20: I decided which field I had to join just after my qualification to enter university. I consulted nobody.	7	1.2%	7	35.0%
choosing a major	I was less aware of my college major	G5: I got my first choice. I had not been aware enough during high school; I thought about it after I passed my entrance exam.	1	0.2%	1	5.0%
choosing a major	Informally, I learned which field was best for me from experiences of others	G4: However, I received a message about studying Engineering informally from experiences of others.	1	0.2%	1	5.0%
choosing a major	My friends influenced me in my major choice	G1: My friends had influenced me however; G18: I discussed with my friends. I did not consult a counselor.	2	0.3%	2	10.0%
choosing a major	Reported limited service of counselor at his/her high school	G1: Most of the time, students with love relationship problems visited the counselor in our high school.	1	0.2%	1	5.0%
choosing a major	Reported low counselor role	G1: I got my first choice; I did not consult a family member or a counselor in high school. G2: I never consulted any school counselor about my college major. G3: I did not consult any person or counselor about my college major. G4: I did not consult a counselor before college about my college major. G5: There was a counselor in our high school. But I did not consult him about college major choice. G6: I got first choice. No	15	2.5%	15	75.0%

counseling support at school. G7: No counselor support. G8: No counselor advice. G12:I did not consult any counselor at high school about my college major. G14: Accounting was my first choice. I consulted nobody. G17: I did not consult anybody on my major choice. G19: I decided my choice myself. I did not consult a friend or a counselor. G20: I decided which field I had to join just after my qualification to enter university. I consulted nobody.

Declaration

I, the undersigned, declare that the dissertation is my own work and all sources for the dissertation have been duly acknowledged.

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