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An Analysis of Areas of Knowledge and Methods of Assessments as Seen on
Entrance Exams from Around the World

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Abstract

Higher education institutes have seen massive growth over the decades in terms of student enrollment. In order to maintain the quality of education provided to students, scholars, and practitioners have advocated for students to submit an entrance exam as a part of the admission application. This study analyzed trends in all national and standardized entrance exams ($N= 119$) to see which areas of knowledge and methods of assessments are most commonly utilized in entrance exams around the world. The areas of knowledge that were looked at in this study: English, Literature, Math, History, Government Studies, Religion, and Hard Science. The methods of assessment that were looked at in this study: Supplied response, Selected response, Practical, and Oral. Data was collected through publicly available documents and entered into a database in order to then analyze and recognize trends. The findings of this study show that the most common area of knowledge that is tested is literature ($N = 107$) and the most common method of assessment is supplied response ($N = 81$).

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COLLEGE ENTRANCE EXAM DATABASE

Appendix: College Entrance Exam Database P.68

ABBREVIATIONS

AOK.....	Area of Knowledge
EE.....	Entrance Exams
HEI	Higher Education Institute

REGIONAL ABBREVIATIONS

ECA.....	Europe and Central Asia
LAC.....	Latin American Caribbean
MENA.....	Middle East North Africa
NA.....	North America
SA	South Asia
SSA.....	Sub-Saharan Africa

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DEDICATION

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Chapter 1

Introduction

Higher education has massified greatly over the years and has caused individuals to face an array of methods by which they can access higher education. The knowledge that is provided by Higher Education Institutes (HEI) is seen as the pathway to access more white-collar and professional ranks, encouraging more people to focus their ambition on how to access higher education (Schudson, 1972). This then begs the question of if there is one or multiple areas of knowledge (AOK) individuals need in order to access higher education, and what is the best method, or possibly methods, in which those can be best assessed.

Among the variety of materials students need in order to access higher education, many HEI require applicants to submit scores from an entrance exam (EE). In a number of countries, an EE for higher education is taken once a student, typically between the ages of 17-19, has completed secondary education and is looked at as a secondary education certificate. Other countries that have the EE separate from secondary education, at times, allow students the opportunity to elect which EE would best suit their needs. If an EE is national and standardized, regardless of the EE also serving as a secondary education certificate, every individual is required to take the exam in order to qualify for admission into a HEI. These EE assess students in an array of subjects and formats and stands in the way between a student and their ability to access higher education.

Depending on the HEI and country, EE may function in various ways such as assessing if a student is eligible to study at certain HEIs, selecting students who are considered to be competitive to study certain fields of study, allocating funding, and several other ways. The primary function of an EE is to *qualify* a student for admission into a HEI. Without the entrance

exam, a student would not be eligible to be considered for admission. More often than not there are other materials and documents that students need, those materials and documents, however, typically are not monitored by the national government. One of the only parts of the student's application that national governments have an influence directly in many countries is the entrance exam. This is done in an attempt to allow students a more streamlined application process when applying to multiple HEI. Instead of being forced to take multiple EE for individual HEI, students in countries where there is one centralized EE are able to include the scores in all their applications. It also speaks directly to the idea of meritocracy where a student can gain a higher status based on their academic performance. Though the EE is only one part of a student's admission application, it tends to be weighted more than other application materials. This then allows students to be assessed based on their academic performance as determined by the EE by promoting social equity and mobility (Liu & Wu, 2006).

Many scholars argue about what form of knowledge or skills students need in order to access higher education. HEIs tend to depend on secondary education to ensure students are prepared for higher education. Secondary education points to higher education stating that HEIs are the ones responsible to make sure students entering their institutes are either prepared to do so or should have the resources to support students. In many cases, the EE utilized in countries is a marker for secondary completion (Baker et al., 2005). This shows that the government sees the education system as encompassing all levels of education which provides a more cohesive understanding of what areas of knowledge students are covering and to what level. This also allows the government to monitor which areas of the country are scoring lower or higher and to address the causes. Having a national EE also allows HEI to allocate funds elsewhere when the

government is responsible to fund the creation, administration, evaluation, and other costs related to the assessment.

Scholars, however, continue to debate on what levels of competency in AOK or skills students should enter into HEI. If so, which AOK should be tested and to what level? The same question is asked if there are certain skills that students should be equipped with. When the answers to those are determined, then debates on best practices on how to assess students are brought to the table. These debates begin to point to the number of barriers brought on by entrance exams and if the entrance exams are fulfilling any true purpose. To mitigate the negative impacts brought on by EE, politicians have created reforms to exams. Some of these reforms have allowed students the autonomy to elect what AOK they find most useful and valuable for their course of study, providing funds to pay for the EE to students from lower-income families, and adding or removing required AOK. Although these reforms have alleviated some barriers, the reforms have created unanticipated barriers at the same time. Even with the number of reforms and changes that are created around the world, it remains unclear what AOK is most needed for students to access higher education and what is the best way to assess students through an entrance exam.

Wanting to gain a further understanding of subjects considered valuable and needed, this study looks at the various subjects tested and the methods in which they are tested from around the world. This study begins to take a look at what AOK are most valued and the best way to assess it by taking a comparative perspective looking at the structure of national and standardized entrance exams that are taken around the world. This is done by taking a look at EE that are national and standardized around the world and mapping data about what AOK are being assessed and the methods in which EE assesses those AOK. Exams analyzed in this study are

designed and administered by the national governments of individual countries and require all students to access higher education. Having this information mapped out will allow governments wanting to make changes and reforms to their own EE, to see what other countries are doing that is successful for them and to also see possible pitfalls for them to avoid in their own country. The goal of this study is to map the current landscape of entrance exams used by HEI to qualify students for admission. This thesis is organized into 5 chapters. This first chapter provided an Introduction to the study. Chapter 2, Literature Review, will go over past literature that has been done on national EE. Chapter 3, Methods, will go over the methods that were implemented for this study. Chapter 4, Analysis and Discussion, will explain and provide implications of the findings. Chapter 5, Conclusion, will summarize the study and discuss the future of EE and provide future research questions.

Chapter 2

Literature Review

This chapter provides a literature review of entrance exams used for admission by higher education institutes. The chapter will begin by providing a brief overview of the history of assessments. Next, the chapter will give an overview of the ways that exams function in different countries. Next, the chapter discusses the most common forms of areas of knowledge and assessment formats that are displayed on EE. The following section will discuss the necessity of entrance exams. The chapter then concludes by previewing past literature and studies that have been written around this topic.

History of assessments

Assessments and evaluations have existed since prehistoric times when hunters and gatherers would assess their surroundings in order to survive. On a global scale, the first formal method of assessment that is noted in history is the civil Imperial Service Exam (*Keju*), which was developed during the Sui Dynasty in China (581-618 CE) (Li & Hayhoe, 2012). The Imperial Service Exam was developed to select members of society to serve in positions that were high in power allowing these individuals to make decisions for all citizens. Those who took the *Keju* were tested on their knowledge of Confucianism, the composition of poems and poetic prose, the writing of official and judicial documents, and their views on national policy issues using a Confucius lens (Yu & Suen, 2005). Using merit as the primary criterion for exams stemmed from the Confucius desire to eliminate access on the grounds of social class or status, patronage, wealth or blatant corruption (Sadler, 1994). Though many inventions from China, such as gunpowder, pottery, and papermaking, spread through Europe at rapid rates; examinations through modern-day Global North became prominent centuries later and differed

starkly from what was invented in China (Sadler, 1994). In 1604 Matteo Ricci, a Jesuit traveler to China, witnessed the examination system in Peking, China and was intrigued by the system and how it aligned with Jesuit values of encouraging individual pupils through competition with one another. There were only a few other scattered instances of other Europeans, most notably Max Weber, who utilized language functions in the Chinese examination system in the European system.

Qualifying examinations for higher education originated in the 13th century within European universities and were originally held as a debate between a student and a professor from the field of study and were evaluated by a visiting scholar or select audience members (Self, 2023). Over time this exam format spread and went saw reforms as it spread through France, Western Europe and the Americas. The primary purpose of these exams was to eliminate students who were evaluated as inadequate by the committee The defining characteristic of this examination system was its ability to be competitive, but more importantly, the exams aimed to qualify students. This contrasted with the examination system that originated in China where exams embodied a competitive characteristic (Eckstein & Harold, 1993, p. 3). This was due to the fact that the concept of meritocracy was infused in the cultural values in China where there was a higher demand for a seat in a HEI than what was available. This forced those who participated in the exams to compete with one another in order to gain higher education. In Europe and the Americas, where the concept of HEI was just being introduced, there was not as great of a demand from individuals to access higher education allowing individuals who participated in exams to qualify for higher education.

Being a prominent colonizer, British and other European models of education are also seen in many other parts of the world. By the end of 1885, Belgium, Germany, the Netherlands,

Italy, Portugal, Spain, Britain, and France began colonizing parts of Africa and played a major role in shaping the higher education system in Africa. Britain and France, in particular, because of the amount of land that the two countries colonized, played a more significant role. The foundations of how these European colonizers shaped the education system through entrance exams in countries throughout Africa are still prevalent across the continent today (Woldegiorgis & Doevenspeck, 2013).

South Asia is another region of the world that was colonized by the British and displays a number of Eurocentric models in their education system. At the same time, however, countries within South Asia have also reformed many aspects of the system in order to meet the needs of their society. Many countries in this region of the world, and other regions, have some form of entrance exam that students have to take in order to access higher education, but there is no centralized or national exam that all students are required to take in order to qualify for an education past secondary education (Jones, 2010).

When looking at East Asian countries, many countries embody the Confucian model of higher education. China, being one of the larger countries in terms of land size and population, has the resources to make itself one of the dominating countries in East Asia and set an agenda to increase its system of higher education throughout East Asia (Marginson, 2011). Though Confucius values were prominent in the early history of many East Asian countries, it was not until the 1970s, starting with Japan, that countries in East Asia began implementing a “Confucius Model” of higher education. Though these countries have different languages, national traditions, and political systems, all countries agree to adapt their education system in similar manners by ensuring their writing and examination systems is rooted in Confucius values (Marginson, 2011). The Confucius curriculum concentrates on relations unlike cultures in the global north that focus

on the concept of self. This is evident in the school curriculum and later tested on in exams. Today the curriculum in schools continues to achieve the goals of uniformity and conformity that the *Gaokao*, *Suneung*, and other national exams mainly in East Asian countries strive to achieve (Cheng, 1994).

As the sector of higher education began expanding and shifting into a public good by the 1900s, governments turned to HEI as a way to increase the qualified labor that was needed according to the labor market. This forced undergraduate degrees to be divided into specific disciplines where the syllabus was, at times, determined and created by the government. The number of students that would be allowed admission, therefore, be determined by the government which led to the creation of *Numerous Clause*. Numerous Cluse is a Latin phrase that translates to “closed number” and was implemented into higher education in the 1900’s as a way for governments to limit the number of students being admitted into certain programs of studies in undergraduate education (Nillson, 2006). Higher education institutes are able to create and innovate a wealth of knowledge that spills over into the labor market (Sadler,1994).

A quota system is another policy enacted by the government to limit students in HEI along with EE. A quota is a threshold that a government puts on the number of students or minority groups that are admitted into HEI. At times this threshold limits the number of students that can be admitted, and for others, it mandates an increase in the number of students. Quotas fueled the idea for policies like Affirmative Action where the intent was to provide minorities an equitable opportunity to access HEI. An example of this can be seen in China where policymakers enacted a quota on the number of students that can be admitted from an urban province in hopes of encouraging students from more rural provinces to apply and have access to higher education. With the competitive characteristics that were already around the examination

system in China, this created the idea of *Gaokao migration*. This is where students and their families would opt to receive secondary education in a rural province in order to not be impacted by the quota on students from urban provinces.

As systems massified, the importance and benefits of entrance exams became more prominent for institutes and students entering the system. The worldwide higher education gross enrollment rate saw a sharp increase from 19% to 38% percent between 2000 and 2018 (Vieira et al., 2020). HEI began to rely heavily on EE in order to maintain the original quality of education standards and ensure that students entering the system had a similar baseline of knowledge as determined by the individual HEI. Along with HEI that have needed and reaped benefits from EE, EE have also benefitted students. EE aim to assess students who are academically prepared to attend a HEI are those who have accumulated knowledge and experiences allowing the student to qualify or be considered competitive student (Maruyama, 2012). This allows students, as determined by the EE, to be in environments that are best conducive to their learning needs.

Debates on Entrance Exams

EE used to function as a way to simply provide access for students to qualify for higher education. Today the form and function of EE that has changed due to massification of higher education where there are a number of options students have to access HEI. EE are now used to select students considered competitive to study certain fields of study, allocate funding, and a number of other ways.

Along with EE, HEI requires documentation of secondary education. This documentation is provided usually in two ways. The first is a documentation of grades the student received in secondary education, commonly referred to as a high school transcript. The other is a secondary completion exam. Certain education systems require students to take an exam in order to

complete secondary education which also allows that student to utilize that exam to access higher education. There are other countries, the USA for example, where the college entrance exam, such as the SAT, is not required for students to take in order to complete secondary education but is needed in order to access higher education. Other times the EE that HEI requires from students, is an exam that students need to have completed showing that they satisfied secondary education requirements. Many times HEI will require students to take another exam in order to be considered a competitive candidate for admission to their university.

In England and the United States, exams have had a number of unintended consequences. Having a national exam helped to overcome regional, religious, socioeconomic, and many other such differences by attaching a nationally recognized credential to students who passed the exam (Eckstein & Harold, 1993). At the same time, however, this created strains on educational systems built on local autonomy. The results from these exams could be used to allocate public funds to schools or teachers whose students were scoring high on these exams. Parents were also beginning to rely on these exams in order to determine where to send their kids (Eckstein & Harold, 1993). Schools in exit-exam provinces provided more instructional hours dedicated to teaching students math and science, assigned more homework, had better science labs, were significantly more likely to use specialist teachers for math and science, and would hire math and science teachers that had specialized in that subject during college (Bishop, 1997). Parents also began stressing about how their children were performing in subjects that were being tested for college. According to Bishop (1997), students in the United States reported that their parents would regularly communicate to them the importance of math and would not ask about other subjects as much due to the importance that math is given on college entrance exams and applications Bishop, 1997). Secondary teachers and principals have complained that they are

forced to mold their curricula into a conventional mold in order for the majority of their students to perform well on entrance exams and appease parents instead of what is considered as needed dependent on the local culture (Schudson, 1972). Parents, from rural and urban areas, see university exams as the most important aim that their children should focus on in schools (Cheng, 1994). As much as these national exams intended to overcome many differences among students and promote equity, the exams, in practice, exacerbated differences among students. Much of what is actually tested in exams contradicts what is the general population's understanding of the exams; therefore, there are unexpected outcomes of the functions of exams (Watanabe, 2015).

The inequity in these entrance exams is not new and has been discussed since its inception; government officials and scholars continually state the need for change and reform in their country's examination system. The primary focus on college entrance exams, as it has been discussed, is that it supports individuals' mobility through a meritocratic system created by society's elite. This overlooks the fundamental issue of social stratification and how only the elite members of society continue to benefit (Schudson, 1972). In order to combat these inequalities that are brought on by basing access on merit, governments have implemented a lottery system. This means that students are entered into a lottery system administered by the government and students are then selected at random in order to access admission into a HEI. It can be seen that many HEI around the world are creating a test optional part to their admissions process, especially after Covid.

Studies have also shown that having a college-based external entrance exam (CBEE) is not the most important determinant of achievement levels. These exams claim to be given to students to see if they will be able to achieve goals set in college, yet achievement is "defined, controlled,

and measured in terms of ability to survive within a culture which reflects the behavior and values of the upper, upper middle, and professional classes” (Schudson, 1972).

Yet there are other education systems around the world that have national college entrance exams that do not have values of unity, order, and tradition instilled as societal values. During the 1979 Islamic revolution in Iran, establishing social justice and promoting Islamic values within universities was emphasized. The *Konkur* is a standardized exam comprised of 250 questions covering subjects taught through secondary education including Islamic Law. Students are tested on their understanding of universal laws using Islamic Law. Since this, the *Konkur* is a multiple-choice test, and students are not tested in any other way, the exam forces students to focus on test-taking techniques and the memorization of knowledge (Watanabe, 2015). Students from a low socio-economic status background or from a family committed to the ideologies brought about by the revolution are given priority.

This is not to say that all standardized exams measure a student’s ability to memorize knowledge. The National Center Test is given in Japan once a year and looks a lot like an achievement test due to its multiple-choice structure in a set number of disciplines. Scholars argue that students’ character is measured. In order to prepare for the test, students must foster diligence, fortitude, and endurance--qualities demanded by the labor market and society. Companies and government officials in Japan seek candidates who are able to be trained and can constantly acquire new knowledge and skills due to the constantly changing situations (Watanabe, 2015). Though work performance is not explicitly stated, employers highly seek out candidates who are able to carry out the “abstract ability” to work through tasks (Nagao, 1994).

In Western Europe, a diverse curriculum is designed to cater to varied individual abilities and aptitudes. Having a curriculum that is designed according to individual students’ needs is

particularly prominent in the French system with the *Baccalaureate* (Cheng, 1994). This highlights the values of catering to individual needs seen as best fit by the student themselves. This is opposed to what is seen in the *Gaokao* instilling values about uniformity and society. The most notable characteristic of the *Baccalaureate* is that all the questions have to be answered in an essay format. The dissertation needed to complete the *Baccalaureate* incorporates a pedagogy that defines and structures the rules of communication that are used in French society (Bourdieu & Passeron, 1977, p. 147). The *Baccalaureate* tests the students' thought process through the exam (Watanabe, 2015).

Higher Education in the United States was first created during colonial times in order for young men to be a part of the ministry. A distinguishing characteristic of an educated person was their ability to converse with fluency in Latin and Greek, and therefore higher education at the time required students to have a strong foundation in Latin and Greek. As time progressed, the courses of study needed to be admitted into college have not correlated as strongly as they did during the inception of higher education in the United States (Traxler and Townsend, 1953, p. 119). The Scholastic Aptitude Test (SAT) began in the twentieth century in the United States as a way to provide scholarships and attract students to prestigious northeastern schools from the Midwest (Watanabe, 2015). Today, nearly 2.2 million people take the SAT in the United States and in 85 other countries around the world who also consider SAT scores when looking into admitting students (Mody, 2021; College Board, 2022). Like any other exam, the SAT has undergone a number of changes over time in hopes of making it more relevant for what is needed in society. Based on the desire for “equal opportunity”, one of the United States’ cultural desires, “the SAT is perceived as a scientific and objective method that connects rule by elites chosen not by one’s place of origin but by abilities” (Watanabe, 2015, p. 5). The SAT is built off of the IQ

test and is designed to be an aptitude test to assess how well a student may perform in college (Watanabe, 2015). The SAT, however, is just one of six aspects that colleges and universities use for admissions. The other 5 aspects that make up the admission application are: 1 Graduation from an accredited High School 2. A minimum number of credits in certain subjects as determined by university/college 3. A student's rank in class or the average marks from the student's secondary school 4. Recommendation from someone who has seen the student and how they perform academically 5 evidence of good moral character or personal qualities which can be seen in a statement of purpose or interview (Traxler & Townsend 1953, p. 4).

Format of Entrance Exams

Previous studies have revealed that the content that assessments test for is related to social and historical values developed by society. Exams are created in various cultures and utilize various psychometric methods to test and assess different forms of knowledge. This contributed to common forms of subjects that were commonly tested on in college entrance exams as found in the literature: Language Arts, Math, History, Government Studies, Religion, Hard and Natural Sciences, Foreign Language, and English. Language Arts encompasses proficiency in the language of instruction and/or the student's proficiency in the native language(s). Math includes algebra, geometry, calculus, and other similarly related subjects. History includes world and national history. Government studies include social studies, economics, civics, politics, geography, and similar subjects. Religion encompasses religious studies, theology, and ministry, The Hard and Natural Sciences include psychology, chemistry, biology, and similarly related subjects. Foreign Language includes languages that are not included in Literature and are not English.

Most EE use a combination of the following methods of assessment: Selected response, Supplied responses, Practical, and Oral. Selected response questions require students to select or choose an answer from the options provided, such as in multiple-choice questions when students are presented with a list of possible options and are then asked to choose the answer they feel is correct. Supplied response questions require students to supply the answer, most commonly done through writing. This can be asked through questions when students are required to write an essay, short answer, fill in the blank, and other similar types of questions (Colman, 1983). Practical exams are particularly prevalent in the French Baccalaureate where students are required to show how they are able to apply their learned knowledge or skills in front of an audience, committee, or scholar in the field. Exams that incorporate an oral component to the exam require students to orate answers to questions, most commonly utilized for language exams.

Prior Literature

There are a number of studies that have looked at college entrance exams and a few that have looked at college entrance exams through a comparative lens. Nakajima et al. 1986, conducted a typology study and studied 23 countries across Asia grouping the exams as transitional, meritocratic, open, and socialistic. The findings of this study were written as a book written in Japanese and was conducted nearly 40 years ago. Needless to say, there have been a number of changes that have occurred since then in terms of the exams that were a part of the study. Also, due to the fact that the study findings have been translated and were part of a larger book, only parts of the texts have been translated and the whole study has not been translated therefore readers may not be able to understand the whole picture or understand the implications

of what the authors were trying to communicate. This study also did not look at AOK and the methods in which they were assessed.

A more recent study looking at college entrance exams was conducted by Watanabe 2015, looking at four countries: United States, Japan, Iran and France. This study focused on gaining an understanding of abilities tested by university entrance examinations with types of knowledge (experiential versus academic) and objective (instrumental versus value). Watanabe then categorized the exams based on four types of abilities that were found among the exams: generic, communal, nomothetic, and political. This is a typology looking at the different kinds of exams and is able to gain a deep understanding of the exams, but the scope of Watanabe's typology is limited to only looking at four countries.

Studying college entrance exams as a point of access to higher education lives in the nexus between higher education and K-12 education. The benefit of being in this position is that there is research that has been conducted from the lenses of both sides. Rappleye & Komatsu 2018, is an example of looking at the exams in East Asia, America, Australia, and the United Kingdom and focuses on the stress brought onto students in K-12. The focus of this study delved into the impacts of exams and did not provide a systematic overview of what exams incorporate. Studies like these are needed for higher education scholars and practitioners to look into as K-12 and higher education work hand in hand.

It is clear that there are past studies that have looked at specific exams in regions of the world and the many impacts that exams have had on countries or regions. There, however, is no study that looks at all national EE and the AOK on the exams and the methods of assessment utilized. This study was done in order to fill this gap by looking at all national EE at a global scale on the AOK and the methods of assessment used.

Chapter 3

Methodology

This chapter will first focus on explaining the approach and rationale for the overall study. The second section will go over the data collection methods in terms of what was used and how it was organized. The third section will discuss trends and how the analysis is used in understanding the data. The last section will go over the limitations of this study.

As discussed in previous chapters, there is a need to systematically document the kinds of EE being used around the world, in order to gain an understanding of the AOK and methods of assessments that education systems utilize in their EE on students interested in pursuing HE. It is evident from prior literature that there is no consensus on one AOK that is deemed necessary for students to have in order to access higher education, nor is there one common method of assessment. In order to fill this gap, two research questions were formed for this study. First, what forms of knowledge are most commonly tested across the world as reflected in HEI entrance exams? Second, what are the most common methods used in HEI entrance exams around the world?

Research Approach

In order to collect, organize and later understand trends through comparative analysis, a database was created. The database included all the countries and their respective EE used that are national and standardized, what AOK the EE assessed for, and methods of assessment. The database was then populated based on document review.

Data Collection

The database lists the names of the countries and the exams that were taken in each individual country. Exams analyzed in this study are designed and administered by the national

governments of individual countries which require all students to take the EE in order to access higher education. A list of UNESCO-identified countries was first identified and then compared to a list of countries identified by the World Higher Education Database to ensure the country would have a higher education system established and public data available. This resulted in $N=198$. The steps below outline the development of the database which was created using Microsoft Excel and is then followed by a section that explains the data entry methods.

The first four categories were used to outline the country demographics that are pertinent to this study, Country, Entrance Exam, Secondary Completion, and Anglophone. The first category was created as a place to enter the name of the country. The second category listed the name of the entrance exam. Both of these categories were entered into the database as text entries. The third category was created to note if the entrance exam was also a marker for secondary completion. The fourth category noted if the country was an anglophone country as identified by the UK government. Anglophone countries were identified in order to state if the subject “English” that was assessed for on EE was the language of instruction, the official or native language used in that country. The information for these two categories, and the following categories, were entered into the database with a 0, 1, 2, or a period (.). This is further explained in the next section about data entry.

Next, assessment methods were categorized. As stated and explained in the literature review most common methods that EE utilized fall under the categories: supplied response, selected response, oral, and practical.

Next, the subjects were categorized. The most common subjects that appeared in the literature review were: Language Arts, Math, History, Gov. Studies, Religion, Hard Sciences, foreign language, and English. Language Arts in this database is considered to be the language of

instruction in K-12, native, national, and official language that is spoken in each country. An example of this can be found in the *French Baccalaureate*, the EE that students in France take. In the *French Baccalaureate* students are tested on their abilities to speak, comprehend, and write in French which is the official language in France. The category “Foreign Language”, did not include. If English was a subject that was offered, it was noted as a separate category. Government studies included subjects such as geography and civics where students are taught about their government and the rights they have as citizens. Religion included subjects related to theology and philosophy.

Next, there were three columns that were designated to add extra notes and information that could not fit the criteria of the other columns. As data collection progressed, it was found that European countries, particularly in eastern Europe, would also assess students in physical education. It was also evident countries in SSA would require students to have field experience as a part of the EE. This method of assessment was noted as “practical” and the types of fields of experience were entered in the notes section. The notes section was only used to understand forms of outliers and has been deleted in the final database as seen in the appendix.

Next, the remaining columns were used to keep track of sources used to find information for that specific country and were also text entries. The source section was only used for data tracking purposes and has been deleted in the final database as seen in the appendix.

Many countries that were included in the database provide students with an option of which EE they would like to take. An example of this can be found in multiple countries in Africa where students have the option to take a regional exam, Cambridge International Exam, or a national exam. For situations like this, the national exam was chosen in order to better understand the differences and similarities between the countries. In situations where there are

two national exams that qualify students for higher education, such as in the United States where students can choose between the Scholastic Aptitude Test (SAT) or the American College Test (ACT), the exam that is most commonly used by HEI was elected. In the case of the United States, the SAT was looked at.

Exams are constantly being reformed for a number of reasons. The data that has been collected used the most up-to-date documents that were available to the public. At times, the documents that were looked at may have been contradicting in terms of what subjects are tested, what assessment methods are used, and if the exam is needed in order for students to qualify for higher education. In situations like these, documents and sources that were released from the government or a nationally recognized political organization, and were the most recent, were upheld as the definitive word.

Data Entry

Data from the articles and key informants were coded into the databases as: data not found (.), no (0), yes or required (1), and optional (2). An example of (0), Andorra does not hold a national EE, therefore has a 0 noted in all the categories. An example of 1, Zimbabwe has a 1 noted under the secondary completion category because the EE that students take in Zimbabwe presents itself as a document for secondary completion. An example of 2, students in San Marino have the option to be assessed in Language Arts, and therefore have a 2 noted in that category. Once all the data was collected and entered, reliability was conducted by a second reviewer on 5% of the data that was randomly selected which was determined by using the random function in excel (Kaid & Wadsworth, 1989). There were no coding disagreements.

Data Analysis

Document analysis is a systematic procedure for reviewing or evaluating documents (Bowen, 2009) and was used to support data collection. The World Higher Education Database was used in order to gain a broad overview of each country's education system and to see if the government administers a national college entrance exam to assess students for college entry. To ensure the accuracy of what was on the world Higher Education Database was correct, official government sites were used to check if there was a national college entrance exam and to gain further understanding of the assessment. These other sites would also provide information regarding what assessment methods were being utilized, subjects that were tested on, and any other information that was needed regarding the exam. This list of countries was then compared to the list of countries identified in the World Higher Education Database. Key informants who were nationals from other countries and experienced the education system also supported by providing information for data collection. Key informants supported in instances where the author knew someone that could support with enhancing the information on a specific EE.

During data collection, a number of lexical equivalent terms were found. An example of this is “National”, which is used in a number of EE in India. The national exams in India are dependent on a number of factors such as the subject, the student’s secondary education institute’s accreditation board, which HEI the student would like to apply to, and a number of other factors. Government officials in India, however, have begun conversations about the possibility of introducing a national exam (Nandi, 2022). Therefore, exams in India and other exams that use “National” but do not require every single student applying for admission to a HEI, were not used. Similarly, the term “diploma” and “high school certificate” also varied in what they entailed. “Diploma” and “high school certificate” are more commonly thought of as

certificates of secondary completion which are not monitored and mandated by the national government. Due to the fact that certain governments require students to take an exam at the end of secondary education and use that exam as a qualifying exam for higher education, the exam, at times, is referred to as a “diploma” or “high school certificate” because it shows that a student has completed secondary education. To ensure that the terms and exam names were standardized national exams, government websites were used to confirm this.

Analysis Methods

A mixed methods approach was used for analysis. Descriptive statistics were used in order to analyze and in order to understand the trends in various subjects and methods in which they are assessed around the world. When all the data was entered, frequencies were calculated in order to see how many were in each category. Thematic analysis was used in order to compare the trends of subjects and assessment methods in order to gain insight into how exams reflect the values of the education system.

Limitations

The data for this study only used countries that are recognized by UNESCO and the World Higher Education Database. These two sources are most commonly used and understood, and therefore the information used from these sources supports further policies. This does, however, only limit the study to a select number of countries. There were also difficulties in translating documents to English. Documents and information that could not be translated or if it was not provided in English could not be utilized in the study. Translation challenges may have also factored into why certain exams were called a “diploma” or a “certificate” when those documents were also an exam.

My prior understanding of what a “diploma” and “certificate” highlight my own positionalities as a researcher and is just one example of where my prior knowledge and understating may have influenced the data entry (Kvale & Brinkmann, 2009). To mitigate these impacts, an outsider researcher did complete reliability and there were no disagreements between the coding. Yet, the reliability was only conducted randomly on 5% of the data and not the entire set.

Chapter 4

Analysis and Discussion

This chapter will go over the trends and provide an analysis and discussion of what the trends suggest by answering the two research questions:

1. What forms of knowledge are most commonly tested across the world as reflected in HEI entrance exams?
2. What are the most common methods used in HEI entrance exams around the world?

The first section will provide an overview that was a result of the descriptive statistics.

Second, there will be an analysis on each individual AOK and how assessments display AOK that are valued. Third, there will be an analysis of the methods used in HEI entrance exams and discuss how assessment formats reflect societal values and needs. Fourth, there will be an analysis of the regions by highlighting specific trends and their implications. Fifth, the section will go over how forms of exams of moved to different regions. The last chapter will look at alternate methods of admission other than EE that are utilized around the world.

Overall Descriptive Statistics of the EE Database

The total number of countries that were looked at in the database was $N= 197$ these countries were compiled using the UNESCO and World Higher Education Database as described in the Methods Chapter. Of these 197 countries, 119 countries had an exam that students were required to take in order to qualify for tertiary education. Therefore, the final number of countries that are looked at in the analysis is $N = 119$. Of these, 113 countries, about 95%, use the EE as a marker for secondary completion. There are some countries where information was not found, therefore causing some of the below numbers to not equal 100%. The database in its entirety can be found by accessing [this link](#), which can also be found in the appendix.

Analysis of Area Of Knowledge

The form of knowledge that is tested most commonly across the world as reflected in EE is Literature. Literature is the most commonly tested area of knowledge and is either mandatory or provided as an option for students on 107 EE, nearly 90%. There are 80 EE, about 67%, where it is mandatory for students to be assessed in the AOK and they do not have the option to opt-out. This shows that the majority of countries see the need to test students for literacy in the national language of instruction. There are 10 countries that do not offer the option for students to be assessed in Literature. A majority of these 10 countries have EE that only assesses students using a selected response method. In contrast, the majority of the countries that do assess students in Literature provide students the option to be assessed in a supplied response format. In order to incorporate a supplied response format, countries need to have the appropriate resources in order to do so which can require higher funds. Additional costs and resources that are needed in order to have a supplied response format are supplies for the students to write their responses on, time administering students while they are being tested, and resources to evaluate students' responses (Matta et al., 2022). Seeing that nearly 90% of the EE looked at in this study assesses students in Literature, there is a clear need and value to assess students in Literature. The countries that are not testing students in Literature are primarily countries in the global south and lack adequate funding to assess students in literature further continuing and are unable to break the cycle needed to academically succeed on a global scale. It should therefore be noted that a country may understand the value and need to assess students in this AOK, but not have the adequate resources in order to do so.

Math is either mandatory or provided as an option in 99 countries' EE, which is about 83%. In 75 EE, about 63%, Math is not considered an option, and it is mandatory for students to

take it as a part of their EE. Every country located in South Asia, North America, and Middle East, and North Africa, mandate their students to take Math as a part of the EE which shows that it is valued in these regions. There are 19 countries, about 16%, that do not have the option for students to be assessed in Math. 6 of these countries are in ECA, 8 are in SSA 2 are in MENA, and 1 is in EAP. All 19 of these countries, however, require or provide students with the option to be assessed in a foreign language. 73% of these countries also require or provide students with the option to be assessed in Literature. This shows that Math skills are not as valued in these regions, but rather, value and need skills associated with individuals having skills in languages. These countries, other than France, are all located in the global south.

Foreign Language, other than English, is either required or provided as an option in 88 countries' EE, which is about 74% of the countries. This is inclusive of 12 anglophone countries. 49 countries, about 41%, require students to be assessed in a foreign language and do not provide an option. There are 26 countries, about 22%, where students are not assessed in a foreign language. 1 is in NA, 4 in ECA, 10 in MENA, 4 in SSA, 3 LAC. There are 11 countries that do not provide students the opportunity to be assessed in English. 1 is in SA, 1 is in MENA, 6 are in ECA, 1 is in LAC, and 2 are in SSA. There are 7 countries that do not require or provide the option for students to be assessed in a foreign language or in English. 2 are in LAC, 3 are in ECA, 1 is in SSA, and 1 is in EAP. There are 9 countries that do not require or provide students with the option to be assessed in a foreign language or English. 2 are in LAC, 4 in ECA, 1 in SSA, 1 in EAP, and 1 in NA.

There are 86 countries where students have the option or are required to be assessed in English. 50 countries require their students to be assessed in English. There are 18 countries where students do not have the option to be assessed in English. Out of these 18 countries,

however, 11 countries do require or provide students the option to be assessed in a foreign language.

There are 14 anglophone countries identified in this study, and 12 require or allow students to be assessed in a foreign language. Of these 12, 3 countries require students to be assessed in a foreign language. There are 2 anglophone countries, The United States and San Marino, that do not require or provide students with the option to be assessed in a foreign language on their EE.

Looking aside from the 14 anglophone countries, 86 countries, which is 81% of the countries that are not anglophone, also value and see the need for students to be assessed in English. This data makes it evident that English is a highly valued AOK and is needed for students to have competence if they wish to compete late in the global economy. This data further suggests that having competency in any foreign language is valued and needed, considering that 84% of the countries require or provide students with the option to be assessed in a language other than their language of instruction.

Hard science is either mandatory or provided as an option in 102 EE, about 85%, showing that a majority of countries also see the value and need in assessing students in this AOK. Three of these countries have a EE which requires students to be assessed in a supplied response format, and one country, Afghanistan, uses a EE where students are required to answer questions that are formatted as the selected response. In 59 EE, about 50%, students are required to be assessed in hard science as a part of their EE. All the countries in the regions in South Asia and the Middle East and North Africa require EE to assess students in Hard Science, showing that it is valued in these regions of the world. There are 15 countries where Hard Science is not

provided as an option for students to be assessed on. 7 countries are in SSA, 2 are in LAC, 4 are in ECA, 1 is in EAP, and 1 is in NA.

History is required or provided as an option for students to be assessed in 85, about 71%, different countries' EE. 39 countries, about 32%, require students to be assessed in History. There are 14 countries, about 12%, that do not have the option for students to be assessed in this AOK. 8 are in SSA, 3 in ECA, 2 in EAP, and 1 in NA. As explained in the methods chapter, History as used in this typology covers a wide range of topics, the EE for Ukraine specified that it did not look at World History and only assessed students on national history.

Government Studies is required or provided as an option for students to be assessed in 85, about 71%, different countries. Although History and Government Studies both have 85 countries that assess those AOK, the 85 countries are not the same. 27 countries, about 23%, do not allow students the option to be assessed in this AOK. 3 are from LAC, 2 from MENA, 3 from EAP, 6 from SSA, 7 from ECA, and 1 from NA. Of these countries, 25 out of 27 countries also do not assess students in Religion. The two countries that do assess students in Religion but not in Government Studies are, Afghanistan and Iran. This data shows that providing the students with the option to be assessed on topics related to the government is an AOK that continues to have disagreements. There is no region where all countries require or provide students with the option to be assessed in topics around their government, though all countries, clearly, have a national government that will be managed by upcoming generations. The majority of these countries also view religion through the same lens, as an AOK that is not needed or valued enough for students to access HEI.

Religion is required or provided as an option for students to be assessed in 60, about 50%, different countries. 51, about 43%, of countries do not assess students in Religion. There are 28

countries that require students to be assessed in Religion. 14 countries are in MENA, 12 countries are in SSA, 1 is in LAC, and 1 is in SA. Of the 28 countries that require students to be assessed in religion, there are a total of 8 different forms of the same exams. About 39% of the countries (primarily in the MENA region) use the *Tawjihiya*, or an exam similar to it. The remaining countries use or mirror the *French Baccalauréat*, *Kankor*, or a regional exam. The two countries that use exams that are specific to their country and not used elsewhere are Somalia and Sudan. The two dominant regions, SSA and MENA, are geographically close to one another and may contribute to overlapping similarities in culture and religion.

Assessment Methods

Exams are formatted in ways to ascertain certain information that governments see as valued and in accordance with societal needs (Wantanabe, 2015). This can be seen through the *Keju*, the first exam noted in history, which tested individuals seeking to fill high-ranked government positions on their knowledge and ability to follow Confucian values. This was achieved by asking individuals to answer questions about Confucian values and was designed in a way that was considered rigorous and could only be achieved by those who were disciplined and truly embodied the values. Below is an analysis of the assessment methods used in EE around the world. The section begins by providing an answer to the second research question looking at which assessment format is used most commonly around the world, then continues to provide an analysis of the other assessment methods.

The most common method used in EE was supplied response. There are 81 countries, about 68%, that have an EE where Supplied Response is mandatory or provided as an option to students. Out of the 81 EE, 80 of the EE have at least one portion of the EE where students are required to answer questions in a supplied response format. The only country that provides

students with the option to respond using a supplied response format is Uganda. 12 of these countries have a EE comprised entirely of supplied responses and students do not have the option to take the test in another format. It should be noted that 7 of these countries use the General Certificate of Education Advanced Level Examination GCE A-level Exam and 2 countries use an adapted version of the French Baccalaureate.

This goes to show that supplied response format is seen as valuable, as 68% of countries utilize it in some format in their EE. Yet only 12 countries, which is 10%, have an EE that is comprised entirely of this format. Of these 12 countries none of them are located in SA, NA, and MENA. For an EE to be comprised entirely in this format, requires extra funds from the government to develop, administer, score, and other related costs. A supplied format of assessing takes more time to assess than an exam that includes or only utilizes a selected response format. This then creates time constraints on governments in order to quickly, efficiently, and accurately score exams which is not feasible and desirable in countries where there are a large number of students sitting for EE.

The second most common method used in EE was selected response. There are 70 EE that requires or allow students the option to provide answers using a selected response method. Out of the 70 EE, 68 EE require students to only answers questions using the selected response method. Croatia and Uganda are the only countries that allow students the option to answer questions in a selected response format while also using other formats for assessment of their EE. There are 29 exams comprised entirely of selected responses and students do not provide students the option to answer questions using another method. All of these countries, except for Ireland, are countries from the global south. Of these 29 EE, 90% serve as a secondary leaving certificate and are exams that were developed by the country itself. A reason for this could be

that a country may choose to develop an EE for HEI that is curated for the country's needs and reflects the individual country's needs and values. It could also show that the country does not have adequate resources to mirror or use other forms of assessments used in EE from other parts of the world. Ways in which entrance exams reflect cultural values is later explained in this chapter.

There are 38 countries that require or provide students with the option to be assessed using a practical assessment method. Of these 38 countries, only 2 countries provide students with the option to be assessed in this format, Spain and Uganda. There is no country from South Asia that uses this format. The majority of these 38 countries are from SSA or ECA. The majority of these 38 countries use the French Baccalauréat or an exam using a similar format and incidentally are former French Colonies. Many of the countries in these regions place great value on and require students to choose a trade that they will be assessed on for the practical assessment portion of the EE. The practical component of the Baccalauréat in many of these regions requires students to produce a product or display a tangible skill. This shows that a high value that is placed on the ability to have a trade or skill that can eventually contribute to society.

There are 35 countries that require or allow students the option to be assessed using an oral form of assessment. Similar to the practical format, Spain and Uganda are the only two countries that do not require but allow students the option to be assessed orally. Typically, oral exams are used to assess students in a foreign language. Germany is the only country that utilizes an oral format on its EE but does not assess students in English or a foreign language. This does show the importance that Germany then places on their language of instruction. Like the practical format of assessment, no country from South Asia assesses students orally and only one

country from East Asia Pacific utilizes an oral format of assessment. The reason behind this may have to do with the concept of meritocracy that began and spread in China where a person is judged based on just their academic capabilities and where it is not associated with a person's identity and allows the student to remain anonymous to the evaluator. If a student is being assessed in a practical or oral format, it requires an evaluator to assess the student at that time which removes the idea of anonymity. Utilizing assessment methods where an individual is able to remain anonymous can be achieved in a selected or supplied response format.

Depending on the country and the exam, the format of the exam may have been established due to previous colonizers or is formatted in a specific way in order to reflect the values, societal needs, and academic goals of that specific country. The exam format that countries in EAP and SA utilize is an "assessment for selection" which assesses how well a student is able to maintain and follow a set structure. The countries in the EAP have been heavily influenced by Confucian values beginning in China and later spreading through the region and guided by the values of structure. Similarly in SA, where HEIs were first established. Whereas the countries in NA and ECA assess students for "assessment for learning" which assess a student's learning, critical thinking, and creativity abilities (Jeynes, 2007). The countries in this region value the idea of innovation over tradition and want to ensure their exams assess students for their ability to innovate.

Unlike Asia which focuses on maintaining and building on established traditions, Latin America and the Caribbean (LAC) look north and west to mirror and implement reforms in creating EE. Spain, a prominent colonizer of many countries in LAC, also utilizes a version of the French Baccalaureate, and consequently, countries in LAC have EE that mirrors the French Baccalaureate. To this day, countries in LAC have continued to utilize the French style

Baccalaureate as an EE which was established to reflect the values and needs of the labor market in France, a country starkly different than those in LAC. It can be argued that the Baccalaureate style EE that are used in countries in LAC have seen a number of reforms since when their colonizers first implemented the exams in the countries. However, the reforms that have been made to the exams stem from an EE that were implemented by colonizers from a country that is vastly different than those in the LAC region. Furthermore, many of the reforms which are made, lean on guidance and advice from countries in the north and west. Many of these reforms have been shown to mirror the negative effects of EE of further advancing and educating students from high-income families and failing to include students from low-income families. These reforms, therefore, continue to perpetuate the cyclical cycle of assessing students for values and needs that are not a part of the individual countries (World Education Network, 2016).

Along with having a heavy influence from countries in the north and west, Brazil's reforms also play a large role in influencing education systems around the region. Though Brazil is a part of the LAC region, the education system in Brazil is considerably different from the rest of the region. Regardless of whether the reforms are successful or not in Brazil, neighboring countries tend to adapt the reforms into their own systems. The rule of "No demand, No training" which was brought up in Brazil, forced the idea and need for innovation, a western concept, within the labor market and in the education sector (de Moura Castro & Verdisco, 2002). The idea of innovation, however, encouraged Brazil and other countries in LAC to begin assessing students on EE in AOK such as technology and computer science which are seen as subjects leading innovative ideas in the world (Mustapha et al., 2022).

Similar to LAC, SSA places a higher value on what a student is able to produce for the good of society. Much of what is needed in SSA is proficiency in a trade. This is shown through

their EE as the countries in this region assess students in a trade that the student chooses in secondary education using the practical method. A large majority of countries in this region are also former colonies and still see the lingering establishments of either the British, French, or Portuguese. Unlike LAC, however, it can be ascertained that countries in SSA look at one another to create regional alliances and build on reforms through the needs that are needed in the regions. For example, Nigeria allows students the option to be assessed on: carpentry and joinery, upholstery, painting, plumbing, welding, woodworking, mechanic, and bookkeeping (Wangare, & Simwa, 2022). Similarly, Ghana, requires students to be tested on their own “program of study” which is when a student goes and finds their own field study to explore. There are a number of other subjects such as Physical Education, Home Economics, and Technology that arose during data document review, but are not noted in the database, which furthers the confusion about what AOK must be assessed.

There are a number of other areas that entrance exams fail to assess in students, areas that are deemed equally as needed in order to succeed in college (Russel, 1903). Every EE is intended to reflect the values of the respective country. For example, the region of Europe and Central Asia incorporate values formed from their neighbors in East Asia and Western Europe. This can be seen in the case of Belarus when the Deputy Prime minister stated that the EE test for “stress resistance” since students have to go through tremendous amounts of stress to prepare for the exam and then even more on the day of the exam itself (Freeman, 2023). Incorporating the idea that individuals have to compete with one another on the basis of merit, valued highly in East Asia, but to do so in a way that is physically demanding, values from Western Europe.

Analysis by Region

All forms of academic exams communicate the messages of particular academic ambitions and depend on what society deems as knowledge worth. Exams, “express, inculcate and consecrate the values linked to a certain organization of the educational system” (Claude-Passeron & Bourdieu, 1977, p. 143). Many times a country’s government decides what the societal values and needs are, or should be, and influence EE accordingly. This can be seen through policies like numerous clause which allows the national government to dictate every admission cycle whether or not there is a need for a EE, and if so, in which subjects and, at times, the exam format. A number of countries have implemented this policy in all regions of the world. This next section is an analysis of the seven regions of the world in regard to the common trends found within each region.

There are 8 countries in South Asia (World Bank, 2023), and 4, about 50%, have a EE: Afghanistan, Bhutan, Maldives, and Sri Lanka. As former British colonies, the Maldives and Sri Lanka both use the GCE A-level examination system. Afghanistan and Bhutan have an EE that is unique to their individual country. All four of the countries require students to be assessed in a foreign language, Literature, Math, history, and hard science. Afghanistan is the only country that does not assess students in English or Government Studies, instead is the only country that requires students to be assessed in religion. Although the EE in Afghanistan does not assess students in English, public HEI in Afghanistan uses English as the language of instruction and requires students to provide academic documents, such as further exams needed for individual HEI, demonstrating the student’s proficiency in English. The private HEIs’ language of instruction is usually in local languages, Persian or Pashto, and typically does not require further exams.

There are 53 countries in Europe and Central Asia (ECA), and 32, about 60%, have a EE. None of the EE in these regions require students to be assessed on religion. There are 11 countries that do, however, provide students with the option to be assessed on religion. When comparing supplied response to just selected response, in this region, 15 countries have an EE where students only have the option to take a EE in a Supplied Response format. There are only 8 countries that have a EE where students only have the option to take a EE in a selected response format.

There are 33 countries in East Pacific Asia (EPA) and 13, about 40%, of them have a EE. All the EE test students on Literature. The only country that does not test students in Math is Laos. Laos is also the only country that does not test students in English. The South Korean EE is the only one that does not serve as a secondary leaving certificate and does not test students in Hard Science. Fiji allows students the option if they would like to be assessed in a foreign language or English, and only requires students to be assessed in Hard science. The EE in Fiji is comprised entirely of selected responses.

There are 49 countries in Sub-Saharan Africa (SSA), and 33 countries, 67%, have a national EE which is all also secondary leaving certificates. The majority of exams mirror the French Baccalaureate format by requiring students to respond to questions using a supplied response, practical, and oral format. 30 Countries require or provide the option for students to be assessed in English. Of these 30 countries, 6 countries only assess students in English and require their students to be assessed in English. Guinea is the only country that does not assess students in English or a Foreign Language. Along with providing documentation that a student has completed secondary education, many of the EE primarily serve as a document to display English or language proficiency. HEI within this region typically have individual admission

processes and therefore the national EE in this region is primarily language assessments. Students in this region, however, are assessed in a trade or vocational skill of their choice. A majority of EE in SSA only assess students in English or a Foreign Language to show HEI that a student has proficiency in English.

In the Middle East and North Africa (MENA), every EE is also a secondary leaving certificate. Every country requires or provides students with the opportunity to be assessed in hard science. Every country, aside from Morocco which provides students to option, requires students to be assessed in a foreign language or English. Iran is the only country that does not test students in English and is also the only country that only tests students using a selected response format without providing the option for students to be assessed in a supplied format. Djibouti is the only country that does not test students in Literature. Iran and Djibouti are the only two countries that do not test students in Government Studies. As for religion, Algeria is the only country that does not test for religion, Chad is the only country that allows students the option to be tested on religion, and all other countries require students to be tested in religion. Malta and Iran are the only two countries that do not test students using a supplied response format. Algeria, Malta, and Tunisia are the only countries that do not test students in Math. This data shows that the majority of this region assesses students in the same AOKs and methods. Though this region is spread geographically across 2 continents, there is strong agreement among the countries in terms of what students should be assessed in.

In Latin America and the Caribbean (LAC), there are 33 countries but only 17 of them have a national standardized EE which also serves as a secondary leaving certificate. Only the Bahamas and Haiti utilize and require, the practical method format to assess students. Haiti is also the only country that utilizes, and requires, the oral method format to assess students. Every

country requires or allows students the option to be assessed in Literature, Math, and History. Cuba, Ecuador, and Suriname are the only three countries that do not test students in Government Studies. Cuba and Ecuador are also the only two countries that do not test their students in Hard Science.

In North America (NA), there are two countries: Canada and the United States. Both countries test students using the supplied response format. Both countries also test students in Math and Literature. Canada, being a former French colony, uses an EE that is similar to the French Baccalaureate.

This is the only region in the world where 100% of the countries have a national EE for HEI. Both these countries, however, have EE that incorporates different assessment methods and assesses different AOK. Canada uses the Baccalaureate and the United States uses the Scholastic Aptitude Test (SAT). The only overlapping similarities are that both exams assess students using a supplied response format and both exams assess students in Math and Literature. The Baccalaureate that Canada uses, however, tests students in a Foreign Language, English, Literature, Math, History, Government Studies, Religion, and Hard Sciences. In terms of assessment methods, the United States only uses selected and supplied response methods to assess students. Canada's EE only assesses students with the assessment methods practical and oral.

Implications on Non-Consensus

When looking at AOK, there is no common consensus on what needs to be tested, and how students should be tested in order to access higher education. The most common AOK that is assessed by only 80% of EE by providing the option or requiring students is Literature. By not having a common consensus it is evident that there is a lack of knowledge and understanding of

what AOK are considered to be imperative for students to achieve academic success, and how best to assess students. Other than North America which consists of only two countries, there is no region where every country utilizes a national EE. Looking at the countries that have a national EE, there isn't a single AOK or method of assessment that is used by every country. This can largely be due to the fact that many of the EE serve also as secondary education completion exams and there are great differences in secondary curricula from around the world.

By not having any commonalities on EE, a number of inconsistencies and confusion regarding the purpose and responsibilities of higher education are brought up. For starters, it creates challenges in conducting comparative analysis on a number of levels when there are these fundamental inconsistencies. One example of this arises when students are choosing where they are able to submit their EE as a part of their application. One of the benefits that students are able to avail in a country where there is national EE is the ease of the application process. If HEI all agreed on ensuring commonalities as a part of the EE, it would allow students to submit EE to additional HEI. This can be seen with the French Baccalaureate where, in addition to their country's national EE, many HEI will also accept the French Baccalaureate as a part of the admission application. Conversely, having a variety of EE that assess various methods and AOK highlights the cultural differences in values and invariably allows for different ideas, thoughts, and innovations leading to growth. It is evident that there are certain AOK that will be more valued in certain regions of the world more than others, and therefore would only appear in certain regions and not others.

Secondary Education Certificates

The only common application material that every HEI has agreed on is that individuals need in order to access higher education is documentation that the student has completed

secondary education. What this form of documentation entails can look different depending on the country. Some of the EE are documentation of secondary completion, other times HEI may require a separate document proving the student completed secondary education. In countries like the United Arab Emirates, HEI requires students to provide proof of a secondary completion certificate showing classes where the student has learned Arabic, English, and Math. It is up to individual HEI to assess the proficiency level and any additional subjects that the student would need for particular institutes (WHED, 2023). In the Philippines, in lieu of an EE students must provide a “certificate of good moral character” provided by their secondary education institute to mark successful completion. This certificate is created by the student’s secondary school and states the rules and regulations set by the school that the student adhered to which include academic honesty, bullying, and class attendance (Bukas, 2022; WHED, 2023).

Many times HEI requires documentation that a student has completed secondary education for the sole purpose that the student is academically prepared for post-secondary education. This documentation, however, can serve a number of purposes depending on the country in addition to proving a student’s academic levels. There may be a variety of reasons that HEI may choose to rely on a secondary completion exam as a part of the documents needed for admission. On a macro level, countries that mandate students to complete a secondary education exam are able to monitor and compare the education levels and content being delivered within regions throughout the country. Scholars have, however, argued that secondary completion certificates are a low-cost method to allow education systems to appear to larger political organizations, such as UNESCO, they are meeting their education goals by providing equitable educational opportunities to higher education. Though it may seem that HEI are saving funds by

not having not fun EE, there are then increased costs ensuring the student is academically prepared for classes at the institute (Smith, 2003).

Typically, all HEIs have a form of entrance exam or method to assess students applying for admission, however, there is no consensus on what area of knowledge or method is the best predictor of allowing students to attain academic success. It can be challenging to create a standardized admission process due to the number of cultural and societal differences, even within individual regions.

The Mobilization of Exams

In addition to reflecting a country's values, the AOK and methods of assessments also reflect a country's historical events. The General Certificate of Education Advanced Level Examinations (GCE A-Level Exam) originated in the United Kingdom, known as the "A-Level Exams", are exams based on individual subjects that students typically will take after studying the subject for two years. Today, the GCE A-level exams are the most commonly accepted form of exam accepted worldwide (Crimson, 2022). Countries and examination boards from around the world have taken the GCE A-level exams and adapted them to fit the needs of their individual country (CITL, 2023). For example, the Cambridge International Examination Board administers A-Level exams and has regional teams where that are able to administer exams: North America, Latin America, Europe, Sub-Saharan Africa, Middle East & North Africa, South Asia, Pakistan, East Asia, Southeast Asia & Pacific (Cambridge International, 2023) Similarly, the French Baccalaureate is accepted by a large majority of countries due to, what is perceived as, a rigorous testing method because it spans over two years. Today there are over 28 countries that have adopted or utilized the Baccalaureate as their EE. The majority of these countries are located in Sub-Saharan Africa.

The spread of both of those exams was due to colonization. After colonizing a large majority of the continent of Africa, France, and the United Kingdom heavily influenced the culture and development of the education sector in many countries. This can be seen where 10 out of the 21 countries that do have a form of a EE in SSA, are either a form/variation of the A-Level exam or the Baccalureate. Having colonized many other regions of the world, the UK and France have influenced nearly 40 countries in the world because those countries use the A-level or baccalureate, or an exam that mirrors that. The educational values that the UK and France established in the countries that they colonized continue to perpetuate their own ideas and values and fail to take into account the ideas and values of the colonized countries.

Other Methods of Admission

It has been shown that exams conducted by a third party can be more harmful than they are beneficial to the student and the college looking to admit the student (Russel, 1903). Many HEI, therefore, conduct their own EE. There are 78 countries that do not have a national EE created or adapted by their own country. The majority of these countries, however, can accept the Cambridge International Exam, or the EE that is created and accepted by other countries in their region (WHED, 2023). The countries that do not accept a combination of these exams have an admission process that is individual for the needs of individual HEI. Many times, HEI in these countries, as done in the countries mentioned in this study, requires students to submit a combination of a portfolio of their work, interview, write personal statements, and other supporting material and documents. These 78 countries are spread out in terms of geographical location. Though none of these countries have a national EE that tests the areas that were looked at for this study, there are still other ways that HEI from around the world assess students to see if they are prepared to enter higher education. An example of this can be seen in Argentina where

admission requirements vary depending on what the student is pursuing in terms of institution, AOK, and level of education (World Education Network, 2016).

Government officials in India and Tajikistan are also attempting to pass policies and reforms to introduce national EE (Nandi, 2022; WHED, 2023). While at the same time, Taiwan implemented a system in 1998 announcing that students would not be required to take a EE after a number of failed reforms. In the UAE, students' high school transcripts must show that they have proficiency in Arabic, English, and Math. Belgium, though it is one country, also has three individual communities that all of their own separate education systems: French, German, and Dutch. Each community does require students to have a secondary diploma as a part of the admission process, but neither community requires students to take a national EE. Australia is the only anglophone country that does not have a centralized EE and instead, requires students to submit application material needed for individual HEI.

EE looked at in this study are *qualifying exams*, meaning that a student must submit scores to the HEI's country where they are seeking admission in order to qualify for admission. Some of these exams, depending on the system they serve, may also embody elements of competitive exams. Later, students may also be required to take an exam that is particular to that HEI in order to qualify or be considered competitive for a particular institute. This can be seen in the United Kingdom where students wishing to pursue an education in prestigious universities such as Cambridge University or Oxford University, would be required to take exams created and administered by those individual universities. Similarly in France, high-ranked universities, *Grandes Écoles*, require students seeking admission to take an exam created and administered by these institutes.

Competitive exams also students to access certain AOK depending on their scores. An example of this can be seen in Afghanistan where students are required to score high on the *Kankor* in order to study engineering, medicine, or psychology. Students who do not score enough to qualify for admission into HEI go on to study education and pursue a degree in teaching and education at Teacher Training College (TTC) (Bamik, 2019). Sorting students based on the score that the student makes it evident which areas of knowledge are considered more valuable than others. Austria, though the country does not have a national standardized college entrance exam, requires that the Teacher Training College have a separate EE which consists of fewer subjects and questions compared to college entrance exams that other universities are required to administer to applicants (BMBWF, 2016). This furthers the notion that those who aspire to study Education and are gaining knowledge to become teachers are accessing and being provided, the lowest valued AOK.

Countries can implement policies such as *numerous clauses* to also heighten the differences in values between AOK. Israel, for example, is one of the countries that has a *Numerous clause* policy that only the elite and those who can score the highest scores designed by the government are able to access certain fields or programs of study such as: medicine, dentistry, veterinary medicine, engineering, management, and psychology. The Israeli government continues to limit the number of students that can be admitted into these programs, even when HEI administrators claim to have the resources and are urging more students to apply for their programs (Admission process in Israel, 2022). Italy and Germany also both incorporated numerous clause policies in their admission process to HEI and have faced backlash criticizing the policy exacerbating differences in the values of different AOK.

Common fields and programs of study that require students to take further competitive exams include: Engineering, medicine, dentistry, and veterinary. In many cases, students who strive to have a career in the medical or engineering field must receive a competitive score on the qualifying exams when compared to their peers or take further exams as required by individual HEI. At times, countries also have separate national subject exams. For example, in India, students who would like to pursue engineering as a course of study in higher education must take the Joint Entrance Examination Main (JEE Main), usually as a pre-exam in order to qualify for individual institutional exams. If students then would like to apply to the top-ranked institutes in India to study Engineering, students must also then take the JEE Advanced (Saharan, 2022).

Due to the number of debates and equitable barriers brought on by EE, some countries have adopted a lottery system to admit students into HEI. In broad terms, this means that students who wish to be admitted into a HEI, submit an application and the government randomly assigns students to a HEI. There are 4 countries that utilize a lottery system in addition to requiring students to take an EE: Turkey, the Netherlands, New Zealand, and Ireland (Kamenetz, 2019, O'Brien, 2022). Students in these countries are still required to take an entrance exam, and those who achieve a certain threshold considered acceptable by the government, are then entered into the lottery system. This system is constantly debated among citizens and government officials in all countries if it truly addresses questions on inequality.

Chapter 5

Conclusion

This chapter provides a conclusion for this study. The first section briefly summarizes the findings and how they relate to the research questions. The next section looks back at the original intent of what exams assess for and why they were implemented. The next section discusses reforms that have taken place and what those reforms and the implications of the reforms. The next section looks at the future of EE and possible changes that may be brought about. Lastly, the chapter concludes with future research questions that scholars can research.

Summary of Findings

This study shows that there is no agreement among countries and HEI around the world about what AOK is deemed necessary or imperative for a student to have, nor is there an assessment method that can determine that. Though higher education is universally acknowledged, the concept of what AOK students need and the method on how to assess students in order to access higher education has no universal agreement. This, in turn, causes confusion about what HEI are responsible to contribute to its' immediate society and the world at large. Reforms and changes that countries make to their EE are done in hopes to alleviate problems and enhance entrance exams, but it is unclear as to what countries need to be striving for. Whether regions should look to themselves or their neighbors. Countries in SSA look to one another and have formed regional exams reflective of what their needs are as determined by social and cultural values. Yet many of the EE in this region do not assess students in English which is needed for students to succeed and learn from outside of their individual regions. LAC creates reforms and implements changes in their counties to mirror what is established by looking north and west and fails to realize the needs and values of their own countries.

Intent of Entrance Exams

The entrance exams looked at in this study reward students based on the idea of *merit*, defined by what individual countries find valuable and worthy. The concept of merit stems from Confucius' value which saw its inception in China in the early second century B.C.E. Using merit as the principal criterion for selections stems from its philosophical connection with equity and allowing people to progress on something that was not based on their social class status (Li & Hayhoe, 2012). Given that the entrance exams have been developed by government leaders, the exams are more appropriate for assessing what is valued and counted as cultural capital. When looking at the history of any college entrance exam and the respective country's history, it then becomes evident that merit can only be defined as arbitrary (Sadler, 1994).

College entrance exams, particularly "one-shot" entrance exams where students are forced to sit for one exam to qualify for tertiary education, strain students by placing them in peculiar positions and placing a premium on what success should look like (Taxler & Townsend, 1953; Russel, 1903) There are other college entrance exams, one example is the French Baccalaureate, which allows students to complete a series of assessments over two years but also has a number of barriers.

Scholars have been arguing for decades about the true needs that entrance exams fulfill. Schudson, 1972 argued that the primary need that exams were fulfilling was to only limit the number of students that were admitted into higher education so that institutes, otherwise institutes would have a difficult time maintaining their quality of education. Decades later, scholars continue to question the inherent need for an entrance exam stating that exams are a necessary evil and are inherently a barrier, but one that is intentionally put into place to fulfill certain needs (Roediger et al., 2011).

Functions and Reforms

In cases where HEI are not constrained to a limited number of seats, and the number of seats open for admission is greater than the number of students applying, students qualify for higher education by taking the EE and are not forced to compete with one another for a seat. This can be seen in South Korea where students who take the *Suneung*, the EE required for admission (Peterson, 2021). In other scenarios, such as in China where students take the *Gaokao*, EE functions more than just as a qualifying exam, they are also a competitive exam. Students in China who take the *Gaokao* are competing with one another to see who can be admitted into top-ranked HEI or are able to access certain areas of knowledge. Competitive exams are common when seats are scarce or in systems that are hierarchical and built on prestige.

When attempting to make reforms, it is important to note why that reform is being made and for what purposes, and more importantly, understand the consequences of those reforms. If the goal is to achieve universal access to higher education, it is important to look at what are the barriers to higher education that are causing that specific barrier. In this case, there are a number of barriers to achieving universal access to higher education other than just an EE. Some of these barriers include poverty, crisis and emergencies, high tuition fees, exclusive entrance examinations, geographic mobility, and other factors of discrimination which affect students' performance on exams (Vieira et al., 2020). College entrance exams are a barrier instilled intentionally that highlights barriers caused by society. A student may also perform poorly in one college, but well in another because of college surroundings. A student's admission to a college does not always predict how the student will perform or succeed in college.

Future of Entrance Exams

During the Covid-19 pandemic in 2020, and years following the onset of the pandemic, many HEI in the United States decided to become “test-optional”, meaning that students interested in applying to that university would have the option to submit test scores from the national college entrance exam if they wanted to (FairTest, 2022). Many universities decided to make this an option to ensure students would still choose to register and enroll in colleges. Ukraine has also waived testing requirements for students due to the “ongoing military actions” (Ministry of Education and Science of Ukraine, 2022). As mentioned previously there are governments, such as India, that are looking at their neighboring countries and those around the world and may be in the process of making reforms to their higher education examination systems in order to introduce a centralized examination system. Similarly, there are also governments, and more commonly HEI, that are moving toward not mandating students take a EE in order to qualify for higher education.

In the United States over 80% of bachelor-degree granting institutions did not require students seeking admission in the fall of 2023 to submit either ACT or SAT standardized exam scores. At least 1,835 U.S. colleges and universities are now employing either ACT/SAT-optional or test-blind options for the 2023 admission cycle. This would allow students to apply to HEI without having to take or submit EE scores (FairTest, 2022). Of the 1835 HEI that made test-optional policies for the 2023 admission cycle, 1450 HEI have made their test-optional and test-blind policies permanent, this includes many prestigious HEI and all eight Ivy League institutes (Nietzel, 2022). In the U.S. more universities are establishing policies that limit or ignore standardized EE and focusing on more of a holistic admission practice by taking into account activities that students may have done alongside their classes, and tertiary level courses

the student elected to work through while in secondary education (FairTest, 2022). With the number of colleges and universities around the world that extended the deadline, allowed for exams to be test-optional, or eradicated exams in hopes of reform, scholars have begun to question the true necessity of EE as a part of the admission process (Cairns, 2021).

Further Research Questions

This study mapped out the AOK and methods of assessment that are used in EE across the world in order for a student to qualify for admission into a HEI. The data here shows that there is no universal AOK or method of assessment. It would be interesting to understand why that is the case. This study gleaned over the implications and possible reasons as to why that may be the case, but it would be fruitful to have a study exploring this topic further.

There were only eight AOK that were identified and mapped in this study and does not take into account the number of other AOK. There were several EE found during data collection that assess students in AOK related to physical education, an AOK not included in the database for this study. Countries in SSA and LAC also stated the emergence of bringing new age AOK such as technology and computer science on their EE. There are many such AOK that was not noted as a part of this study. There are a number of these new age AOK that are coming onto EE and it would be interesting to also have further knowledge on if there are AOK that are “old age” and should no longer be assessed for on EE and the impacts those reforms have had on society and what is considered valuable.

Candidates who took the *Keju* were tested on their knowledge of the Confucian classics, their ability to write, and the “Five Studies”: military strategy, civil law, revenue and taxation, agriculture, and geography. These AOK were seen as highly valued AOK in China but are no longer assessed for today in individuals wishing to access higher education. It would be

interesting to see the shift in how AOK are valued at different times and how subjects have changed and altered over time. It is stated that these values of uniformity and national goals continue to underlie in exams that are given in the modern day, but the definitions and ideas of uniformity and national goals remain unclear (New World Encyclopedia, 2014).

Although EE are supposed to be reflective of what societal needs and values are, and at times do accomplish this, do the individuals who take these exams continue to further these values in their society, and should the EE continue to assess for these? More importantly, are EE a reflection of the values and needs of society or are they in place to measure how prepared a student is ready for higher education? This would be particularly fascinating to see in countries and regions where there are larger student migration patterns and what, if any, implications that have been created on EE. Many students who are migrating from one country to another where the values are starkly different are forced to be assessed with an EE in a country they are not as familiar with. Data already shows that EE typically favors students from high-income families and students from low-income families are at a disadvantage, it is unclear, however, where students who have recently immigrated perform on these exams in comparison to the other two groups. Would it, therefore, be beneficial to have a universal AOK that all countries should strive for and assess students on EE? The idea of creating a universal EE was briefly introduced through this study, it would be interesting to expand on that idea to see the challenges and benefits of having a universal EE or creating a standardized AOK or method of assessment that would be seen on all EE.

With many HEI, particularly in the United States, creating test-optional admission policies or waiving EE entirely, are EE truly needed anymore, and what purpose is it solving? The intent of exams was brought up through this study, it would be interesting to see if what the

intent of specific EE was and if it is still serving its purpose for that EE. As mentioned earlier in this study, some EE were intended to sort students based on merit, and if HEI are no longer incorporating this into their admissions process, what are the implications of doing so, and what changes would be brought about?

This study provides readers with data from EE around the world and begins to highlight trends that were found. This data can be used in an array of methods to deepen the understanding of the implications of the trends and look for ways in which future changes should be created. These trends were able to be analyzed due to the macro nature of this study. In order to deepen the knowledge on EE, it would be interesting for further research to take a more micro approach examining the different regions of the world, AOK, methods of assessments, or any of the trends highlighted.

Chapter 6

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Appendix

To access the Exam Database, please click [here](#).